NewGen IEDC Project
(New Generation Innovation & Entrepreneurship Development Centre)

Progress & Outcome
(2022-23)

Submitted to:

National Science & Technology Entrepreneurship Development Board (NSTEDB), DST, GoI

Submitted by:

Entrepreneurship Development Institute of India
Ahmedabad

C O N T E N T

Sr. No.		Particulars	Page No.
1		Project Progress and Outcome	1
2		Institution wise progress reports	9
		Progress Report: 2017-18 (Fifth Year)	
	I	Kuppam Engineering College, Kuppam	10
	II	Ramachandra College of Engineering, Eluru	85
	III	Sasi Institute of Technology & Engineering, Tadepalligudem	129
	IV	L. J. Institute of Engineering and Technology, Ahmedabad	177
	V	Manav Rachna International University, Faridabad	230
	VI	B. N. M. Institute of Technology, Bengaluru	273
	VII	University of Science and Technology, Ri-Bhoi	315
	VIII	College of Technology & Engineering, Udaipur	368
	IX	Dr. M. G. R. Educational and Research Institute, Chennai	404
	X	National Engineering College, Kovilpatti	444
	XI	Velammal Engineering College, Chennai	494
	XII	Sphoorthy Engineering College, Hyderabad	556
	XIII	GLA University, Mathura	596
		Progress Report: 2018-19 (Fourth Year)	
	I	Indian Institute of Technology, Guwahati	630
	II	Marwadi University, Rajkot	667
	III	Jawaharlal Nehru New College of Engineering, Shimoga	727
	IV	Datta Meghe Institute of Medical Sciences, Wardha	743
	V	Chitkara University, Rajpura	808
	VI	Mar Ephraem College of Engineering & Technology, Elavuvilai	866
	VII	Nehru Institute of Engineering and Technology, Coimbatore	947
	VIII	S. R. M. Institute of Science and Technology, Kattankulathur	999
	IX	C. V. R. College of Engineering, Ranga Reddy	1070
	X	Sumathi Reddy Institute of Technology for Women, Warangal	1127
	XI	I. T. S. Engineering College, Greater Noida	1152
	XII	Indian Institute of Information Technology, Allahabad	1210

Sr. No.	Particulars			Page No.
i	Annexure-I	:	Details of Patent Filed, till March, 2023	1237
ii	Annexure-II	:	Details of Patent Granted, till March, 2023	1753
iii	Annexure-III	:	Details of Companies/Starts up set up by Students, till March, 2023	1799
iv	Annexure-IV	:	Details of Enterprise/Business Commercialized, till March, 2023	2155
v	Annexure-V	:	Details of Patent Filed during the financial year, 2022-2023	2267
vi	Annexure-VI	:	Details of Patent Granted during the financial year, 2022-2023	2444
vii	Annexure-VII	:	Details of Companies/Starts up set up by Students during the financial year, 2022-2023	2454
viii	Annexure-VIII	:	Details of Enterprise/Business Commercialized during the financial year, 2022-2023	2562

Outcome/Progress Report of NewGen IEDC Project
(New Generation Innovation and Entrepreneurship Development Centre)

NewGen IEDC aims to inculcate the spirit of innovation and entrepreneurship amongst the young S&T students, encourage and support start-up creation through guidance, mentorship & support. Selected academic institutions host NewGen IEDCs where students are encouraged to take up innovative projects with possibility of commercialization. NewGen IEDCs also spread the message of entrepreneurship and create a culture of entrepreneurship in the Host Institution (HI). With faculty already trained in the nuances of entrepreneurship, the presence of NewGen IEDCs in HI creates a vibrant entrepreneurial culture amongst the students. Few amongst the "**Job-Seekers**" are converted to "**Job-Generators**" through the entrepreneurial route.

1. Project Progress/Outcome as on March, 2023:

In all, 26 institutions have been identified for hosting the NewGen IEDCs in their respective institutions of which 25 academic institutions are active and continuing with this project. For effective implementation of the project, an Advisory Board/Committee has been constituted for each of the institution. The Advisory Board/Committee review the progress made from time to time, fix up physical and financial targets, suggest measures for raising funds, effective utilization of facilities and expertise available in the parent Institute and sourcing of expertise and facilities from other institutions in the region etc.

The progress made under the project since its beginning is very encouraging and the highlights of the same are given in the following table;

Consolidated Progress Made under NewGen IEDC Project as on March, 2023

Sr. No.	Outcome	Total
1	Total number of Student Projects supported	**2087**
2	No. of Patents filed by students	**782***
3	No. of Patents Granted	**84****
4	No. of Companies/Starts up Set up by Students	**400*****
5	No. of Enterprise/Business Commercialized	**118******
6	No. of Employment Generated	**1327**

* Details are enclosed as Annexure-I
** Details are enclosed as Annexure-II
*** Details are enclosed as Annexure-III
**** Details are enclosed as Annexure-IV

Highlights of the Institution wise progress made is as under:

Sr. No.	NewGen IEDCs Sanctioned during 2017-18	Progress Made: Till March, 2023	
1	Kuppam Engineering College, Kuppam, Andhra Pradesh	* Total number of Student Projects supported	91
		* No. of Patents filed by students	17
		* No. of Patents Granted	01
		* No. of companies/Starts up Set up by Students	16
		* No. of enterprise/Business commercialized	04
		* No. of Employment Generated	60
2	Ramachandra College of Engineering, Eluru Andhra Pradesh	* Total number of Student Projects supported	85
		* No. of Patents filed by students	57
		* No. of companies/Starts up Set up by Students	29
		* No. of enterprise/Business commercialized	03
		* No. of Employment Generated	07
3	Sasi Institute of Technology & Engineering, Tadepalligudem, Andhra Pradesh	* Total number of Student Projects supported	85
		* No. of Patents filed by students	18
		* No. of companies/Starts up Set up by Students	08
		* No. of enterprise/Business commercialized	07
		* No. of Employment Generated	64
4	L. J. Institute of Engineering & Technology, Ahmedabad, Gujarat	* Total number of Student Projects supported	138
		* No. of Patents filed by students	49
		* No. of Patents Granted	01
		* No. of companies/Starts up Set up by Students	10
		* No. of enterprise/Business commercialized	09
		* No. of Employment Generated	364
5	Manav Rachna International University, Faridabad, Haryana	* Total number of Student Projects supported	85
		* No. of Patents filed by students	15
		* No. of Patents Granted	01
		* No. of companies/Starts up Set up by Students	22
		* No. of enterprise/Business commercialized	13
		* No. of Employment Generated	233
6	B. N. M. Institute of Technology, Bengaluru, Karnataka	* Total number of Student Projects supported	125
		* No. of Patents filed by students	19
		* No. of Patents Granted	07
		* No. of companies/Starts up Set up by Students	11
		* No. of enterprise/Business commercialized	10
		* No. of Employment Generated	80
7	University of Science and Technology, Ri-Bhoi, Meghalaya	* Total number of Student Projects supported	87
		* No. of Patents filed by students	45
		* No. of companies/Starts up Set up by Students	23
		* No. of enterprise/Business commercialized	05
		* No. of Employment Generated	73

Sr. No.	NewGen IEDCs Sanctioned during 2017-18	Progress Made: Till March, 2023	
8	College of Technology and Engineering, Udaipur, Rajasthan	* Total number of Student Projects supported	55
		* No. of Patents filed by students	08
		* No. of Patents Granted	02
		* No. of companies/Starts up Set up by Students	03
		* No. of enterprise/Business commercialized	03
		* No. of Employment Generated	39
9	Dr. MGR Educational and Research Institute, Chennai, Tamil Nadu	* Total number of Student Projects supported	85
		* No. of Patents filed by students	05
		* No. of Patents Granted	01
		* No. of companies/Starts up Set up by Students	29
		* No. of enterprise/Business commercialized	03
		* No. of Employment Generated	26
10	National Engineering College, Kovilpatti, Tamil Nadu	* Total number of Student Projects supported	85
		* No. of Patents filed by students	53
		* No. of Patents Granted	15
		* No. of companies/Starts up Set up by Students	04
		* No. of enterprise/Business commercialized	03
		* No. of Employment Generated	27
11	Velammal Engineering College, Chennai, Tamil Nadu	* Total number of Student Projects supported	85
		* No. of Patents filed by students	25
		* No. of companies/Starts up Set up by Students	06
		* No. of enterprise/Business commercialized	01
		* No. of Employment Generated	04
12	Sphoorthy Engineering College Hyderabad, Telangana	* Total number of Student Projects supported	86
		* No. of Patents filed by students	41
		* No. of companies/Starts up Set up by Students	22
13	GLA University, Mathura, Uttar Pradesh	* Total number of Student Projects supported	124
		* No. of Patents filed by students	37
		* No. of Patents Granted	09
		* No. of companies/Starts up Set up by Students	10
		* No. of enterprise/Business commercialized	06
		* No. of Employment Generated	22
14	University of Kashmir, Srinagar, Jammu and Kashmir	* No Progress Reported So far	

Sr. No.	NewGen IEDC Sanctioned during 2018-19	Progress Made: Till March, 2023	
1	Indian Institute of Technology, Guwahati, Assam	* Total number of Student Projects supported	65
		* No. of Patents filed by students	13
		* No. of Patents Granted	03
		* No. of companies/Starts up Set up by Students	02
		* No. of enterprise/Business commercialized	01
		* No. of Employment Generated	02
2	Marwadi University, Rajkot, Gujarat	* Total number of Student Projects supported	79
		* No. of Patents filed by students	113
		* No. of Patents Granted	03
		* No. of companies/Starts up Set up by Students	14
		* No. of enterprise/Business commercialized	03
		* No. of Employment Generated	06
3	Jawaharlal Nehru National College of Engineering, Shimoga, Karnataka	* Total number of Student Projects supported	51
		* No. of Patents filed by students	14
		* No. of companies/Starts up Set up by Students	07
4	Datta Meghe Institute of Medical Sciences, (Deemed to University), Wardha, Maharashtra	* Total number of Student Projects supported	65
		* No. of Patents filed by students	31
		* No. of Patents Granted	17
		* No. of companies/Starts up Set up by Students	07
5	Chitkara University, Rajpura, Punjab	* Total number of Student Projects supported	70
		* No. of Patents filed by students	49
		* No. of Patents Granted	16
		* No. of companies/Starts up Set up by Students	17
		* No. of enterprise/Business commercialized	07
		* No. of Employment Generated	28
6	Mar Ephraem College of Engineering & Technology, Elavuvilai, Tamil Nadu	* Total number of Student Projects supported	65
		* No. of Patents filed by students	24
		* No. of companies/Starts up Set up by Students	16
		* No. of enterprise/Business commercialized	04
		* No. of Employment Generated	12
7	Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu	* Total number of Student Projects supported	65
		* No. of Patents filed by students	59
		* No. of Patents Granted	01
		* No. of companies/Starts up Set up by Students	42
		* No. of enterprise/Business commercialized	03
		* No. of Employment Generated	07
8	S. R. M. Institute of Science and Technology, Kattankulathur, Tamil Nadu	* Total number of Student Projects supported	116
		* No. of Patents filed by students	42
		* No. of Patents Granted	05
		* No. of companies/Starts up Set up by Students	48
		* No. of enterprise/Business commercialized	04
		* No. of Employment Generated	23
9	C. V. R. College of Engineering District: Ranga Reddy, Telangana	* Total number of Student Projects supported	83
		* No. of Patents filed by students	07
		* No. of companies/Starts up Set up by Students	12
		* No. of enterprise/Business commercialized	12
		* No. of Employment Generated	127

Sr. No.	NewGen IEDC Sanctioned during 2018-19	Progress Made: Till March, 2023	
10	Sumathi Reddy Institute of Technology for Women, Warangal Urban, Telangana	* Total number of Student Projects supported	69
		* No. of Patents filed by students	06
		* No. of Patents Granted	02
		* No. of companies/Starts up Set up by Students	17
		* No. of enterprise/Business commercialized	02
		* No. of Employment Generated	12
11	I. T. S. Engineering College Greater Noida, Uttar Pradesh	* Total number of Student Projects supported	72
		* No. of Patents filed by students	31
		* No. of companies/Starts up Set up by Students	12
		* No. of enterprise/Business commercialized	04
		* No. of Employment Generated	22
12	Indian Institute of Information Technology Allahabad, Uttar Pradesh	* Total number of Student Projects supported	71
		* No. of Patents filed by students	04
		* No. of companies/Starts up Set up by Students	13
		* No. of enterprise/Business commercialized	11
		* No. of Employment Generated	89

The project, has been doing extremely well as many institutions have reported excellent progress. Following are the highlights of the consolidated progress made under the project during the **FY 2022-23;**

Sr. No.	Outcome: FY 2022-23	Total
1	Total number of Student Projects supported	**545**
2	No. of Patents filed by students	**249#**
3	No. of Patents Granted	**16**##
4	No. of Companies/Starts-up Set up by Students	**120**###
5	No. of Enterprise/Business Commercialized	**29**####
6	No. of Employment Generated	**222**

Details are enclosed as Annexure-V
Details are enclosed as Annexure-VI
Details are enclosed as Annexure-VII
Details are enclosed as Annexure-VIII

Highlights of the Institution wise progress made during the FY 2022-23 is as under:

Sr. No.	NewGen IEDCs Sanctioned during 2017-18	Progress Made During the FY 2022-23	
1	Kuppam Engineering College, Kuppam, Andhra Pradesh	* Total number of Student Projects supported	21
		* No. of Patents filed by students	01
		* No. of companies/Starts up Set up by Students	12
2	Ramachandra College of Engineering, Eluru Andhra Pradesh	* Total number of Student Projects supported	20
		* No. of Patents filed by students	20
		* No. of companies/Starts up Set up by Students	12
3	Sasi Institute of Technology & Engineering, Tadepalligudem, Andhra Pradesh	* Total number of Student Projects supported	20
		* No. of Patents filed by students	04
		* No. of companies/Starts up Set up by Students	04
		* No. of enterprise/Business commercialized	04
		* No. of Employment Generated	24
4	L. J. Institute of Engineering & Technology, Ahmedabad, Gujarat	* Total number of Student Projects supported	36
		* No. of Patents filed by students	08
		* No. of companies/Starts up Set up by Students	03
		* No. of enterprise/Business commercialized	02
		* No. of Employment Generated	22
5	Manav Rachna International University, Faridabad, Haryana	* Total number of Student Projects supported	23
		* No. of Patents filed by students	07
		* No. of companies/Starts up Set up by Students	02
		* No. of enterprise/Business commercialized	02
		* No. of Employment Generated	06
6	B. N. M. Institute of Technology, Bengaluru, Karnataka	* Total number of Student Projects supported	27
		* No. of Patents filed by students	05
		* No. of Patents Granted	02
		* No. of companies/Starts up Set up by Students	01
		* No. of enterprise/Business commercialized	01
		* No. of Employment Generated	10
7	University of Science and Technology, Ri-Bhoi, Meghalaya	* Total number of Student Projects supported	20
		* No. of Patents filed by students	07
		* No. of companies/Starts up Set up by Students	06
		* No. of enterprise/Business commercialized	04
		* No. of Employment Generated	68
8	College of Technology and Engineering, Udaipur, Rajasthan	* Total number of Student Projects supported	15
		* No. of Patents filed by students	06
		* No. of Patents Granted	02
9	Dr. MGR Educational and Research Institute, Chennai, Tamil Nadu	* Total number of Student Projects supported	20
10	National Engineering College, Kovilpatti, Tamil Nadu	* Total number of Student Projects supported	20
11	Velammal Engineering College, Chennai, Tamil Nadu	* Total number of Student Projects supported	20
12	Sphoorthy Engineering College Hyderabad, Telangana	* Total number of Student Projects supported	21
		* No. of Patents filed by students	09
		* No. of companies/Starts up Set up by Students	11

Sr. No.	NewGen IEDCs Sanctioned during 2017-18	Progress Made During the FY 2022-23	
13	GLA University, Mathura, Uttar Pradesh	* Total number of Student Projects supported	24
		* No. of companies/Starts up Set up by Students	02
		* No. of enterprise/Business commercialized	02
		* No. of Employment Generated	08
14	University of Kashmir, Srinagar, Jammu and Kashmir	* No Progress Reported So far	

Sr. No.	NewGen IEDC Sanctioned during 2018-19	Progress Made During the FY 2022-23	
1	Indian Institute of Technology, Guwahati, Assam	* Total number of Student Projects supported	20
		* No. of Patents filed by students	03
2	Marwadi University, Rajkot, Gujarat	* Total number of Student Projects supported	29
		* No. of Patents filed by students	86
		* No. of companies/Starts up Set up by Students	05
		* No. of enterprise/Business commercialized	02
		* No. of Employment Generated	04
3	Jawaharlal Nehru National College of Engineering, Shimoga, Karnataka	* Total number of Student Projects supported	12
		* No. of Patents filed by students	09
		* No. of companies/Starts up Set up by Students	03
4	Datta Meghe Institute of Medical Sciences, (Deemed to University), Wardha, Maharashtra	* Total number of Student Projects supported	20
		* No. of Patents filed by students	09
		* No. of Patents Granted	03
		* No. of companies/Starts up Set up by Students	02
5	Chitkara University, Rajpura, Punjab	* Total number of Student Projects supported	20
		* No. of Patents filed by students	17
		* No. of Patents Granted	09
		* No. of companies/Starts up Set up by Students	04
		* No. of enterprise/Business commercialized	01
		* No. of Employment Generated	05
6	Mar Ephraem College of Engineering & Technology, Elavuvilai, Tamil Nadu	* Total number of Student Projects supported	20
		* No. of Patents filed by students	09
		* No. of companies/Starts up Set up by Students	05
		* No. of enterprise/Business commercialized	01
		* No. of Employment Generated	01
7	Nehru Institute of Engineering and Technology, Coimbatore, Tamil Nadu	* Total number of Student Projects supported	20
		* No. of Patents filed by students	26
		* No. of companies/Starts up Set up by Students	18
8	S. R. M. Institute of Science and Technology, Kattankulathur, Tamil Nadu	* Total number of Student Projects supported	32
		* No. of Patents filed by students	08
		* No. of companies/Starts up Set up by Students	11
9	C. V. R. College of Engineering District: Ranga Reddy, Telangana	* Total number of Student Projects supported	21
		* No. of Patents filed by students	03
		* No. of companies/Starts up Set up by Students	07
		* No. of enterprise/Business commercialized	07
		* No. of Employment Generated	42
10	Sumathi Reddy Institute of Technology for Women, Warangal Urban, Telangana	* Total number of Student Projects supported	20
		* No. of companies/Starts up Set up by Students	08
11	I. T. S. Engineering College Greater Noida, Uttar Pradesh	* Total number of Student Projects supported	20
		* No. of Patents filed by students	12
		* No. of companies/Starts up Set up by Students	03
		* No. of enterprise/Business commercialized	02
		* No. of Employment Generated	12
12	Indian Institute of Information Technology Allahabad, Uttar Pradesh	* Total number of Student Projects supported	24
		* No. of companies/Starts up Set up by Students	01
		* No. of enterprise/Business commercialized	01
		* No. of Employment Generated	20

2. Institution wise progress report:

NewGen IEDC-Kuppam Engineering College

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: Fifth Year (2022-23)

Name of the College/Institution hosting NewGen IEDC	Kuppam Engineering College		
Year of starting NewGen IEDC	2017-2018		
Name of the Head/Principal of the Institution/College	Dr. S. Sudhakar Babu		
Name of NewGen IEDC Coordinator	Dr. G. N. Kodanda Ramaiah		
Contact Details of NewGen IEDC Coordinator • Mobile Number • Email ID	9502686286 gnk.ramaiah@gmail.com		
Financial Details	**Sr. No.**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC/17-18/01 Date: 15/06/2017	Rs. 60.00,000
	2		Rs. 47.50,000
	3		Rs. 60.00,000
	4		Rs. 60.00,000
	5		Rs. 60.00,000

1. Details of Activities Undertaken during the year:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. **One Day Workshop on "WOMEN ENTREPRENEURSHIP"** by Mr. Suhail Palakkod, Chairman, SEED Foundation Wandoor, Kerala. Held on 16th June 2021 at Conference Hall, Kuppam Engineering College.

Brief of the Programme:

- The Programme aims to motivate the women's/ girl students of KEC.
- Women entrepreneurship focused on bringing the innovation mind set and ideas from women faculties and/or girl students.
- The Resource person mentioned that women entrepreneurs are the key role players in economic development of a country.

Outcome of the programme:

- 100 students from various departments of KEC participated in the programme.
- Inculcated the spirit of entrepreneurship among the girl students
- Encouraged the students to come up with potential ideas to take up the entrepreneurship as career path.

Event Photographs:

2. **One day event on "IDEA PITCHING for Anveshana"** by Mr. Bhaskar S.V, General Manager, Agastya International Foundation, Chittor. Held on 15-09-2022, Innovation Lab, Kuppam Engineering College.

Brief of the programme:

- The IDEA Pitching event is an opportunity for students to showcase their creative ideas and innovative solutions for real-world problems.

- The event will bring together students from different disciplines, backgrounds and skill sets to collaborate and develop their ideas into successful business ventures.

Outcome of the programme:

- More than 14 Teams participated and presented their innovative ideas.
- Out of 25 ideas, 10 ideas were shortlisted for final presentation in Anveshana Science and Engineering fair to be held on Jan-2023.

Event Photographs:

3. **One Day National Level Symposium Technothon-2k22**" by Mr. Chandrasekhar, Managing director, Adhya Solutions, Kuppam and Mr. R. Elavarasan, Managing director Pranav Solutions, Bangalore. Held on 15.06.2022, Sir C.V. Raman Auditorium, Kuppam Engineering College

Brief of the programme:

- Objective of this national level symposium is to explore the creative thinking abilities of the students through various activities.
- It also provides platform to the students to showcase their hidden entrepreneurial potential and gain more technical knowledge to solve complex problems.

Outcome of the programme:

- Around 150 students participated in various events.
- Motivated the students by distributing prizes and certificates to the participating students.
- Few student ideas were shortlisted for developing prototypes under NewGen IEDC support.

Event Photographs:

4. **One Day Seminar on "Opportunities for Rural Innovations**" by Dr. Kancherla Srikanth, Director, EXCD Education and Career Solutions Pvt. Ltd, Prakasham. Held on 28.01.2023, Seminar Hall-I, Kuppam Engineering College

Brief of the programme:

- The main importance of the event is to encourage students and faculties to address the unique challenges and opportunities in rural areas through the job oriented innovations.
- Address the untapped potential for innovation in Rural areas, as they may not have been exposed to the latest technologies and best practices.
- Tap on abundant natural resources available in rural areas such as land, water, and minerals, which can be leveraged for sustainable innovation in agriculture, renewable energy, and other industries.

Outcome of the programme:

- Around 60 students and 40 staff members were participated and understood the need for rural innovations and entrepreneurship.
- Understood that rural areas can drive economic growth, create new jobs, and improve the quality of life for their residents.

Event Photographs:

[B] To identify, develop & commercialize students' innovative ideas

1. **One-Day Webinar on "Business Incubation Centre-Role and Importance"** by Dr.Shivakiran M.S, CEO, Atal Incubation Centre, S.K University, Anantapur. Held on 11.07.2022, Video Conference Zoom Meeting

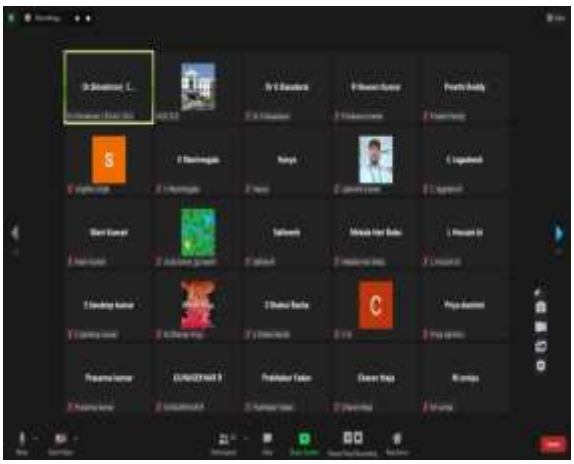
Brief of the programme:

- The webinar was aimed to introduce the role and importance of BICs in nurturing budding entrepreneurs.
- BIC's Provides Support for start-ups, Access to capital, Networking opportunities, Entrepreneurial education, Cost savings, and Regional development etc.

Outcome of the programme:

- 71 students from various departments of KEC participated and learnt crucial role and importance of BIC's for early stage entrepreneurs.
- The learning outcomes are; Improved understanding of entrepreneurship, Enhanced business skills, Networking opportunities, Exposure to new ideas and technologies, Access to resources and support, and increased confidence and motivation.

Event Photographs:



2. **One-day Webinar on "Intellectual Property Rights (IPRs) and IP management for start-up"** by Mrs. HIMA BINDU. A, Managing Director, Novel Patent Solutions, Vizag. Held on 09.03.2022, Video Conference (Virtual).

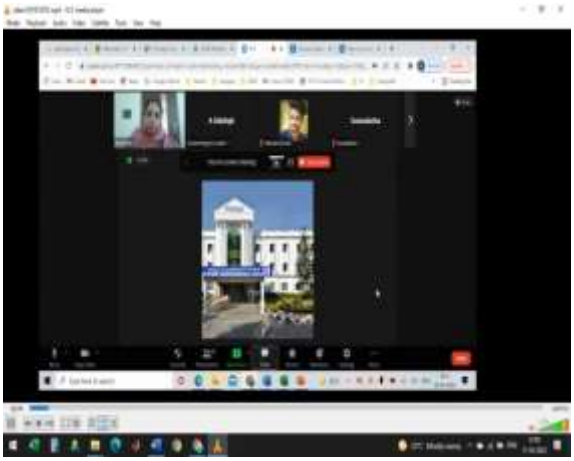
Brief of the programme:

- The aim of the webinar was to provide the students with basic insights on Intellectual property, types of intellectual property and their importance.
- To explore the types of intellectual properties like Patents, Copyrights, Design patents, Geographical Indication and Trademarks.

Outcome of the programme:

- 144 students and faculties from various departments have participated and learnt various types of IPR's and the No. of ways to protect their innovations.
- Learnt about importance of innovation identification and registration of patents.
- Students are suggested to protect their innovative ideas through IPR registration.

Event Photographs:



3. **Two-Days Project Expo on "ANVESHANA Science & Engineering Fair"** by Bibhuti Kumar Mishra, Agastya International Foundation & Priyanka, Synopsis. Held on 30-31st January 2023, Seminar Hall, Makerspace, Project Lab, Kuppam Engineering College

Brief of the programme:

- The main objectives of the programme are to develop innovation and creativity among the engineering students and nearby disadvantaged schools.
- To facilitate the process of mentoring between engineering students and schools students while they plan, design and make the models together.
- To bridge the knowledge gap between schools and higher education through integration of ideas and learned concepts.

Outcome of the programme:

- More than 50 student teams from various engineering and high schools in and around the Chittoor district have participated and presented their innovative prototype models to the industrial expert jury members.
- 3 project teams from the host institute (KEC) won the 1st , 5th and consolation prize worth Rs. 25,000/-.
- Provided an opportunity to train the school students for developing an innovation and entrepreneurship mind-set.

Event Photographs:

4. **One-Day Awareness Workshop on "Drone for Agriculture"** by Mr. K.P. Chandra Sekhar, Sr. Engineer, Honeywell, Bangalore & Aadhya Softtech Solutions, Kuppam. Held on 01.06.2022, Seminar Hall, Kuppam Engineering College

Brief of the programme:

- The theme of this workshop was to create awareness about the increased usage of drones in agriculture farming activities.
- The key role of drone in precision agriculture are; Improved Crop Yields, increased efficiency, crop mapping, enhanced irrigation, and Reduced Pesticide and Fertilizer Use.

Outcome of the programme:

- 140 students participated from various disciplines and gained understanding of drone technology and how it can be applied in agriculture.

- Hands-on experience with drone operation, Knowledge of drone regulations and safety, Understanding of data analysis, and Understanding of crop mapping.
- Resource person emphasised the participants to work on drone technology and their usage in agriculture.

Event Photographs:

[C] To enhance Industry-Academia interaction

1. **One-day Workshop on "Internet of Things(IoT)"** by Dr. Mahammad DV, Project Engineer, AcenAAr Technologies, Kurnool. Held on 08.11.2022, IoT Lab, Kuppam Engineering College

   Brief of the programme:

   - The workshop aimed to explore current trends of Internet of Things in Innovation applications.
   - This includes Smart homes, wearables, Industry 4.0, healthcare, and agriculture etc.,

   Outcome of the programme:

   - More than 50 students from various departments of KEC participated and learned about various advanced IoT technologies.
   - Students were motivated to undergo internships on Industrial IoT.
   - Many students were suggested to carry out their undergraduate projects on IoT innovations.

   Event Photos:

2. **One Day Seminar on "Artificaial Intelligence (AI) and Machine Learning (ML) in IoT"** by Dr. Mahammad DV, Project Engineer, AcenAAr Technologies, Kurnool. Held on 10.11.2022, Seminar Hall, Kuppam Engineering College

   Brief of the programme:

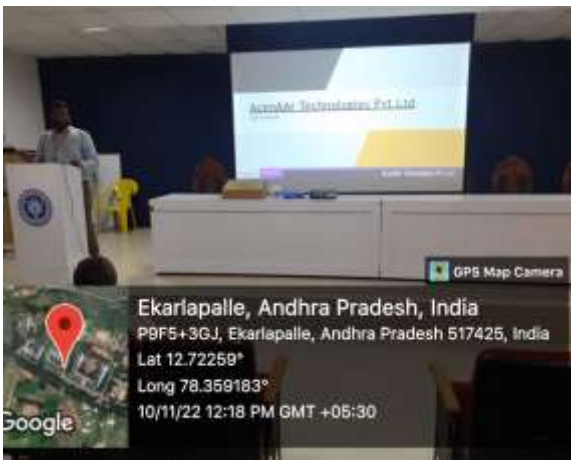
   - The programme aimed to introduce role of AI and ML in the Internet of Things (IoT) by enabling devices to process and analyse large amounts of data in real-time.

- In IoT, AI and ML are used to analyse sensor data, Improve decision making, **Enhance** security, Enable predictive maintenance".

Outcome of the programme:

- More than 150 students from various departments of KEC participated and experienced new technology platform in this programme.
- Students could able learn the various techniques in AI and ML to enhance their knowledge, skills, and better-decision making abilities etc.,
- Many students shown interest in developing projects based on AI and ML.

Event Photos:



3. **One-Day Awareness Workshop on "AL/ML and Data Science Role in Insurance Industry".** Held on 03.11.2022, Sir, C. V. Raman Indoor Auditorium, Kuppam Engineering College

Brief of the programme:

- The intent of this workshop was to provide insights of AI-ML role in the insurance industry, transforming the way insurance companies operate by providing them with new opportunities to improve customer experience, increase efficiency, and reduce costs.
- Data Science also plays an important role by providing data-driven insights to inform decision making, enabling insurers to develop new products, improve underwriting and claims processes, and target new customers more effectively.

Outcome of the programme:

- Around 269 participants attended the workshop and understood how AI and ML are used to solve problems and add value in the insurance industry, including applications in areas such as customer experience, underwriting, claims management, and fraud detection.
- Gained Knowledge of key trends and emerging technologies in the insurance industry and how they are likely to impact the industry in the future.

Event Photos:

4. **5-Days Certification Program on "Xilinx FPGA/ZYNQ SoC using Xilinx Vivado".** Held between 26th-30th October, 2022, VLSI Design Lab, Kuppam Engineering College

Brief of the programme:

- The main objective of the workshop is to teach the students how to use Xilinx Vivado for developing, debugging, and testing FPGA and SoC designs..
- How to design and implement custom digital circuits using the Xilinx Vivado tool, and interface various peripherals like ADCs, DACs, sensors, etc. with Xilinx FPGA/ZYNQ SoC.

Outcome of the programme:

- Approximately 70 students and 10 staff members were participated in the 5 days workshop and explored advanced tools.
- Undergone hands-on experience with Xilinx FPGA/ZYNQ SoC development: Participants will gain hands-on experience with

developing and implementing designs on Xilinx FPGA/ZYNQ SoC devices using the Xilinx Vivado tool.

- Knowledge of peripheral interfacing High-level sysntheis tool to convert high-level C/C++ code into RTL for implementation on FPGA and SoC devices.

Event Photographs:

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

There are few minor deviations or changes in the execution of activities and student projects according to the action plan submitted to EDII at the beginning of the year are;

i. Under the initiatives/Activities undertaken section, all the activities/events conducted in three sub-sections are having different dates from the actual proposed date and there is a slight change in the meaning & titles of a few of the activities.

ii. Student Project Section:

Student projects are executed according to the proposed action plan with changes in many project ideas. In a few cases, execution has been successfully completed with few changes in the plan of action.

With reference to the ADVISOR MEETING held on 22-02-2023, the Advisory Committee comprising of Dr.Naveen Vasista, Scientist, DST, and Mr.S.B Sareen, Director, Department of Projects (Govt.), EDII, have suggested to commercialize more projects through startups and patents.

Therefore, as per their suggestions, we included some new ideas, which have commercial viability through student startups registration.

3. Other important highlights (new initiatives), if any:

Tinkering Events: Since last, we started tinkering events to the school students, so that they can understand the importance of innovation and entrepreneurship. Started hosting ANVESHANA science and engineering fair, which provides platforms for scholl students to work with engineering students get insights about the innovative projects design and development process.

4. Details of Student Projects

Refer to Annexure-A for Details of Student Projects with Prototype Photos

5. Provide a minimum two-page case let each on the <u>two best student projects</u> (either prototype developed or commercialized) from the above list. The case lets should include the following:

Best Student Project-01 : IoT Based Smart Notice Board Using Android App

I. Project Title : IoT Based Smart Notice Board Using Android App

II. Mentors Name **:** Dr. K Rasadurai, Professor, Dept.of ECE

III. Student team details :

I. C. Aishwarya
II. P. Chitr Sri
III. G. Sarath Kumar
IV. Yelagiri Ganesh

IV. Brief description of the student start-up

Start-Up Status:

A Start-up company named “KIKISHADES” with CIN: SUBIN-APAPCSCEG0718304971884326V, dated 10/05/2023, Address: D.no.184, 3rd Floor, AK Block, Kuppam Engineering College Mallanur Cross, Pedda Bangarunatham Kuppam Chittoor AP 517425 IN.

Objectives of the Start-up to;

- Develop as a Natural Agri cosmetic products.
- Develop a portable Smart Automatic hand Sanitizer with Natural hand wash liquid from natural herbals and coconut oils.
- Develop a Smart E notice Board by using IoT Technologies
- To provide Hi Tech Cosmetic service for Functions make-ups

V. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

Start-ups entrepreneurial journey passed through the following two different stages with different activities undertaken to complete the project design & development process;

First Stage: (IDEA-to-Prototype)

- Project team & Mentor had discussed the specific problems the Smart Notice Board addresses, innovations, practical feasibility, Commercial viabilities & social impact at the beginning of the year.
- Discussed with technical experts of Accernoer technologies, Kurnool for practical feasibility and technological implementations.
- Project team was able to developed proof-of-concept (POC) prototype successfully, under the supervision of technical experts of TechniLab, Bengaluru.
- Demonstrated the prototype model to many industrial experts, investors for possible intervention to take up to the product level. Following experts had given the feedback to improve the design aspect

The proposed idea won the first prize in national level technical symposium2023 conducted by PSV College of Engineering Technology, Krishnagiri

Second Stage: (Prototype-to-Demo Product)

- MoU has been signed between Technilab Bangalore & Accernoer technologies Kurnool and the proposed startup company.
- The Paper title as published in International Conference on Recent advances in Science, Engineering & Technology on 26-may 2023

Bharath IEEE

CERTIFICATE

OF PRESENTATION

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

INTERNATIONAL CONFERENCE ON

RECENT ADVANCES IN SCIENCE, ENGINEERING & TECHNOLOGY

25th & 26th MAY 2023 | BIHER, CHENNAI ,TAMILNADU

This is to Certify that _____ of _____ Presented his/her research paper titled _____ in the "International conference on Recent Advances in Science, Engineering and Technology (ICRASET)" Organised by Bharath Institute of Higher Education and Research, Selaiyur ,Tambaram, chennai on 25th & 26th MAY 2023.

Dr. G. SUDHAGAR, Organizing Chair | Dr. H. UMMA HABIBA, HOD/ ECE | Dr.M.K.ILAMPOORNAN, DEAN /SEE

Presented the project paper in International Conference on Recent advances in Science, Engineering & Technology on 26-may 2023.

Project team with prototype model

The Demo Product of IoT Based Smart Notice Board Using Android App was presented to Sri Naveen Visishta, Director & Scientist E & Sri Sareen, Director EDII@KEC Start-up

VI. Contribution of NewGen IEDC in the same

The chief-coordinator & project coordinators of NewGen IEDC, KEC have played a key role in promoting the student idea to start-up level by bridging the industries with our institution.

Varies levels of support & contribution made by KEC, NewGen IEDC are;

- Provided the financial assistance to develop the Prototype & Demo Product module of the project idea.
- Invited many industrial experts, R&D Directors, CEO's and Successful entrepreneurs for demonstrating the project modules developed by the students & sought the feedback for further improvement in the project design.
- Permitted the project team to work with R&D team of Techno Logics Company to develop the proof-of-concept (Smart Notice Board).
- Encouraged the project team to demonstrate the Prototype & Demo Product model is at Accernoer technologies Kurnool regarding Incubation work.
- Sri Naveen Visishta, Director & Scientist E is recommended this idea and prototype for upcoming E-Summit 2024 conducted by Indian Institute of Information Technology to draw the government attention for commercialization.
- Promoted the project team to participate in all innovation & Entrepreneurship activities at free of cost.
- Provided industrial exposure by referring student teams to various companies for Internships.

VII. Future plan

- To be a successful start-up firm for providing low cost, feasible and Reliable IoT BASED SMART NOTICE BOARD USING ANDROID APP, product within 3 years from the date of company registration.
- To Market Smart Automatic hand Sanitizer with Natural hand wash liquid from natural herbals and coconut oils. And a Smart E notice Board by using IoT Technologies
- Increasing customers base through market expansion.
- Training rural youths & providing employment opportunities in natural & Herbal based products.
- Extending R&D activities to cope up with the future technologies.

VIII. Important highlights

The important highlights of the project is that, it has won 1st prize in National Level Technical symposium organized by P.S.V College of engineering, Hosur. Also presented the work in international conference. The advisory board members of NewGen IEDC including Mr.Naveen Vasista, Scientist-E, DST, and Prof. S.B Sareen, Project Director, NewGen IEDC, EDII, Ahmedabad, have appreciated the multi-language display.

Best Student Project-02 : Educational Toy

I. Project Title : Educational Toy

II. Mentors Name **:** Mr. T. H. Jayasimha, Assistant Professor

III. Student team details :

I. K. Sneha
II. K. Madhu
III. K. Chakradhar
IV. B. Mounika

IV. Brief description of the student start-up

Start-Up Status:

A Start-up company named “INNOVATION IN WHEELS” with Registration Number: IN-AP13699952288065V, Address: D.No:184, Kuppam Engineering College, T.G PALLI, Kuppam Chittoor, AP-517425 IN.

Objectives of the Start-up to;

- Develop as a low cost handheld/easy carry device.
- Detect the object and response audio output
- Give clear voice based signal output
- Use an additional electronic circuit for battery power indicator

V. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

Start-ups entrepreneurial journey passed through the following two different stages with different activities undertaken to complete the project design & development process;

First Stage: (IDEA-to-Prototype)

- Project team & Mentor had discussed the specific problems the educational toys idea addresses, innovations, practical feasibility, Commercial viabilities & social impact at the beginning of the year.
- Discussed with technical experts of Technologics, Bengaluru for practical feasibility and technological implementations.
- Project team was able to developed proof-of-concept (POC) prototype successfully, under the supervision of technical experts of Technologics, Bengaluru.
- Demonstrated the prototype model to many school teachers and anganwadi teachers near kuppam if possible intervention to take up to the product level. Following experts had given the feedback to improve the design aspects.
- This project mainly deals with the design of an attractive toy for children which provides both fun and ensures basic learning for children. The best way to make children learn is through attractive toys. Encouraging children to play with educational toys can help in their intellectual and motor skill development.
- This project presents the design of an affordable, smart, reliable and portable educational toy. The designed system is developed to teach objects for 3 to 5 minutes, and even help learning through rhymes. The system takes the input through a RFID scanner and gives a speech output. It is designed in an attractive manner so that children will find fun and interesting while learning. It is a very useful toy for teachers also to make their teaching more interesting for children

The students have presented this first version of prototype at Anveshana- 2023.

Second Stage: (Prototype-to-Demo Product)

- Developed prototype had been discussed with many school children's and project expo's.
- Applied for Patent Filling.

Project team with Educational Toy Demo Product

VI. Contribution of NewGen IEDC in the same

The chief-coordinator & project coordinators of NewGen IEDC, KEC have played a key role in promoting the student idea to start-up level by bridging the industries with our institution.

Varies levels of support & contribution made by KEC, NewGen IEDC are;

- Provided the financial assistance to develop the prototype module of the project idea.
- Invited many industrial experts, R&D Directors, CEO's and Successful entrepreneurs for demonstrating the project modules developed by the

students & sought the feedback for further improvement in the project design.

- Permitted the project team to work with R&D team of Technologics Company to develop the proof-of-concept (Educational Toy).

VII. Future plan

- To be a successful start-up firm for providing low cost and Reliable Ieducationational Toy product to teach the childrens with fun.
- Developing Market stratergies to reach out the nook and corners of the country.
- Increasing customers base through market expansion.
- Training rural youths & providing employment opportunities to teach the economically backward childrens in rural schools.
- Extending R&D activities to cope up with the future technologies.

VIII. Important highlights

The E-Toy will be an attractive gadget for children, which provides both fun and ensures basic learning for children. The best way to make children learn is through attractive and interactive toys. Encourages childrens to play with educational toys and help in their intellectual and motor skill development.

Best Student Project-03 : Green Doctor: A reliable food toxic detector

I. Project Title : Green Doctor : A reliable food toxic detector

II. Mentors Name :

III. Student team details :

I. Bojja Surendra Reddy
II. A Gopi
III. C.Harshitha
IV. Gajula Sravanthi

IV. Brief description about the student start-up

Start-Up Status:

A Start-up company named “EZ Tech Solutions” with Udyam Registration No.: UDYAM-AP-02-0031233, dated 02/07/2023, Address: 2nd floor, Rukmini enclave, Cheldiganipalle, CHITOOR, Pin: 518424, Andhra Pradesh.

Objectives of the Start-up to;

- Offer Technology connect to rural people

- Develop a low cost handheld device
- Detect the various adulterants in the milk
- Give adulterants information through LCD display to the user
- Use an GSM module for sending milk Quality information to Milk producer through SMS

V. Start-ups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs.

Start-ups entrepreneurial journey passed through the following two different stages with different activities undertaken to complete the project design & development process;

First Stage: (IDEA-to-Prototype)

- Project team & Mentor had discussed the specific problems the Adulteration Detection idea addresses, innovations, practical feasibility, Commercial viabilities & social impact at the beginning of the year.
- Discussed with technical experts of Technologics, Bengaluru for practical feasibility and technological implementations.
- Project team was able to developed proof-of-concept (POC) prototype successfully, under the supervision of technical experts of Technologics, Bengaluru.
- Demonstrated the prototype model to many industrial experts, investors for possible intervention to take up to the product level. Following experts had given the feedback to improve the design aspects.

Meet Technical Expert Mr. Fayaz, Technologics, Bengaluru

Project team visited SREEJA Milk Producer Company, Avulanatham, Kuppam

Second Stage: (Prototype-to-Demo Product)

- MoU is going to be signed with Evezon India Private Limited Cheldiganipalle, Kuppam Sub District and Acenaar Technologies, Kurnool by the proposed startup company.

VI. Contribution of NewGen IEDC in the same

The chief-coordinator & project coordinators of NewGen IEDC, KEC have played a key role in promoting the student idea to start-up level by bridging the industries with our institution.

Varies levels of support & contribution made by KEC, NewGen IEDC are;

- Provided the financial assistance to develop the prototype module of the project idea.
- Invited many industrial experts, CEO's and Successful entrepreneurs for demonstrating the project modules developed by the students & sought the feedback for further improvement in the project design.
- Permitted the project team to work with R&D team of Technologics company to develop the proof-of-concept (Milk Adulteration Detection System).
- Encouraged the project team to demonstrate the Prototype is at Acenaar Technologies , Kurnool (A.P)

Held discussion with Dr. S. A. K. Jilani, Director, R&D, MITS, Madanapalle

- Encouraged the Project team participated in Project Expo held at PSV college of Engineering and Technology, Krishnagiri, Tamil Nadu.

P.S.V

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE & Affiliated to Anna University, Chennai)
Accredited by the NAAC with 'A' Grade
(An ISO 9001 : 2015 Certified Institution)
(Inclusion Under Section 2(f) & 12(B) of the UGC Act, 1956)
Chennai - Bangalore Highway (NH-46), Krishnagiri - 635108.

NATIONAL LEVEL TECHNICAL SYMPOSIUM
PRAYUKTHI' 23

Certificate of Excellence

This is to certify that Mr./Ms./Mrs./ S.SANDEEP KUMAR of KUPPAM ENGINEERING COLLEGE has presented a ~~paper~~ PROJECT entitled MILK ADULTRATION @ PROJECT EXPO and Won – Prize in the National Level Technical Symposium - PRAYUKTHI' 2K23 organised by Department of Information Technology P.S.V College of Engineering and Technology on 20th April 2023

Co-Ordinator HOD Principal

- Motivated the students to Publish the paper in International conference held at Bharath Institute of Higher Education and Research.

CERTIFICATE

OF PRESENTATION

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

INTERNATIONAL CONFERENCE ON

RECENT ADVANCES IN SCIENCE, ENGINEERING & TECHNOLOGY

25th & 26th MAY 2023 | BIHER, CHENNAI ,TAMILNADU

This is to Certify that Mr. S. SANDEEP KUMAR of KUPPAM ENGINEERING COLLEGE Presented his/her research paper titled Milk Adulteration Detection System in the "International conference on Recent Advances in Science, Engineering and Technology (ICRASET)" Organised by Bharath Institute of Higher Education and Research, Selaiyur ,Tambaram, chennai on 25th & 26th MAY 2023.

Dr. G. SUDHAGAR, Organizing Chair | Dr. H. UMMA HABIBA, HOD/ ECE | Dr.M.K.ILAMPOORNAN, DEAN /SEE

VII. Future Plan:

- To be a successful start-up firm for providing low cost, feasible and Reliable product for within 3 years from the date of company registration.
- Collaborating with the Acenaar Technologies and Evezon India Private Limited for introducing and Commercializing the Milk Adulteration Detection System product.
- Increasing customers base through market expansion.
- Training rural youths & providing employment opportunities.
- Extending R&D activities to cope up with the future technologies.

VIII. Important Highlights

The Green Doctor: A Toxic Food and Milk Adulteration Detector is an essential tool in ensuring food safety and protecting public health. This innovative device employs advanced technology to detect harmful substances and adulterants in food and milk products.

The Green Doctor enables consumers to perform on-the-spot tests, empowering them to make informed choices about the food they consume. The device provides instant results, displaying clear indications of product purity or potential adulteration. By raising awareness and promoting transparency, the Green Doctor plays a vital role in combating food adulteration, safeguarding consumer well-being, and encouraging a healthier and safer food supply chain.

Annexure-A
Details of Student Projects: Fifth Year (2022-2023)

Project-01: Smart Hundi

1. **Project Title** : Smart Hundi
2. **Mentor Name** : Mr. M. Ranjith Kumar, Assistant Professor
3. **Student Team Names:**
   I. S. Sandeepkumar
   II. A. Archana
   III. A. Vinay
   IV. Aakuleti Naveen
4. **Project Description:**

   India is a country of diversity with different religious views comprising crores of people. Most of our country devotees pay their loyal towards lord by offering money, donating jewels and other materials depending upon their economic status. Most of them preferred their donation in the form of money. Hundi is the devotee donating containers in the temples. We proposed to develop an automatic coin and currency counter in the temple to count the total amount of money which is donated using raspberry pi. It can also be used in the number of places where there is an availability of large amount of coin and currency usage such as charities, banks and trusts. In this project, we proposed to process the images of the input which is inserted into the hundi to find its denomination. The image processing is used to identify both the coins and currencies. Finally, the total amount is calculated by adding the monetary value of each image and displayed using LCD module. Thus, this system can reduce the human effort and also deduces the malpractice rate.
5. **Project status at beginning of the Year:**

   Idea Level:

   - Project team found the Innovation gaps in the existing product after an extensive search and survey.
   - Identified the system of currency and coins identification.
   - Developed the conceptual model of the Smart Hundi
   - Identified and recognised the Coin through image processing based on colour,dimensions,and number in i2c LCD Display
   - Prepared the multi-coin acceptor which will recognise each coin and display number of coins in multi-coin acceptor.

6. **Interventions made:**

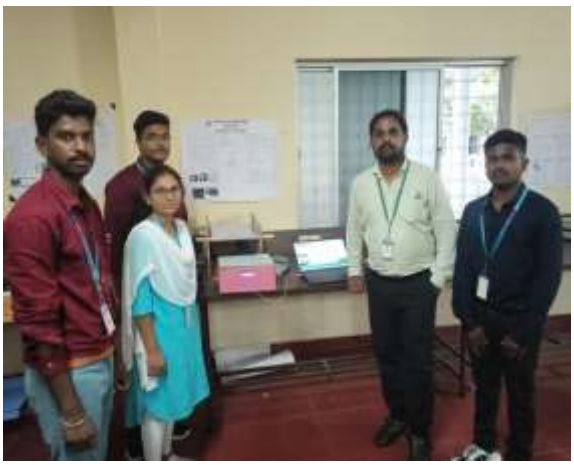
The project team could be able to implement the design aspects of Smart Hundi after consulting the number of places where there is an availability of large amount of coin and currency usage such as Temple's charities, banks and trusts

- Firstly, the project team visited temples, Trusts nearby Kuppam and made discussion with the people about donating the money ,where as their most preferable means is through hundis
- Project team identified the method of counting currency and coins would involve physically handling each note and coin and adding up their values to arrive at the total amount.
- Project Team observed that the donations are not only currency notes but also prefer coins, gold's and currency notes of various countries as there are foreign devotees too.

7. **Current status:**

- The proof-of-concept Prototype Smart Hundi module has been successfully designed
- Project Team participated in the Project Expo in ANVESHANA-2K23 organized by Department of ECE at Kuppam Engineering College
- Project Team participated in the Project Expo in TECHNOTHON-2K23 Organized by Department of ECE at Kuppam Engineering College
- Preparing the necessary documents on the proposed idea for Patent filing.
- Submitted the model of the idea to MSME-BI, KEC for product development and commercialization.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-02: Drone based animal and Bird's Scarer system

1. **Project Title** : Drone based animal and Bird's Scarer system
2. **Mentor Name** : Mr. D Siva Kumar, Associate Professor
3. **Student Team Names:**
   I. B. Gowtham
   II. Arava Vinay
   III. Avula Bharathi
   IV. Bandla Mohith
4. **Project Description:**

   All around the world, animals and birds are a major threat in the field of agriculture causing damage to economic field crops, storage houses and also dirtying human life areas. In India, wild animals and birds spoiling and destroying cultivated Agri-crops regularly. Even there are several projects have been done to control birds, The main reasons of the past, bird control solutions have been limited with traps, playing similar sounds or using similar playing method.

   Our system work on high flash LED lights and AI based image processing system recognizes the animals and bird. Generate the scare sound according to the introducer. It produce heavy volume scaring sound system to scare the animals. Our project does not harm any animal and birds while running.
5. **Project status at beginning of the Year:**

   Ideal Level:
   - Visited farmers neat Kuppam for problem faced by animals and birds.
   - Identified the unique proposition values of the idea
   - Developed the conceptual model.
6. **Interventions made:**

   The project team able to implement the Drone based animal and Bird's Scarer system by consulting various sectors and protective service department.
   - We approached Chittoor Dist. Agriculture Department and farmers for understanding the requirements in developing the model.
   - Consulted with Aadhya Softtech solutions, Kuppam for looking of possibilities in reducing the size of first version device and implementing the drones.

- For PCB design we associated with Ravi Kumar, Director, Technilab, Bangalore,
- The students have presented this first version of prototype at anveshana-2023.

7. **Current status:**
   - The proof-of-concept module has been successfully designed and is currently under field test.
   - Preparing the necessary documents on the proposed idea for Patent filing

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-03: NVIDIA Based Smart Attendance System

1. **Project Title** : NVIDIA Based Smart Attendance System
2. **Mentor Name** : Dr. V. Sekhar, Professor & HoD (Department of EEE)
3. **Student Team Names:**
   I. L. Harikrishna
   II. P. Dayasagar
   III. G. C. Thriveni
   IV. Chatragudi Chakravarthi
4. **Project Description:**

   If attendance is taken manually, it might be extremely difficult for the teachers. Manual entry of the attendance in logbooks may increase the chance for error in attendance and it may also through burn the time, we employ a clever, automated attendance management solution to address this issue. By using this approach, it will be simple to resolve the issue of proxies and students being counted as present even when they are not. In this approach, the live video stream will be used to record attendance. The facial landmarks algorithm is used to extract the picture frames from the clip. Face detection and recognition are the primary implementation processes, which involve matching the detected (recorded) face with the faces that have already been stored in open cv and the student database. This strategy will be an effective way of managing student attendance. Our work was simple mented on an NVIDIA board, and this method will make use of the benefits of Python libraries like Open CV. Its memory is supported by the MySQL database management system. The MySQL database will store the recorded attendance for later use or for archival purposes. This system is capable enough to be integrated with any applications to increase automation and user friendliness thanks to its faster and more accurate performance when employing the facial land mark algorithm. The attendance records of students will be more accurate and reliable thanks to this intelligent and automated technology, which will also give the data security.

5. **Project status at beginning of the Year:**

   Development Stage:

   - Project team has worked with basic model Face detection and recognition are implemented in this processes.
   - Prepared the documentation on Face detection and recognition using AI-The Facial landmark algorithm
   - Interacted with many farmers and discussed about the proposed idea
   - Prepared the project roadmap and technical plan of execution

6. **Interventions made:**

   The project team could be able to design and implement an NVIDIA Based Smart Attendance System device after consulting experts from the institutional organisations and security Agencies .

   - Mentor and Chief coordinator held discussion about institutional Attendance systems with Professor Dr. M Ramasekhar, JNTUA and Dr. Dr. MSG Smith, AITS, Ananthapur, and the professor had advised us to develop the concepts based on the AI-Machine Learning platform for efficient predictions.
   - The project team visited Centre of Makelab, Krishnagiri and nearby educational institutions, Kuppam and surveyed about the problems facing in attendance taking and maintains of attendance and its relevance accuracy also security problems facing in BSF through medias
   - The team has visited many institutions, organisations, Mall and interacted with Maintenance people, collected information on Attendance Collecting methods with problems facing, and technology used in present Attendance Marking systems.
   - The project team has sought assistance from KEC R&D team for technical design aspects (Hardware) and AI- The Facial landmark algorithm implementation.

7. **Current status:**

   - The Hardware Prototype module of AI Device for Attendance Marking systems and Students behavioural prediction has been successfully designed and is currently under field test.
   - Filed the Patent on the proposed idea (Application Number: 202241031600).

- Students participated in Anveshan 2023and won the Appreciation Prize
- Submitted the business model of the idea to MSME-BI, KEC for product development and commercialization.
- Looking to interact with National Security Agency for possible interventions, and also local Organisations to use advanced technology for effective resource utilization and Support a good security system.

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:

Prototype Model

Project-04: Machine Vision based Home Security System

1. **Project Title** : Machine Vision based Home Security System
2. **Mentor Name** : Mr. G. Vivek, Assistant Professor
3. **Student Team Names:**
   I. V. Balachandra
   II. Chintha Yaswanth
   III. D. Bhavana Giri
   IV. D. Rachana
4. **Project Description:**
   - Real-time monitoring: Machine vision based home security systems use cameras and algorithms to monitor the environment in real-time, detecting and alerting homeowners if any unidentified person is present.
   - If it is owner, it will automatically open the door and Switch on the lights.
   - In addition, it keep the track of the persons who visited.
   - Improved accuracy: Machine vision algorithms can process vast amounts of data in real-time, making the system more accurate in detecting potential security threats compared to traditional surveillance systems.
   - Object recognition: The system can recognize objects such as people, vehicles, and animals, and distinguish them from other objects in the environment.
5. **Project status at beginning of the Year:**

   Ideal Level:
   - Project team found the Innovation gaps in the existing products after an extensive search and survey.
   - Identified the unique proposition values of the idea
   - Developed the conceptual model of the smart surveillance.
   - Prepared the project protocol and technical plan of execution.
6. **Interventions made:**

   The project team could be able to implement the design aspects of AI device of surveillance system and been schedule prediction device after consulting various sectors and protective service department.

   - Firstly the project team visited surveillance office of protective service department in Kuppam and discussed about the safety of public houses,

shops and offices..etc. during their busy schedules. Also sought help for initiating & testing our prototype module at their concern places.

- The team had approached local area place and interacted with peoples and collected information about their security and the ways that been for protecting themselves in present living.
- The project team has acquired assistance from KEC & R&D team for technical design aspects (Hardware) and AI-ML technology implementation.
- The students have presented this first version of prototype in ANVESHANA 2023 Competition.

Students presenting the first version in Anveshana 2023 Competition.

The final version was presented in a National Level Technical Symposium conducted at BHARATHIDASAN College of Engineering And Technology, Natrampalli on April 24th 2023. They won First prize in Paper Presentation and Third Prize in Project Expo.

7. **Current status:**
   - The proof-of-concept module has been successfully designed and is currently under field test.
   - Preparing the necessary documents on the proposed idea for Patent filing

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-05: AI Device for Soil Moisture Prediction in Agriculture

1. **Project Title** : AI Device for Soil Moisture Prediction in Agriculture
2. **Mentor Name** : Dr. Santhosh B. Panjagal, Associate Professor
3. **Student Team Names:**
   I. B. Vikendra Reddy
   II. B. Siddeswar Reddy
   III. P. S. Devi
   IV. C. Raghavendra
4. **Project Description:**

   An AI powered device that predicts the soil moisture content based exact water schedule time with efficient water management. The device at first trained on vast amount of real-time measured soil parameters using efficient machine learning algorithms. When installed or inserted at in the agriculture land or any soil, it measures the soil parameters such as moisture content from soil surface to plant root zone with different sections, then predicts the soil irrigation time based on moisture content at different section. Can able to communicate the land data both offline and online.

   Hence, an accurate soil moisture and water schedule predictions empower farmers with the knowledge needed to optimize irrigation practices, promote crop health and productivity, conserve resources, reduce costs, minimize environmental impact, and make informed decisions for efficient farm management.
5. **Project status at beginning of the Year:**

   Development Stage:
   - Project team has worked with basic model for collecting the soil moisture contents from different lands for 2 months of time.
   - Prepared the documentation on Moisture Dataset and efficient AI-Ml algorithm
   - Interacted with many farmers and discussed about the proposed idea
   - Prepared the project roadmap and technical plan of execution.

6. **Interventions made:**

The project team could be able to design and implement an AI Device based soil moisture and water schedule prediction device after consulting experts from the agriculture research centres and farmers.

- Mentor and Chief coordinator held discussion about agriculture innovations with Professor S.S Iyengar, Ryder Professor and Director of Computing Centre, Florida International University, U.S.A, during his Chennai visit, and the professor had advised us to develop the concepts based on the AI-Machine Learning platform for efficient predictions.
- The project team visited Centre of Excellence (Horticulture) for Vegetables & Flowers Kuppam and playhouses discussed about water requirement for the full cycle, water-scheduling duration. Also, sought help for testing our prototype module at their lands.
- The team has visited many farmlands and interacted with farmers, collected information on farming methods, field watering schedules, and technology used in present farming.
- The project team has sought assistance from KEC R&D team for technical design aspects (Hardware) and AI-ML technology implementation.

7. **Current status:**

- The Hardware Prototype module of AI Device for soil moisture and water Schedule prediction has been successfully designed and is currently under field test.
- Filed the Patent on the proposed idea (Application Number: 202341011349).
- Submitted the business model of the idea to MSME-BI, KEC for product development and commercialization.
- Applied the business plan of the proposed idea to “SmartIDEAthon-2023” under Start-up Indian programme by GITAMS University, Hyderabad.
- Looking to interact with agriculture research centres for possible interventions, and local farmers to use advanced technology for effective resource utilization and produce a good yield.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Prototype Model

Project-06: IoT based Automated Indoor Hydroponic Plant Growth Chamber

1. **Project Title** : IoT based Automated Indoor Hydroponic Plant Growth Chamber
2. **Mentor Name** : Ms. M. Sumalatha, Assistant Professor
3. **Student Team Names:**
   I. Giraka Lokesh
   II. G.Madhu Rohith Reddy
   III. Lalubaigari Hussain Bi
   IV. K. B. Sowjanya
4. **Project Description:**

   Indoor farming/gardening is the future for agriculture, where we don't need vast lands for agriculture. Gardening and farming can be done easily and even better using smart grow chambers that monitor and supply the plants with all necessary ingredients for proper growth. Hydroponic farming is farming done without the use of soil. Our system makes use of smart water supply and draining system coupled with airflow and artificial sunlight for a perfect grow environment. Design of a 3 layer indoor farming/gardening unit using programmable hydroponic system would allow for all weather indoor farming as and when needed for organic food grown indoors.

   Thus, the system provides a fully automatic method to monitor and bolster plant growth by ensuring perfect plant growth conditions as programmed by user. hydroponic is to provide the ideal environment for optimum plant performance. Advances in technology in lighting, nutrient delivery and environmental control, will further improve plant productivity and performance.
5. **Project status at beginning of the Year:**

   Conceptual Stage:
   - Project team has visited nearby agriculture research centres and held discussion with experts on hydroponic farming methodology.
   - Prepared the documentation on effective methods to develop indoor hydroponic plant growing chamber.
   - Interacted with many farmers and discussed about the proposed idea
   - Prepared the project roadmap and technical plan of execution.

6. **Interventions made:**

The project team could be able to design and implement an electronic controlling mechanism and mechanical setup for hydroponic farming after consulting experts from the agriculture research centres and farmers.

- The project team has sought suggestions and assistance from Dr. Siva Kiran, CEO, Atal Incubation Centre, SK University, Anantapur.
- The project team visited Centre of Excellence (Horticulture) for Vegetables & Flowers Kuppam and playhouses discussed learnt about water and nutrients supply at desired time schedule.
- The project team has sought assistance from KEC R&D and EveZon India Pvt Ltd for effective implementation

7. **Current status:**

- Implemented the mechanical setup of the hydroponic growth chamber.
- Designed and implemented the electronic controllers and integrated to the plant growth chamber.
- Currently, testing the feasibility of hydroponic plant growth chamber at our NewGen IEDC.
- Presented the business canvas model at Technothon-2k23 organised by KEC, Kuppam.
- Looking to interact with agriculture research centres for possible interventions, and local farmers to use advanced technology for effective resource utilization and produce a good yield.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-07: Smart Helmet with Multi-Features

1. **Project Title** : Smart Helmet with Multi-Features
2. **Mentor Name** : Dr. P. Ajay Kumar Reddy, Associate Professor
3. **Student Team Names:**
   I. Kolla Deekshitha
   II. S. Lokesh Reddy
   III. K. Rangaswami
   IV. M. Amaresh
4. **Project Description:**

   A Smart Helmet with Multi features is a type of headgear used by the rider which makes bike driving safer than before. The main purpose of this helmet is to provide safety to the rider. The design and implementation of a smart helmet that integrates advanced features like alcohol detection, accident identification and location, and panic emergency alert feature to improve the safety of motorcyclists. The helmet is equipped with a sensor module that detects the presence of the helmet on the rider's head and wirelessly communicates with a control module mounted on the motorcycle. The control module, which is connected to the system of the motorcycle, is designed to prevent the vehicle from starting if the helmet is not detected on the rider's head.
5. **Project status at beginning of the Year:**

   Idea Level:
   - Project team found the Innovation gaps in the existing products after an extensive search and survey.
   - Identified the unique proposition values of the idea
   - Developed the conceptual model of the smart helmet.
   - Prepared the project roadmap and technical plan of execution.
6. **Interventions made:**
   - The project team could be able to implement the design aspects of Smart helmet in two versions, after closely looking at the working nature, the team has come with revised version.

- Student team has prepared a first version of helmet with detects whether the user has worn a helmet or not. if he doesn't have worn the helmet the ignition of the vehicle doesn't start.
- Before ignition ON it also checks If the helmet strap is not locked or not. The system ignition on only when the user has worn helmet and its strap is also locked.
- The students have presented this first version of prototype in ANVESHANA 2023 Competition
- The final version was presented in a National Level Symposium conducted at PSV College of Engineering And Technology, Bargur on April 20th 2023. They won First prize in Project Expo and Third Prize in Paper Presentation.

Students team receiving their first prize at National Level Symposium conducted at PSV College Of Engineering And Technology, Bargur

7. **Current status:**
   - The proof-of-concept module has been successfully designed and is currently under field test.
   - Preparing the necessary documents on the proposed idea for **Patent filing**.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-08: Smart Device for asepsis monitoring in pediatrics/NICU

1. **Project Title** : Smart Device for asepsis monitoring in pediatrics/NICU
2. **Mentor Name** : Dr. S. Nanda Kishor, Associate Professor
3. **Student Team Names:**
   I. Shaik Mohammad Ali
   II. R. Sushma Sree
   III. R. Vamsi
   IV. S. Keerthi
4. **Project Description:**

   Pediatric care is focused medical treatment for children with severe illness. Paediatric care mainly focuses on growth and development, nutrition, prevention of diseases and treatment of illness of children. Bacteria are everywhere, and some are good for us while others are harmful. Bacteria, viruses, and other microorganisms that cause disease are called pathogens. To protect patients from harmful bacteria and other pathogens during medical procedures, healthcare providers use aseptic technique

   Aseptic technique means using practices and procedures to prevent contamination from pathogens. It involves applying the strictest rules to minimize the risk of infection. Healthcare workers use aseptic technique in pediatric care centers (NICU), surgery rooms, clinics, outpatient care centers. We developed a device which alerts through alarm to monitoring asepsis at regular intervals.
5. **Project status at beginning of the Year:**

   Idea Level:
   - Visited PES medical college for problem identification about asepsis, and discussed with Dr.Y Harish Chandra, Paediatrician addressed the problem raise in paediatric wards.
   - Identified the unique proposition values of the idea
   - Developed the conceptual model.
6. **Interventions made:**

   The project team able to implement the design aspects of Smart Device for asepsis monitoring in pediatrics / NICU by consulting various sectors and protective service department.

- Firstly the project team visited Paediatric department, PES Medical college in Kuppam and discussed about the safety of Iinfants, and outpatients etc.
- The team has consult Dr. Y. Harish Chandra, Paediatrician for technical aspects in medical environment.
- The project team has acquired assistance from KESPL, Kuppam for technical design aspects (Hardware) .
- The students have presented this first version of prototype at PES medical college, Kuppam.

7. **Current status:**
   - The proof-of-concept module has been successfully designed and is currently under field test.
   - Preparing the necessary documents on the proposed idea for Patent filing.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

PROTOTYPE MODEL

Project-09: IoT Device for Sewage Drainage Monitoring & Alert System

1. **Project Title** : IoT Device for Sewage Drainage Monitoring & Alert System
2. **Mentor Name** : Dr. G. N. Kodanda Ramaiah, Professor & HoD
3. **Student Team Names:**
   I. S. Bharath Kumar
   II. K. Sindhu
   III. P. Sridhar
   IV. M. Santhosh Kumar
4. **Project Description:**

As most of the cities in India have adopted underground sewage system, it is very important that this system should work in a proper manner to keep the city clean, safe and healthy. One of the major unnoticed problems in the urban areas of our country is improper maintenance of the sewage system.

Sewage conditions should be monitored in order to maintain its proper function. For example, drain overflow causes traffic problems, stagnation of drain water leads to bad Odour, growth of insects, unwanted bacterial growth that leads to spread of disease, humans falling into the open and submerged manholes. In fact, not all areas have sewage monitoring team.

This project provides a solution for the above problems. This system is designed using wireless sensor network to monitor the sewage conditions in a particular area like if the lid of manhole is open or if the drain gets full and also the air quality inside the drain, an alert is sent to the corresponding department about the same. This module uses the GSM communications to transmit and receive these alerts to the concerned department. Thus, by proper monitoring, life can be saved from danger. The sewage conditions are intimated to corporation in prior to manage the waste and to maintain a clean society. This project represents the implementation and design functions for monitoring and managing underground sewage system with different approaches.

5. **Project status at beginning of the Year:**

Ideal Level:

- Project team found the Innovation gaps in the existing product after an extensive search and survey.
- Identified the system for monitoring and managing underground Sewage System.
- Developed the conceptual model of the **Sewage Monitoring System**.
- Identified and recognised the sewage system with float sensor for monitoring the sewage water level and proximity sensor for monitoring whether the sewage
- Lid is open or closed

6. **Interventions made:**

The project team could be able to implement the design functions for monitoring and managing

Underground sewage system with different approaches

- Firstly, the project team identified the increase in waste disposal and causing harmful effects to human beings and the environment
- Project team observed the sewage water level and the manhole lid status, also monitoring the toxic gas that occurs due to the sewage water
- Project Team Proposed a Sewage monitoring system by using Arduino uno, inductive proximity sensor, float sensor, MQ135 gas sensor, GSM, LCD and buzzer.so that the man power and time consumption to verify the manhole lid status and sewage water level and also avoids the hazards.

7. **Current status:**

- The proof-of-concept **<u>Prototype</u> Sewage Monitoring System** module has been successfully designed
- Project Team participated in the Project Expo in PRAGYOSTAV -2K22 organized by Department of ECE at Adithya College of Engineering, Madanapalle.
- Project Team participated in the Project Expo in TECHNOTHON-2K22 Organized by Department of ECE at Kuppam Engineering College
- Project Team Exhibited in the Project Expo in ANVESHANA-2K23 Organized by Department of ECE at Kuppam Engineering College
- Preparing the necessary documents on the proposed idea for Patent filing.

- Submitted the model of the idea to MSME-BI, KEC for product development and commercialization.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-10: Green Doctor: A reliable food toxic detector

1. **Project Title** : Green Doctor: A reliable food toxic detector
2. **Mentor Name** : Mr. R. Selvarasan, Assistant Professor
3. **Student Team Names:**
   I. C. Tharun Kumar
   II. N. J. Surendra Babu
   III. C. Harshitha
   IV. G. C. Thriveni
4. **Project Description:**

   Milk is considered as one of the most essential and nutritious food items that we consume daily. Unfortunately, milk adulteration is a common practice in many parts of the world. Milk adulteration involves adding water or other substances to increase the volume of milk, thereby reducing the quality and nutritional value of the milk. The significance of milk adulteration lies in the potential harm it can cause to human health. Some common forms of milk adulteration include adding water, sugar, starch, urea, detergent, and even harmful chemicals such as formalin and hydrogen peroxide. These substances can cause a range of health problems, including digestive issues, food poisoning, liver damage, and even cancer. Milk adulteration detection is the process of identifying the presence of adulterants in milk. The proposed system for detecting adulterants is arduino and sensors based which is an simple and cost-effective approach. Various types of sensors, such as pH sensors, gas sensors, temperature sensors and Load sensors are used to detect milk adulteration. The Arduino controller is used in this framework. The entire milk analyzer system is regulated by this Arduino which is connected to various sensors, and notifies the user's mobile using the GSM module.

5. **Project status at beginning of the Year:**

   Idea Level:

   - Project team identified the drawbacks in the existing system after an extensive search and survey.
   - Described a methodology to build up an unique system.
   - Developed the conceptual model of Milk Adulteration Detection Unit.
   - Prepared the roadmap and technical plan of project implementation

- Developed the Arduino based system of milk adulterant detection system.

6. **Interventions made:**

   The project team could be able to implement the design ideas of Milk Adulteration Detection System after consulting experts from Milk Processing centres and milk producers.

   Firstly, The project team visited Shreeja Mahila Milk Producer Company located at Avulanatham, Kuppam and collected the information about the Quality parameters being considered and the various equipment used by them.

   - Then the project team visited various milk collection centres and observed the Quality checking process of those centres.
   - HOD and Project team visited a Company Technologies, Bangalore and Discussed with Mr. Fyaz, CEO for enhancement of the Project.
   - Finally, the project module had been shown to Dr. Sarika Tale, PG centre Head, Chikbalapur and received her feedback for the further improvements.

7. **Current status:**

   - The proof-of-concept Prototype module has been successfully designed and is currently under field test.
   - Project Team participated in the Project Expo Organized by PSV college of Engineering and Technology, Krishnagiri.
   - Project Team participated in the Project Expo "TECHNOTHON-2K23" Organized by Department of ECE at Kuppam Engineering College
   - Preparing the necessary documents on the proposed idea for **Patent filing**.
   - Submitted the model of the idea to MSME-BI, KEC for product development and commercialization.
   - The low-cost basic version of Milk adulteration Detection system shows good performance in terms of detecting the adulterants.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-11: IoT BASED Smart Notice board for Classroom Announcements

1. **Project Title** : IoT BASED Smart Notice board for Classroom Announcements
2. **Mentor Name** : Dr. K. Rasadurai, Professor
3. **Student Team Names:**
   I. C. Aiswarya
   II. P. Chitra Sri
   III. G. Sarath Kumar
   IV. Yelagiri Ganesh
4. **Project Description:**

   Notice Board is primary thing in any institution/ organization or public utility places like schools, colleges, bus stations, railway stations and parks. Managing existing notice boards is manual and very tedious process. Few of the common problem in handling current notice board consists of printing documents and then physically going to the location of the board and changing a notice as well as organizing them. Traditional notice boards are often ineffective due to various reasons such as the delay in updating notices, difficulty in accessing them, limited visibility, and the cost of printing and paper waste. This can result in miscommunication, missed deadlines, and a lack of awareness. In this project, we propose entirely new concept of notice boards based on Internet of Things (IoT) technology, that make the process of posting notice very efficient and easy process. Now a day's individuals like wireless connection because they can interact with people easily and it require less time. A smart notice board can be replaced in place of conventional notice board to make more interactive and adaptable. The proposed system reduces the resources like manpower and time. The user can write the data from anywhere in the world to the display from an android mobile using android app. This will reduce the time to update the data as well as it will efficiently transfers the data to the end user.

5. **Project status at beginning of the Year:**

Idea Level

- Project team found the Innovation gaps in the existing products after an extensive search and survey.
- Identified the unique proposition values of the idea
- iNotify" app in smart phone was developed
- Developed the conceptual model of the IoT Based Smart Notice Board
- Prepared the project work plan, roadmap and technical plan of execution

6. **Interventions made:**

- Project team & Mentor had discussed the specific problems the Smart Notice Board addresses, innovations, practical feasibility, Commercial viabilities & social impact at the beginning of the year.
- The system has a limited range due to the constraints of the Bluetooth technology, Zigbee and more power consumption.
- Demonstrated the prototype model to many industrial experts, investors for possible Intervention to take up to the product level. Following experts had given the feedback to improve the design aspects. Display message on Notice Board using GSM, Technology used: GSM, LCD display.
- Project team was able to developed proof-of-concept (POC) prototype successfully, under the supervision of technical experts of TechniLab, Bengaluru.
- MoU has been signed between Technilab Bangalore & ACENAAR TECHNOLOGIES, Kurnool and the proposed startup company

7. **Current status:**

- The proof-of-concept Prototype module has been successfully designed and is currently under field test.
- IoT-based smart notice board using an Android app is an efficient and convenient way to display messages in real-time.
- The android app is developed by using MIT app inventor named as "iNotify" which can send both the text message and a voice message.
- Concept of proposed system presented in International Conference on Recent Advances in Science, Engineering and Technology
- Preparing the necessary documents on the proposed idea for publication

- Submitted the business model of the idea to MSME-BI, KEC for product development and commercialization.
- planning to make product with AcenAAr Technologies, Kurnool.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-12: Educational Toy

1. **Project Title** : Educational Toy
2. **Mentor Name** : Mr. T. Jayasimha, Assistant Professor
3. **Student Team Names:**
   I. K. Sneha
   II. B. Mounika
   III. K. Chakradhar
   IV. K. Gari Madhu
4. **Project Description:**

   In day to day life parents are too busy with their work, so they spend very less time with their kids. To look after their kids for fun and educational is being difficult. The kids have to grow in ability of thinking and broad minded with enjoyable.

   A Educational toy with Multi features is a type of product which makes children to listen and know the information. The Educational toy product is teaches kids in a fun, simple way, and is both robust and affordable After finding existing educational toys and teaching tools either too basic, too complex or too expensive, they decided to take matters into their own hands.

   This project mainly deals with the design of an attractive toy for children which provides both fun and ensures basic learning for children. The best way to make children learn is through attractive toys. Encouraging children to play with educational toys can help in their intellectual and motor skill development.

   This project presents the design of an affordable, smart, reliable and portable educational toy. The designed system is developed to teach objects for 3 to 5 minutes, and even help learning through rhymes. The system takes the input through a RFID scanner and gives a speech output. It is designed in an attractive manner so that children will find fun and interesting while learning. It is a very useful toy for teachers also to make their teaching more interesting for children.

5. **Project status at beginning of the Year:**

Ideal Level:

- Project team found the Innovation gaps in the existing products after an extensive search and survey at various kindergarten and Anganvadi Centre near Kuppam for problem faced by children.
- Identified the unique proposition values of the idea
- Developed the conceptual model
- Developed the conceptual model of the educational toy.
- Prepared the project roadmap and technical plan of execution.

6. **Interventions made:**

The project team could be able to implement the design aspects of Educational toy in two versions, after closely looking at the working nature; the team has come with revised version. In the revised version RFID tags are used to detect input and gives the voice based output in different languages.

- Consulted with Kuppam Elecetro Solutions, Kuppam for looking of possibilities in reducing the size of first version device and implementing the educational toy.
- Permitted the project team to work with R&D team to develop the proof-of-concept (Educational Toy).

The students have presented this first version of prototype at Anveshana- 23

7. **Current status:**

- The proof-of-concept module has been successfully designed and is currently under field test.
- Preparing the necessary documents on the proposed idea for Patent filing

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-13: IOT-Based Standard Penetration Test investigations of soil strength

1. **Project Title** : IOT-Based Standard Penetration Test investigations of Soil strength

2. **Mentor Name** : Mr. Radhakrishnan D., Assistant Professor

3. **Student Team Names:**
   I. K. Lavanya
   II. T. Harshitharaj
   III. V. Ganesh
   IV. R. Nagireddy

4. **Project Description:**

   RRK is a Registered Company/Start up which has been In-corporated to carry on the soil consultancy to own, to provide geotechnical engineering properties for foundation design purposes. The test is carried out within a borehole. The results can be used to determine the relative density, bearing capacity, and settlement of granular soil. The results can also be used to correlate the approximate strength of cohesive soil.

   Soil Investigation done for to find out it's Safe Bearing Capacity through Standard Penetration Tests including Laboratory Tests in order to determine the Type & Depth of foundation for its structural design purpose for any type of projects like Residential, Commercial, Multi-storied buildings, Warehouse & Industries, IT Parks, Hotels, Dams, Bridges & Roads etc., Please contact for any specific Tests or for more details

5. **Project status at beginning of the Year:**

   Idea Level:

   - Project team found the Innovation gaps in the existing products after an extensive search and survey
   - Identified the unique proposition values of the idea
   - Sensor based blows counting device
   - Calculations and graphical programs are in progress.

6. **Interventions made:**

   The project team could be able to implement the design aspects of SPT after consulting experts from the research centres and centres of excellence.

- To start, the project team travelled to Krishnagiri's Centre of Excellence for Soil Testing where they had a conversation about the soil's stability to support structures safely, as well as its qualities, nature, and necessary requirements for a foundation. We also asked for assistance in testing our prototype module.
- Project team was fortunate to interact with Mr Sadat Ali Khan Department of Engineering, The Maldives National University, Maldives, and received advice on developing the device Soil testing platform for improving the accuracy of in-field parameter predictions.
- For the Advanced version of blow count in standard penetration test , the project team visited Adhiyamaan Engineering College, Hosur to know the characteristics of various types of soil, soil properties like SBC, Field Density, Dry Density, etc.,
- Finally, visited many Research laboratories and interacted with Researchers, collected information on soil bearing capacity, field density, and technology used in present testing.
- Our project team seeking assistance from Mr. Harish, Embedded Engineer, Technilab Instruments, Bengaluru has successfully implemented the technical design aspects of the Standard penetration test.

7. Current status:

- The proof-of-concept Prototype standard penetration test model has been successfully designed and is currently under field test.
- Preparing the necessary investigations on the proposed idea for blows counting based on sensor.
- Creating the paperwork needed to present the idea's business model to manufacturers for product development and commercialization
- The low-cost basic version of SPT with adequate features shows good performance in terms of reading measurement and prediction.
- The advanced version of SPT with sensor based access and management feature is currently under field validation.
- Looking to interact with research centres for possible interventions, and local Geotechnical Engineers to use advanced technology for effective testing methods and produce a good results.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-14: IoT based Solar Powered Dryer

1. **Project Title** : IoT based Solar Powered Dryer
2. **Mentor Name** : Mr. M. Lakshmipathy, Associate Professor
3. **Student Team Names:**
   I. S. Sathyanarayana
   II. M. B. Bhanu Prakash
   III. M. R. Prem Kumar
   IV. M. Suchitra
4. **Project Description:**

   One of the oldest domestic arts, dehydrating foods at home provides an easy, economical way to save surplus food for a later time. With nominal investment and experience, you can dehydrate any foods from garden vegetables and fruit to meat, stocking your pantry with wholesome, healthy foods year-round. Food dehydrating is based on one core principle: Quickly remove as much moisture from the food as possible to inhibit the growth of bacteria, mold and yeast. Some people prefer to dry food because it takes less time, money and energy than other food-storage methods, such as canning or freezing.

   The key idea to develop the proposed module is

   - To develop a machine to dry the vegetables and fruits in a hygienic environment.
   - To minimize miss-operation.
   - To reduce human effort and capital cost.
   - To minimize the wastage of food.

5. **Project status at beginning of the Year:**
   - In the beginning of the year, the project was in the Idea stage.
   - The team has done a literature review on the proposed idea.
6. **Interventions made:**

   By integrating IoT technology into solar drying systems, these interventions can enhance the efficiency, control, and monitoring capabilities of solar dryers, leading to improved drying performance and reduced energy consumption.

   - Various sensors are installed within the solar dryer to monitor and collect data on parameters such as temperature, humidity, solar radiation, and

airflow. These sensors will provide real-time information about the drying conditions.

- An IoT gateway device is incorporated that serves as the communication interface between the sensors within the solar dryer and the cloud-based IoT platform. The gateway collects data from the sensors and sends it to the cloud for analysis.
- The data collected from the cloud analytics is to be provided to the users with intuitive data visualization tools and customizable reports. This allows them to analyse historical data, identify patterns, and make informed decisions regarding drying processes, energy consumption, and product quality.

7. **Current status:**
   - The Prototype is developed.
   - The demo is given to Vedic foods, Chintamani and the suggestions are taken from them for the further development.
   - One working model is developed for Vedic foods with customization.
   - Further working on the customizable solar dryers.
   - Registered a Firm called "**CMR Enterprises**". For sustainability currently, we are concentrating on the agri related activities but parallelly focusing on the research to develop an efficient solar dryer too.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-15: Design and Fabrication of solid fertilizer mixer and Spreader.

1. **Project Title** : Design and Fabrication of solid fertilizer mixer and Spreader.
2. **Mentor Name** : Mr. S. N. Nagaraj, Assistant Professor
3. **Student Team Names:**
   I. Kanta Pavan Kumar
   II. C. Mohan
   III. C. R. Uday Kumar Reddy
   IV. M. Praveen Kumar
4. **Project Description:**
   - As the spiral blades have multiple angles, raw materials can be mixed quickly and effectively, regardless of their shape, size and density.
   - The machine uses two relative revolving shafts with spiral blades mounted to mix the materials.
   - Before the mixing process, you need to attach some accessories to break bigger particles into powder.
   - This machine is suitable for continuous mixing of dry fertilizer
   - Usable for Powder Fertilizer, Granule Fertilizer & Sand for Turf & Farms.
   - Regulate the discharge of Fertilizer through spreader.
   - Adjustable Discharge Gate.
   - Till today in agricultural fields manure and solid fertilizer are sprayed only by hands.
   - The main aim of this project is solid fertilizer can be converted into a Powder particles and easily spread over to the soil to provide nutrition's.
   - Powdered fertilizer is featured with light relative density which is easily blown away by the blades, when applying field crops
5. **Project status at beginning of the Year:**
   - Feasibility studied
   - Created overview of model by using catia V5
   - Choosing suitable materials
   - Investigated different types of fertilizer mixer Process
   - Developed detailed design concept of solid fertilizer mixer

6. **Interventions made:**

- For developing prototype, we had a meeting with Mindset engineering solution and Agrosen private limited and came up with a primary design.
- For additional information, we consulted to GKVK Bangalore, Ajaya engineering works and exports Bangalore.
- We have simplified the design also made it cost efficient and affordable to every small scale and large scale farmers.
- Project team was able to design of solid fertilizer mixer.
- For this machine we can made different blades
- Project team has finally developed a “proto type model” of low cost solid fertilizer mixer.
- This solid fertilizer mixer helps to small and large scale farmers

7. **Current status:**

- The Demo prototype model demonstrated in front of experts from Agriculture university, Bangalore
- Tie-up with Jayalakshami industry, Bangalore for further development.
- Prototype model was completed
- The prototype models were demonstrated to farmers.
- Were collected farmer suggestion for improvisation

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-16: Portable Onion and potato grading cleaning and packing machine.

1. **Project Title** : Portable Onion and potato grading cleaning and Packing machine.
2. **Mentor Name** : Mr. Nagesh N., Associate Professor
3. **Student Team Names:**
   I. R. C. Preetham
   II. A. Raja
   III. A. R. Vignesh Reddy
   IV. Y. Praveen Kumar
4. **Project Description:**
   - This Grading and sorting machine can be portable.
   - It can be used only in the onion and potato farming it can be accessorized to grade other vegetables too.
   - Thus it can reduce the cost and man power for grading onion and potato.
   - Revolving sieve type arrangement, which allows the machine to grade the vegetables after grading the vegetables, will be sent to the cleaning chamber at a time interval.
   - After cleaning the gradated and cleaned vegetables are then packed.
   - Till today grading is manually and process is time consuming, and labour oriented.
   - By employing this machine we are reducing cost of operation and speeding up the process
   - The main benefit of this project is choose vegetables that are clean, well-shaped, have no opening at neck, feature crisp, dry outer skins, sprouting
5. **Project status at beginning of the Year:**
   - Studied of existing process & mechanism of grading
   - Studied mechanical properties of material. Required materials were collected
   - Interacted with rural farmers & Collected data for precision technology of grading system.
   - Developed detailed concepts on design & implementation

6. **Interventions made:**

- For developing Prototype model to meet mind set engineering solution and manufacturing companies.
- We have made a field survey on onion grading process and suggestions were collected farmer for further improvisation.
- we have met experts from agriculture university at GKVK, Bangalore and Atal incubation centre for proof of concept
- We have simplified the design also made it cost efficient and affordable to every rural farmer
- Project team was able to do frame design
- Consulted to experts for additional information.

7. **Current status:**

- Onion grading machine Prototype model was developed
- We have discussed with farmers for further development
- Tie-up with Jayalakshami industry, Bangalore for constructing model
- Based on experts and farmers suggestion we made re design
- The prototype models were demonstrated to farmers.
- This grading machine was more useful for small-scale farmers in rural.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-17: Mobility solution for Bedridden Patient

1. **Project Title** : Mobility solution for Bedridden Patient
2. **Mentor Name** : Mr. K. Ganesh, Associate Professor
3. **Student Team Names:**
   I. N. Anil Kumar
   II. Janardhan
   III. L. Sathya Velu
   IV. S. Tirupathi
4. **Project Description:**
   - The innovative designs make transferring patients from their beds to the bathroom / chair a breeze! No more back-breaking manual transfers or awkward patient hoists to deal.
   - Multi-function chair to transfer patients can sit comfortably in the chair while being pushed to the next location, with flip-up footrests and a cushion included.
   - This is much more hygienic and convenient for the caregiver compared with traditional commodes.
   - The transfer chair is waterproof, so patients can also shower while seated on the chair.
   - With seat height is adjustable to suit the bed, chair or toilet, whichever is highest.
   - Double-locking system to prevent chair from opening accidentally.
   - The proposed project is designed to provide better service for the patients and aged people.
   - Patients can also be wheeled over a toilet to allow them to discharge their bowels directly into the toilet bowl.
5. **Project status at beginning of the Year:**
   - We are identified physical disabled patient and nurse's problems in hospital Based on survey we developed detailed design concept.
   - Creating 3D Model by using Catia.
   - Required materials were collected for development of wheel chair.
   - Based on the medical experts and patients feedback we had incorporate for development the model

6. **Interventions made:**

- Consulted the PES Medical institute and science, specialist for understanding the requirements for developing the proof of concept
- Consulted with medical research centre for looking of possibilities reducing the size and cost of the device.
- We have simplified the circuit design also made it cost efficient and affordable to main beneficiaries of nurses and patients

7. **Current status:**

- Automatic wheel chair Prototype model was developed
- we discussed with medical specialists for further development
- Tie-up with Jayalakshami industry, Bangalore for constructing model
- The prototype models were demonstrated at PES Medical institute and sciences

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-18: Manual Operated Seeder for Sowing Seeds

1. **Project Title** : Manual Operated Seeder for Sowing Seeds
2. **Mentor Name** : Mr. P. Rajesh, Assistant Professor
3. **Student Team Names:**
   I. S. Balaji
   II. N. Rajasekhar
   III. S. Sharath Kumar
   IV. M. Jeeva
4. **Project Description:**
   - Seed drill is a machine for placing the seeds in a continuous flow in furrows at uniform rate and at controlled depth with or without the arrangement of covering them with soil
   - To carry the seeds.
   - To open furrow to an uniform depth
   - To place the seed in furrows in an acceptable pattern
   - To cover the seeds and compact the soil around the seed
   - This done by machine where seeds are dropped in equal spacing
   - The seeds are equally distributed.
   - Fewer seeds are wasted.
   - It consumes less time compared to the manual method.
   - Ensures equal distance and proper depth.
5. **Project status at beginning of the Year:**
   - Feasibility study
   - Studying different types of fertilizer injectors
   - Established detailed design concept.
   - Drawing the conceptual model by using solid edge.
   - Selecting suitable materials
   - Developing prototype model.
6. **Interventions made:**
   - For proof of concept we met Agriculture University at GKVK, Bangalore.
   - We have simplified the design also made it cost efficient and affordable to every rural farmer
   - Project team was able to do plough blade design of seed sowing machine

- For this machine we can plant different types and different sizes of seeds also we can vary the space between two seeds while planting.
- The Project team has finally developed a “proto type model” of low cost seed sowing machine.
- This seed-sowing machine helps the farmers in large scale. Farmers can easily do their work, even an unskilled person can also work with this machine

7. **Current status:**
   - The Demo prototype model demonstrated at agriculture university, Kuruburu, Chintamani.
   - collecting feedback data from farmers and experts
   - Farmers suggested increasing the number of plough blade like three or four.
   - Farmers and Atal incubation experts suggested redesign-ploughing mechanism.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-19: Ventilator using Cam Shaft Mechanism

1. **Project Title** : Ventilator using Cam Shaft Mechanism
2. **Mentor Name** : Mr. R. Singarvelu, Assistant Professor
3. **Student Team Names:**
   I. M. Karthik
   II. SK. Akbar Basha
   III. M. Mohan Babu
   IV. V. Ravindra
4. **Project Description:**
   - A ventilator mechanism must be able to deliver in the range of 10 – 30 breaths per minute, with the ability to adjust rising increments in sets of Along with this the ventilator must have the ability to adjust the air volume pushed into lungs in each breath.
   - Apart from this the ventilator must be able to monitor the patients' blood oxygen level and exhaled lung pressure to avoid over/under air pressure simultaneously
   - The entire system is driven by a controller circuitry to achieve desired results and to assist patients in COVID pandemic and other emergencies.
   - To monitor the necessary vitals of the patient and display on a mini screen
   - Human lungs use the reverse pressure generated by contraction motion of the diaphragm to suck in air for breathing.
   - A ventilator to inflate the lungs by pumping type motion uses a contradictory motion.
5. **Project status at beginning of the Year:**
   - Feasibility deliberate
   - Studied blood oxygen sensor
   - Established detailed design concept.
   - Conceptual Drawing model has completed by using solid edge.
   - Suitable components was selected
   - Developed prototype model
6. **Interventions made:**
   - Proof of concept we consulted PES medical science and institute, Kuppam.

- We have simplified the design also made it cost efficient and affordable to every customer
- Project team was able to do cam design of ventilator
- The Project team has finally developed a “proto type model”.
- A ventilator to inflate the lungs by pumping type motion uses a contradictory motion.

7. **Current status:**
   - The Demo prototype model demonstrated at PES medical science and institute.
   - Collected feedback data from experts.
   - Experts suggested increasing capacity of sucking pressure.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-20: Hydraulic actuated system for assisting Nurses to move patients

1. **Project Title** : Hydraulic actuated system for assisting Nurses to move Patients
2. **Mentor Name** : Mr. S. Rajesh Assistant Professor
3. **Student Team Names:**
   I. B. Dilip Kumar
   II. Eswar B.
   III. S. Dhananjaya
   IV. A. Manoj
4. **Project Description:**
   - The hydraulic cylinders are actuated and controlled using solenoid valves. The nurses can control the robot using voice actuation, capacitive touch sensors and using manual joystick.
   - We are currently working on autonomous navigation so that, if the patient has to transport a patient, all they have to do is verbally command the location, and the robot will navigate to the desired location independently.
   - As a result, there is a need to maximize their efficiency and reduce the number of monotonous tasks that they need to perform.
   - In addition, patient safety and comfort is also enhanced.
5. **Project status at beginning of the Year:**
   - Feasibility deliberate
   - Studied different types of Actuators.
   - Established detailed design concept.
   - Drawing the conceptual model by using CATIA V5
   - Suitable Components was selected.
   - Developed prototype model.
6. **Interventions made:**
   - Consulted the PES Medical institute and science experts for understanding the requirements for developing the proof of concept
   - Consulted with medical research Centre for looking of possibilities reducing the size and cost of the device.
   - We have simplified the circuit design also made it cost efficient and affordable to main beneficiaries of nurses and patients.

7. **Current status:**
   - Hydraulic actuated system Prototype model was developed
   - we discussed with medical specialists for further development
   - Tie-up with Jayalakshami industry, Bangalore for constructing model
   - The prototype models were demonstrated at PES Medical institute and sciences.
   - It reduces the number of monotonous tasks that they need to perform.
   - Sedated and unconscious patients in hospitals need constant monitoring and attention.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-21: Design and fabrication of agricultural Drone

1. **Project Title** : Design and fabrication of agricultural Drone
2. **Mentor Name** : Mr. V. Rajendra, Assistant Professor
3. **Student Team Names:**
   I. K. Babu
   II. S. Harish
   III. R. Ranjith Kumar
   IV. R. Anand Babu
4. **Project Description:**
   - Precision agriculture refers to the way farmers manage crops to ensure efficiency of inputs such as water and fertilizer, and to maximize productivity, quality, and yield.
   - Drones allow farmers to constantly monitor crop and livestock conditions by air to quickly find problems that would not become apparent in ground-level spot checks.
   - The process of using a drone to map or survey crops is a relatively straightforward one.
   - It takes pictures using onboard sensors and the built-in camera, and uses GPS to determine when to take each shot.
5. **Project status at beginning of the Year:**
   - Developed detailed concepts on design
   - Creating 3D Model by using Catia.
   - To minimize the human intervention to operate.
   - How to snap the plants and health monitoring by using cameras
   - Based on the customer feedback continuous improvisation will be done.
   - The implementation of the project can develop so many opportunities
6. **Interventions made:**
   - we met agriculture university GKVK, Bangalore and Atal incubation, Ananthapur for proof of concept
   - We simplified the design also made it cost efficient and affordable to every rural farmer Project team was able to do sprayer nozzle design
   - Developed prototype under guidance of turbo tech engineering solution.
   - Consulted Atal incubation centre ananthpuramu for additional information.

- We have to go field test after completion of prototype model

7. **Current status:**
   - The Demo prototype model demonstrated at agriculture university, Kuruburu, Chintamani and Atal incubation Centre, S.K. University Ananthapur
   - Collected feedback data from farmers and experts
   - Based on the farmer and experts suggestions we are going to scale up the model.
   - Tie up with small-scale farmers in rural.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

NewGen IEDC-Ramachandra College of Engineering

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: Fifth Year (2022-23)

Name of the College/Institution hosting NewGen IEDC	Ramachandra college of Engineering, Eluru.		
Year of starting NewGen IEDC	2017-2018		
Name of the Head/Principal of the Institution/College	Dr. M. Muralidhar Rao		
Name of NewGen IEDC Coordinator	Mr. K. Venkatesh		
Contact Details of NewGen IEDC Coordinator • Mobile Number • Email ID	9553737773 newgeniedc@rcee.ac.in		
Financial Details	**Sr. No.**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC/17-18/02 Date: 15/06/2017	Rs. 60.00,000
	2		Rs. 47.50,000
	3		Rs. 60.00,000
	4		Rs. 60.00,000
	5		Rs. 60.00,000

1. **Details of Activities Undertaken during the year:**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. **Name of the Program :** Role of Design Thinking, Critical Thinking for Entreprenuer

   About Program: Design thinking allows you, as an entrepreneur, to follow different thinking styles and explore open-ended options to come up with an actionable solution. Design thinking tools such as empathy are great for this. Prototyping also plays an integral role in this aspect.

   Photograph:

2. **Name of the Program :** Invistigation on Problem solving technique to become Entreprenuer

   About Program : Entrepreneurial problem solving is the process of using innovation and creative solutions to close that gap by resolving societal, business, or technological problems. Sometimes, personal problems can lead to entrepreneurial opportunities if validated in the market. The entrepreneur visualizes the prospect of filling the gap with an innovative solution that might entail the revision of a product or the creation of an entirely new product. In any case, the entrepreneur approaches the problem-solving process in various ways.

Photograph

3. **Name of the Program :** Problem identification and analysis in Agriculture as entrepreneur

   About the Program : In agriculture field so many problems aree still having no solution, Involvement of technical student in agriculture is very less so that student don't have atleast knowledge to identify te problem ,This program helps to invove student to cultivate 2 acers of agriculture land to identify the problems.

[B] To identify, develop & commercialize students' innovative ideas

1. **Name of the Program** : A Two weeks workshop on Advanced Mechanica Tool

   About Program: Design, create, build and shape the world around us and the world of our future. Design is a key branch of study in mechanical engineering, as it is the process of designing parts, components and products with an understanding of design constraints and the environment.

   Students able to learn the key aspects of designina model and got training on Advanced Design and Simulation Tool

Photograph

2. **Name of the Program :** Training program on Company Web designing and Maintenance

Photographs:

[C] To enhance Industry-Academia interaction

1. Name of the Program : Drone Pilot Training

About the Program: Young students may learn coding and advancements in building technical skills and graduate in drone flight skills. Drone training advances computer technical/programming knowledge and prepares students for drone piloting and other tech careers

Company Name: Foople Technologies, Andhra Pradesh

Photograph:

2. **Name of the Program :** Interaction and Training Program on 3D Printing Technology

   About the Program: The 3D printer provides a variety of learning experiences for students. They need to learn how different 3D printers work and how to operate them, and how to troubleshoot and solve problems. This is an art in which many students do not get to engage during the course of their normal studies. By learning how to troubleshoot and solve 3D printer problems, students learn to practice persistence and endurance in overcoming difficulties. This can translate to helping students solve their own problems in life as well.

   Name of the Company : 3D Labs India, Hyderabad

   Photographs

3. **Name of the Program :** Training on Advanced Manufacturing Techniques

About the Program: To develop Ability of the student quantitatively analyze technical problems, and produce a solutions.

- Ability to program PLC devices.
- Ability to construct a logical flow process.
- Ability to utilize Master Cam for CNC programming.
- Ability to plan and execute CNC projects

Name of the Company: MTAB Automation Industry, Chennai.

Photograph:

4. **Name of the Program:** Industry Interaction Program on IOT in manufacturing

About The Program: Industrial IoT empowers manufacturers to digitize nearly every part of their business. By reducing manual process and entries, manufacturers are able to reduce the biggest risk associated with manual labor – human error. This goes beyond just operational and manufacturing errors.

Name of the Company: AMS India PVT Ltd

Photograph:

2. **Deviation (shortfall) from the proposed action plan (with reasons), if any:**
   No deviations

3. **Other important highlights (new initiatives), if any: NA**

4. **Student Projects**
   Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos

5. **Provide a minimum two-page case let each on the two best student projects (either prototype developed or commercialized) from the above list. The case lets should include the following:**

Best Student Project-01: Four seater Passenger vehicle with Inbuilt Lift Jack

I. **Project Title** **:** Four seater Passenger vehicle with Inbuilt Lift Jack

II. **Mentors Name** **:** Bhavanarayana K.

III. **Student team details**

   I. T. Hema Vamsi Krishna
   II. M. Karthik
   III. Ch. Ravindra Babu
   IV. K. V. D. S. Krishna

IV. **Brief description of the student start-up :**

Four seater Passenger vehicle with Inbuilt Lift Jack

- The aim of this work is to design and develop an inbuilt hydraulic jacking mechanism that can be operated by the driver from inside the vehicle.
- The four-wheeler vehicle can be lift by using hydraulic system which is connects to the four sides of the chassis. By using this technique, we can attain less powerloss and simple design.
- Instead of using jack we are using the hydraulic system to lift the vehicle. By using simple button controls to control the lifting of the vehicle.
- The hydraulic energy can be generated by using the power of the engine with theusing of belt mechanisms.

V. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

VI. Contribution of NewGen IEDC in the same

- Support to our to develop from idea to prototype
- Mentor guide students to full fill their dream project
- New Gen IEDC given motivation

VII. Future plan

- Company registration
- Submission of project proposal to Automobile companies
- Start a startup as a client to automobile companies

VIII. Important highlights

- In next stage of development we are targeting to develop for heavy vehicles

Annexure-A

Details of Student Projects: Fifth Year (2022-2023)

Project-01: Green House Monitoring through IoT

1. **Project Title** : Green House Monitoring through IoT
2. **Mentor Name** : Dr. J. Prasanth Kumar
3. **Student Team Names:**
   I. M. Poojitha
   II. P. Subhakar
   III. K. Haripriya
   IV. K. Raju
4. **Project Description: Enhancing Greenhouse Management with IoT Monitoring**

   The implementation of Internet of Things (IoT) technology in greenhouse monitoring brings significant advancements to modern agriculture. By integrating smart sensors and IoT devices, farmers can create an intelligent and automated system that optimizes environmental conditions within the greenhouse. This proactive approach enhances crop health, boosts yields, and ensures sustainable and efficient farming practices.

   Key Features:

   - Environmental Sensing: IoT-enabled sensors are strategically placed throughout the greenhouse to monitor vital parameters such as temperature, humidity, CO2 levels, soil moisture, and light intensity. Real-time data collection provides insights into the greenhouse's microclimate, allowing farmers to fine-tune conditions to meet specific crop requirements.
   - Automated Climate Control: Based on the sensor data and predefined thresholds, the IoT system automatically adjusts climate control equipment like fans, vents, heaters, and irrigation systems. This ensures that crops experience optimal growing conditions, minimizing stress and promoting healthy development.
   - Water Management: IoT technology enables precise monitoring of soil moisture levels, enabling intelligent irrigation systems. By delivering water directly to the plant roots when needed, water usage is optimized, preventing overwatering and conserving resources.

- Nutrient Management: Integrating IoT devices with fertigation systems allows for precise nutrient delivery tailored to each plant's growth stage and requirements. This minimizes nutrient wastage and ensures plants receive the necessary elements for optimal development.
- Pest and Disease Monitoring: IoT sensors can detect early signs of pest infestations or diseases, enabling farmers to take immediate action to prevent widespread outbreaks. Timely intervention reduces the need for chemical treatments and safeguards plant health.
- Remote Monitoring and Control: The IoT system offers farmers remote access through smartphones or computers, allowing them to monitor the greenhouse conditions and adjust settings from anywhere. This remote control ensures prompt responses to critical situations and reduces the need for constant on-site presence.
- Data Analytics and Insights: The vast amounts of data collected from sensors are processed using advanced analytics and machine learning algorithms. This analysis provides valuable insights into crop performance, growth patterns, and environmental trends, enabling data-driven decision-making for improved productivity.
- Energy Efficiency: By intelligently managing climate control and irrigation systems, the IoT-enabled greenhouse reduces energy consumption, leading to cost savings and environmental benefits.

5. Project status at the beginning of the Year:

20 % Prototype completed

6. Interventions made:

Technology interventions refer to the application of various technological solutions to address specific challenges or improve processes in a given context. In the context of agriculture and greenhouse management using IoT, some of the key technology interventions include:

- ✓ Internet of Things (IoT) Sensors: Deploying smart sensors to monitor environmental conditions, soil moisture, temperature, humidity, light levels, and other parameters in real-time. These sensors provide continuous data for analysis and decision-making.
- ✓ Automation and Control Systems: Integrating IoT devices with automation and control systems to regulate climate control equipment, irrigation

systems, and nutrient delivery. Automation ensures that optimal conditions are maintained without manual intervention.

- ✓ Data Analytics and Machine Learning: Applying data analytics and machine learning algorithms to process the vast amount of data collected by IoT sensors. These insights help in identifying patterns, predicting crop behavior, and making data-driven decisions for improved efficiency.
- ✓ Remote Monitoring and Access: Enabling farmers to remotely monitor and control greenhouse conditions using mobile applications or web interfaces. This remote access facilitates timely interventions and reduces the need for physical presence.
- ✓ Smart Irrigation and Water Management: Implementing IoT-based precision irrigation systems that adjust water supply based on real-time soil moisture data, ensuring efficient water usage and reducing waste.
- ✓ Climate Control Optimization: Using IoT data to optimize the functioning of climate control systems, such as ventilation, heating, and cooling, to maintain ideal conditions for crop growth.
- ✓ Pest and Disease Detection: Integrating IoT sensors with pest and disease monitoring systems to detect early signs of infestations or diseases, enabling prompt action to prevent damage.
- ✓ Energy Efficiency Solutions: Employing energy-efficient equipment and technologies to reduce energy consumption in the greenhouse operations, thereby lowering operational costs and environmental impact.
- ✓ Smart Fertigation: Implementing IoT-enabled fertigation systems to deliver nutrients precisely to plants based on their growth stage and needs, reducing nutrient wastage and improving crop health.
- ✓ Cloud Computing and Storage: Utilizing cloud-based platforms to store and process data collected from IoT devices. Cloud computing provides scalability, accessibility, and data security for agricultural operations.
- ✓ Mobile Applications and Dashboards: Developing user-friendly mobile applications and web-based dashboards to present data insights, analytics, and real-time alerts for effective decision-making.

By combining these technology interventions, agriculture and greenhouse management can be revolutionized, leading to higher yields, better resource utilization, reduced environmental impact, and more sustainable farming practices.

7. **Current status: Under Progress**

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-2: Solar-Piezo Hybrid Power Generation Based Charging System

1. **Project Title** : Solar-Piezo Hybrid Power Generation Based Charging System

2. **Mentor Name** : Ashok Kumar Bandla

3. **Student Team Names:**
   I. A. Bharath Kumar
   II. G. Murali
   III. P. Vasanth Kumar
   IV. Sai Prakash
   V. S. Tejaswa

4. **Project Description:**
   - The use of renewable resources like the solar energy and various other clean sources of energy have been on an increase in demand in the recent years due to their ease in availability and low and cost.
   - This project demonstrates how to use the solar energy and the kinetic energy from footsteps of people walking over piezo based footboard.

- The Solar Panel is used to harness the solar power. It converts the solar power into voltage, which when more than the voltage in the battery is able to charge the battery. The power available through the solar panel is sensed by an Atmega family microcontroller which it displays on the LCD.
- Similarly, the power generated through footsteps over Piezo Footboard is shown on the LCD. In this case, the footstep count is also displayed on the LCD along with the voltage generated by that particular footstep.
- In this way one can charge the battery through solar and footstep energies while simultaneously also monitoring of how much is getting generated with the use of Solar Piezo Hybrid Power Charging System.

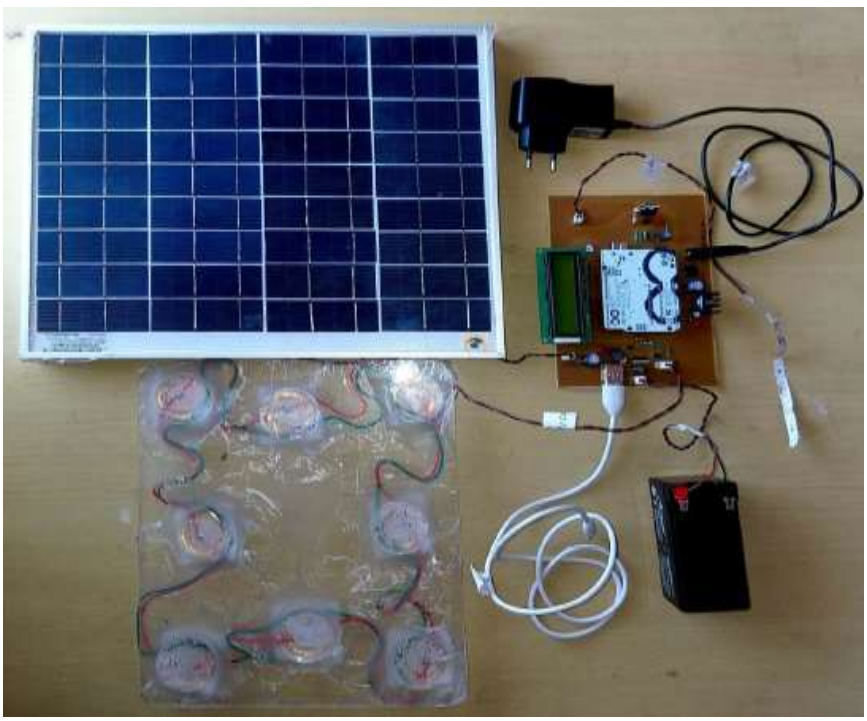
5. **Project status at the beginning of the Year:**

   Collecting the Ideas from students for better implementation of the Project.

6. **Interventions made:**
   - Implemented Atmel Microcontroller for sensing the Power available through solar panel.
   - Implemented the foot step count to be displayed on LCD along with the voltage generated by that particular footstep.
7. **Current status:**

   In testing condition.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-03- Arduino Obstacle Avoidance Robot with Voice Control & Bluetooth Connectivity

1. **Project Title** : Arduino Obstacle Avoidance Robot with Voice Control & Bluetooth Connectivity
2. **Mentor Name** : NARENDRA BAVISETTI
3. **Student Team Names:**
   I. G. Jahnavi
   II. J Thabitha
   III. J Ramadevi
   IV. G Sushma
   V. M Yasaswini Chandrika
4. **Project Description:**
   - Voice-Controlled Robot: The main objective of this project is to develop an obstacle avoidance robot that can be controlled using voice commands. Users can give voice instructions to the robot for various tasks.
   - Bluetooth Connectivity: The robot utilizes Bluetooth technology to establish a communication link with an Android app. This allows users to send commands to the robot wirelessly, making it more convenient to operate.
   - Ultrasonic Sensor for Obstacle Detection: The robot is equipped with an ultrasonic sensor, which enables it to detect obstacles in its path. When an obstacle is detected, the robot notifies the user about the object's presence.
   - Microcontroller (ATmega328P) Handling: The robot's microcontroller plays a crucial role in processing the voice commands received from the voice module. It analyzes the commands and executes the appropriate actions to control the robot's movement.
   - Servo Motor for Movement: To control the robot's movement, it is integrated with a servo motor. The microcontroller manipulates the servo motor based on the user's voice commands to navigate the robot effectively.
   - Android App Interface: The project involves creating an Android app that serves as the interface for sending voice commands to the robot. Through this app, users can easily interact with the robot and control its actions.
   - Hardware and Software Implementation: The project's hardware components, such as the ultrasonic sensor, servo motor, and Bluetooth

module, have been successfully integrated into the robot. Additionally, the software part has been implemented using the Arduino IDE module, ensuring smooth functioning of the robot's voice-controlled features.

5. **Project status at the beginning of the Year:**

   Collecting the Ideas from students for better implementation of the Project.

6. **Interventions made:**

   - Voice Control: The robot can be controlled using voice commands, making it easy for users to operate without physical input.
   - Bluetooth Connectivity: The robot communicates with an Android app via Bluetooth, enabling wireless control and command transmission.
   - Obstacle Detection: An ultrasonic sensor helps the robot detect obstacles in its path and notifies the user of potential obstructions.
   - Servo Motor Movement: The robot's movement is controlled by a servo motor, responding to voice commands to navigate as desired.

7. **Current status:**

   In testing condition.

8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

Project-04- Automatization of Smart Trolley using RFID

1. **Project Title** : Automatization of Smart Trolley using RFID
2. **Mentor Name** : Narendra Bavisetti
3. **Student Team Names:**
   I. AD. Arshiya
   II. M.Nikitha
   III. V. Hema Sri
   IV. S. Saibhanu Prakash
   V. R. A. D. Prasad
4. **Project Description:**
   - Enhanced Shopping Experience: The RFID-based smart trolley system offers customers a hassle-free and convenient shopping experience by eliminating the need to wait in long queues at billing counters.
   - Time Efficiency: With the smart trolley, customers can save valuable time as the RFID technology automatically scans and adds products to their bill, streamlining the checkout process.
   - Wide Product Variety: Supermarkets and hypermarkets can offer an extensive range of products, including food, beverages, and household items, thanks to the efficient and organized RFID-based inventory management.
   - Budget-Friendly Shopping: Customers can now easily track the total cost of their purchases on a digital display attached to the smart trolley, helping them make informed decisions based on their budget.
   - Increased Footfall: The implementation of this advanced technology serves as a strategic move for supermarkets and hypermarkets, attracting more customers due to the improved shopping convenience.
   - Error Reduction: The RFID system minimizes human errors during billing, ensuring accurate and precise pricing for each product, leading to greater customer satisfaction.
   - Promoting Innovation: The automatization of smart trolleys reflects the supermarket industry's commitment to embracing technological advancements and enhancing customer-centric services.

By integrating RFID technology into shopping trolleys, supermarkets and hypermarkets not only boost their efficiency and customer satisfaction but also position themselves as innovative leaders in the retail industry.

5. **Project status at the beginning of the Year:**

   Collecting the Ideas from students for better implementation of the Project.

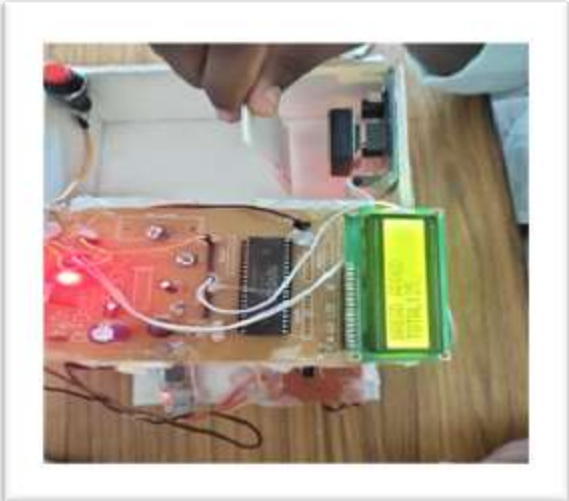
6. **Interventions made:**

   - RFID tags are added to products for easy scanning.
   - Smart trolleys with built-in scanners read RFID tags as customers shop.
   - Products are automatically added to the bill without waiting in queues.
   - Customers can view their total cost and make informed decisions while shopping..

7. **Current status:**

   In testing condition.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



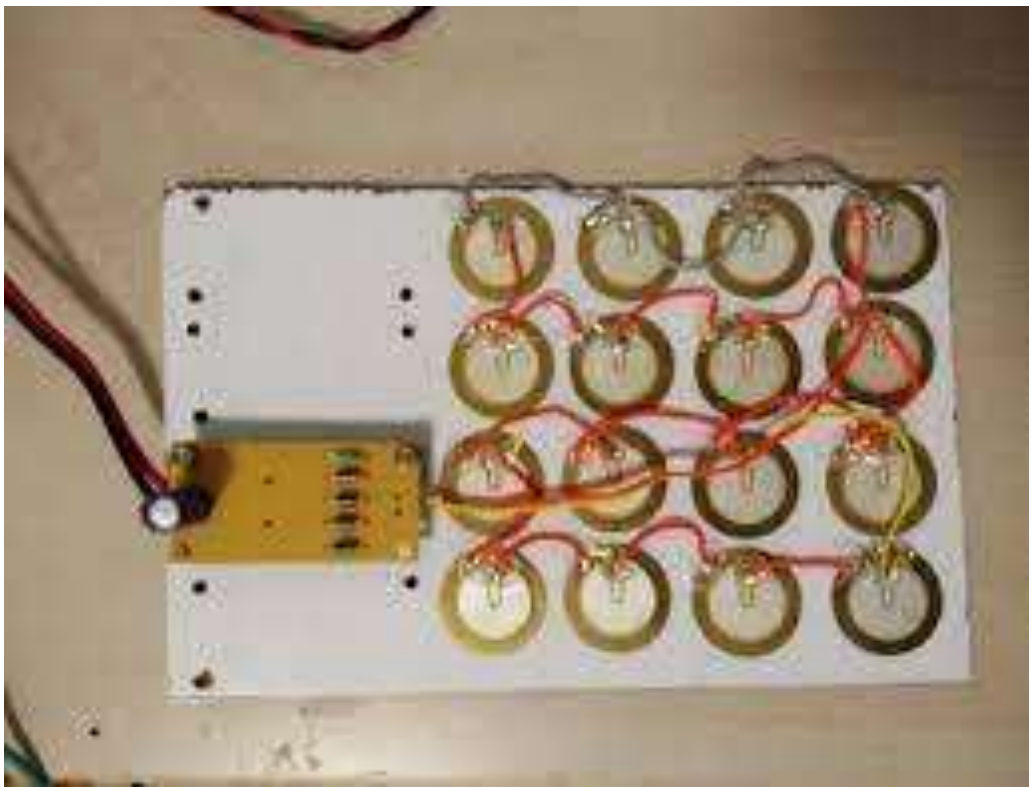
Project-05- Power Generated by Pizeo Electric Plates

1. **Project Title** : Power Generated by Pizeo Electric Plates.
2. **Mentor Name** : KTSR Kowstubha
3. **Student Team Names:**
   I. E.Raviteja
   II. D. Harsha Vardhana Acharyalu
   III. G. Ganesh
   IV. L. Vidya
4. **Project Description:**
   - Piezoelectric plates or elements can be used as generators to convert mechanical energy into electrical energy.
   - When subjected to vibrations or pressure variations, these plates produce small amounts of electricity, which can be accumulated and used to power low-power devices or sensors.
   - Piezoelectric materials can be integrated into structures or wearable devices to harvest energy from ambient vibrations or movements.
   - For example, in buildings, piezoelectric materials can be embedded in floors or walls to generate electricity from the building's vibrations.
   - Piezoelectric plates are commonly used as transducers to convert electrical energy into mechanical energy and vice versa.
   - They are used in various applications, such as ultrasonic devices, actuators, and medical imaging equipment.
   - Self-powering wireless sensors can be created using piezoelectric materials. These sensors can generate their own electricity from vibrations in their environment, eliminating the need for batteries or external power sources.
5. **Project status at the beginning of the Year:**
   Collecting the Ideas from students for better implementation of the Project.
6. **Interventions made:**
   - Implemented the pizeo electrical plates to generated power by mechanical energy’
   - Implemented the foot step count to be displayed on LCD along with the voltage generated by that particular footstep.

7. **Current status:**

   Prototype In testing condition.

8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**



Project-06- IoT-Based Smart Office Chair to Improve the Productivity

1. **Project Title** : IoT-Based Smart Office Chair to Improve the Productivity
2. **Mentor Name : Dr. Jagan Mohan Rao S.**
3. **Student Team Names :**
   I. Ms. S. Asharffine Ishrat
   II. Ms. P. Sowmya Sri
   III. Ms. SK. Chandini
   IV. Ms. B. Manwitha
   V. Ms. Y. Poojitha
   VI. Mr. Hemanth Kumar
4. **Project Description :**

   The idea is suggested to lessen the risk of spondylosis among office workers due to their poor posture. Any office chair may be made intelligent by adding this gadget. Two IR sensors are used by the device to detect the occupant's

slouching position. All of the devices' electronics are under the control of the microcontroller. The device gives an audio and visual warning when the user's posture is poor while in a working state. The device resets itself and monitors for poor posture for longer than 5 minutes if the user corrects their posture after receiving the notification of alert. One can boost their productivity and lower their risk of developing spondylosis by using the device to rectify their bad posture.

IoT will likely be added in the future to track employee productivity and man hours.

5. **Project status at the beginning of the Year:**

   Idea for a smart office chair that alerts the user when he or she leans towards the table when in a working attitude. A great deal of people have spondylosis as a result of poor posture when using a computer or working in an office.

6. **Interventions made :**

   - Simple IR sensors are used to detect poor posture, and trustworthy electronics are chosen to notify the user of a smart chair.
   - Good posture promotes productivity.
   - Making the things simple and low-cost

7. **Current status :**

   Prototype developed and is under trial run

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-07- Low-Cost Solar-Powered Insect Lure for Farms

1. **Project Title** **:** Low-Cost Solar-Powered Insect Lure for Farms
2. **Mentor Name** **:** Dr. Jagan Mohan Rao S.
3. **Student Team Names** **:**
   I. T. Teja Sri
   II. Y. Roshini
   III. B. Venkata Satya Manikanta
   IV. S. Sivaranjani
   V. G. Deekshitha
   VI. K. Bhargavi Priya
4. **Project Description** **:**

It helps farmers lessen the effects of insects that damage farm fields or that impairs yield quality or quantity. The product that is currently on the market has been upgraded by the project. The light source is chosen in accordance with research on various dangerous insects in various agricultural fields to determine what band of light spectrum they often become drawn to. The solar-powered device will turn on after sunset and run for three to four hours (depending on the setting). The on-time will be chosen in order to safeguard

the farmer-friendly insects. Insects drawn to the UV spectrum will fall into the funnel and perish in water stored in the collector.

Future plans include the addition of IoT to monitor the gathering of insects on various farms and AI to analyze the various insects that are collected so that farmers can understand the impact of insects on farms.

5. **Project status at the beginning of the Year:**

   Idea to develop a low-cost solar powered electronic lure for farms.

6. **Interventions made :**

   - Based on current studies, a dependable UV source for luring insects at night was chosen.
   - With the help of a mono crystalline solar panel, lithium-ion batteries are recharged during the day.
   - Electronics that are simple, affordable, and reliable are used to control the gadget.

7. **Current status :**

   Prototype developed and is under trial run

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-08- Solar-Power Electric Vehicle Charging Port

1. **Project Title** :Solar-Power Electric Vehicle Charging Port
2. **Mentor Name** : Dr. J. Ranga
3. **Student Team Names:**
   I. E. Raviteja
   II. G. Ganesh
   III. D. Harsha vardhana Acharayalu
4. **Project Description:**
   - Flexible solar EV charging and transmission expansion leads to substitution effect from pv plates.
   - An electric vehicle (EV) charging port is a crucial component that allows an electric vehicle to connect to ansolar power and external source and recharge its batteries.
   - EV charging ports come in different shapes, sizes, and connectors, depending on the region and the charging standard being used.
   - Competition effect: Flexible EV limit business case of P2H technologies and also batteries
   - EV flexibility reduces significantly price fluctuations locally

- Transmission expansion in contrast smoothens price fluctuations on spatial scale
- Flexibility of EV and transmission expansion accelerates CO2 reduction
- Main reduction in CO2 intense countries at the expense of virtuous countries
  - → Regardless of distributional effects of CO2 and prices, overall positive effects stresses that strong European coordination is needed for a least cost transition
  - → Policy that increases the utilization of EV flexibility has to be put in place

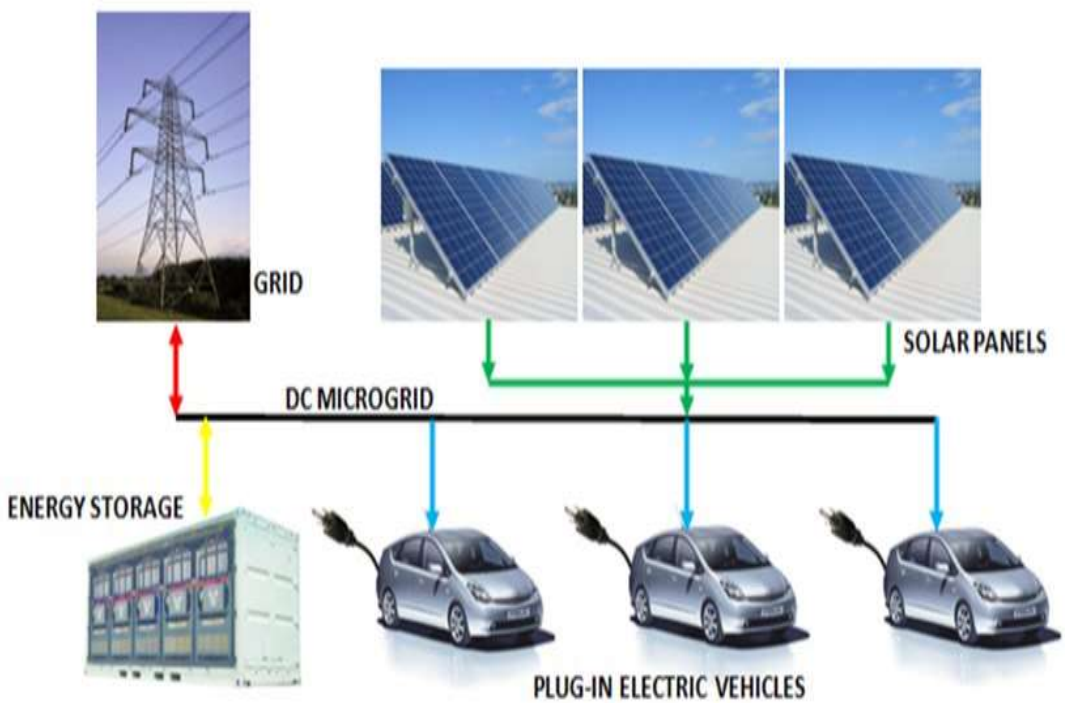
5. **Project status at the beginning of the Year:**

   Collecting the Ideas from students for better implementation of the Project.

6. **Interventions made:**
   - Take input source from the solar panel and external Grid energy.
7. **Current status:**

   In testing condition.

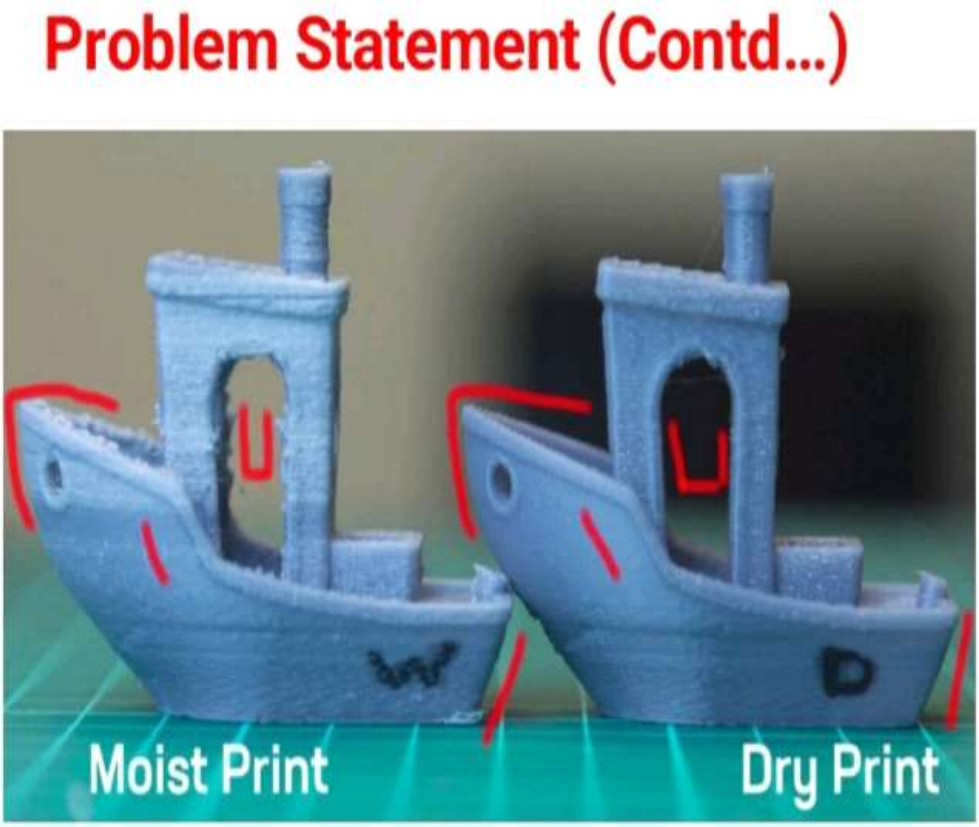
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-09- Low Cost 3d Filament Dehumidifier

1. **Project Title** : Low Cost 3d Filament Dehumidifier
2. **Mentor Name** : Ramakrishna Manda
3. **Student Team Names:**
   I. Ms. S. Keerthi
   II. Mr. Saikiran
4. **Project Description:**
   - 3D printing, also known as additive manufacturing, is a method of creating a three dimensional object layer-by-layer using a computer created design.
   - Using 3D printing, engineers can create new prototypes-even those with complex internal structures and geometries-address problems and find solutions, without ever leaving their working environments.
   - Poly lactic acid (PLA) is one of the most popular materials used in desktop d printing used b engineering students.
   - PLA is a organic material that readily absorbed moister and is extremely sensitive to trace water content.PLA is hygroscopic material that drawn in moister from the air, causing it to swell and become more brittle. Due to this brittleness of PLA,the product has produced. Also the quality of the product might be effected due to this so here is need of Dehumidifier to prevent it from absorbing moisture.
5. **Project status at the beginning of the Year:**
   Collecting the Ideas from students for better implementation of the Project.
6. **Intervention**
   - We need a Dehumidifier which can mnitor humidity and temperature level around the PLA filament.
7. **Current status:**
   In testing condition and work under process

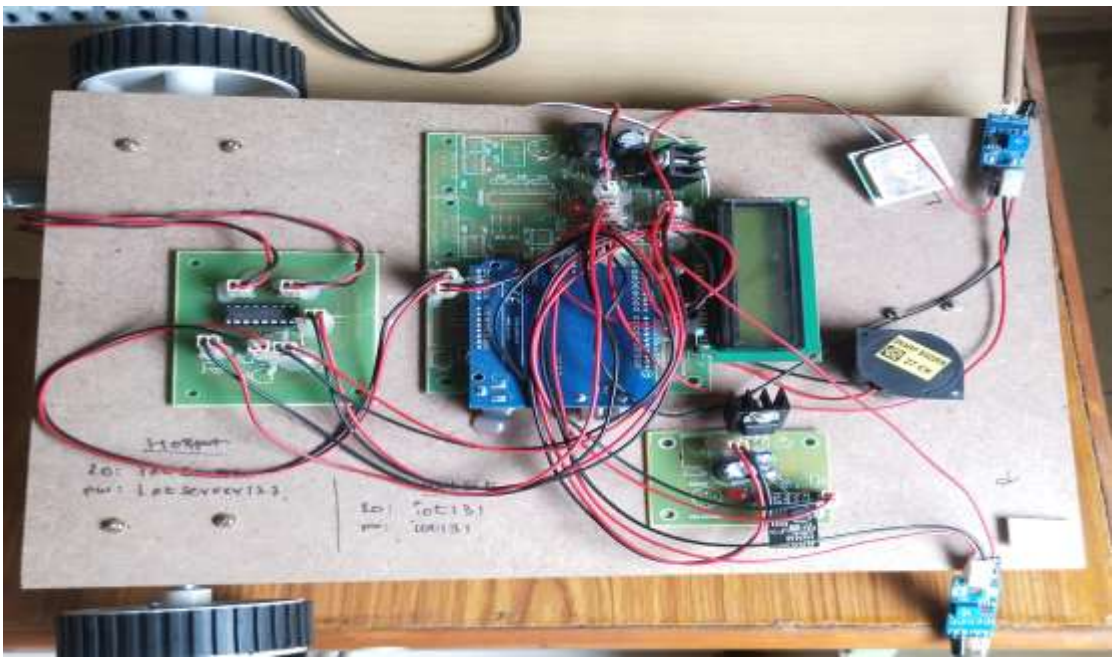
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-10- IoT Based automated crack and object identifier for Trains.

1. **Project Title** : IoT Based automated crack and object identifier for Trains.
2. **Mentor Name** : RAMAKRISHNA MANDA
3. **Student Team Names:**
   I. Mr. Harsith
   II. Ms. B. Gopika
   III. Mr. Bhuvana chand sai
   IV. Mr. K. Lalithendra
4. **Project Description:**
   - It is based on crack and object detection of train for safe railway transportation.
   - IOT based solar powered automatic crack and vehicle detection called 'crack and object identifier vehicle' send the coordinates to the station .
   - As vehicle examines the rail track with image processing method with ESP32 CAM as well as Ultrasonic sensor
   - The coordinates of the location are consigned to the station master by SMS using GSM and GPS modules.
5. **Project status at the beginning of the Year:**
   Idea
6. **Intervention**
   - An automated crack and object identifier vehicle is proposed for detecting cracks and obstacles in the railway track that vehicle can help to reduce the railway accidents from the rail track.
   - As vehicle examines the rail track with image processing method with ESP32 CAM as well as Ultrasonic sensor
7. **Current status:**
   In testing condition

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-11- Four seater Passenger vehicle with Inbuilt Lift Jack

1. **Project Title** **:** Four seater Passenger vehicle with Inbuilt Lift Jack
2. **Mentor name** **:** Mr. Bhavanarayana K.
3. **Student Team Name:**
   I. T. Hema Vamsi Krishna
   II. M. Karthik
   III. Ch. Ravindra Babu
   IV. K. V. D. S. Krishna
4. **Project Description:**
   - The aim of this work is to design and develop an inbuilt hydraulic jacking mechanism that can be operated by the driver from inside the vehicle.
   - The four-wheeler vehicle can be lift by using hydraulic system which is connects to the four sides of the chassis. By using this technique, we can attain less powerloss and simple design.
   - Instead of using jack we are using the hydraulic system to lift the vehicle. By using simple button controls to control the lifting of the vehicle.
   - The hydraulic energy can be generated by using the power of the engine with theusing of belt mechanisms.
5. **Project status at the beginning of the Year:**
   Idea

6. **Intervention**
   - Implemented a expandable four bar mechanism
7. **Current status:**

   Prototype developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-12- Production of BIO Diesel by using seeds

1. **Project Title** : Production of BIO Diesel by using seeds
2. **Mentor name** : **Mr. J. Srikanth & Mr. Vimal Teja**
3. **Student Team Name:**
   I. T. Vamsi
   II. M. Sandeep
   III. J. Peddiswar
   IV. B. Avinash
4. **Project Description:**
   This project is to find out the fuel related properties & engine related properties of coconut oil biodiesel with an additive N-butanol This experimentation was prepared by biodiesel–diesel blends i.e., B10. The blend was prepared by mixing 85% of normal diesel & 10% of biodiesel with an additive N-butanol is 5% (B10D85N-but5). The other blend was prepared i.e., (B20D70N-but10), (B30D65N-but15).
5. **Project status at the beginning of the Year:**
   Idea with Process development
6. **Intervention**
   After development improved the efficiency of Bio diesel by using natural blends

7. **Current status:**

   Prototype developed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-13- Nano Fluid Circulated solar Collector for Water Purification

1. **Project Title** : Nano Fluid Circulated solar Collector for Water Purification

2. **Mentor name** : Mr. A. Rahul Kumar & Mr. Bhavanarayana K.

3. **Student Team Name:**
   I. J. Lakshmi Prasad
   II. N. Ganesh Venkata Durga Rao
   III. G. Bhanu Prakash
   IV. G. Jayadeep

4. **Project Description:**

   The ever-increasing global need for energy makes it unavoidable to support the use of essential coffers. The sun is one of the most abundant and almost indestructible energy sources in our world. The goal of this study is to Aluminium materials in order to improve or maximize the efficiency and other characteristics of the solar collector.

   The usage of aluminium oxide particles (Al2O3) is to improve the performance of collector. Solar collectors with a parabolic trough are physical devices with an interior covering of mirrors or reflecting materials.

The collector is shaped like a concave surface. These troughs have a single axis, which means they may be rotated. These troughs have a single axis, which means they can only rotate in one direction

5. **Project status at the beginning of the Year:**
   Idea with literature survey

6. **Intervention :**
   Nano fluid change as per heat flow rate

7. **Current status:**
   Prototype developed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-14- Automatic Table top glass cutter

1. **Project Title** : Automatic Table top glass cutter
2. **Mentor Name** **:** Mr. K. Vina Kumar & Mr. M. Vimal Teja
3. **Student Team Name:**
   I. Md. Gufran Chowhan
   II. P. Ravindra
   III. Kare Akash
   IV. P. Mahesh

4. **Project Description:**

   Even in today's era, glasses are cutting manually and through CNC machines. But cutting the glasses with manually provides dangerous to the worker or the surrounding. Also manual cutting results in errors those results in wastages of workpieces. So herein, there is an analysis of semi-automated glass cutting machine as the CNC machines are very costly. The semi-automated glass machine automatically cuts the glass in order to reduce the error within very less time.

5. **Project status at the beginning of the Year:**

   Idea with literature survey

6. **Intervention:**

   Ben box software Application also implemented

7. **Current status:** Prototype developed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-15- Smart Wireless Luggage Bag traveller

1. **Project Title** **:** Smart Wireless Luggage Bag traveler
2. **Mentor Name** : Mr. K. Raju
3. **Student Team Name:**
   I. M. Poojitha
   II. S. Navya rani
   III. K. Roshini

4. **Project Description:**

   Bags have always been an integral part of travel life whether it may be a travel bag or a plastic bag or even leather bag every bag has its own importance and carries different functions and utility. Dragging the luggage all over the place has been done since the golden ages. Thinking of a luggage which conveys its weight, tracks its location, which follows the user automatically or manually, by the touch of the present technology to the old baggage it may bring out its true potential. This has motivated the project all along so that it is user-friendly and could be operated by a Smartphone

5. **Project status at the beginning of the Year:**

   Idea with literature survey

6. **Intervention:**

   Mobile controlled mechanical Developing

7. **Current status:**

   Prototype

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-16- Design and construction of an antenna for India image capture to get Weather conditions using the live satellite

1. **Project Title** : Design and construction of an antenna for India image capture to get Weather conditions using the live satellite

2. **Mentor Name** : Mr. K. Raju

3. **Student Team Names:**
   I. T. S. N. Neeraja
   II. SK. Ishrat
   III. S. Keerthi

4. **Project Description:**
   Designed and testing the designed V dipole antenna for capturing the satellite passes especially for NOAA series. Designed and built for capturing the Satellite passes. We needed to install open-source software namely, Orbitron, Air spy, WX to MIG, NOVA –APT for testing the V-dipole antenna along with RTL-SDR dongle.

5. **Project status at the beginning of the Year:** Idea with Block diagram, Proof of concept

6. **Intervention:**
   As per primary design no interventions made

7. **Current status:**
   Prototype

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project**

Project-17- Solar Powered Wireless Battery Bank

1. **Project Title** : Solar Powered Wireless Battery Bank

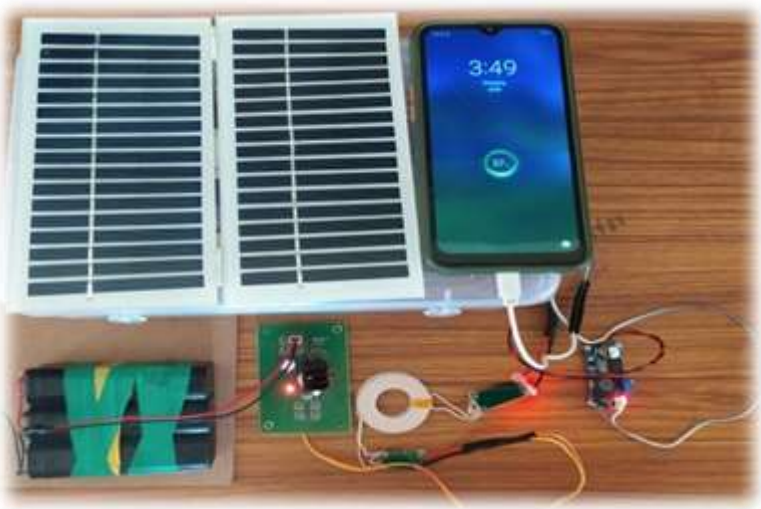
2. **Mentor Name** : Dr. Subramanya Sarma S

3. **Student Team Names:**
   I. S. Hemanth Raj
   II. M. D. N. Bharathi
   III. Ch. L. Sheetal
   IV. Ch. Jhansi
4. **Project Description:**

   By the proposed system, the battery of an electronic device can be charged wirelessly. The proposed solar power bank integrates solar charging with efficient battery support and wireless charging to provide a multi functional unique power bank product. The device is able to self charge anywhere during day time so that he user never runs out of power. Power from solar is given as input to transmitter inductive coil, the receiver inductive coil receives the power and converts it into electric current to charge the battery. With the help of wireless battery charger technology, power can be supplied to the electric cars, drones, hospital's equipment, and smart phones. This device also helps to reduce the necessity of using wires.
5. **Project status at the beginning of the Year:**

   Idea with Block diagram, Proof of concept
6. **Interventions made:**

   After attending ideathons and collecting literature survey, the proposed design is modified and incorporated with additional features to apply for patent.
7. **Current status:** Prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project**



Project-18- Coin / Card Operated Smart RO Water ATM

1. **Project Title** : Coin / Card Operated Smart RO Water ATM
2. **Mentor Name** : Dr. Subramanya Sarma S
3. **Student Team Names:**
   I. G Venkateswarlu
   II. K. Pavan Kumar Raju
   III. B S Sahithi
   IV. Kumari
4. **Project Description:**

   The smart water ATM serves water on coin insertion as well as Card scanning. It doesn't require user to carry cash while using this ATM. Also this smart water ATM machine has an integrated bottle dispenser that dispenses non disposable water bottles that can be used for long time. The system is developed using a controller, coin module, solenoid valve, keypad, RFID scanner and motors to develop the proposed ATM system.

   This allows for a smart water dispenser machine that can dispense water on demand of users. The machine when turned on allows user to select amount of water to be filled. User may select amount of water to be filled, once the user selects water quantity, the system displays the cost Rs.1 to Rs.5 for 100 ml to 1 Liter.

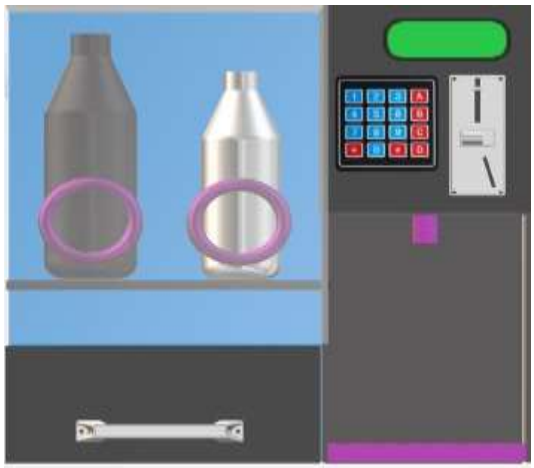
   After selection, system waits for water bottle to be placed in the filling section. The filling won’t start/dispense until a bottle is detected in the filling panel.
5. **Project status at the beginning of the Year:**

   At the beginning, it is in idea stage only.
6. **Interventions made:**

   After attending ideathons and collecting literature survey, the proposed design is modified and incorporated with additional features to apply for patent.
7. **Current status:**

   A Prototype model was developed.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-19: Med-Mitra: A Smart Medication Management and Health Monitoring Tool

1. **Project Title**: Med-Mitra: A Smart Medication Management and Health Monitoring Tool
2. **Mentor Name** : Dr. Shameena Begum
3. **Student Team Names:**
   I. Uma Maheswara Rao Annavarapu
   II. Ravuri China Gopi Reddy
4. **Project Description:**
   A smart medication management and health monitoring tool that is simple in design andcustomizable that could help patients take their medications on time and in the correct doses, whichcan improve their health outcomes and reduce healthcare costs.
   - The device can engage patients in their own care and help them understand the importance ofadhering to their medication regimen. The device can reduce the risk of medication errorscaused by human error.
   - Help to monitor vital signs like SPO_2 and Heart rate of the patient.
   - Provides an instant (SoS) alert to emergency responders and caregivers in case ofinconvenience and prevent adverse drug events.
   - The device can collect data on medication adherence and use patterns, which can be used byhealthcare providers to improve patient care and medication management.
5. **Project status at the beginning of the Year:**
   Our startup is in the development phase of our product. The team has been actively working on creating the product's prototype, and we have made significant progress in defining its core features and functionalities. We have conducted initial testing to validate the concept, and user feedback has been positive, providing valuable insights for further improvements. We remain focused on meeting our development timeline and are excited about the potential impact of our product in the market.

6. **Interventions made:**

In the above project or product, several key interventions have been made to enhance its development and effectiveness:

User-Centric Design: Adopted a user-centric approach, conducting extensive research and gathering user feedback to inform the design process. This will ensure that the final product caters to the specific needs and preferences of the target users.

Iterative Prototyping: Incorporated an iterative prototyping process, continuously refining the prototype based on testing and feedback. This will allow for rapid improvements and ensure that the final product meets high-quality standards.

Technology Integration: Interventions were made to integrate cutting-edge technologies and innovations into the product. This ensures that the project stays ahead in terms of functionality and relevance in a competitive market.

Risk Management: Proactive risk management interventions were implemented to identify potential challenges and mitigate them early in the development process.

Cross-Functional Collaboration: The project involved collaboration among diverse teams with varied expertise, such as engineering, design, and marketing. This intervention fosters a holistic and well-rounded approach to product development.

Performance Optimization: To optimize the performance of the product, ensuring it meets or exceeds predefined performance metrics. This approach guarantees that the product delivers on its intended functionalities efficiently.

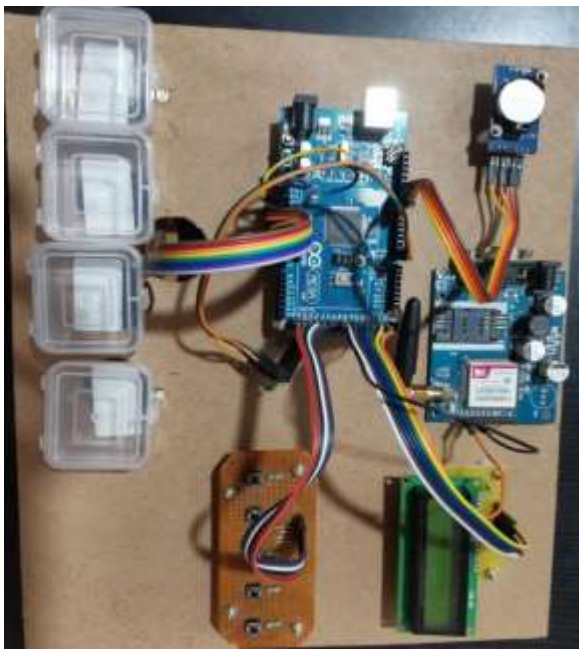
By incorporating these interventions, the project aims to create a successful and impactful product that aligns with user needs and expectations while adhering to high-quality standards.

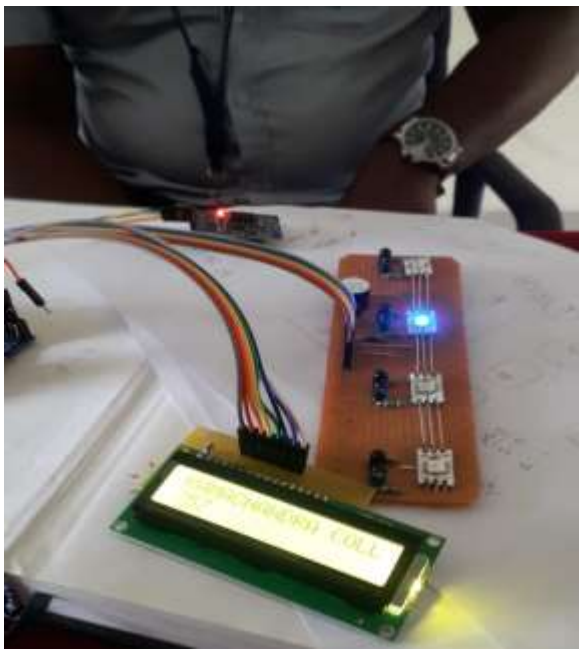
7. **Current status:**

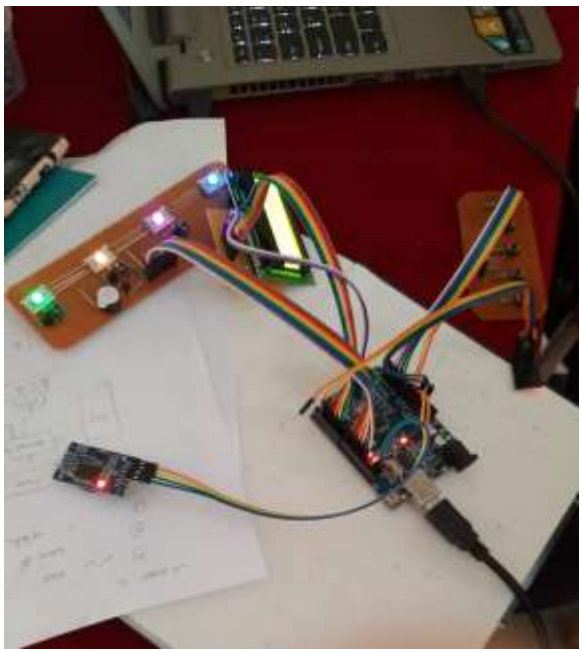
Currently, our project is in the development phase of its prototype. The team is diligently working on creating a functional and robust prototype, focusing on key features and design elements. We have made significant progress, overcoming certain challenges, and are on track to meet our development timeline.

Regular testing and feedback iterations are being conducted to ensure the prototype's effectiveness and usability. We remain committed to delivering a high-quality product and are excited about the potential it holds for addressing the needs of our target users.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

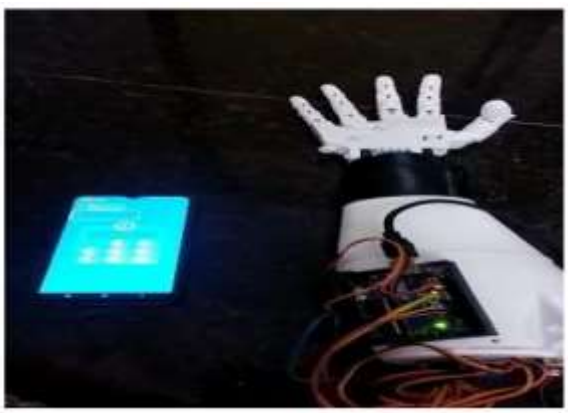






Project-20- Design and Development of Human Prosthetic robotic Hand

1. **Project Title** : Design and Development of Human Prosthetic robotic Hand
2. **Mentor Name** : Dr.Bazani Shaik/Mr.B.Sudhakar Rao
3. **Student Team Names:**
   I. Ch. Devi Sai Pavan
   II. G. Kiran Nagendra
   III. Ch. Yaswanth
   IV. D. Nagendra
4. **Project Description:**
   This project involved the design and development of an operational first prototype of an 3D printed prosthetic robotic arm. Autonomy of the device is achieved using through a unique control system which takes input by voice command, sensor embedded in the hand to determine the grip strength and quality of the grip. The intended use for this technology is the medical field as a prosthesis, through the hand could also be adapted to work on other robot platforms as a versatile gripper. The advantage of our system as prosthesis that it autonomous functions allow the user to access a wide variety of functionality more quickly and easily than similar, commercially products.
5. **Project status at the beginning of the Year:**
   Idea with literature survey
6. **Current status:**
   Prototype Model
7. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



NewGen IEDC-Sasi Institute of Technology and Engineering

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: Fifth Year (2022-23)

Name of the Institution hosting NewGen IEDC	Sasi Institute of Technology and Engineering, Tadepalligudem		
Year of starting NewGen IEDC	2017-2018		
Name of the Head of the Institution	Dr. K. Bhanu Prasad		
Name of NewGen IEDC Coordinator	Dr. K. Bhanu Prasad		
Contact Details of NewGen IEDC Coordinator • Mobile Number • E-Mail ID	83744219666 newgeniedc@sasi.ac.in		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Sanction Order Details	1	EDII/DST-NewGen IEDC/17-18/03 Dt. 15/06/2017	60,00,000
	2		47,50,000
	3		60,00,000
	4		60,00,000
	5		60,00,000

1. Details of Activities Undertaken during the year:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. Seminar on Entrepreneurship

2. Idea Exhibition

3. Women Empowerment in Business

[B] To identify, develop & commercialize students' innovative ideas

1. Workshop on Embedded Development

2. Workshop on Mobile App Development

[C] To enhance Industry-Academia interaction

1. Industry-institute interaction

2. Participating in International product exhibitions and competitions

3. Industry visits

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

3. Other important highlights (new initiatives), if any:

4. Student Projects

Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos

5. Provide a minimum two-page case let each on the <u>two best student projects</u> (either prototype developed or commercialized) from the above list. The case lets should include the following:

Best Student Project:

I. Mentors Name : Dr. Damodhar Reddy

II. Student team details

1. E Gangadhar
2. K Nuthan
3. V Srinivas
4. R P N Sai Kumar

III. Brief description of the student start-up

The Design of Solar PV-based Sprayers for Agriculture represents an eco-friendly and sustainable approach to crop spraying, utilizing solar energy to power the sprayer's operation. This innovative system aims to reduce the reliance on fossil fuels and minimize the environmental impact associated with traditional petrol or diesel-powered sprayers. By harnessing the power of the sun, these sprayers offer numerous benefits to farmers, agricultural workers, and the environment. Benefits of Solar PV-based Sprayers for Agriculture are :

1. Environmentally Friendly: By utilizing solar energy, these sprayers significantly reduce greenhouse gas emissions and air pollution, making agriculture practices more environmentally sustainable.
2. Energy Cost Savings: Solar-powered sprayers eliminate the need for expensive and fluctuating fossil fuels, leading to cost savings on energy expenses for farmers.
3. Off-Grid Operation: These sprayers can operate in remote locations without access to a reliable grid power supply, providing farmers with flexibility and autonomy.
4. Reduced Noise Pollution: Electric motors are quieter compared to traditional engines, minimizing noise pollution during spraying operations.
5. Long-Term Investment: While the initial setup cost may be higher, solar PV-based sprayers offer a long-term return on investment through reduced operational costs and energy independence.
6. Improved Crop Protection: Precise application and uniform distribution of sprays lead to improved crop protection and better pest and disease management.

7. Positive Public Image: Adopting sustainable agricultural practices can enhance the public image of farmers and demonstrate their commitment to environmental conservation.

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

V. Contribution of NewGen IEDC in the same

- It provided necessary fund and training support as well as motivation for entrepreneurship journey.

VI. Future plan

- A commercial product will be developed within 8 months.

VII. Important highlights

- Long-Term Investment, Improved Crop Protection, Environmentally Friendly.

2. Best Student Project:

I. Mentors Name **:** Dr. E Aswini Kumar

II. Student team details

1 I Priyanka
2 A Geethika
3 K Mohan
4 P Megha Rajyam

III. Brief description of the student start-up

A four wheel drive robo is developed with low speed motos for auto cleaning the solar panels for domestic and commercial purpose.

Solar panel cleaning automatic systems are innovative solutions designed to maintain the efficiency and longevity of solar photovoltaic (PV) installations. As solar energy becomes an increasingly popular and vital renewable energy source, keeping solar panels clean and free from dust, dirt, debris, and other contaminants is crucial for optimal performance.

Traditional solar panel cleaning methods often involve manual labor, which can be time-consuming, labor-intensive, and costly, especially in large-scale solar farms or installations located in remote areas. Automatic solar panel cleaning systems address these challenges by utilizing advanced technologies to keep solar panels clean without the need for human intervention.

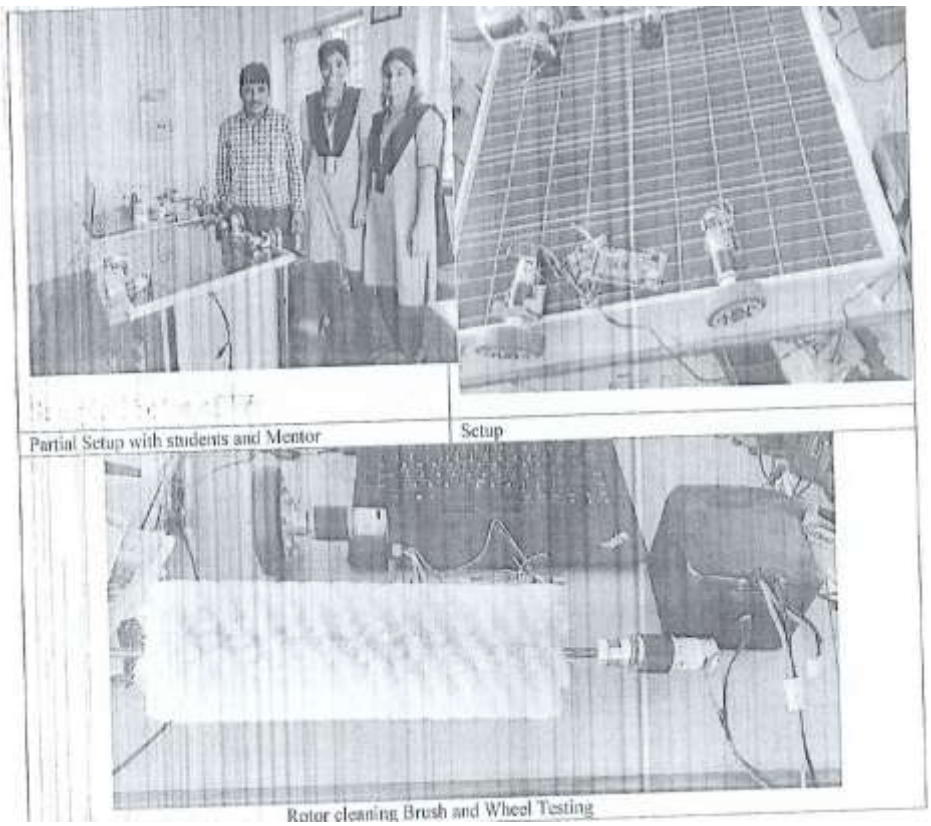
Here are some key features and benefits of automatic solar panel cleaning systems:

1. Robotic Cleaning: Automatic cleaning systems often employ robotic arms or mechanical devices equipped with brushes, wipers, or sprayers. These robots move along the surface of the solar panels and use soft brushes or jets of water to remove dirt and debris gently.
2. Smart Sensors: Many automatic systems are equipped with smart sensors that can detect the level of soiling on the panels. The sensors assess the amount of dust or dirt accumulated on the surface and trigger the cleaning process only when necessary, optimizing water and energy usage.
3. Water Management: To conserve water resources, automatic cleaning systems are designed to use minimal water during the cleaning process. Some models may utilize recycled or rainwater, while others use a precise amount of water, optimizing the cleaning efficiency.
4. Increased Efficiency: Regular cleaning ensures that solar panels operate at their maximum capacity. Dust and grime can reduce the amount of sunlight reaching the PV cells, leading to decreased energy production. By keeping the panels clean, the system's overall efficiency is significantly improved.
5. Cost-Effectiveness: Although the initial investment for an automatic cleaning system may be relatively high, it can lead to cost savings in the long run. By minimizing manual labor and maximizing energy production, the system can pay for itself over time.
6. Remote Monitoring and Control: Many automatic cleaning systems can be remotely monitored and controlled through web-based interfaces or mobile applications. This feature allows operators to track the system's

performance, receive real-time alerts, and schedule cleaning sessions as needed.

7. Safety: Automatic cleaning systems reduce the need for human interaction with the solar panels, minimizing potential safety risks associated with manual cleaning at heights or in challenging terrain.

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.



V. Contribution of NewGen IEDC in the same

- It provided necessary fund and training support as well as motivation for entrepreneurship journey.

VI. Future plan

- A commercial product will be developed within 8 months.

VII. Important highlights

- Robotic Cleaning, Smart Sensors, Increased Efficiency.

Annexure-A

Details of Student Project: Fifth Year

Project-01: Automatic Medicine Vending System

1. **Project Title** : Automatic Medicine Vending System
2. **Mentor Name** : Mr. S. N. V. P. Raviteja
3. **Student Team Names:** T Dhana Lakshmi, S Kalyani, S Sunnyhitha, U B Madhuri
4. **Project Description:**

   An automatic medicine vending system is an innovative and convenient solution designed to dispense medications to patients or customers without the need for human intervention. These systems are typically found in healthcare facilities, pharmacies, clinics, and public places, providing 24/7 access to essential medications, over-the-counter drugs, and other health-related products. Some key features and benefits of automatic medicine vending systems are:

   1. Accessibility and Convenience: Automatic medicine vending systems ensure round-the-clock availability of medications, making it convenient for patients to access their prescribed drugs at any time, even outside of regular business hours. This is especially beneficial for emergencies and situations when immediate access to medicine is essential.
   2. Quick and Efficient: Patients can obtain their required medications quickly and efficiently from the vending machine without waiting in long queues at a pharmacy. The process is automated and streamlined, saving time for both patients and healthcare providers.
   3. User-friendly Interface: The vending machine interface is designed to be user-friendly, with clear instructions and options for selecting medications. Patients can easily navigate through the available products and make their selections with minimal effort.
   4. Prescription Validation: To ensure the safe dispensing of prescription medications, automatic vending systems often integrate with electronic health records or prescription databases. Patients may need to input their prescription details, and the system verifies the information before dispensing the medication.

5. Safety and Security: These systems are designed with safety in mind. Medications are stored securely, and access to the contents is typically controlled through authentication methods such as PIN codes, smart cards, or biometric recognition, reducing the risk of theft or misuse.
6. Inventory Management: Automatic medicine vending systems are equipped with advanced inventory management features. The machines can monitor medication stock levels in real-time and automatically place orders with suppliers when inventory is running low, ensuring that the machine is always stocked with essential medications.
7. Remote Monitoring and Maintenance: Many vending systems can be remotely monitored by healthcare providers or technicians. This allows them to track usage patterns, detect malfunctions, and perform maintenance tasks proactively, ensuring the machine's smooth operation.
8. Space-saving: Automatic medicine vending systems can be installed in compact spaces, making them suitable for locations where space is limited, such as hospitals, clinics, airports, or public transportation hubs.
9. Promotes Adherence: These systems can help improve medication adherence, as patients have easier access to their prescribed drugs. When patients can obtain medications conveniently, they are more likely to adhere to their treatment regimens.
10. Reduces Workload: For healthcare facilities and pharmacies, automatic medicine vending systems can help reduce the workload on staff, freeing up time for more critical tasks and providing better patient care.

5. Project status at the beginning of the Year:

- Idea formed and system design is proposed.

6. Interventions made:

- Hardware purchase
- Software developement
- Prototype development
- Patent application preparation

7. Current status **:** Prototype completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-02: Production of M20 grade of concrete replacing coarse aggregates with crushed concrete specimens and construction waste

1. **Project Title** : Production of M20 grade of concrete replacing coarse aggregates with crushed concrete specimens and construction waste.

2. **Mentor Name** : Mr. Y V Bhavani Sai Kumar

3. **Student Team Names**: G Sandeep, M Chaitanya, U Sowmya, T Badri

4. **Project Description:**

   The construction industry is a driver of economic and social development in developing countries. The construction sector has a significant impact on the environment, contributing significantly to energy consumption, resource depletion, and CO_2 emissions. This sector is currently shifting away from

natural materials and cement in favor of alternative materials, thereby reducing environmental impact and promoting sustainability. Worldwide, enormous quantities of waste materials are generated. Most of these waste materials are hazardous, corrosive, flammable, chemically reactive, incendiary, and infectious and are typically disposed of in landfills, causing environmental pollution and posing health risks. To sustain the environment, it is crucial to find solutions to deal with waste, pollution, depletion and degradation resources.

Concrete is the most used construction material in the world, with the increase in the usage of concrete, the utilization of raw materials (cement, aggregates) also increases to meet the demands of the concrete production, which leads to the depletion of several natural resources like river sand (fine aggregate) and also natural coarse aggregate and also in present days for human, environmental issue is very important. As a result, incorporating waste materials into concrete would be a more prudent course of action So, several researchers are looking for the alternative raw materials for replacing either partially or completely the existing raw materials for the production of concrete and one such replacement we are aiming to replace partially in aggregates (Coarse aggregates) with crushed concrete specimens and construction waste. Use of construction & crushed concrete specimens as alternative of coarse aggregate plays a vital role to save natural resources and economically good for us.

Construction waste are generated during the creation of structure or building or when renewing or demolishing a current structure. Construction waste exhibits many environmental problems including diminishing landfill, increasing wastage areas, landfill contamination, and increasing energy required for waste disposal and transportation. The re-using Construction waste as an aggregate in concrete making have reduced extraction demanding and landfill pressure. The utilization of Construction waste as recycled concrete aggregate (RCA) alternative to natural one not only decreases environmental problems but also leads to the conservation of naturally occurring resources.

Recycling waste concrete aggregate is a type of concrete produced from construction and demolition wastes, which either partially or completely replaces conventional natural aggregates. By recycling concrete, valuable

landfill space and natural resources are preserved, and waste generation is minimized. Recycled aggregate can be used as a subbase material or paired with materials and reused as an aggregate in new concrete. The recycled aggregates obtained from waste concrete are more angular and have higher absorption and specific gravity than natural coarse aggregates and it resulted in increased strength and improved load carrying capacity.

The use of construction and crushed concrete specimens is giving a prospective application in construction and gave an alternative to natural coarse aggregates for M20 grade concrete and for pavement constructions having low traffic.

In this project strength-based comparative analysis is made on M20 grade of concrete with and without replacing coarse aggregates with crushed concrete specimens and construction waste.

5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.
6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation
7. **Current status:**
   - Prototype completed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-03: Automatic Feeder System for Aqua Pond

1. **Project Title** : Automatic Feeder System for Aqua Pond
2. **Mentor Name** : Mr. A Prasad
3. **Student Team Names: K Sairam, N V S P R Sumanth, K Ajaybabu, P Sivaprasad**
4. **Project Description:**

   An Automatic Fish Feeder system for an aqua pond is a device designed to feed fish in ponds or aquaculture setups automatically at regular intervals. It ensures that fish receive their required nutrition consistently, even in the absence of manual feeding. This type of system is particularly useful for fish farmers, hobbyists, and commercial aquaculture operations, as it helps maintain the health and growth of the fish population while reducing the need for frequent manual feeding. Benefits of an Automatic Fish Feeder system for aqua ponds:

   1. Consistent Feeding: The system provides a reliable and consistent supply of fish feed, preventing periods of overfeeding or underfeeding.
   2. Time and Labor Savings: Automatic feeding reduces the need for manual feeding, saving time and labor, particularly in larger aquaculture operations.
   3. Improved Fish Health: Proper and regular feeding helps promote healthy growth and reduces the risk of malnutrition and related health issues.
   4. Efficient Feed Management: With adjustable feeding settings, users can control the amount of feed dispensed, reducing waste and conserving feed resources.
   5. Increased Productivity: Well-fed fish are more likely to grow faster and reach market size more quickly, contributing to increased productivity in commercial aquaculture setups.
   6. Flexibility: Feeding schedules can be easily adjusted to accommodate changing fish requirements or specific growth stages.

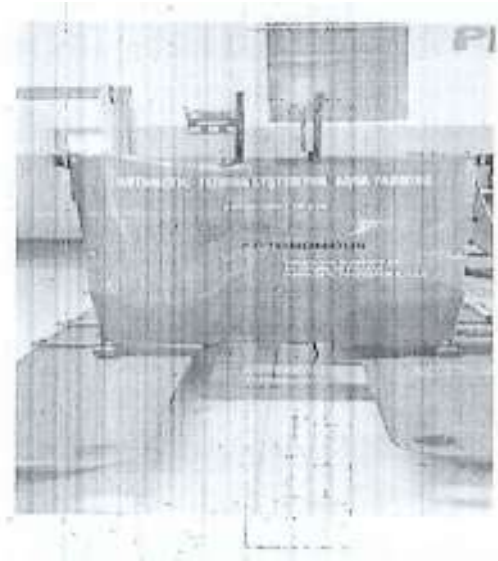
   An Automatic Fish Feeder system for an aqua pond is a valuable tool for fish farmers and aquaculture enthusiasts, providing a reliable and efficient way to maintain the health and well-being of the fish population.

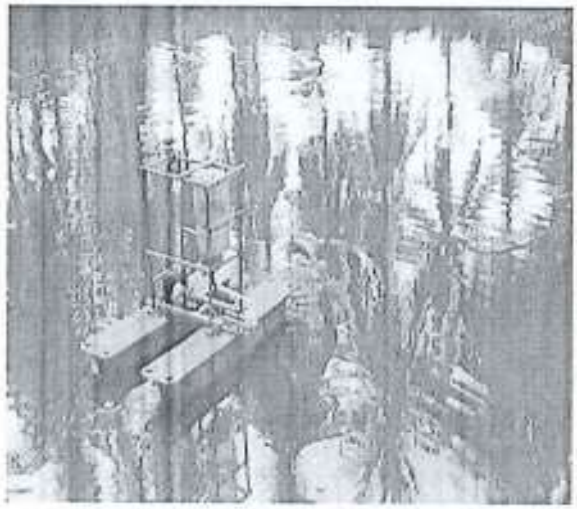
5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.
6. **Interventions made:**

- Hardware purchase
- Software developement
- Prototype development
- Patent application preparation

7. **Current status:**
   - Prototype completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





Project-04: Smart Solar Panel Cleanser

1. **Project Title** : Smart Solar Panel Cleanser
2. **Mentor Name** : Mr. E Aswini Kumar
3. **Student Team Names:** I Priyanka, A Geethika, K Mohan, P Meghana Rajyam
4. **Project Description:**

   A four wheel drive robo is developed with low speed motos for auto cleaning the solar panels for domestic and commercial purpose.

   Solar panel cleaning automatic systems are innovative solutions designed to maintain the efficiency and longevity of solar photovoltaic (PV) installations. As solar energy becomes an increasingly popular and vital renewable energy source, keeping solar panels clean and free from dust, dirt, debris, and other contaminants is crucial for optimal performance.

   Traditional solar panel cleaning methods often involve manual labor, which can be time-consuming, labor-intensive, and costly, especially in large-scale

solar farms or installations located in remote areas. Automatic solar panel cleaning systems address these challenges by utilizing advanced technologies to keep solar panels clean without the need for human intervention.

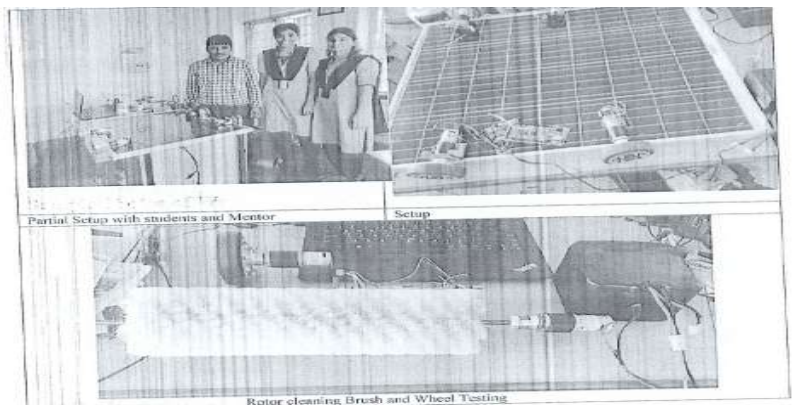
Here are some key features and benefits of automatic solar panel cleaning systems:

1. Robotic Cleaning: Automatic cleaning systems often employ robotic arms or mechanical devices equipped with brushes, wipers, or sprayers. These robots move along the surface of the solar panels and use soft brushes or jets of water to remove dirt and debris gently.
2. Smart Sensors: Many automatic systems are equipped with smart sensors that can detect the level of soiling on the panels. The sensors assess the amount of dust or dirt accumulated on the surface and trigger the cleaning process only when necessary, optimizing water and energy usage.
3. Water Management: To conserve water resources, automatic cleaning systems are designed to use minimal water during the cleaning process. Some models may utilize recycled or rainwater, while others use a precise amount of water, optimizing the cleaning efficiency.
4. Increased Efficiency: Regular cleaning ensures that solar panels operate at their maximum capacity. Dust and grime can reduce the amount of sunlight reaching the PV cells, leading to decreased energy production. By keeping the panels clean, the system's overall efficiency is significantly improved.
5. Cost-Effectiveness: Although the initial investment for an automatic cleaning system may be relatively high, it can lead to cost savings in the long run. By minimizing manual labor and maximizing energy production, the system can pay for itself over time.
6. Remote Monitoring and Control: Many automatic cleaning systems can be remotely monitored and controlled through web-based interfaces or mobile applications. This feature allows operators to track the system's performance, receive real-time alerts, and schedule cleaning sessions as needed.
7. Safety: Automatic cleaning systems reduce the need for human interaction with the solar panels, minimizing potential safety risks associated with manual cleaning at heights or in challenging terrain.

5. Project status at the beginning of the Year:

- Idea formed and system design is proposed.

6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation
7. **Current status:**
   - Prototype completed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-05: Augmentation of Heat transfer rate using Nanofluids in Tube-In-Tube Heat Exchanger with various Geometric Tapes Inserted at unlike flow rates.

1. **Project Title** : Augmentation of Heat transfer rate using Nanofluids in Tube-In-Tube Heat Exchanger with various Geometric Tapes Inserted at unlike flow rates.
2. **Mentor Name** : Mr. M. Vinod Kumar
3. **Student Team Names:** M. Raghu Vamsi, P. Siva Prasad, K K V V Krishna Aditya
4. **Project Description:**

   A four wheel drive robo is developed with low speed motos for auto cleaning the solar panels for domestic and commercial purpose.

   Solar panel cleaning automatic systems are innovative solutions designed to maintain the efficiency and longevity of solar photovoltaic (PV) installations. As solar energy becomes an increasingly popular and vital renewable energy source, keeping solar panels clean and free from dust, dirt, debris, and other contaminants is crucial for optimal performance.

Traditional solar panel cleaning methods often involve manual labor, which can be time-consuming, labor-intensive, and costly, especially in large-scale solar farms or installations located in remote areas. Automatic solar panel cleaning systems address these challenges by utilizing advanced technologies to keep solar panels clean without the need for human intervention.

Here are some key features and benefits of automatic solar panel cleaning systems:

1. Robotic Cleaning: Automatic cleaning systems often employ robotic arms or mechanical devices equipped with brushes, wipers, or sprayers. These robots move along the surface of the solar panels and use soft brushes or jets of water to remove dirt and debris gently.
2. Smart Sensors: Many automatic systems are equipped with smart sensors that can detect the level of soiling on the panels. The sensors assess the amount of dust or dirt accumulated on the surface and trigger the cleaning process only when necessary, optimizing water and energy usage.
3. Water Management: To conserve water resources, automatic cleaning systems are designed to use minimal water during the cleaning process. Some models may utilize recycled or rainwater, while others use a precise amount of water, optimizing the cleaning efficiency.
4. Increased Efficiency: Regular cleaning ensures that solar panels operate at their maximum capacity. Dust and grime can reduce the amount of sunlight reaching the PV cells, leading to decreased energy production. By keeping the panels clean, the system's overall efficiency is significantly improved.
5. Cost-Effectiveness: Although the initial investment for an automatic cleaning system may be relatively high, it can lead to cost savings in the long run. By minimizing manual labor and maximizing energy production, the system can pay for itself over time.
6. Remote Monitoring and Control: Many automatic cleaning systems can be remotely monitored and controlled through web-based interfaces or mobile applications. This feature allows operators to track the system's performance, receive real-time alerts, and schedule cleaning sessions as needed.

7. Safety: Automatic cleaning systems reduce the need for human interaction with the solar panels, minimizing potential safety risks associated with manual cleaning at heights or in challenging terrain.

5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed
6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation
7. **Current status:**
   - Prototype completed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-06: Multi-Sport Court Lines

1. **Project Title** : Multi-Sport Court Lines
2. **Mentor Name** : Mr. Ch L S S Pavan Kumar
3. **Student Team Names:** G Jaya Sri Durga, B N V S Lalitha Devi, S T Nagendra, P Sai Ganesh
4. **Project Description:**

   The Embedded System for Multi-Sport Field Conversion is an innovative solution designed to transform a single sports field into a versatile and adaptive space that can cater to various sports and activities. This technology utilizes embedded sensors, actuators, and smart algorithms to modify the

field's layout and markings dynamically, allowing it to accommodate different sports, such as soccer, basketball, tennis, and more, all on the same surface.

1. Sport Recognition: As players and equipment enter the field, the embedded sensors detect their positions and movements. The smart control system analyzes this data to recognize the sport being played.
2. Field Transformation: Once the system identifies the sport, it activates the appropriate actuators to adjust the field layout. For example, for soccer, it may lower soccer goals into position and display soccer field markings. For basketball, it may raise basketball hoops and mark the basketball court boundaries.
3. Real-time Adaptation: Throughout the game or activity, the system continues to monitor the field and adapts as needed. For instance, if players move towards the boundaries of a soccer field during a game, the system may expand the field's size to accommodate the play.
4. Flexibility and Customization: Users can customize the field settings through the user interface. This includes adjusting the size of the field for different sports or even setting up multi-sport combinations, such as a half basketball court alongside a soccer field.

Benefits of the Embedded System for Multi-Sport Field Conversion:

a. Space Optimization: The system maximizes the utility of a single sports field, making it suitable for various sports and activities. This optimizes space usage, especially in areas with limited available land for multiple dedicated sports fields.
b. Cost Savings: Instead of building and maintaining separate fields for each sport, the embedded system offers a cost-effective solution by converting a single field as needed.
c. Increased Accessibility: The adaptive field promotes inclusivity, as it can accommodate different age groups and skill levels, encouraging more people to participate in sports and physical activities.
d. Improved Facility Management: The system's automation reduces the need for manual field modifications, streamlining facility management and reducing labor requirements.
e. Enhanced User Experience: Players and participants benefit from a dynamic and tailored sports environment, creating a more engaging and enjoyable experience.

5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.
6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation
7. **Current status:**
   - Prototype completed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Fig: Prototype showing Volleyball Court

Fig: Prototype showing Badminton Court

Project-07: Design of Solar PV based Sprayers for Agriculture

1. **Project Title** : Design of Solar PV based Sprayers for Agriculture
2. **Mentor Name** : Dr. Damodhar Reddy
3. **Student Team Names:** E Gangadhar, K Nuthan, V Srinavas, R P N Sai Kumar
4. **Project Description:**

   The Design of Solar PV-based Sprayers for Agriculture represents an eco-friendly and sustainable approach to crop spraying, utilizing solar energy to

power the sprayer's operation. This innovative system aims to reduce the reliance on fossil fuels and minimize the environmental impact associated with traditional petrol or diesel-powered sprayers.

By harnessing the power of the sun, these sprayers offer numerous benefits to farmers, agricultural workers, and the environment. Benefits of Solar PV-based Sprayers for Agriculture are :

1. Environmentally Friendly: By utilizing solar energy, these sprayers significantly reduce greenhouse gas emissions and air pollution, making agriculture practices more environmentally sustainable.
2. Energy Cost Savings: Solar-powered sprayers eliminate the need for expensive and fluctuating fossil fuels, leading to cost savings on energy expenses for farmers.
3. Off-Grid Operation: These sprayers can operate in remote locations without access to a reliable grid power supply, providing farmers with flexibility and autonomy.
4. Reduced Noise Pollution: Electric motors are quieter compared to traditional engines, minimizing noise pollution during spraying operations.
5. Long-Term Investment: While the initial setup cost may be higher, solar PV-based sprayers offer a long-term return on investment through reduced operational costs and energy independence.
6. Improved Crop Protection: Precise application and uniform distribution of sprays lead to improved crop protection and better pest and disease management.
7. Positive Public Image: Adopting sustainable agricultural practices can enhance the public image of farmers and demonstrate their commitment to environmental conservation.

5. Project status at the beginning of the Year:

- Idea formed and system design is proposed.

6. Interventions made:

- Hardware purchase
- Software developement
- Prototype development
- Patent application preparation

7. **Current status:**
   - Prototype completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-08: Retrofit petrol vehicle to electric vehicle – RetroEV

1. **Project Title** : Retrofit petrol vehicle to electric vehicle – RetroEV
2. **Mentor Name** : Dr Naveen kumar G
3. **Student Team Names:** Yellapu Ram sai, Annepu Karthik, Yerramsetty Mounika
4. **Project Description:**

   An EV is defined as a vehicle that can be powered by an electric motor that draws electricity from a battery and is capable of being charged from an external source. The present greenhouse effect and its arrays of limitations on energy sources have made Electric Vehicles (EV's) a current research focus due to its reduced amount of fuel usage. The ability to simultaneously deliver power to the wheels from the motor/engine made EVs to have greater advantages (no fuel consumption and no internal combustion engine) over the traditional vehicles. Despite its low patronage in the market, there is still hope that its popularity in the global automotive market will rise due to the superior qualities associated with it. In view of the above, this presents on the developmental trend of the conversion of older vehicle to Electric Vehicle (EV) right from idea conception till date.

   There has been significant growth of plug-in electric vehicles (PEVs) in India as a result of societal awareness of their environmental benefits, substantial improvement in battery technology and attractive federal, state, and local government incentives. Our country goal is to reduce greenhouse gases to 40 percent below 1990 levels by 2030, and PEVs are expected to substantially contribute to this reduction. Besides helping to reduce pollutants and emissions, PEVs also can be used as a unique and essential method for energy storage.

   Electric bikes function by plugging into a charge point and taking electricity from the grid. They store the electricity in rechargeable batteries that power an electric motor, which turns the wheels. Electric bikes accelerate faster than vehicles with traditional fuel engines – so they feel lighter to drive. Electric vehicles use electricity to charge their batteries instead of using fossil fuels like petrol or diesel. Electric vehicles are more efficient, and that combined with the electricity cost means that charging an electric vehicle is cheaper than filling petrol or diesel for your travel requirements.

Electric motors are devices that convert electrical energy into mechanical energy, usually in the form of rotational motion. In simple terms, they are devices that use electric power to generate motive power. Electric Vehicles using BEV technology run entirely on a battery-powered electric drivetrain. The electricity used to drive the vehicle is stored in a large battery pack which can be charged by plugging into the electricity grid. An electric motor is a machine that converts electrical energy to mechanical energy. An electric generator is a machine that converts mechanical energy to electrical energy.

5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.
6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation
7. **Current status:**
   - Prototype completed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-09: Design and Analysis of Rotor Technology for Electric Vehicle Application

1. **Project Title** : Design and Analysis of Rotor Technology for Electric Vehicle Application
2. **Mentor Name** : Dr. Teki Vamsee Krishna
3. **Student Team Names:** V. D. Ganesh, A. Sai Ganesh (20K65A0201), S. Krishna Suresh (20K65A0243), P. Vinay (20K65A0236)
4. **Project Description:**

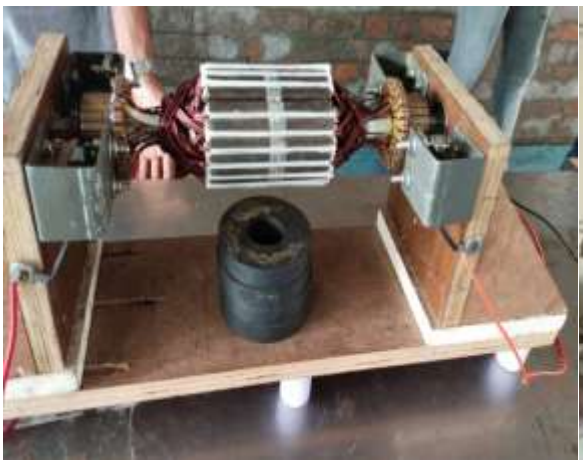
   At present electric vehicles have regained attention in the automobile sector. The main part of the electric vehicle is the motor. Most EVs use Induction motors, permanent magnet motors, and in some experiments switched reluctance motors, consisting of a single rotor with single winding technology. However, they are not gained high torque.

   The design of an electric machine for an electric vehicle is approached thoroughly, with the choice of rotor topology and slot combination. In this paper a novel design of the single rotor, dual winding technology is proposed. The proposed model consists of a motor winding, and generator winding on the same rotor, which works as both motor as well as generator.

   The design of novel rotor winding guarantees the generation of high torque and power density crucial for the application of electric vehicles. The design of a single rotor with twin windings for eventual use in electric vehicles can reduce the burden on EV charging stations. This rotor technology has advantages like high torque, low weight and availability with low cost. The main aim of this work is to investigate different slot winding configurations for electric motors and to develop a prototype and validation of design.

5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.
6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation
7. **Current status:**
   - Prototype completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-10: Hybrid Controlled Smart Wheelchair

1. **Project Title** : Hybrid Controlled Smart Wheelchair
2. **Mentor Name** : Mr. G V Appa Rao
3. **Student Team Names: P S D Pravallika, D Chinna Venkateswarlu, Ch Jgnana Sree, K Praveen**
4. **Project Description:**

   A hybrid-controlled wheelchair is an innovative mobility solution that combines both manual and electric control features. This type of wheelchair is designed to provide greater flexibility and independence for users, allowing them to switch between manual and powered modes based on their preferences and mobility needs. The hybrid design aims to enhance the user's mobility and comfort, especially in varying environments and terrains. Benefits of a Hybrid-Controlled Wheelchair are:

   1. Enhanced Independence: The hybrid design allows users to switch between manual and electric modes, empowering them to adapt to their energy levels and mobility requirements throughout the day.
   2. Flexibility in Different Environments: Users can easily switch to electric mode when facing challenging terrains or longer distances, making outdoor activities more accessible.
   3. Reduced Physical Strain: The electric mode reduces the physical effort required for propulsion, allowing users to conserve energy during extended periods of use.

4. Customizable for Individual Needs: The hybrid wheelchair can be adjusted to suit individual preferences and capabilities, providing a personalized and comfortable mobility experience.
5. Environmentally Friendly: By incorporating electric propulsion, the wheelchair reduces the reliance on manual power and contributes to a lower carbon footprint.
6. Improved Quality of Life: The hybrid design can significantly improve the user's overall quality of life by offering a more versatile and adaptive mobility solution.
7. Convenience for Caregivers: Caregivers or attendants may find it easier to assist the user when needed, especially in challenging or steep terrains, by using the electric mode.

As technology continues to advance, hybrid-controlled wheelchairs are likely to become more sophisticated and user-friendly, providing even greater benefits to wheelchair users in terms of mobility, independence, and comfort. The versatility and adaptability of these wheelchairs make them a promising choice for individuals seeking a dynamic and empowering mobility solution.

5. Project status at the beginning of the Year:

- Idea formed and system design is proposed.

6. Interventions made:

- Hardware purchase
- Software developement
- Prototype development
- Patent application preparation

7. Current status:

- Prototype completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-11: Multi Purpose Mini Electric Vehicle

1. **Project Title** : Multi Purpose Mini Electric Vehicle
2. **Mentor Name** : Mr. J Kantha Rao
3. **Student Team Names:** K D Satyanarayana, B Karthik, T Krishna Reddy
4. **Project Description:**

   A multi-purpose mini electric vehicle is a compact and versatile electric vehicle designed to serve various transportation needs in urban and suburban environments. These vehicles are typically small in size, making them ideal for navigating through congested city streets, parking in tight spaces, and offering an eco-friendly alternative for short-distance commuting and errands. Key features of a Multi-Purpose Mini Electric Vehicle are:

   1. Electric Powertrain: The vehicle is powered by an electric motor and a battery pack. Being emission-free, it helps reduce air pollution and contributes to a greener environment.
   2. Compact Design: The mini electric vehicle is designed to be small and lightweight, making it agile and easy to maneuver in crowded areas. Its compact size also allows for efficient use of space and parking convenience.
   3. Versatile Seating: Despite its small footprint, these vehicles often offer seating for two or more passengers, making them suitable for small families or shared rides.
   4. Cargo Space: Many multi-purpose mini electric vehicles come with foldable or removable seats to create additional cargo space. This feature allows users to carry groceries, shopping items, or small loads for short trips.

5. Urban and Suburban Use: The vehicle is well-suited for urban and suburban transportation needs, such as commuting to work, running errands, and short trips within neighborhoods.
6. Low Maintenance: Electric vehicles generally have fewer moving parts than conventional internal combustion engine vehicles, leading to reduced maintenance requirements and cost savings.
7. Eco-Friendly Materials: Some mini electric vehicles incorporate eco-friendly materials in their construction, further enhancing their sustainability profile.
8. Smart Features: Many models may offer modern tech features, such as touchscreen infotainment systems, GPS navigation, and connectivity options, enhancing the overall user experience.

5. Project status at the beginning of the Year:

- Idea formed and system design is proposed.

6. Interventions made:

- Hardware purchase
- Software developement
- Prototype development
- Patent application preparation

7. Current status:

- Prototype completed

8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

Project-12: Autonomus Monitoring System for Green House Farming Applications

1. **Project Title** : Autonomus Monitoring System for Green House Farming Applications
2. **Mentor Name** : Mr. J L Narayana
3. **Student Team Names:** A Manasa Venu, Anisetty Jhansi Srilatha, Sapati Lakshmi Sai Ram, Shaik Ayisha
4. **Project Description:**

   The farming activity in India is labour intensive and the farm productivity is held hostage by the seasonal rains which have become largely unpredictable because of the climate change. In addition, the ground water level has depleted and where the ground water is available, there is wastage because of un-regulated arbitrary watering of the crops.

   The farm output depends upon factors that includes among others, the labour cost, fertilizer cost and intensive human intervention in watering the crops. At the end, when the yield is taken to the market, sometimes the farmer is not able to cover up farm cost one has invested. If some mechanism exists whereby the crop health parameters are monitored and corrective measures are initiated in some sort of automation, and in addition, different expenditures accounted, it is possible to determine the input-output cost and hence the income gained by farmers.

   The proposed work is an attempt to design/implement an automation system for farmers in which the system will monitor the entire crop cycle starting from sowing of the seeds until the crop is harvested. This will help a prospective farmer understand the crop growth conditions, fertilizer and pesticides usage and utilization of the expenses. The system captures the live weather conditions and the remedial action are automatized, while pesticides and workers expenses along with crop picking details are fed manually. This help in keeping track of the entire crop cycle and hence run the agricultural activity in a professional approach.

   Uniqueness of the innovation: The uniqueness of the proposed idea is to integrating of individual setups with different sensors and controlling modules for automation and monitoring of all the parameters. The central node will monitor and store the data of all the individual modules in cloud for remote

monitoring and controlling. The user can easy depend on the proposed system without any technical information of the product.

Concept & Objective: The main objective of the work is to reduce the manual operations in farms and increasing the yield of the crop by adding technology with-out putting any pressure in the farming.

The proposed system (design) consists of two modules, first one having simple setup with different sensors and controlling actuators for automatic monitoring and controlling of various parameters of plant growth. The second module is a central node that integrates the all the single setups which are distributed in entire the farm for data logging and user controlling purpose centrally and also having facility that the logged data will be available in cloud for remote monitoring and controlling purpose by the user

5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.
6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation
7. **Current status:**
   - Prototype completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-13: Preparation of Thermocol based Expansive Soil Stabilizer

1. **Project Title** : Preparation of Thermocol based Expansive Soil Stabilizer
2. **Mentor Name** : Mr. M Venu
3. **Student Team Names:** K Rakesh, K Manikanta, P D Supriya, Tasai Ravidnra
4. **Project Description:**

   As the expansive soils is cover Indian land over 20% in large areas of Deccan Plateau, Andhra Pradesh, Maharashtra, Madhya Pradesh, Gujarat and Karnataka, which possesses the property of volume change due to presence of montmorillonite and illite group minerals at different water percentages.

   The structures constructed in these areas will fail due to uneven settlement during shrinking of expansive soil. This failure property of soil in wet and dry conditions can be treated before construction process begins and make it suitable for construction of various types of structures on it. As Thermocol is a non biodegradable substance it has become one of the major causes of environment pollution because of its excessive use as single use plastic.

   Burning of thermocol based products produce harmful gases which can cause cancer. Using of thermocol with other suitable substances for treating expansive soil to eliminate its problems with structures could be the common solution for various problems i.e. structural failure and environmental pollution etc.
5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.
6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation
7. **Current status:**
   - Prototype completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Fig. 1: Grinding of Thermocol

Fig. 2: Preparation of Soil sample for Laboratory Test

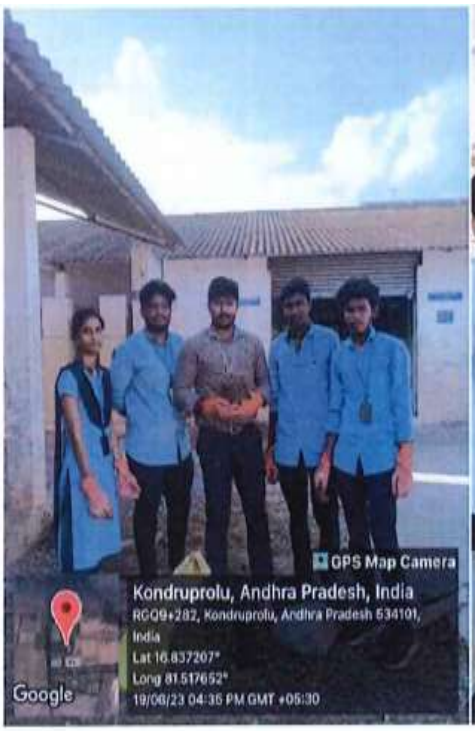


Fig. 3: Team with tested Soil Sample

Fig. 4: Testing the soil sample for CBR Value

Project-14: Turning food waste into organic fertilizer with eco-friendly process

1. **Project Title** : Turning food waste into organic fertilizer with eco-friendly process
2. **Mentor Name** : Dr K N Murali Krishna
3. **Student Team Names: T Lokesh, P Rakesh, S T Venkanna, B S L Sruthi**
4. **Project Description:**

   Food composting using both composting and vermiculture (or worm composting) methods is an effective way to recycle food waste and generate nutrient-rich compost. Composting is the natural decomposition of organic matter, including food waste, into nutrient-rich soil amendment. To start, create a compost pile or use a compost bin in a suitable location, such as a backyard or a designated area. Layer your food waste with other organic materials like leaves, straw, or wood chips to balance the carbon-to-nitrogen ratio. Turn the pile regularly to promote aeration and decomposition. Moisture and oxygen are important in the composting process, so adjust as needed.

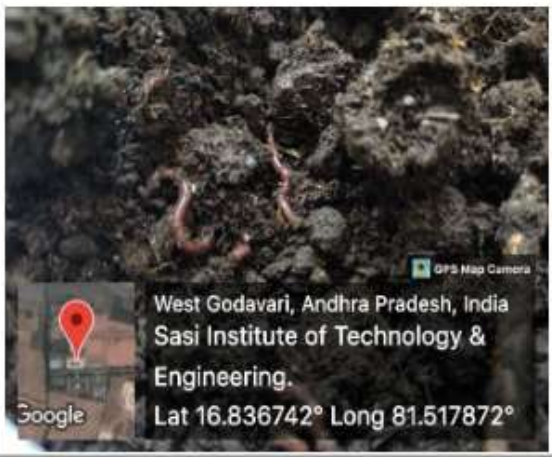
   Vermiculture, or worm composting, involves the use of specific types of worms, such as red wigglers (Eisenia fetida), to break down organic material, including food scraps. Set up a worm bin within a controlled environment, such as in a container or a composting bin with proper drainage and air circulation. Fill the bin with bedding material such as shredded newspaper, coconut coir, or straw to provide a comfortable habitat for the worms. Place your food waste on top of the bedding and allow the worms to consume it. They will turn the food waste into nutrient-rich worm castings (vermicompost).

   To incorporate both composting and vermiculture, you can create a two-stage system. Start by composting your food waste in a traditional compost pile or bin. Once it reaches an advanced stage of decomposition, transfer some of the partially decomposed material to your worm bin. The worms will continue breaking down the remaining organic matter, making the compost richer in nutrients. This technique allows for a more efficient breakdown of food waste and produces high-quality vermicompost. Remember to monitor moisture levels, provide adequate temperature conditions, and avoid adding certain items like meat, dairy, oily food, or citrus fruits that may attract pests or harm the worms.

   Regular maintenance, such as turning the compost pile or harvesting vermicompost, is crucial for successful food composting. By combining

composting and vermiculture, you can divert food waste from landfills, reduce greenhouse gas emissions, and generate nutrient-rich compost for your garden or plants.

5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.
6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation
7. **Current status:**
   - Prototype completed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-15: Smart – Baby Cradle with Automatic Milk Feeding

1. **Project Title** : Smart – Baby Cradle with Automatic Milk Feeding
2. **Mentor Name** : G A V Narasimha Raju
3. **Student Team Names:** G Giridhar Venkatesh, M Venkata rajesh, M J N V D Sambhavi, P Ch V S Sandya
4. **Project Description:**

   In decades ago peoples are used to live in joint family take so there are many peoples to take care of infant while their parents are busy with their work. But nowdays most of the familes areliving in nuclear families there either of their parents will be busy with their work, so taking care of baby is most challenging task and monitoring a baby continuously is really a tough job as well as it is not possible for the parent to carry their baby all the time so increase work load on them, so they depend on third person to take care of baby.

   If a system is to be developed that can help to keep an update about baby during illness. Any unusual activity can be instantly tracked and an alert will be issued about the situation and can be immediately taken care of.when baby typically cries when they are hungry, need their nappy changed or are awakened from sleep or baby get hungry or when they are not feeling well. This baby monitoring system is a kind of alarm system which can detect baby movement and activities and can convey the message about the condition of baby to their parents and this system also give relaxing time and less stress about to their parents.

   To recognize each and every movement of a baby all sensors are connected to the cradle. This system makes use of module such as the Arduino, sound sensor, wet sensor, humidity and temperature sensor, swing automation, cry detecting mechanism, and feeding mechanism. These sensors are interface with Arduino module. This cradle's purpose is to give infants a secure, convenient, and tranquil sleeping environment while also delivering functions that monitor the baby's health, soothe and calm it, and help parents with caregiving duties. It also comes with baby’s body temperature detection, wetness and cry detection. The ultimate objective is to develop a device that offers a safe and comforting environment for babies while reducing the stress and workload for parents
5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.

6. **Interventions made:**
    - Hardware purchase
    - Software developement
    - Prototype development
    - Patent application preparation
7. **Current status:**
    - Prototype completed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-16: Portable Biogras Plant powered by Cloud

1. **Project Title** : Portable Biogras Plant powered by Cloud
2. **Mentor Name** : K Phani Santoshi
3. **Student Team Names:** B. Hemanth, M. Naga Lakshmi, K. Satya Chandan and R Kavya
4. **Project Description:**

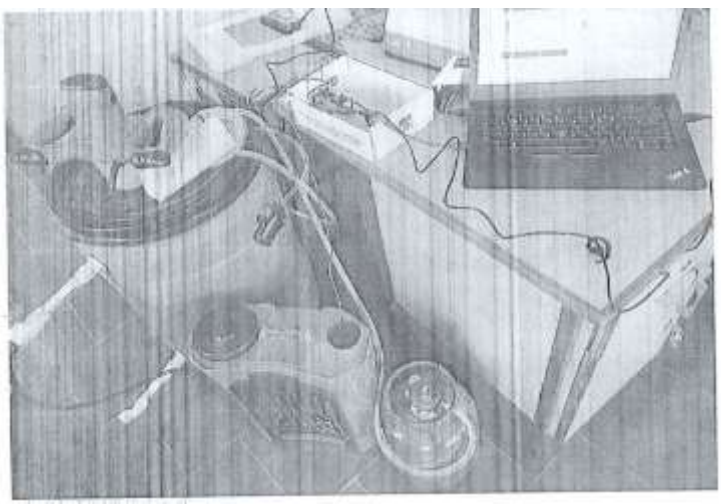
   A Portable Biogas Plant powered by the Cloud is an innovative and sustainable solution that combines the principles of biogas production with cloud-based technology to enhance efficiency, monitoring, and control of the biogas generation process. This integrated system offers numerous benefits, such as renewable energy production, waste management, and remote monitoring, making it a valuable tool for sustainable energy generation and environmental conservation. Benefits of a Portable Biogas Plant powered by the Cloud are:

   1. Energy Efficiency: Cloud-based monitoring and control optimize the biogas production process, maximizing energy yield while reducing waste.
   2. Remote Monitoring: Users can access real-time data and receive alerts on their smartphones or computers, allowing them to manage the biogas plant from anywhere.
   3. Waste-to-Energy Solution: The system promotes waste-to-energy conversion, contributing to a circular economy and reducing greenhouse gas emissions from organic waste decomposition.
   4. Scalability: The portable nature of the biogas plant makes it adaptable to different locations and varying scales, from small-scale household units to larger community-based systems.
   5. Environmental Benefits: By utilizing biogas as a clean energy source, the system helps reduce the dependence on fossil fuels and mitigates climate change impacts.
   6. Agricultural Benefits: The digestate produced during the biogas generation process serves as a valuable organic fertilizer, enhancing soil health and crop productivity.

5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.

6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation
7. **Current status:**
   - Prototype completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-17: Design and fabrication of solar powered mini electric trike for street vendors

1. **Project Title** : Design and fabrication of solar powered mini electric trike for street vendors
2. **Mentor Name** : S K Salman Basha
3. **Student Team Names:** Sayed Sabir, V.Vinayak, P. Teja Venkat, P. Akash
4. **Project Description:**

   The overall objective of the project is to design and fabricate an efficient solar powered electric vehicle. This type of vehicle would be suited to replace traditional combustion engines for everyday transport activities. The use of solar energy to power the vehicle allows for more applicability, and a means of using green energy. The normalization of a vehicle of this type would dramatically reduce the amount of carbon dioxide produced by vehicles and reduce the demand for oil.

   Electric Vehicle (EVs) is the most promising technology in current era, for attaining the sustainable development in transportation sector, because of very low to zero carbon emissions. Low noise, high efficiency are other important features make the people to attract more towards Electric vehicles technology, because of these advantages we fabricated a "Design and fabrication of solar powered mini electric trike for street vendors" which supports the vendors like milk packet sellers. Tea & Tiffin, Snack items, water bottles selling, for the passengers who are waiting on platforms of either railway station or bus stand. This also can be used for railway porter to carry the passenger's luggage. For women folk the same vehicle can be utilized for selling perishables like flowers, Pickles, Sea food and any other homemade snacks and dishes for their empowerment.
5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.
6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation
7. **Current status:**
   - Prototype completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-18: Centralized Water Quality and Level Monitoring System for Organizations

1. **Project Title** : Centralized Water Quality and Level Monitoring System for Organizations
2. **Mentor Name** : Mr. T Venkateswara Reddy
3. **Student Team Names:** T Navya, T Pushpa Tejaswini, G Siddhartha, G. Chandra Sekhar
4. **Project Description:**

   A safe water supply is the backbone of a healthy economy, yet is woefully under prioritized, globally. Now-a-days drinking water is the most precious and valuable for all the human beings, drinking water utilities faces new challenges in real time operations. Traditional methods of water quality involve the manual collection of water sample at different locations, followed by laboratory analytical techniques. Such approaches take longer time and no longer to be considered efficient, therefore there is a need for continuous online water quality monitoring.

   Drinking safe water has become the most important these days because polluted water causes several diseases. It is not possible to monitor water level and quality continuously through manually in every situation. An automatic centralized water quality and level monitoring system is required to monitor the health of water reserved in tanks.

   By focusing on the above issues we have designed a centralized low cost system for real time monitoring for water level checking and quality maintaining in IOT environment. The system involves different sensors like temperature sensors, TDS sensors, Turbidity sensors, PH sensors for water quality and ultrasonic sensor for water level checking.

5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.
6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation

7. **Current status:**
   - Prototype completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each poject:**

Project-19: Low Cost Smart Ventilator System for Hospitals

1. **Project Title** : Low Cost Smart Ventilator System for Hospitals
2. **Mentor Name** : Mr. T Prasad
3. **Student Team Names:** Balijepalli Durgaprasad, Bonthu Chinababu, D.Amrutha Krishna, Ganasala Bhargavi
4. **Project Description:**

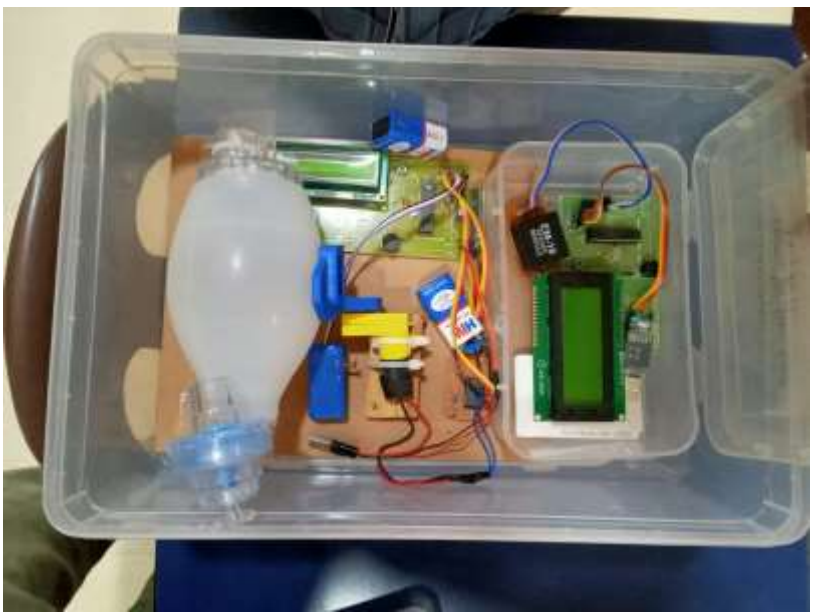
   Electrical ventilation, or assisted ventilation, is the medical term for artificial ventilation where Electrical Motor is used to assist or replace spontaneous breathing. This may involve a machine called a ventilator, or the breathing may be assisted manually by an Electrical Motor by compressing a bag valve mask device. Logically, for the realization of any project, engineering and architectures must be governed by current regulations. However, we must ask whether the parameters required by regulations are sufficient or not. From this point, this is where intelligent ventilation comes into play. It makes no sense, from a logical and economic point of view, to practice the same levels of ventilation, for example, in a gym at night when it is completely empty than during the day when users use their services.

5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.

6. **Interventions made:**
    - Hardware purchase
    - Software developement
    - Prototype development
    - Patent application preparation

7. **Current status:**
    - Prototype completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-20: Smart_Diagnosis of Obstructive Sleep Apnea

1. **Project Title** : Smart_Diagnosis of Obstructive Sleep Apnea
2. **Mentor Name** : Dr G Naveen Kishore
3. **Student Team Names:** P. Madhuri, M. D. N. S. Sravanti, P. Anusha, A.Harika Chowdary
4. **Project Description:**

   The very common issues in OSA detection and classification using ECG lies in high dimension feature space and consideration of non-linearity. In order to overcome nonlinearity and high dimension space, we may consider convolutional neural network which allows nonlinearity and simple in its implementation.

   CNN have gained significant interest in various signal processing applications that includes object detection and classification. The strong feature learning capabilities of CNNs make them an ideal and suitable for multi dimension signal processing applications. These techniques can be exploited in bio medical signal processing domain, especially in ECG applications. The feature learning mechanism is shown to be capable of generating robust features without requiring domain knowledge. The classification errors can be drastically reduced while compared with KNN, SVM, MLP neural networks. The weight sharing and sparse connectivity will be prominent features of CNN and we can take advantage to get fewer training parameters. The deep CNN utilizes supervised feature learning mechanism which inherently, extracting the features and reduces the loss and increase accuracy.

5. **Project status at the beginning of the Year:**
   - Idea formed and system design is proposed.
6. **Interventions made:**
   - Hardware purchase
   - Software developement
   - Prototype development
   - Patent application preparation
7. **Current status:**
   - Prototype completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

NewGen IEDC-L. J. Institute of Engineering & Technology

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: Fifth Year (2022-23)

Name of the Institution hosting NewGen IEDC	L. J. Institute of Engineering & Technology		
Year of starting NewGen IEDC	2017-2018		
Name of the Head of the Institution	Dr. Viral Shah		
Name of NewGen IEDC Coordinator	Ms. Debopriya Chakroborty Mr. Bhushan Mehta		
Contact Details of NewGen IEDC Coordinator • Mobile Number & e-Mail ID	• +91-96207 27297 • dchakroborty@ljinstitutes.edu.in • +91-9033096486 • bhushan@ljinstitutes.edu.in		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Sanction Order Details	1	EDII/DST-NewGenIEDC/17-18/04 Date:15.06.2017	60,00,000
	2		47,50,000
	3		60,00,000
	4		60,00,000
	5		60,00,000

1. **Details of Activities Undertaken during the year:**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. **Antra Growth Series 2022 (Tarun Jami)**

- **Date of the event** - 15 July, 2022
- **Duration** – 4:30 PM – 5:30 PM
- **Venue** - Webinar
- **Brief** - Antra Startup Growth Series: Fostering Innovation and Curiosity
- **Description**: The Antra Startup Growth Series is a dynamic and interactive online initiative designed to facilitate knowledge sharing and inspire entrepreneurship. The series brings together startups and startup aspirants in a unique two-way engagement, providing a platform for startups to share their journey in the startup ecosystem while encouraging the curious audience to explore their imagination and ask thought-provoking questions.
    - Startup Journey Sessions
    - Open Q&A and Imaginative Exploration
    - Live Interaction and Discussion
    - Learning and Inspiration
    - Community Building

  Overall, the Antra Startup Growth Series encourages the exchange of knowledge, fosters creativity and curiosity, and empowers aspiring entrepreneurs to pursue their startup dreams with confidence.
- **Photo** -

2. **Antra Startup Growth Series 2022 (Darshan Shah)**

- **Date of the event** - 10 August, 2022
- **Duration** – 4:00 PM – 5:30 PM
- **Venue** - Webinar
- **Brief** - Antra Startup Growth Series: Fostering Innovation and Curiosity
- **Description**: The Antra Startup Growth Series is a dynamic and interactive online initiative designed to facilitate knowledge sharing and inspire entrepreneurship. The series brings together startups and startup aspirants in a unique two-way engagement, providing a platform for startups to share their journey in the startup ecosystem while encouraging the curious audience to explore their imagination and ask thought-provoking questions.
    - Startup Journey Sessions
    - Open Q&A and Imaginative Exploration
    - Live Interaction and Discussion
    - Learning and Inspiration
    - Community Building

  Overall, the Antra Startup Growth Series encourages the exchange of knowledge, fosters creativity and curiosity, and empowers aspiring entrepreneurs to pursue their startup dreams with confidence.
- **Photo** -

3. **Innovation Marathawn (Sensitisation Series 2022)**

- **Date** of the event – 12 September, 2022
- **Duration** – 11:00 AM – 12:30 PM
- **Venue** – LJ University (Engineering Auditorium)
- **Brief** - This Is A Carpet Bombing Method Wherein We Sensitise Students And Faculties From Different Domains In L.J University.This Is One Of The Strongest Sensitisation Tool As Far As Internal Sensitisation Is Concerned.Since 2021, We Have Sensitised Over 1000 Students And 70+ Faculties, Which In Turn Has Resulted In The Present Projects That We Have. Dr. Viral Shah, CEO of Antrapreneur The Business Incubator addressed the audience with different initiatives of innovation and entrepreneurship history of LJ. He emphasised on the example of Mokshshil by our in-house faculty from LJ Institute of Management Studies, Ms. Bilwa Desai. The success story of Quick Pick which has been curated upto the stage of "Finished Product" was displayed and discussed. The problem-to- startup process was discussed with different events and support provided by the Incubation centre at LJ. The students were informed about the Government schemes for startup foundation and development. We conducted an on the spot problem identification activity, where students came up with different problems and a tentative solution to it. The best two problems were honoured with a token of Rs. 100/-. We briefed them about the problem submission form which we have designed to create an idea pool.
- **Photo -**

4. **Antra Talks (CK Vishwakarma)**

- Date of the event – 17 December, 2022
- **Duration** – 1:30 PM to 3:00 PM
- **Venue** – LJ University (Architecture Auditorium)
- **Brief** - C K Vishwakarma CEO of AllThingsConnected discussed about the future and scope of IoT and automation. How we entering the era of AI and the job that can be created in the field of IoT and Automation with a few examples on how we can automate very daily uses product.
- **Photo -**

5. **Brainstorimg Workshop - How to write a Project Proposal**

- **Date** of the event – 30 December,2022 and 2 January, 2023
- **Duration** – 11:30 AM to 1:30 PM
- **Venue** – LJ University (Applied Science)
- **Brief -** A basic understanding about research & development where a problem is solved from the following – Microbiological, Biotechnological, Chemical/Biochemical, Instrumentation, Food Technology, Smart Nutrition and create a project proposal on what you have learned during the event.
- **Photo -**

6. **Antra SkillUp Series 2022**

- **Date of the event** – 26 December, 2022 to 31 December, 2022
- **Duration** – 1:00 PM to 4:00 PM
- **Venue** – LJ University (Pharmacy)
- **Brief -** A basic understanding about research & development where a problem is solved from the following – Microbiological, Biotechnological, Chemical/Biochemical, Instrumentation, Food Technology, Smart Nutrition and create a project proposal on what you have learned during the event.
- **Photo -**

7. **A Round Table Discussion with Shree T.V Mohandas Pai**

- **Date of the event** – 29 December, 2022
- **Duration** – 6:30 PM to 11:30 PM
- **Venue** – LJ University (Engineering Amphitheatre)
- **Brief -** "Gujarati Totha" just got better with our team sharing Totha over dinner with Shree T V Mohandas Pai on 29th December 2022, spending an evening at LJ University's Antrapreneur The Business Incubator discussing his heart out about how Gujarat can aim for a larger chunk in the race of the Indian Startup Ecosystem. We had an enthralling interaction amongst the attendees including 40+ Investors, 15 Startups, 20 Innovators and other potential budding studentpreneurs.All in all we witnessed a magnanimous evening towards the end of 2022 and stepping onto 2023 with grace and growth.

- **Photo -**

[B] To identify, develop & commercialize students' innovative ideas

1. **Shark Teens Season 1**
   - **Date of the event** – 16 July, 2022
   - **Duration** – 10:00 AM to 1:00 PM
   - **Venue** – LJ University
   - **Brief -** Just like Shark Tank these events resemble similar process but with a twist. There are 8 sharks who will evaluate 8 startups idea which was registered by teens of 12-17 age group. There was more than 30+ entries across Gujarat. Only 8 ideas were given the opportunity to present the idea in front of Sharks. Every idea got 10 minute to represent the idea to the Sharks who will evaluate and pick top 3 idea for certification and soft commitment of 6 lacks. Dr. Viral Shah, Ms. Debopriya Chakroborty and Mr. Bhushan Mehta were the brain behind this successful event. The ideology behind was to aware teens about Startup Ecosystem along with given them a platform to explore and learn from Industry Experts.
   - **Photo -**

2. Shark Teens Season 2

- **Date of the event** – 10 December, 2022
- **Duration** – 11:00 AM – 3:00 PM
- **Venue** – LJ University
- **Brief -** SHARK TEENS, is a platform for all teenpreneurs to present & get validation for their business ideas, get prize money, mentoring support from the experts to tackle the teething issues of their business, Incubation support and further opportunities to seek future funding based on the viability of the business idea.
- **Photo -**

[C] To enhance Industry-Academia interaction

1. Startup Demo Day

- **Date of the event –** 1 April, 2022
- **Duration** – 12:00 PM to 2:00 PM
- **Venue** – LJ University
- **Brief** - Antrapreneur The Business Incubator, Shuruup and Atharvah Venture, Organized and coordinated a Startup Demo Day on 23th July 2022- Saturday. Six different domain specific startups were invited for the DEMO. The event was attended by 250+ students, faculties and aspiring innovators. The special features of the event includes the audience card polling and the startup quiz arranged for the audience. It was a wholesome and fulfilling event, with a healthy interaction between the audience and the startups sharing concerns and strategies for the market. The event concluded with the startups being felicitated with a token of appreciation for work. The session which we arranged with the focus of knowledge exchange and providing a platform to the startups for their product/ service validation and a quick market survey, was a fun learning experience.
- **Photo -**

2. Startup Demo Day - Rajkot Chapter

- **Date** of the event – 23 July, 2023
- **Duration** – 3:00 PM to 6:30 PM
- **Venue** – LJ University
- **Brief -** Antrapreneur The Business Incubator, Shuruup and Atharvah Venture, Organized and coordinated a Startup Demo Day on 23th July 2022- Saturday. Six different domain specific startups were invited for the

DEMO. The event was attended by 250+ students, faculties and aspiring innovators. The special features of the event includes the audience card polling and the startup quiz arranged for the audience. It was a wholesome and fulfilling event, with a healthy interaction between the audience and the startups sharing concerns and strategies for the market. The event concluded with the startups being felicitated with a token of appreciation for work. The session which we arranged with the focus of knowledge exchange and providing a platform to the startups for their product/ service validation and a quick market survey, was a fun learning experience.

- **Photo -**

3. Diagnostic Kit Development & Implementation

- **Date** of the event – 27 August, 2022 – 28 August, 2022
- **Duration** – 9:00 AM to 5:00 PM
- **Venue –** LJ University
- **Brief -** The Department of Biotechnology at L.J. Institute of Applied Sciences organized a workshop on diagnostic kit development and implementation, sponsored by GSBTM and the Department of Science and Technology, Government of Gujarat, with support from Antrapreneur.

Dr. Alok Pandya from the Institute of Advanced Research University conducted the workshop, where 45 participants learned about theoretical and practical aspects of diagnostic kit design and applications. The workshop provided valuable insights into the biosensor industry and was highly informative for students interested in entrepreneurship and diagnostic kit development. Dr. Alok Pandya was honored with a momento.

- **Photo -**

4. Inauguration of BIS Club

- **Date** of the event – 16 September, 2022
- **Duration** – 11:00 AM to 12:30 PM
- **Venue** – LJ University
- **Brief -** We are thrilled to announce the inauguration of our Bureau of Indian Standards (BIS) Club, dedicated to promoting awareness and implementation of quality standards. The club aims to engage students in workshops and seminars, fostering their understanding of standardization and compliance. Join us in this exciting journey towards ensuring excellence in various fields. Be a part of the BIS Club and stay tuned for upcoming events and activities. Let's make a difference together!
- **Photo -**

5. Antracon 2.0

- **Date of the event** – 23 September, 2022 – 25 September, 2022
- **Duration** – 11:00 AM to 4:00 PM
- **Venue** – LJ University
- **Brief -** ANTRACON 2.0, is the sequel of ANTRACON which was organised back in 2016 (the first fundraising event in Gujarat). ANTRACON 2.0 is facilitated to promote Angel Funding for startups. Antrapreneur The Business Incubator run by LJ Knowledge Foundation, one the promising Nodal Institute of Industries Commissionerate, Government of Gujarat. Adhering to the rules of an NI, we have been doing small scale funding events at regular intervals.ANTRACON 2.0 will be conducted at a larger scale for elevating the Angel Funding game.
- **Photo -**

6. **Women Investing In Women 2.0**

- **Date of the event** – 10 February, 2023 – 11 February, 2023
- **Duration** – 9:00 AM to 5:00 PM
- **Venue** – LJ University
- **Brief** - Join us at Antrapreneur The Business Incubator for the second edition of "Women Investing in Women"! Celebrate equality and empowerment with us as we bring together women from diverse fields to invest in each other. From knowledge workshops and experience sharing to funding opportunities, we have a platter of engaging activities lined up. Don't miss out on the Pre-launch series, Learn-to-Earn workshops, Mentor Mocktail sessions, The Spotlight Pitch, Point to Point speak-out, and power-packed panel discussions. Be a part of this empowering event and make a difference!
- **Photo -**

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

3. Other important highlights (new initiatives), if any:

- We conducted a national level investment event which saw PE funding of over 1 crore.

4. Student Projects

<u>Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos</u>

5. Provide a minimum two-page case let each on the <u>two best student projects</u> (either prototype developed or commercialized) from the above list. The case lets should include the following:

Best Student-Project-01

I. Project : EV Bike

II. Mentors Name : Debopriya Chakroborty

III. Student team details

1. Kavan Panchal
2. Suraj Yadav
3. Devesh Panchal
4. Pratham Barot
5. Manthan Patel

IV. Brief description of the student start-up

- Electric vehicles are fascinating but what if they come with extra efficiency?
- Through this product, we will not just be able to convert old bikes to EVs, but also give them an extra mile compared to the new EVs.
- The USP of this product is that it gives mileage upto 80 kilometers per charge.
- The power train developed is completely indian and provides more efficiency compared to other products.

V. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

VI. Contribution of NewGen IEDC in the same

- Mentoring support
- Funding support
- Prototyping support

VII. Future plan

- They have registered the company and are now planning to launch their final product

VIII. Important highlights

- They

Best Student Project-02

I. Project : Patient Roller

II. Mentors Name : Mr Bhushan Mehta

III. Student team details

Aayush Trivedi

Meetrajsinh Zala

IV. Brief description of the student start-up

- One of the most difficult task for any nurse is to move a bedridden patient for a change of diaper.No matter how easy it looks, but it is one of the dirtiest task to do.So the team are working on a product that will be simple to use and that allows the user to turn the patient with ease.This also has numerous advantages in physiotherapy treatments for lower body disability patients.

V. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.- NA

VI. Contribution of NewGen IEDC in the same

- Provided

VII. Future plan

- They have already started their venture and are now planning to expand into the medical equipment segment

VIII. Important highlights

- Patent approved for the product.
- Already Sales of over 2 lacs

Annexure-A
Details of Student Projects: Fifth Year

Project-01: Brain Computing Interface

1. **Project Title** **:** Brain Computing Interface
2. **Mentor Name** : Ms. Debopriya Chakroborty
3. **Student Team Names: Shyam Parmar**
4. **Project Description:**
   - Brain computing interface is mainly used as a tool to detect study the neural network of a human brain and then provide feedback on the improvement part.
   - The main reason behind this is that majority of us are unaware of the strength and weaknesses of one's brain.
   - Through this, the team aims to provide dedicated learning courses for the development of an individual.
5. **Project status at the beginning of the Year:**
   - They came with just an idea which was then worked upon.
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:**
   - Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-02: Automated AGV

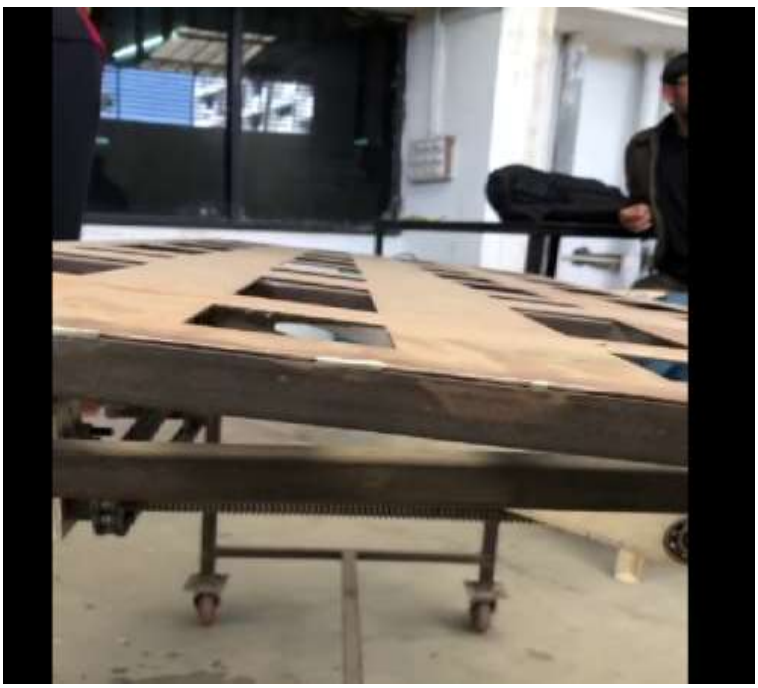
1. **Project Title**: Automated AGV
2. **Mentor Name** : Ms Drbopriya Chakroborty
3. **Student Team Names: Neel Patel**
4. **Project Description:**
   - Many industries are facing problems in movement of material inside the factory and warehouses. This is where the automated guided vehicles come into action.
   - This AGV is specially designed to cater to the needs to pharma industry as it requires special attention.
5. **Project status at the beginning of the Year:** Idea stage
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-03: Patient Roller

1. **Project Title** : Patient Roller
2. **Mentor Name** : Mr Bhushan Mehta
3. **Student Team Names**: Aayush Trivedi
4. **Project Description:**
   - One of the most difficult task for any nurse is to move a bedridden patient for a change of diaper.No matter how easy it looks, but it is one of the dirtiest task to do.So the team are working on a product that will be simple to use and that allows the user to turn the patient with ease.This also has numerous advantages in physiotherapy treatments for lower body disability patients.
5. **Project status at the beginning of the Year:** idea stage
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Product Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-04: Foldable Stretcher With Patient Transfer Facility

1. **Project Title**: Foldable Stretcher With Patient Transfer Facility
2. **Mentor Name** : Mr Bhushan Mehta
3. **Student Team Names: Atharva Soni, Yash Patel**
4. **Project Description:**
   - One of the most critical task is to put a patient on a stretcher and then move them to the hospital bed. Especially when the patient is in a state of immobility.
   - This stretcher is designed in a way that it can tilt its bed upto 30 degrees on one side so that it becomes convenient for the attendant to shift the patient onto the bed.This requires no additional electricity as it is done via a hand lever.
5. **Project status at the beginning of the Year:** idea stage
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

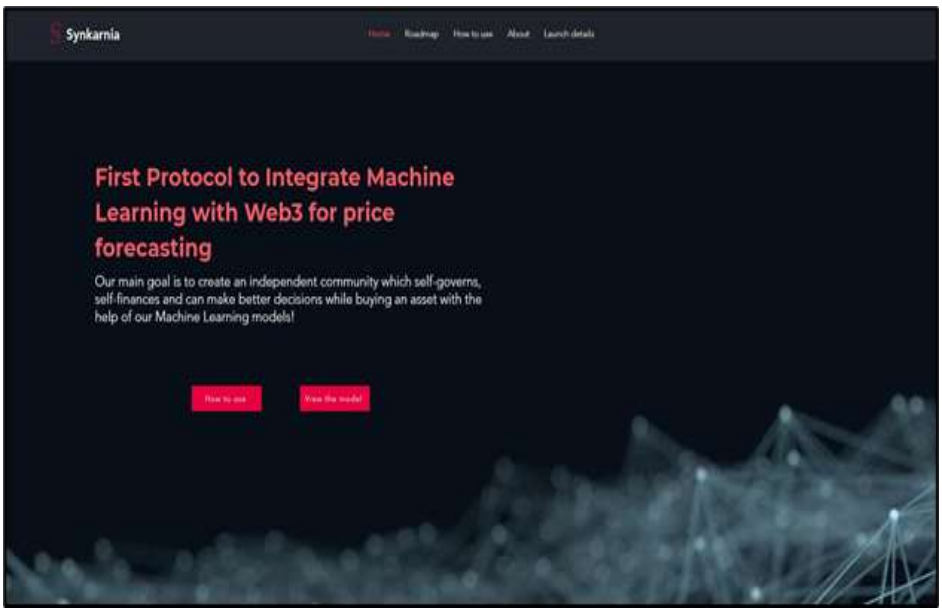


Project-05: EV Bike

1. **Project Title** : EV Bike
2. **Mentor Name** : Mr Bhushan Mehta
3. **Student Team Names** : Kavan Panchal
4. **Project Description:**
   - Electric vehicles are fascinating but what if they come with extra efficiency?
   - Through this product, we will not just be able to convert old bikes to EVs, but also give them an extra mile compared to the new EVs.
   - The USP of this product is that it gives mileage upto 80 kilometers per charge.
   - The power train developed is completely indian and provides more efficiency compared to other products.
5. **Project status at the beginning of the Year:** they came with an idea
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-06: SYNKARNAI

1. **Project Title** : SYNKARNAI
2. **Mentor Name** : Ms Debopriya Chakroborty
3. **Student Team Names** : Jahan Shah
4. **Project Description:**
   - A machine learning protocol integrated with web3 for forecasting. We are basically trying to optimize Machine Learning with other DEX and CEX, so other exchanges can use our API and integrate the model which can help the users make better decision while trading/investing. This ML model can help predict an asset's price based on its historical data. We are also making new models which use Neural networks for high frequency trading. Essentially making a SMART trading environment
   - There are many Beginners or even experienced traders/investors who have no clue about the markets and are solely dependent on traditional TA. Hence we want to develop a ML protocol which other traders can call and see the prediction of an asset through an UI friendly graph on our platform or an API
5. **Project status at the beginning of the Year:** Idea stage
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Prototype Ready and deployed for testing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-07: Amee's Natural

1. **Project Title** : Amee's Natural
2. **Mentor Name** : Ms Debopriya Chakroborty
3. **Student Team Names** **:** Amee Barcha
4. **Project Description:**
   - The skincare and personal care market is flooded with inorganic products for masses and organic products for classes. With amee's natural, We want to use technology to make organic products for classes at an affordable rate.
   - We have received GMP certifications for our products.
5. **Project status at the beginning of the Year:** prototype stage
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Product Commercialized
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-08: Industrial Vacuum Cleaner For Road Cleaning

1. **Project Title**: Industrial Vacuum Cleaner For Road Cleaning
2. **Mentor Name** : Mr Sagar Thesiya
3. **Student Team Names:**
4. **Project Description:**
   - Usually road cleaning is a huge headache for the government as there is no control over the flow of dust.
   - To solve such a huge problem, we have developed a machine that collects the dust from roadside.
   - This runs on a self power mode through a generator which removes any distance barrier.
   - This is also a cost effective solution as most of the vehicular machines cost a lot.
5. **Project status at the beginning of the Year:** they came with an idea
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Prototype Under testing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-09: Nervapar Nuggets and Milk Powder

1. **Project Title** : Nervapar Nuggets and Milk Powder
2. **Mentor Name** : Dr Sheetal Acharya
3. **Student Team Names** **:** Sarthi Ahuja & Prerak Desai
4. **Project Description:**
   - Mucuna Prureins and Rutin are herbal drugs used for prevention and treatment purpose of Parkinsons Disease.
   - Nano powder of Mucuna prureins and Micronized Rutin powder is adopted for the formulation.
   - Mucuna Prureins is the natural source of Levodopa (L-dopa) which is essential in treatment purpose by increasing levels of dopamine.
   - Rutin possesses anti-oxidant ant and anti-inflammatory properties.
   - Higher Bioavailability.
   - More patient compliance.
   - Cost effective.
   - Used as preventive measure alongwith treatment purpose.
5. **Project status at the beginning of the Year:** they came with an idea
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Under Development
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-10: Eczcure

1. **Project Title** : Eczcure
2. **Mentor Name** : Dr Shruti Raval
3. **Student Team Names**: Thakkar Jinal, Pankaj & Gajjar Dhanvi Vijaybhai
4. **Project Description:**
   - Patients with atopic dermatitis (AD) experience symptoms including redness, itching, swelling, irritation, and many more.
   - As a result, bathing became too challenging for such patients. As a result, they require a specific therapy that may be added to their regular routine in order to achieve a therapeutic goal.
5. **Project status at the beginning of the Year:** they came with an idea
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-11: Biodegradable Stent For Oesophageal Cancer

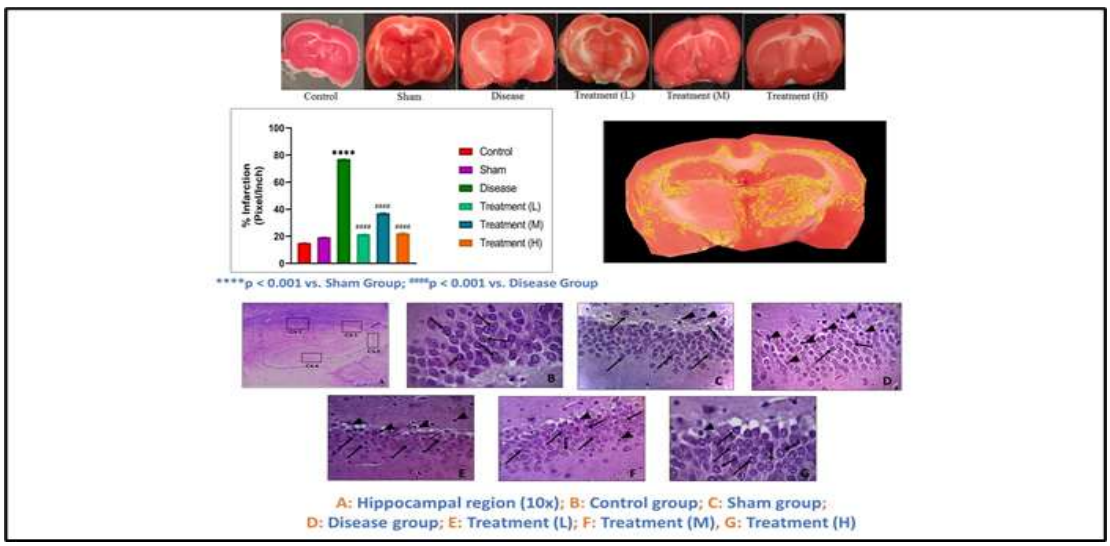
1. **Project Title** : Biodegradable Stent For Oesophageal Cancer
2. **Mentor Name** : Dr Shruti Rawal
3. **Student Team Names:** Khevana Joshi, Makwana Harsh & Vaishnavi Pandya
4. **Project Description:**
   - Esophageal cancer (EC) is at Sixth position as per death rate among all cancer worldwide.
   - The Problem with the currently available Stents are: Patient discomfort, vomiting, reflux, haemorrhage Cancer recurrence and tumor ingrowth.
   - Non-biodegradable material of construction.
   - Persistent Dysphagia in advanced cases.
   - Limited scope of placement removal process is often complicated and involves surgical intervention.
   - Migration to the distal end and risk of repositioning.
5. **Project status at the beginning of the Year:** came with a prototype
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Under Development
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-12: Cafixime

1. **Project Title** : Cafixime
2. **Mentor Name** :
3. **Student Team Names** **:**
4. **Project Description:**
   - Cefixime is a broad-spectrum, third-generation cephalosporin antibiotic, derived semisynthetically from the marine fungus Cephalosporium acremonium with antibacterial activity.
   - When we give Cefixime alone as an antibiotic, so it's disturb the gut flora of pediatric patients, so conventionally cefixime given with the probiotic.
   - The proposed formulation is oral solid dosage form containing unit dose of antibiotics with prebiotic and probiotic agent.
   - As the formulation is taste masked patient compliance will be improved. It is expected that simultaneous administration of prebiotic and probiotics in the pediatric patient decreases chances of GIT disturbances and associated AAD.
   - The proposed formulation will also reduce hazels related to storage and transportation. The product will be beneficial to patients in terms of cost and comfort.
5. **Project status at the beginning of the Year:** they came with an idea
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Under Development
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

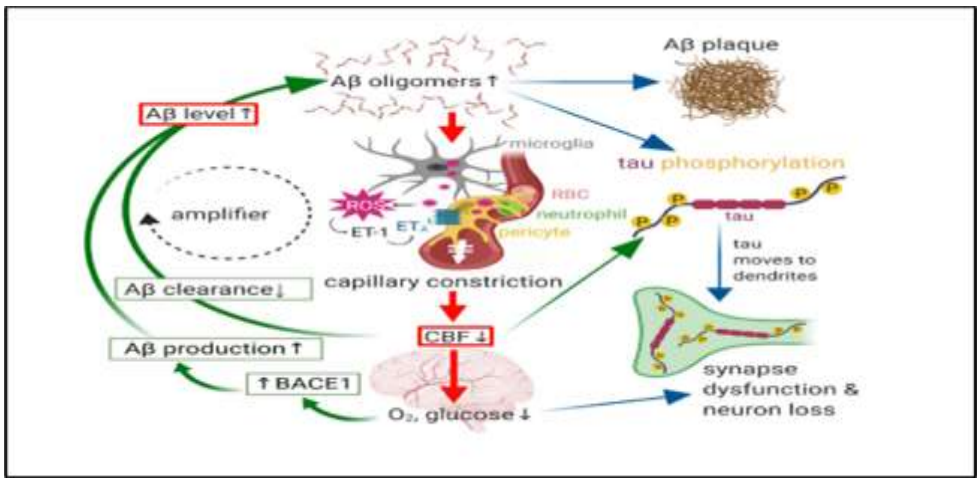
Project-13: Jatropha Curcas Against Cerbral Ischemia-Reperfusion Injury

1. **Project Title**: Jatropha Curcas Against Cerbral Ischemia-Reperfusion Injury
2. **Mentor Name** : Mr Vijay Kevlani
3. **Student Team Names** : Harshad Dodiy
4. **Project Description:**
   - Based on the current results we found that our herb extract has Antioxidant activity. In stroke, due to ischemia there is lack of antioxidants and increase in inflammation which further increases the oxidative damage of tissue. The results showed that our drug increases antioxidant enzymes including SOD, Catalase, and Glutathione. The decrease in MDA as well as nitric oxide metabolite levels in treatment groups suggests that drug might have beneficial role in treatment of stroke. Also improvement in neurological function suggests that drug might decreases cell damage and exerts neuroprotective action. Decrease in cell damage in treatment groups were seen by TTC staining and Histopathological studies. Decrease in cytokines and Nf-kB p65 levels in treatment groups suggests that drug might have anti-inflammatory as well as anti-apoptotic effects.
5. **Project status at the beginning of the Year:** they came with an idea
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Under Development
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-14: Rivaroxaban (An Anticoagulant): A Preventive Approach for Alzheimer's Disease.

1. **Project Title**: Rivaroxaban (An Anticoagulant): A Preventive Approach for Alzheimer's Disease
2. **Mentor Name** : Ms. Mansi Shah
3. **Student Team Names** **:** Disha Jambudiya
4. **Project Description:**
   - β-amyloid promotes thrombin generation through activation of coagulation factor XII.
   - Role of toxic proteins of amyloid-beta (Aβ), thrombin and fibrin as key drivers in vascular dysfunction and derived neurodegenerative changes, which leads to Alzheimer's disease.
   - Deposition of fibrin in Alzheimer's disease via Aβ –fibrin binding and altered hemostasis contribute to Aβ deposition, decreased cerebral blood flow, exacerbated neuroinflammation, and eventual neurodegeneration.
   - Blocking the interaction between fibrin and Aβ will be a therapeutic target for Alzheimer's disease.
   - Anticoagulants can block thrombin- and fibrin-triggered inflammatory processes, as well as progressive fibrin-Aβ deposition in brain.
5. **Project status at the beginning of the Year:** they came with an idea
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Under Development
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

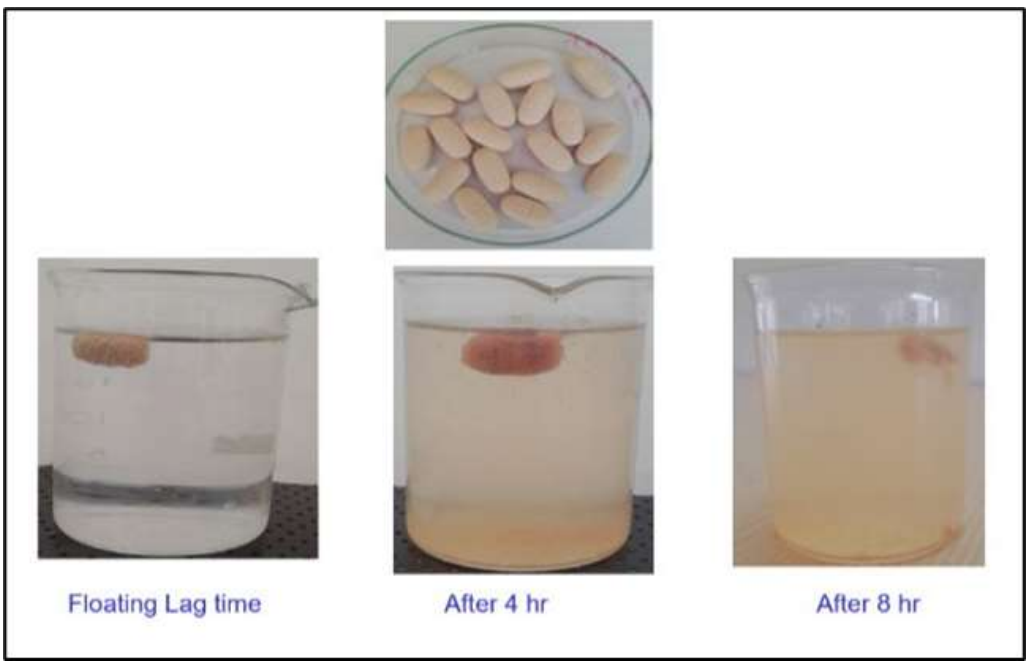


Project-15: Novel Curcumin Microemulsion/Formulation as Immunity Booster

1. **Project Title**: Novel Curcumin Microemulsion/Formulation as Immunity Booster
2. **Mentor Name** :
3. **Student Team Names:**
4. **Project Description:**
   - Curcumin improves glycemic control and lipid metabolism.
   - It shows improvement in insulin resistance and lipid profile.
   - It also helps in boosting immunity, sore throat and in cold & cough infection Whereas Nigella oil reduce circulating levels of testosterone (T)Increase circulating levels of oestrogen (E) by alleviating letrozole-mediated inhibition of aromatase enzyme in the ovary. In obesity, acne, hair-loss etc.
   - But the curcumin has very low solubility and low bioavailability with the higher chance of photodegradation.
5. **Project status at the beginning of the Year:** they came with an idea
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Under Development
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-16: Development of Herbal Floating Formulation for Peptic ULCER

1. **Project Title**: Development of Herbal Floating Formulation for Peptic ULCER
2. **Mentor Name** : Dr Sheetal Acharya
3. **Student Team Names:** Shreyanshu Patel & Dhruv Ashokkumar Dangi
4. **Project Description:**
   - Based on the recent experimental trials we found that our churna is effective in peptic ulcer which is proven by in vitro proton pump inhibition activity and antioxidant activity. Because of various limitation of churna, alternate dosage form such as floating tablet as gastroretentive formulations was developed by applying factorial design.
   - This formulation was found to deliver site specific action, ease of administration and provides controlled release. The formulation was optimized and dissolution study was performed by simultaneous estimation of eugenol and scopoletin in 0.1 N HCL as a dissolution medium.
5. **Project status at the beginning of the Year:** they came with an idea
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Under Development
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-17: Development of Herbal-Based Dental Gel

1. **Project Title** : Development of Herbal-Based Dental Gel
2. **Mentor Name** :
3. **Student Team Names** **:**
4. **Project Description:**
   - Herbal based dental gel containing clove oil, Chammomile oil, Aloe Vera as the chief constituent for the treatment of various dental diseases.
   - The proposed formulation is oral based dental gel containing clove oil, Chammomile oil and also with aloe vera gel.
   - As the formulation contains all herbal based ingredients so it not having any side effects related to the allopathic formulation and also Clove oil having anaesthetic property and also reduces the pain, Chammomile having anti inflammatory property and also protect the gum, aloe vera as a thickening agent and also antibacterial property.
5. **Project status at the beginning of the Year:** Design
6. **Interventions made:**
   - In Proghress
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-18: Novel Antibiotic Hybrids: Synthesis and Evaluation

1. **Project Title**: Novel Antibiotic Hybrids: Synthesis and Evaluation
2. **Mentor Name** :
3. **Student Team Names :**
4. **Project Description:**
   - The growing need for new antibacterial agents has led researchers to investigate novel approaches to find compounds that are effective against multi-drug resistant bacteria and that act in such a way as to delay onset of resistance. One such strategy has been to link or merge antibiotics to produce hybrids designed to overcome resistance mechanisms. Antibiotic hybrids demonstrate synergistic antibacterial activity, dual targeting, decreased susceptibility for degrading enzymes and efflux systems and improved pharmacokinetics of compound.
   - So we aim to develop new drugs that can help, ease antibiotic resistance across the globe and can help decrease the mortality rate due to infection.
   - The target of the work is to find a lead which can be taken into market as a New chemical entity for prevention of antimicrobial resistance.
5. **Project status at the beginning of the Year:**
6. **Interventions made:**
   -
7. **Current status:**
   - Prototype Under Development
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-19: Drone for Sports and Agriculture

1. **Project Title** : Drone for Sports and Agriculture
2. **Mentor Name** : Mr Keval Kelawala
3. **Student Team Names** **:** Dipesh Panchal
4. **Project Description:**
   - With the drone technology getting less costly and the cost of labour rising, this is the best time to bring upgradation in the agriculture sector.
   - Through our drone, we are doing image processing of various items in a farm.
   - starting with crop identification and counting, we have developed technology that can also do surveying and mapping.
   - Drones have tremendous potential in the sports and hospitality sector.
   - Through this drone, we decided to foray into basketball and volleyball.
   - The task completed was of dropping the basketball at the time of whistle.
   - This not only brings in technology in the sport, but also opens up avenues for future revenue
5. **Project status at the beginning of the Year:**
6. **Interventions made:**
   -
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-20: RIOB – Dog Biscuits

1. **Project Title** : RIOB – Dog Biscuits
2. **Mentor Name** : Ms Debopriya Chakroborty
3. **Student Team Names** **:** Jeet Shah, Smriti Patel
4. **Project Description:**
   - When it comes to feeding pet dogs, there are only two solutions. parle G or pedigree. both the solutions are extremes in opposite direction when it comes to cost and nutritional value.
   - Majority of stray dogs suffer from ignorant feeders as they rely on parle g and other biscuits.
   - We have made technological interventions in the baking segment to produce biscuits that are nutritional as well as cost effective for the feeders.
5. **Project status at the beginning of the Year:** Prototype stage
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Product developed & commercialised
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-21: Corporate Volleyball League and Corporate Basketball League

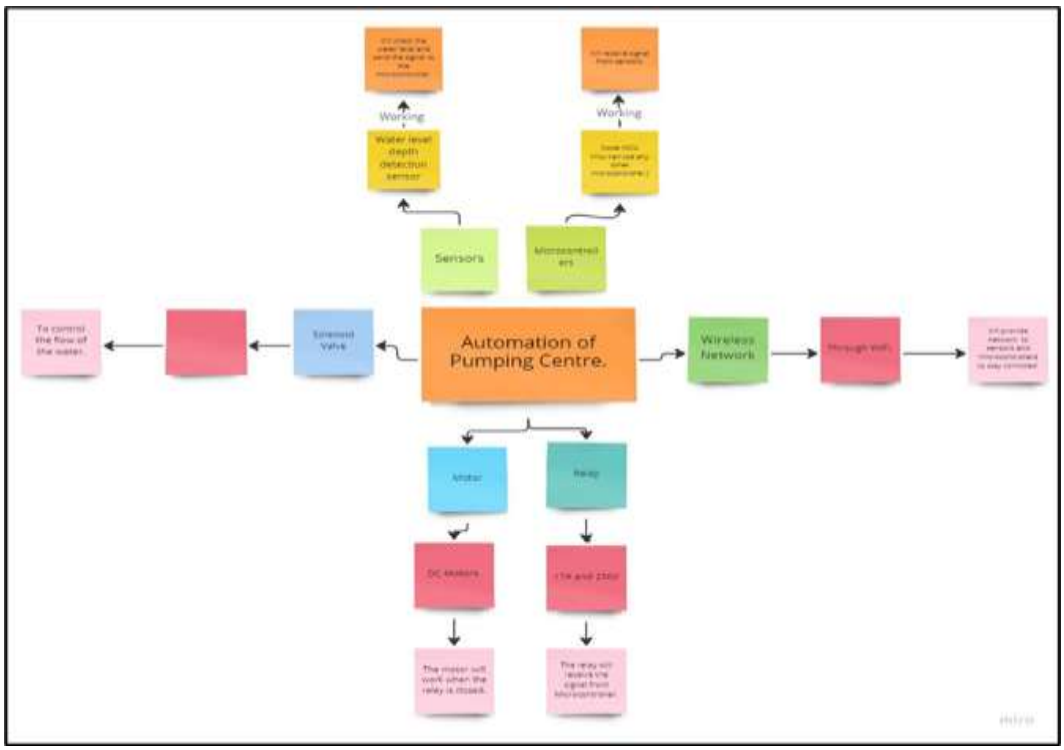
1. **Project Title**: Corporate Volleyball League and Corporate Basketball League
2. **Mentor Name** : Mr Bhavin Shah
3. **Student Team Names:**
4. **Project Description:**
   - In a country where cricket is considered the god of all sports, we are missing out on opportunities in other games.
   - On doing market survey, it was found that there are no streamlines platforms to promote the game of volleyball and basketball.
   - This platform provides end to end solutions for both the games. starting from team registration to scoring to doing scheduling, this platform covers it all.
5. **Project status at the beginning of the Year:** they came with a concept
6. **Interventions made:**
   - provided mentoring support
   - provided funds and prototyping support
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-22: Antifungal Mist

1. **Project Title** : Antifungal Mist
2. **Mentor Name** : Dr Shreeraj Shah
3. **Student Team Names** : Shivani Dave, Anand Nanavaty
4. **Project Description:**
   - Our anti-fungal mist is based on the concept of a novel drug delivery system. It mainly has Chitosan Polymer nanoparticles with Posaconazole drug. The main advantages include Ease of Application, Biocompatibility and Biodegradation, Enhances drug solubility and gives better action, Mucoadhesive so there is better drug retention at the local site & Longer duration of action due to mucoadhesion. Spray ensures that no kind of discomfort is caused to the patient while and after application.
5. **Project status at the beginning of the Year:** idea stage
6. **Interventions made:**
   -
7. **Current status:** prototype developed and patent applied
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-23: Automation of Pumping System

1. **Project Title** : Automation of Pumping System
2. **Mentor Name** :
3. **Student Team Names** :
4. **Project Description:**
   - In today's world, managing water systems for large campuses is becoming a headache, if not a headache, it is certainly becoming a labour intensive segment.
   - We are working on a cost effective and efficient water management system that can control the level of water in the main tank and also calculate water level in distant tanks. on the basis of this, water will be automatically supplied at a given pressure to the tanks which are empty.
5. **Project status at the beginning of the Year:**
6. **Interventions made:**
   -
7. **Current status:** Idea Stage
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-24: Automated Fertigation System

1. **Project Title** : Automated Fertigation System
2. **Mentor Name** : Mr Sahil Padhiyar
3. **Student Team Names** **:** Mugdha Maru, Janvi Patel
4. **Project Description:**
   - Manual irrigation in farms is a huge problem and the most important factor to achieve optimum yield is fertilisation.
   - Through this system, we plan to automate the entire fertigation system.
   - No manual intervention required to provide fertilizers & different recipe can be developed
   - This can maximize the yield from the farms and in turn increase the return on investment for the farmers.
5. **Project status at the beginning of the Year:** ideation stage
6. **Interventions made:**
   -
7. **Current status:** Prototype Under Development
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-25: Multipurpose Agriculture Machine

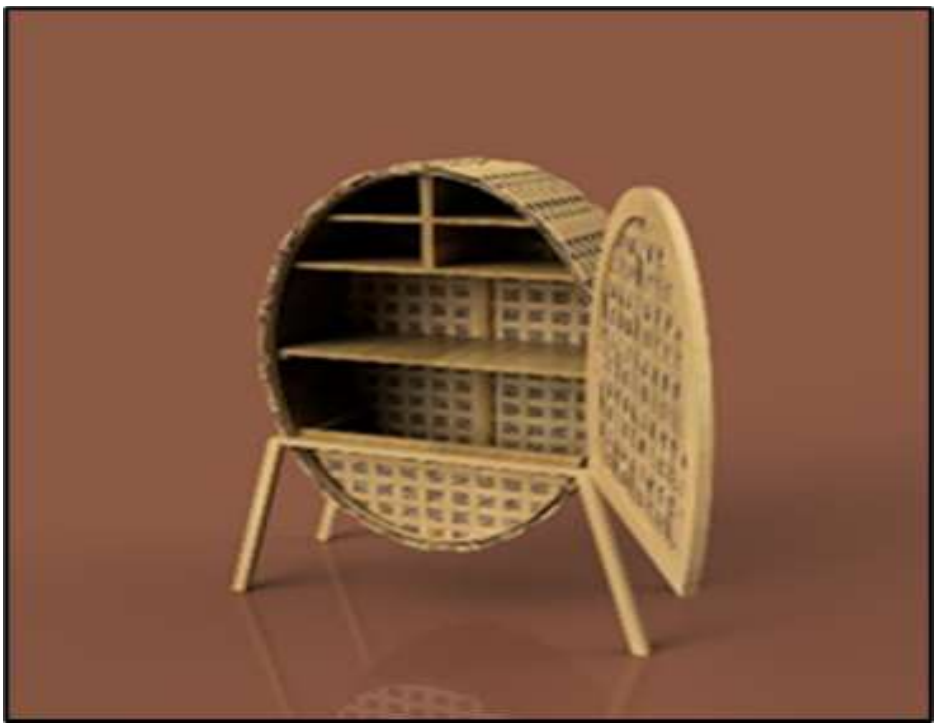
1. **Project Title**: Multipurpose Agriculture Machine
2. **Mentor Name** : Mr Azim Parmar
3. **Student Team Names:** Amit Parmar, Ankit Parmar, Smit Soni, Marmik Nagar
4. **Project Description:**
   - One of the most critical task is to put a patient on a stretcher and then move them to the hospital bed. Especially when the patient is in a state of immobility.
   - This stretcher is designed in a way that it can tilt its bed upto 30 degrees on one side so that it becomes convenient for the attendant to shift the patient onto the bed.
   - This requires no additional electricity as it is done via a hand lever.
5. **Project status at the beginning of the Year:** Idea Stage
6. **Interventions made:**
   -
7. **Current status:** Prototype Stage
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-26: Sub Zero – A Cryogenic Grinding Machine

1. **Project Title**: Sub Zero – A Cryogenic Grinding Machine
2. **Mentor Name** : Mr Bhushan Mehta
3. **Student Team Names**: Siddh Kalolia, Aarav Kansara, Bhavya Panchiwala, Bhargav Nimbark
4. **Project Description:**
   - The Spice industry has seen stagnation in terms of grinding technologies.
   - one of the major problem with the existing grinding technology is the short shelf life of the product and the degradation of spice quality after a period of time.
   - Cryogenic grinding is a technology which operates at sub zero degree to provide fine grind and better quality.
   - It also ensures that the grind is of fine quality and the granules do not stick to each other.
   - The machine technology that is used to reduce the temperature of raw materials to extremely low temperatures, typically below -100 degrees Celsius. It helps achieve better quality, taste, aroma and finer grain size than traditional pulveriser machines.
5. **Project status at the beginning of the Year:** Idea stage
6. **Interventions made:**
   -
7. **Current status:** product built
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-27: Eco Cool Box – A Natural Refrigerator

1. **Project Title**: Eco Cool Box – A Natural Refrigerator
2. **Mentor Name** : Mr Hitesh Suthar
3. **Student Team Names**: Munir Thaker, Arya Patel
4. **Project Description:**
   - In the world of over-reliance on electrical devices, we have made ourselves paralyzed when it comes to thinking of solutions not involving electrical energy.
   - We are going to develop a sustainable & eco friendly refrigerator that is portable and runs without any external energy.
   - The refrigerator will be made up of bamboo and thus provide natural cooling through the concept of air draft.
5. **Project status at the beginning of the Year:** Design Stage
6. **Interventions made:**
   -
7. **Current status:** prototype built
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

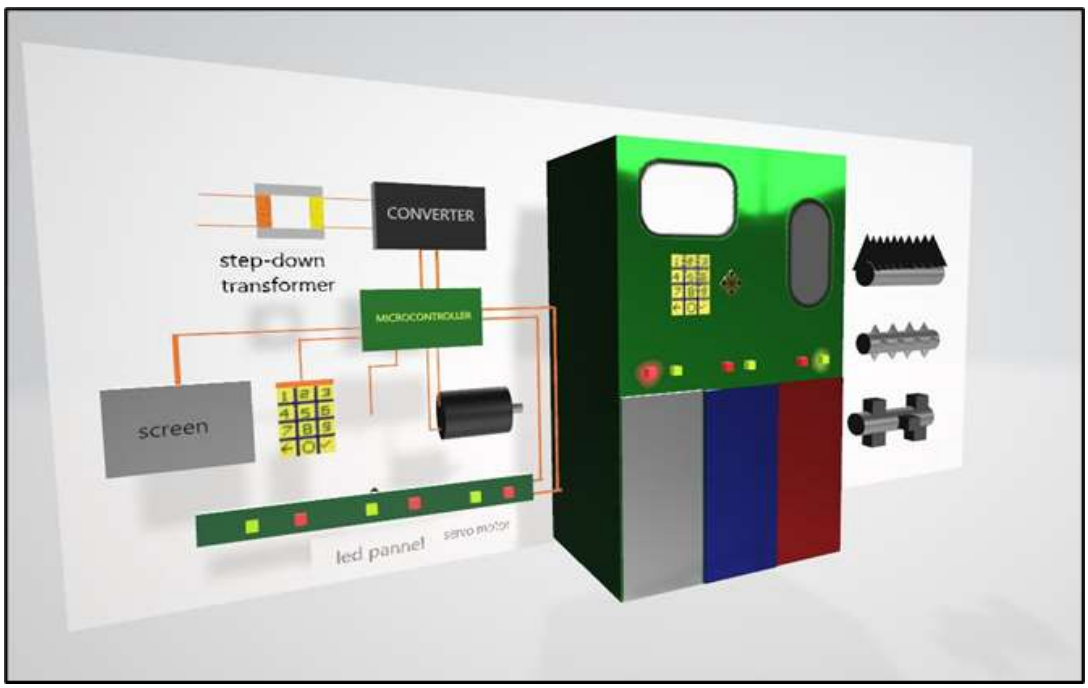


Project-28: Saline Water Purifier

1. **Project Title** : Saline Water Purifier
2. **Mentor Name** : Mr Azim Shaikh
3. **Student Team Names** **:** Patel om, Patel het, Naman Prajapati
4. **Project Description:**
   - The availability of drinking water is essential for the survival for all of mankind. Adequate amount of water resources are available on our planet but very few of them can be used for the purpose of drinking. From it we will try to make a water purifier which will convert the hard seawater into easily drinkable water and safe for the humans to directly drink. In this purifier we will try to purify the water by using different types of filters and pebbles. There are already many different types of water purifier present in the market but all of them are having some drawbacks which we will try to solve it .We will also try to make it easy to use, environmental friendly, portable, less costly, user efficient, will also waste very less amount of water and it will be very easy to maintain
   - In this purifier we will also try to purify the coloured water in which the is colour mixed it will also purify that so it is also multipurpose.
5. **Project status at the beginning of the Year:** Idea stage
6. **Interventions made:**
   -
7. **Current status:** prototype built and tested
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-29: Save It

1. **Project Title** : Save It
2. **Mentor Name** : Ms Debopriya Chakroborty
3. **Student Team Names** **:** Mansi Thakkar
4. **Project Description:**
   - We are all observing what a mess we have created by dumping mixed garbage all around. the piranha dumpyard is a perfect example of the crisis we have at our disposal.
   - To address this and create a meaningful solution, we are going to develop a machine that segregates and also recycles paper, plastic and metal waste.
   - It will be a fully automatic machine that will take unsegregated waste as input and do the rest through image processing.
5. **Project status at the beginning of the Year:** idea stage
6. **Interventions made:**
   -
7. **Current status:** Design Stage and prototype under development
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-30: Biodegradable Plastic Bottles

1. **Project Title** : Biodegradable Plastic Bottles
2. **Mentor Name** : Ms Debopriya Chakroborty
3. **Student Team Names** **:** Nikhil Kumar, Akhil Nair
4. **Project Description:**
   - With the government tightening it's strings on the usage of non virgin plastic, there needs to be a solution to replace the widely used plastic water bottles.
   - We have developed a biodegradable material to produce water bottles and many more items.
   - This solution not only provides a much needed substitute to the existing reliance on plastic, but is also helpful in production of other items like carry bags, pharma bottles etc.
5. **Project status at the beginning of the Year:** basic prototype was present
6. **Interventions made:**
   -
7. **Current status:** Product built and tested
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-31: PCOS Care

1. **Project Title**: PCOS Care
2. **Mentor Name** :
3. **Student Team Names:**
4. **Project Description:**
   - Clomiphene citrate is first line drug used to treat infertility in women who do not ovulate including those with polycystic ovary syndrome (PCOS).
   - According to BCS classification Clomiphene citrate is BCS class 2 drug which is low soluble and high permeability.
   - Another problem with this Clomiphene citrate is it has side effect on the endometrial lining.
   - PCOS microemulsion formulation will provide patient compliance as number of medicine to be taken to treat various symptoms of disease will be decreased.
   - To improve solubility of drug and increase Bioavailability of drug.
   - For treating various symptoms of PCOS through this formulation.
   - The formulation can reduce the side effect of drug as the particle size of drug reduces.
5. **Project status at the beginning of the Year:**
6. **Interventions made:**
   -
7. **Current status:**
   - Idea Stage
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-32: Transdermal Patch for Hypertension

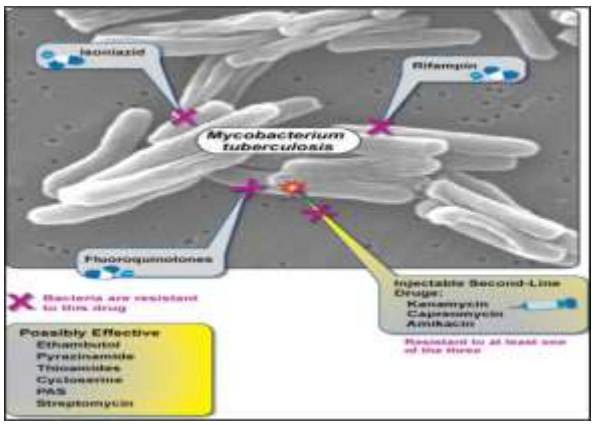
1. **Project Title**: Transdermal Patch for Hypertension
2. **Mentor Name** :
3. **Student Team Names:**
4. **Project Description:**
   - To develop a matrix-type transdermal therapeutic system containing combination drug of Azelnidipine and telmisartan.
   - Azelnidipine is mostly metabolized by cyp3a4 isoenzymes in the intestinal walls.
   - When it is given orally the bioavailability of the drug will be decreased readily as the drug will be passing through first pass metabolism.
   - When the drug will be given through the transdermal route it does not have to pass through the first pass metabolism and large amount of drug will be available at site of indication.
   - This development of transdermal patches for controlled release AZL and TEL will increase the bioavailability by avoiding hepatic first-pass effect and the drug decomposition in the gastrointestinal fluids.
5. **Project status at the beginning of the Year:**
6. **Interventions made:**
   -
7. **Current status:** Idea Stage
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-33: Development of Animal Feed Using Pistia

1. **Project Title**: Development of Animal Feed Using Pistia
2. **Mentor Name** : Mr Niketan
3. **Student Team Names: Parth Pandit, tanya jha**
4. **Project Description:**
   - We have all witnessed a huge green carpet on sabarmati river and many other lakes throughout the country, which then has to be removed with the help of floating machines.
   - This waste is then either dumped or burnt with no substantial use of it.
   - We cannot stop that weed from growing but we can think of ways to utilize it for the better.
   - We are trying to develop animal feed out of this waste. This will not only reduce waste, but also act as a nutritional feed for the animals.
5. **Project status at the beginning of the Year:** Idea stage
6. **Interventions made:**
   -
7. **Current status:** prototype under testing
   -
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-34: Novel Formulation For Tuberculosis Treatment

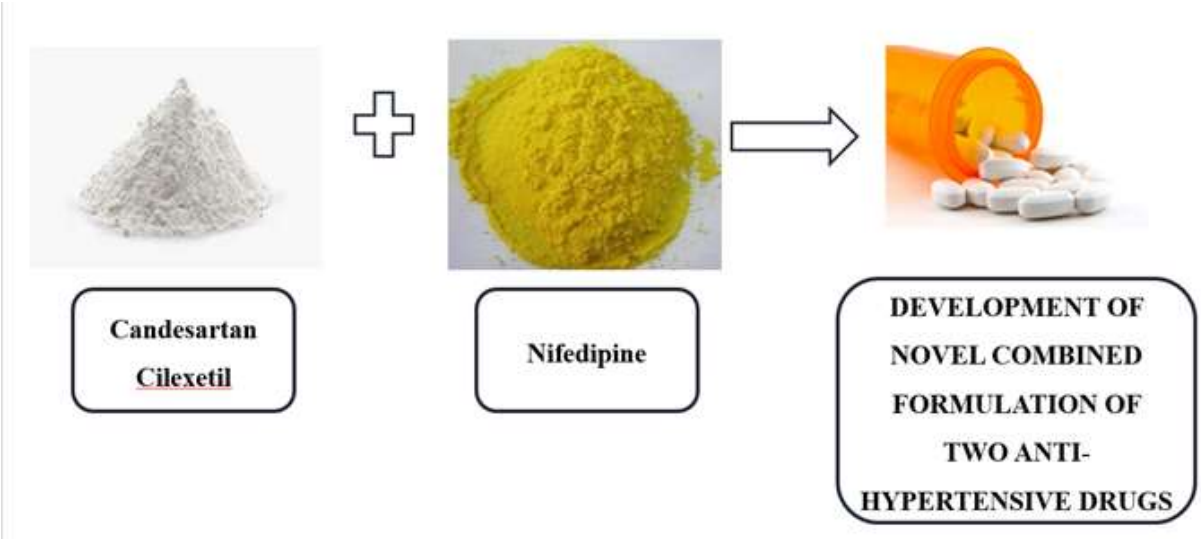
1. **Project Title** : Novel Formulation For Tuberculosis Treatment
2. **Mentor Name** :
3. **Student Team Names** **:**
4. **Project Description:**
   - Bedaquiline is a drug which belongs to the class of diarylquinoline antimycobacterial drug. It is approved for the Treatment of MDR-TB (multidrug-resistant tuberculosis).
   - It is useful in inhibition of ATP synthase, an enzyme essential for the replication of the mycobacteria and used in combination with other anti-tuberculosis medications in the treatment of MDR-TB.
   - Linezolid belongs to a class of drugs called oxazolidinone antibiotic receptor blockers (ARBs).
   - It is used for serious or problematic infections caused by resistant enterococcal or staphylococcal organisms. Linezolid selectively inhibits an early step in bacterial protein synthesis and affects blood pressure through monoamine oxidase inhibition.
   - The CDSCO approved regimen of three drugs Pretomanid, Bedaquiline, and Linezolid to treat and control multidrug-resistant tuberculosis.
   - Hence, it was thought to develop novel combined formulation of two Anti-TB drugs containing Bedaquiline and Linezolid.
5. **Project status at the beginning of the Year:**
6. **Interventions made:**
   -
7. **Current status:** Idea Stage
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-35: Method Development and Validation for the Simultaneous Determination of Nifedipine and Candesartan Cilexetil in Synthetic Mixture and its Application to Pharmacokinetic Study

1. **Project Title**: Method Development and Validation for the Simultaneous Determination of Nifedipine and Candesartan Cilexetil in Synthetic Mixture and its Application to Pharmacokinetic Study
2. **Mentor Name** :
3. **Student Team Names:**
4. **Project Description:**
   - Nifedipine is a drug which belongs to the class of dihydropyridine calcium channel blocker. It is approved for the Treatment of Hypertension.
   - It is useful in lowering the Blood Pressure due to Blockage of calcium Channel and Decreases Blood Pressure.
   - Candesartan belongs to a class of drugs called angiotensin receptor blockers (ARBs).
   - It is used in Hypertension. Lowering high blood pressure helps prevent strokes, heart attacks, and kidney problems.
   - When these both the drugs are used in combination with each other, it produces synergistic effect in hypertension resulting into reduce the blood pressure without producing metabolic disease. In other hand, this combination may provide blood pressure reduction than the drugs used in monotherapy.
   - Pre-clinical pharmacokinetic (PK) studies play a key role in several stages of pharmaceutical research To conduct pharmacokinetic study of antihypertensive drugs Nifedipine & Candesartan in Rat and to estimate Nifedipine & Candesartan concentration level by validated HPLC method.
5. **Project status at the beginning of the Year:**
6. **Interventions made:**
   -
7. **Current status:**
   - Under Development

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-36: Unmanned Hybrid Aerial Vehicle For Surveillance and Surveying

1. **Project Title**: Unmanned Hybrid Aerial Vehicle For Surveillance and Surveying
2. **Mentor Name** : Mr Keval Kelawala
3. **Student Team Names**: Mohammadshadab Abdulrauf Ghanchi, Dhruvi Hemantkumar Suthar
4. **Project Description:**
   - We are designing a Hybrid VTOL (Vertical Take Off and Landing) fixed wing UAV aircraft with Payload protection feature specifically for the purpose of Surveillance and Surveying. UAV will be designed such that it will be manufactured in a cost-effective manner. It will have flight time of around 120 minutes and in single flight it will be able to cover surveying area of approx 40 sq. km.
5. **Project status at the beginning of the Year:** at idea stage
6. **Interventions made:**
   -
7. **Current status:**
   - prototype built

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

NewGen IEDC-Manav Rachna International Institute of Research & Studies

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: Fifth Year (2022-23)

Name of the College/Institution hosting NewGen IEDC	Manav Rachna International Institute of Research & Studies, Faridabad		
Year of starting NewGen IEDC	2017-2018		
Name of the Head/Principal of the Institution/College	Dr. Sanjay Srivastava		
Name of NewGen IEDC Coordinator	Dr. Monika Goel		
Contact Details of NewGen IEDC Coordinator • Mobile Number • Email ID	9899876331 monika.fcbs@mriu.edu.in		
Financial Details	**Sr. No.**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC/17-18/05 Dated: 20/06/2017	Rs. 60,00,000
	2		Rs. 47,50,000
	3		Rs. 60,00,000
	4		Rs. 60,00,000
	5		Rs. 60,00,000

1. **Details of Activities Undertaken during the year:**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Activity-1:

1. **Name of the Activity :**

   Panel Discussion- To Invigorate the mindsets of aspiring Startups

2. **Details of the Activity :**

   Panel discussion on April 26, 2022, involving innovators who will share their entrepreneurial journey, challenges and skill sets required for creating a sustainable and equitable future.

3. **Pictures :**

Activity-2:

1. **Name of the Activity :**

   Make it sell it – Round 1

2. **Details of the Activity :**

   9th May 2022, more than 30 brilliant business ideas with their prototypes were presented by the students. The shortlisted startups were screened in the second round and presented in front of a panel, where the top three ideas were selected based on their concept and presentation. Shruti secured the first position for her idea on Campus Connect, Ansh and Simranjot secured the second position for their idea of Global Disk and Sarthak with his idea of Razor Sharp won the third

position. These ideas along with other presented ideas were connected to various industry mentors and seed funders.

3. **Pictures :**

Activity-3:

1. **Name of the Activity :**

   Make it sell it – Round 2

2. **Details of the Activity :**

   The event called Make It Sell it conducted during the festive time of Deepawali on the date 19th October 2022, Through this event, the students were encouraged to express their entrepreneurial spirit and selling skills. They offered products based on the business idea they had. This event was conceptualized to recognize the originality of expressions and communication abilities among the students to understand the importance of product making on the ideas of the team and then to understand markets, sharpen selling skills, and experience it for the future. The objective of this event was to hone originality and marketing skills among the students by recognizing their business acumen and talent. A total of 12 teams with 40 students demonstrated their product and sold it to the public.

3. **Pictures :**

Activity-4:

1. **Name of the Activity :**

   Zing Talk Season 2 (Jan 23)

2. **Details of the Activity :**

   After the overwhelming response of the previous season, Manav Rachna NewGen IEDC invited all the startups and students for "Zing Talks Season 2" on the Eve of National Startup Day(16th January) with Mr. Himanshu Adlakha (Founder Winston Electronics Pvt Ltd). This event was a great learning platform for our MR startup students and entrepreneurs. They interacted with students about their startup and advised them valuable tips about the startup ecosystem and the journey to reach the stage of Shark Tank Season 2 and got funded by sharks.

   Only 50 students across MRIIRS and MRU were selected through the screening process to attend this Prestigious Talk show.

3. **Pictures :**

हिन्दुस्तान एक्सप्रेस

शार्क टैंक इंडिया सीज़न 2 के प्रतियोगियों ने मानव रचना के छात्रों के साथ जिंग टॉक्स के दौरान बातचीत की

Activity-5:

1. **Name of the Activity :**

   Participation In e-SUMMIT at IIT Mumbai (Feb 2023)

2. **Details of the Activity :**

   7 Startups participated in the e-summit held at IIT Mumbai and pitched their ideas and prototypes to investors.

   The event provided an opportunity for networking and showcasing in various sectors and connecting with VC to understand how they approach a firm or evaluate management quality, and estimate the valuation.

In the peer group the students learnt how to manage important risks & concerns, their investment methods as well as the best investment ideas.

3. **Pictures :**

Activity-6:

1. **Name of the Activity :**

   Startup Kumbh 2023 organized by BIMTECH, Noida

2. **Details of the Activity :**

   The "StartupKumbh: G20-DIA National Roadshow" was a highly anticipated event hosted by AIC-BIMTECH in partnership with the Ministry of Electronics and Information Technology (MeitY) on March 28th, 2023.

   The participation of Gymmi, Spill Mate, Saarthi, Pratihara, and Ark Surveillance further added to the event's success. The event played a crucial role in fostering innovation, promoting entrepreneurship, and creating a collaborative environment for startups in India. With the support of the government, industry leaders, and active participation from startups, the event served as a catalyst for growth in the startup ecosystem.

3. **Pictures :**

Activity-7:

1. **Name of the Activity :**

   AIMA Student Business Simulation Games (April- 2023)

2. **Details of the Activity :**

   All India Management Association conducted training and all the regional rounds for this event. Management Simulation Games were Computer-based events that simulated a Business Scenario and created an opportunity for all the participants to manage a business with multiple functional areas. The essence of Management Simulation Games was 'Learning by Doing' in Teams. There were approximately 70 teams consisting of 3-4 members per team from all over India representing their institutions namely Ashoka School of Business, IMS, Shobhit University, NIET, Sangam University etc. and the final champions (one team from Manav Rachna) had their last round at AIMA, New Delhi (Lajpat Nagar). SMG was an altogether very enriching experience.

3. **Pictures :**

[B] To identify, develop & commercialize students' innovative ideas

Activity-1:

1. **Name of the Activity :**

   Call for Ideas - Sep 2022

2. **Details of the Activity :**

   NewGen IEDC on a regular basis runs the startup pitching drive under with we hosted call for startup drive from 19th September to 21 September 2022. A total of 7 Start-up teams were selected for grants of Rs. 2.50 Lakhs each. Student teams from various backgrounds presented their idea in front of the jury.

3. **Pictures :**

Activity-2:

1. **Name of the Activity :**

   Faculty LED Startups - SEP 2022

2. **Details of the Activity :**

   In order to make faculty a catalyst for promoting such innovation among the students a faculty-led Start contest was organized from 23rd September to 26th September 2022 whereby 30 Faculty-led students teams applied, whereby jury panel members from various backgrounds selected 11 business ideas; All 11 teams got a sanction of Rs. 2.50 Lakhs grant each for building their prototype within the specified time limit.

   The following 3 Faculty-led Startup teams were awarded

   1st Prize: BFV WASH,

   2nd Prize: Prayas,

   3rd Prize: MEDPLANT CARE

3. **Pictures :**

हरियाणा

भारत सरकार की डीएसटी-एनआईएमएटी योजना के तहत मान
रचना छात्रों द्वारा 18 स्टार्ट-अप आईडिया को फंडिंग मिली

Activity-3:

1. **Name of the Activity :**

   Call for Start Up

2. **Details of the Activity :**

   The "Call For Startup " event aims to provide a platform for aspiring entrepreneurs to present their innovative business ideas and showcase their entrepreneurial skills. This event provides an opportunity for students and faculty members to network with industry experts, investors, and mentors who can help bring their ideas to fruition. At different intervals, these calls were made to get students business ideas. Date: 24th April 2023, Date 20th March 2023. On each call about 15 to 18 start up came with some ideas which was evaluated by the expert panel

3. **Pictures :**

[C] To enhance Industry-Academia interaction

Activity-1:

1. **Name of the Activity :**

   Participation In DEF EXPO- Oct 2022

2. **Details of the Activity :**

   Attended the 12th Edition of the prestigious biennial defense exhibition Def. Expo organized by the Department of Defense Production, Ministry of Defense is from 18th - 22nd October 2022 at Gandhinagar, Gujarat.

   This mega Defense International Exhibition focused on Land, Naval, and Internal Homeland Security and Defense Systems, and highlighted 'India-The Emerging Defense Manufacturing Hub' and the Make in India" program.

   Participation in the show provided a unique opportunity to student start-ups working in the Defense Industry to understand their capabilities and evaluate their products and services in discussions with a targeted audience of Industry leaders and business decision-makers.

3. **Pictures :**

Activity-2:

1. **Name of the Activity :**

   Innoskill- April 2023

2. **Details of the Activity :**

   35 Universities and institutes, including O P Jindal University, UPES, Bennett University, Galgotia University, Shiv Nadar University, NorthCap University, Delhi University, IP University, Chandigarh University, and JC Bose University participated in the Annual Fest. 1500+ Students of Higher Education participated and around 800+ school students visited Innoskill 2023 organized at Manav Rachna. ***Mr. Satish Jain, Vice President Indo Autotech Ltd*** was the Chief Guest. 28 startups demonstrated their prototypes in the event. INNOSKILL 2023 was sponsored by NewGen IEDC, IOCL R&D, Skill Bout Professional Services, Lancer, Edu Warriors, Udemy, Edvoy Study Abroad, EduWarriors and DEARC and an amount of 2.33L received from the sponsors.

3. **Pictures :**

Activity-3:

1. **Name of the Activity :**

   Innovation Summit-23 (April 2023)

2. **Details of the Activity :**

   To celebrate the achievements of students in the field of Research and Innovation, we invited Nominations from various Colleges and received over 70 nominations for various categories such as Maximum Publications, Securing Extramural Grants, Maximum papers presented and Maximum Best paper Awards won. We gave out 20 RIC

Excellence Awards to deserving students. A total of 12 Startups showcased their prototypes at the event.

3. **Pictures :**

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

The events were majorly conducted as per plan. However, the name, dates, structure and duration of the events were changed in some cases looking at the requirement of the situation, availability of participants, and events in the ecosystem.

3. Other important highlights (new initiatives), if any:

- In order to sensitize the local community in the vicinity – Inter-University/Colleges Contest and competitions were organized through various events like Innovation Summit/Innoskills and Call for Startups.
- Team being expanded with Induction of Director-Incubation, Innovation Associates, and Office Assistant.
- Startup teams were given the opportunity to participate and showcase their prototypes, pitching their idea through various events and outreach programs such as – E-Summit at IIT Mumbai, Startup Kumbh by BIMTECH and at Defense Expo.

4. Student Projects

<u>As per ANNEXURE-A for Details of Student Projects with Prototype Photos</u>

5. **Provide a minimum two-page case let on the <u>two best student projects</u> (either prototype developed or commercialized) from the above list. The case lets should include the following:**

Best Student Project-01: Netra SS

I. **Mentors Name:** Vikas Sharma

II. **Student team details**

   I. Anuvart Kumar

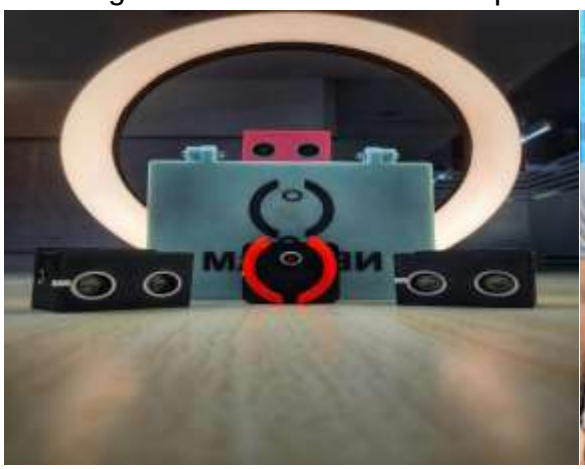
   II. Rohith Kandukuri

III. **Brief description of the student start-up**

India currently has around 12 million blind people against 39 million globally -- which makes India home to one-third of the world's blind population. Netra-SS is a wearable device that helps visually impaired people navigate around. It is an assistive technology for visually impaired people. Netra-SS has implemented ground-breaking innovations that will enhance the lives of those who are blind. Initially, our team decided to make a cap that assists them in navigation. After that, we made this in a kit format that is detachable. In this, we came up with a new concept of magnetic charging.

IV. **Startup entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**

Startup tried Initially to make a cap that assists the visually impaired in navigation then looking to the aspect to make the business scalable, Startup made a kit that can be easily attached to any wearable clothes easily. Kit will provide easy packaging and help for smooth logistics and supply chain. Prototypes were showcased in different national & International contests, whereby they got accolades from the public as well from the organizers the in form of awards and prizes. Microsoft selected a Netra venture from India to participate and contest it in the global arena in the forthcoming event to be organized at Microsoft head quarter.



Imagine Cup

2023 India Final Round

Winner - Lifestyle Category - 2023 India Final Round

This Certificate is Presented To

anuvart Kumar

Team Visioneo

Congratulations and thank you for your hard work and dedication as a competitor in Imagine Cup 2023. You are now part of an elite international community of students who have shown remarkable creativity and innovation to push technology forward.

Nalini Bhatnagar
Imagine Cup Competition Manager
Microsoft Corporation

V. Contribution of NewGen IEDC in the same

Netra developed its prototype under the mentorship of NewGen IEDC, all support in terms of lab, machinery, and equipment was made available in the campus incubation center, and we have been provided a fund of 2.5 lac to develop this Idea from prototype to product. NewGen IEDC has also given space for our startup. We got trained through various workshops on various aspects such as Company Incorporation, how to get a patent filed, making business plans, and being provided Industry Connect and networking with investors. We also got familiar with other teams working in NewGen IED, which helped us to understand the business better and able to learn interdisciplinary functions.

VI. Future plan

Our intentions are to make various ranges of products as per the feedback, we are receiving from consumers, working on how the business model can be scalable, and working on cost-cutting as well.

We are in the process of building branding. We are also looking at this device with various wearable clothes, wearable items, and prostheses manufacturing businesses.

VII. Important highlights

This product has been awarded first in

- Microsoft Imagine Cup 2023 in India
- Our product has also been selected for the Microsoft startup hub
- Our Team has also ranked 1st position in Inoskill 2023

Best Student Project-02: Flexo Magnetic File Retrieval System

I. **Mentors Name:** Dr. Alpa Gupta, Dr. Vineeth Dubey

II. **Student team details:**

   I. Toopalle Sai Vakul

   II. Saksham Sharma

III. **Brief description of the student start-up**

Dental surgeons are facing problems during root canaling/ dental treatment, most of the time (70%) time a portion of the nail gets broken inside the tooth, and the tool used to extract the broken component, at present is very expensive (about Rs. 80,00), and being imported. Startup Flexo Magnetic File Retrieval System provides an alternative tool, which is easy to operate, with disruption of technology, making the tool at the cost of Rs.28000 that too import substitute product made in the country.

This startup was founded by a postgraduate student with 3 years of experience in his own bootstrap e-commerce business and further made him think that business not only stands out in a price game but rather it shines for the long term only when it's unique from others. This led to the onboarding of two mentors and 2 team members. Where the journey started from the ideation proposal stage from the founder and led to brain-storming analyzing and validating the idea and bringing it up to a successful prototype. company is currently working on 3 unique products with its initial prototypes ready and under reviewing it in clinical and preclinical practice.

One of the products which has been patented is that which solves the problem of retrieving the broken files in the root canal space during root canal treatment using the magnetism principle where till now no other such product has been introduced in the market. it can be quoted with an introductory price of 28,000-30,000 whereas the competitors with other principles are quoting about 80,000 to 1,50,000. Our first product can make a boom in our dental industry which can further enhance the treatment protocol for the patients.

IV. Startup entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

The ideas proposed by the founder and brainstormed among the mentors and visit to various other institutes led to the success of the current prototype. The ideation was first patented on 25th Jan 2023 and then it was validated among various mechanical and electrical engineers in IIT Delhi, Bombay, and Jodhpur. once this validation was done the market was analyzed and growth was estimated according to the international statistical reports. After the validation, it took so long to find our team members and find the right manufacturing process with a very low budget. Funding grant by MR NewGen IEDC was the only savior for such startups where ideation cannot come into action Currently, our Startup has developed POC is in reviewing stage with various tests before modifying and bringing it into the market with a scalable business model.

V. Contribution of NewGen IEDC in the same

Newgen IEDC is the hub for innovation and entrepreneurs for Manav Rachna University. It was the torch bearer for such start-ups who can see themselves serving the industry and thereby increasing the economy of the nation. NewGen IEDC continuously supported us in our journey to develop prototype, provided us mentorship and gave the financial assistance at the maximum levels possible. Various training workshop organized by MR NewGen IEDC sharpened our commercial bend of mind. I recommend NEWGEN IEDC to bring more opportunities to the students like me, who want to pursue this career as an entrepreneur and enhance the levels of the industry they are working on.

VI. Future plan

We being the pioneer in making low-cost tools for dentistry, looking to be a global leader in saving In the Indian exchequer, which otherwise we are paying in form of imports. The future plan of our company is to bring traction in manufacturing our products in large numbers and concentrate more on problem-solving products in dentistry with a wide scope in the market from the business point of view. Our company would like to focus only on innovating and manufacturing newer generation products that help clinicians to enhance their quality of treatment towards the patient.

VII. Important highlights

- Won 1st prize in the national conference conducted in IIT Jodhpur and AIIMS Jodhpur “first Indian conference of med tech innovations”
- Provisional Patent for the Flexo-Magnetic File Retriever System
- Prototype under review for portable microscope
- Prototype under validation in clinics for a conventional suction holder
- Ideation validation was done for the automatic voice-assisted suction holder.

Welcome Latika Chandna Sign out

Controller General of Patents, Designs & Trade Marks

सत्यमेव जयते

G.A.R.6
[See Rule 22(1)]
RECEIPT

INTELLECTUAL PROPERTY INDIA
INTELLECTUAL PROPERTY OFFICE TRADE MARKS GEOGRAPHICAL INDICATIONS

Docket No 8745

Date/Time 2023/01/25 22:23:33

To
Latika Chandna

Userid: iploea

Flat no. 703, Tower 1, The Close North,
Nirvana Country, Sector-50, South City-2

CBR Detail:

Sr. No.	Ref. No./Application No.	App. Number	Amount Paid	C.B.R. No.	Form Name	Remarks
1	202341005228	TEMP/E-1/6003/2023-CHE	1600	3735	FORM 1	FLEXO MAGNETIC FILE RETRIEVER
2	E-106/462/2023/CHE	202341005228	0	—	FORM28	—

TransactionID	Payment Mode	Challan Identification Number	Amount Paid	Head of A/C No
N-001089904	Online Bank Transfer	250123003204 0	1600.00	147500102000001

Total Amount : ₹ 1600.00

Amount in Words: Rupees One Thousand Six Hundred Only

Received from Latika Chandna the sum of ₹ 1600.00 on account of Payment of fee for above mentioned Application/Forms.

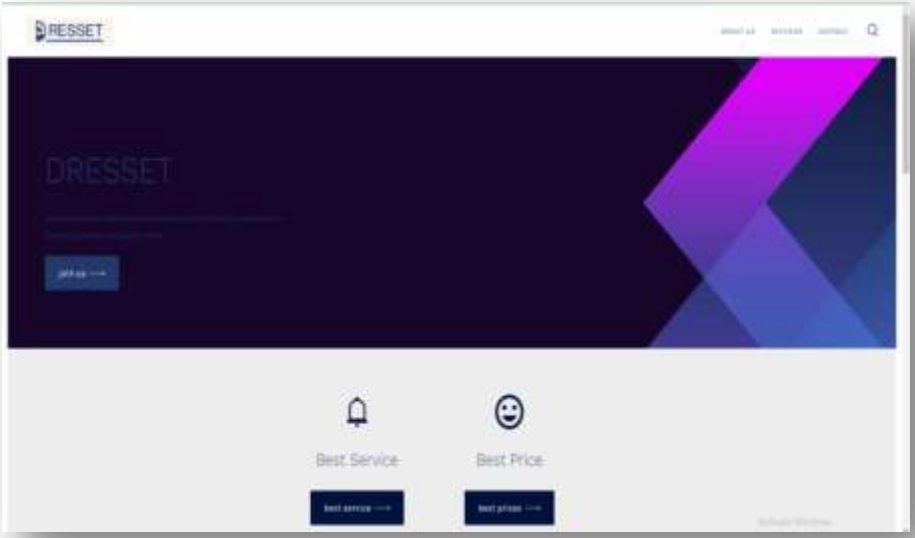
* This is a computer generated receipt, hecnce no signature required.

Annexure-A
Details of Student Projects: Fifth Year (2022-2023)

Project-01: Cloth X

1. **Project Title** : Cloth X
2. **Mentor Name** : **Sunita Joshi.**
3. **Student Team Names:**
   Prince, Rishabh Besoya
4. **Project Description:**
   Door step laundry services(https://dresset.in/)
5. **Project status at the beginning of the Year:** The team of students approached NewGen with the idea to build an app for the laundry service on which you can schedule your laundry pickup and delivery according to your comfort and your clothes will be collected from your doorstep and delivered back to you.
6. **Interventions made:** With the intervention of NewGen IEDC**,** and the support provided in terms of mentoring, funding, and training we are making an app from which any person can book our washing, and iron service from the comfort of their home according to their needs at their desired time. We are offering quality washing, Iron, and altering services at an affordable price with an option to schedule your pickup and delivery Time Scalability Laundry service is a booming market and there are many players entering this Market and according to a couple of reports, the Indian Laundry Industry is estimated at INR 2, 20,000 crore, of which the unorganized Market (dhobis, maidservants, and mom-and-pop stores) valued at INR 5,000 crore. So there is a great opportunity to target this Market And what's better than providing these services online through app
7. **Current status:**
   Front end of the website and app structure is ready working on backend of the website and application. Will be commercialized soon.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-02: ORACAN

1. **Project Title** : ORACAN
2. **Mentor Name** : Dr Sumit Bhateja
3. **Student Team Names:**
   Neeru Rani, Arushi Bhatia.
4. **Project Description:**
   Application that will act as a screening tool for early detection of oral cancer.
5. **Project status at the beginning of the Year: -**
   Through the literature, the research team have found Dermatoglyphics is one of the studies that can aid as a screening tool for early detection of high-risk individuals with oral cancer. It is a specific, reliable and easily identifiable biomarker that can differentiate cancer from a healthy individual. So, for this, we have proposed an “ORA-CAN” app that will act as a screening tool for early detection of oral cancer
6. **Interventions made:**
   With the intervention of NewGen IEDC, it provided us the support in terms of guidance, and implementing research for purposeful use, and trained us for developa ing prototype. We are developing an app that will detect chances of oral cancer by certain set of questionnaire which has to be answered and app will take youbiometricsic as well, based on these 2, scoring will be done and individual will be categorized as low, moderate ,high or very high risk and based on this certain recommendations and consultations will be given. It’s a unique idea as to the best of our knowledge, no such published report documenting fingerprint app for early detection has been launched. With this devic,e an attempt is made for early detection of oral cancer which is the key to successful treatment and reduction in the morbidity
7. **Current status:**
   The application is ready, working on machine learning and data collection.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

हिन्दुस्तान

ओराकैन ऐप से घर बैठे ही कैंसर का पता लगा सकेंगे

फरीदाबाद, वरिष्ठ संवाददाता। कैंसर की जांच को लेकर मानव रचना शैक्षणिक संस्थान स्थित न्यू जेन इनोवेशन एंड एंटरप्रेन्योरशिप डेवलपमेंट सेंटर (आईईडीसी) में स्टार्टअप पर काम जारी है। इसके तहत मानव रचना डेंटल कॉलेज (एमआरडीसी) की तीन लोगों की टीम ने ऐप डिजाइन की है, जिसकी मदद से मुंह के कैंसर का शुरुआत में ही पता लगाया जा सकता है। यह ओराकैन ऐप घर बैठे मुंह के कैंसर का पता लगाकर लोगों की जान बचाने में मदद करेगा।

फिंगरप्रिंट की मदद से मिलेगी बीमारी की जानकारी संस्थान की टीम ने डॉ. सुमित भाटेजा के नेतृत्व में इस कैंसर का पता लगाने वाली एप को डिजाइन किया है। इसके तहत स्टूडेंट टीम में पूर्व छात्रा आरुषि भाटिया (बतौर जूनियर डेंटिस्ट दिल्ली में कार्यरत) और बीडीएस की छात्रा नीरू रानी शामिल हैं। ये ऐप डर्मेटोग्लिफिक्स कांसेप्ट पर आधारित है।

सरकार से मिल चुकी है स्वीकृति, ग्रांट मंजूर

मानव रचना के न्यूजेन आईईडीसी सेंटर के तहत तैयार किए गए इस स्टार्टअप को भारत सरकार की ओर से प्रोजेक्ट पर काम करने के लिए 2.5 लाख रुपये की ग्रांट भी मिल चुकी है। सरकार ने स्टार्टअप की योजना, प्रेजेंटेशन और संभावित परिणाम को देखते हुए इस पर काम करने की स्वीकृति दी है।

दैनिक भास्कर फरीदाबाद 12-06-2023

मुंह के कैंसर का पता लगा लोगों की जान बचाने में मदद करेगा 'ओराकैन'

मानव रचना के डेंटल विभाग की टीम तैयार कर रही है एप

नीरज पांडेय | फरीदाबाद

शहरवासियों के लिए राहत की खबर है। अब एक एप के जरिए घर बैठे मुंह के कैंसर का पता लगाकर सही समय पर इलाज करा प्रभावित की जान बचाई जा सकेगी। यह पहल मानव रचना शैक्षणिक संस्थान ने किया है। संस्थान में स्थित न्यू जेन इनोवेशन एंड एंटरप्रेन्योरशिप डेवलपमेंट सेंटर (आईईडीसी) स्टार्टअप पर काम कर रहा है। इसके तहत मानव रचना डेंटल कॉलेज (एमआरडीसी) की तीन लोगों की टीम ने मिलकर एप डिजाइन किया है। इसकी मदद से मुंह के कैंसर का शुरुआत में ही पता लगाना आसान होगा। इसके लिए केंद्र सरकार की ओर से ढाई लाख रुपए की ग्रांट भी मिल चुकी है।

संस्थान की टीम ने डॉ. सुमित भाटेजा के नेतृत्व में इस एप की डिजाइन किया है। टीम में पूर्व छात्रा आरुषि भाटिया (बतौर जूनियर डेंटिस्ट दिल्ली में कार्यरत) और बीडीएस की छात्रा नीरू रानी शामिल हैं। ये एप डर्मेटोग्लिफिक्स कांसेप्ट पर आधारित है। इंस्टेमाल के लिए यूजर को एप डाउनलोड करने के बाद दिनचर्या और स्वास्थ्य से जुड़े कुछ सवालों के जवाब देने होंगे। आखिर में फिंगरप्रिंट का इंस्टेमाल करने के बाद यह एप रिपोर्ट तैयार करेगा। इसमें अगर बीमारी है तो इसके लक्षण और इसके स्टेज की सूचना मिलेगी।

सरकार से मिल चुकी है स्वीकृति, ग्रांट भी मंजूर

एमआरआईआईआरएस के डिपार्टमेंट ऑफ ओरल मेडीसिन एंड रेडियोलॉजी के एचओडी डॉ. सुमित भाटेजा ने बताया कि न्यूजेन आईईडीसी सेंटर के तहत तैयार किए गए इस स्टार्टअप को भारत सरकार की ओर से प्रोजेक्ट पर काम करने के लिए 2.5 लाख रुपए की ग्रांट मिल चुकी है। सरकार ने स्टार्टअप की योजना, प्रजेंटेशन और संभावित परिणाम को देखते हुए इस पर काम करने की स्वीकृति भी दे दी है।

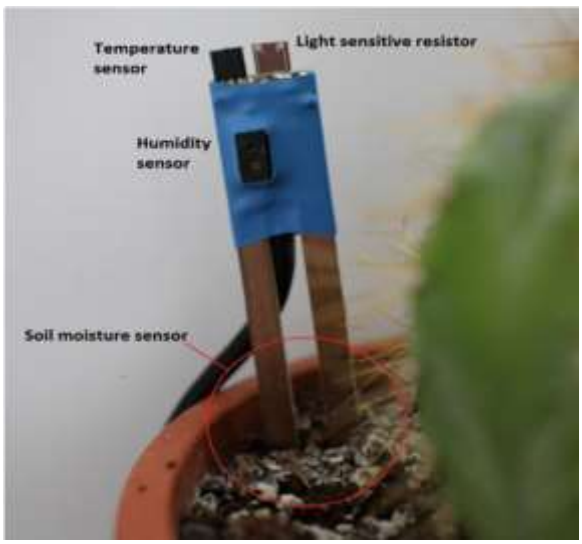
एप की मदद से खुद कर सकेंगे मुंह के कैंसर की जांच

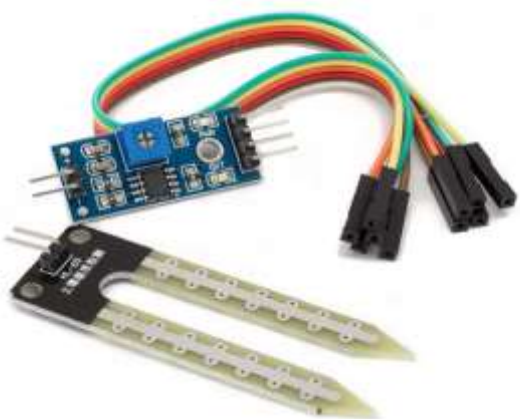
मानव रचना के डेंटल विभाग की टीम कैंसर की पहचान के लिए तैयार कर रही है एप

केंद्र सरकार की ओर से मिल चुकी है 2.5 लाख रुपये की ग्रांट

Project-03: Smart Soil Thermometer

1. **Project Title** : Smart Soil Thermometer
2. **Mentor Name** : Neerja Negi
3. **Student Team Names:** Anshul Pradhan, Hardik Saini.
4. **Project Description:** Using IOT-based technology for getting the health status of our Indoor Plant
5. **Project status at the beginning of the Year: -** We are using IOT-based technology for getting the health status of our Indoor Plant just by inserting our stick into the soil.
6. **Interventions made: With the intervention of NewGen IEDC,** We are thankful to MR NewGen IEDC for giving me training, providing mentorship and funding and thus we are now able to develop a IOT based smart stick which can be inserted into the soil which will bconsistof Google lens to identify the plant, and then accurately gives us readings about our plant health, soil condition and suggest us for the solution if problem is found. Our product makes Indoor Planting, a step easier. With this product the user can automatically know about their loved plants condition and care for them more genuinely. This is a onetime investment which comes along with solutions too.
7. **Current status:** Prototype is under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





Project-04: Flexo Magnetic Retriver System

1. **Project Title** **:** Flexo Magnetic Retriver System
2. **Mentor Name** : Dr. Alpa Gupta, Mr. Vneet Dubey
3. **Student Team Names:** T. Sai Vakul**.**
4. **Project Description:** Product which retrieves this stainless steel files with the help of innovative magnetism principle.
5. **Project status at the beginning of the Year: -** The instruments used by your dentist during this treatment acts as a double ended sword to the dentist and to the patient. Endodontic perform root canals treatment using files which are either made up of stainless steel or NITI. But in some scenarios these files, get broken or separated in the root canal. So, the main issue is the consequences faced due to the file separation that is persistent pain, incomplete root canal treatment, and fall in dentist reputation. So the team will use magnetism property to remove the left behind file.
6. **Interventions made: With the intervention of NewGen IEDC:** the team has been provided support in terms of finding the right equipment, patent filing, sending to the various events such as IIT Mumba I and medical conference at Jodhpur IIT and AIIMS, We have now come up with our product which retrieves this stainless steel files with the help of innovative magnetism principle can remove broken file from the tooth in which we will use iron oxide mixed with rubber. We also got provisional patent. So having 1.5 billion dollars of global endodontic, I hereby state that there is no commercial product available globally using this principle. So, what more do we need to conquer this Market.
7. **Current status:** Prototype is under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-05: Netra

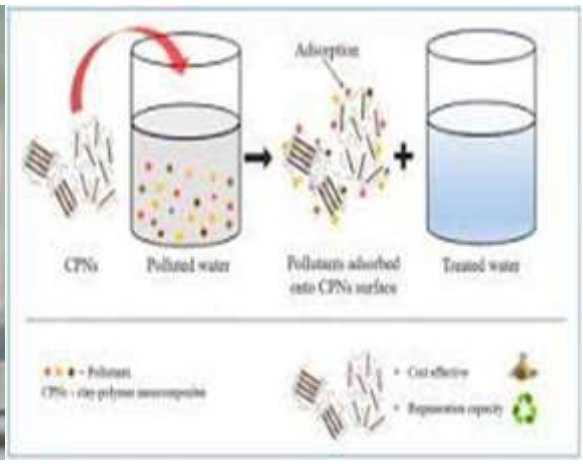
1. **Project Title** **:** Netra
2. **Mentor Name** : Mr. Vikas Sharma, Devdut.
3. **Student Team Names:** Anuvarat Kumar, Rohith Kandukuri**.**
4. **Project Description:** Navigation gadget for blind people with proximity sensor.
5. **Project status at the beginning of the Year: -** Netra SS is an innovative startup that has made remarkable strides in enhancing the independence and mobility of visually impaired individuals with their groundbreaking navigation gadget i.e. a cap with sensors and camera which will help navigate blind peoples.
6. **Interventions made: With the intervention of NewGen IEDC**, training has been imparted on Company incorporation, Post Incorporation compliances and for making a viable Busines models, Netrara SS has developed a cutting-edge device equipped with proximity sensors specifically designed for the blind. This compact and portable gadget utilizes proximity sensing technology to detect obstacles and provide real-time feedback to the user. With Netra SS, blind individuals can confidently navigate their surroundings, as the gadget alerts them to potential obstacles in their path, allowing for safer and more independent travel. The navigation gadget developed by Netra SS is a significant leap forward in empowering the visually impaired community, offering them increased freedom and autonomy in their daily lives.
7. **Current status:** Prototype developed, working on fabrication.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-06: Modular Battery

1. **Project Title** **:** Modular Battery
2. **Mentor Name** : Mr. Jai Prakash Sharma.
3. **Student Team Names:** Aryan Mittal, Rudrapratap**.**
4. **Project Description:** Technology allows for the replacement of individual cells within a battery pack, eliminating the need to discard the entire unit.
5. **Project status at the beginning of the Year: -** Modular battery is an innovative startup that has revolutionized the battery industry with its groundbreaking technology. Recognizing the environmental and economic challenges associated with traditional battery disposal, modular battery has developed a game-changing solution. Their pioneering technology allows for the replacement of individual cells within a battery pack.
6. **Interventions made: NewGen IEDC**, With the adequate guidance provided and requisite training imparted the team could able to develop a patented technology that allows for the replacement of individual cells within a battery pack, eliminating the need to discard the entire unit. By offering modular and interchangeable cells, modular battery not only reduces electronic waste but also significantly extends the lifespan and usability of battery packs. This approach promotes sustainability and cost-effectiveness, providing a practical and environmentally friendly solution for industries reliant on batteries. With modular battery, the days of discarding entire battery packs due to a single faulty cell are behind us, paving the way for a more efficient and eco-conscious future.
7. **Current status:** Prototype is under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-07: Polymer for Water Purification

1. **Project Title** **:** Polymer for Water Purification
2. **Mentor Name** : Dr. Sagufta Jabin, Dr. Anupama.
3. **Student Team Names:** Payal Kaushik, Drishti**.**
4. **Project Description:** Developing polymer for waste water purification.
5. **Project status at the beginning of the Year: -** From environmental point of view, the chemical method is a sustainable solution for different water bodies. Among the chemical treatment methods, coagulation and flocculation are the most preferred one. It involves the formation of chemical flocks that adsorb, entrap or bring together suspended matters so we are developing cationic and anionic polymers for ware treatment.
6. **Interventions made: With the intervention of NewGen IEDC**, institution helped us to implement research practically in real life, thankful for the mentoring support and for the requisite training. we are developing the organic polymers which will be introduced for the treatment of different types of water. Cationic and anionic polymers are extensively used as primary & secondary coagulants. The benefit of using polymers in conjunction with inorganic coagulant is low polymer dose, small amount of sludge generation, less ionic load in treated water and reduced dosage of inorganic coagulant.
7. **Current status:** Prototype is under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-08: Nutro Me

1. **Project Title** **:** Nutro Me
2. **Mentor Name** : Dr Ajit.
3. **Student Team Names:**

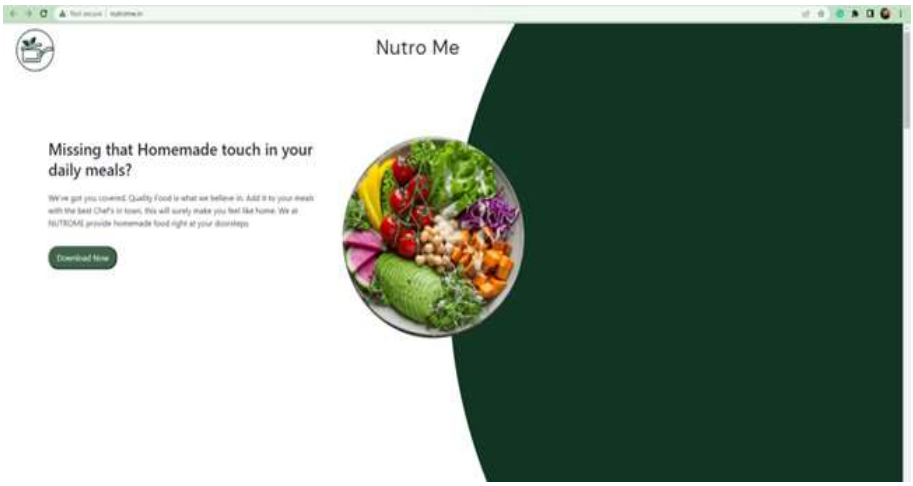
   Mukul Sharma, Bhuvnesh Sharma, Peeyush Kumar**.**
4. **Project Description:**

   Providing homemade food right at your doorsteps.(http://nutrome.in/)
5. **Project status at the beginning of the Year:**

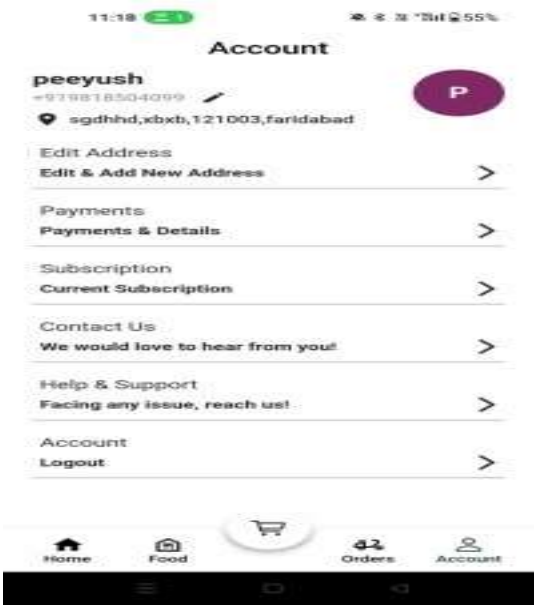
   Aiming at providing homemade food right at your doorsteps with its online presence. Our motive is to bridge the gap between people who are not able to get healthy meals and the homemakers who are intended to provide the same so we build an app to provide healthy homemade food at your doorstep.
6. **Interventions made: With the intervention of NewGen IEDC** –

   helped in getting resources to develop a website and , funding to develop a protype. we at NUTROME aim at providing quality meals, which will be the best when it comes to quality, nutrition, taste and homely feel. With NUTROME, you can get your daily meals sorted through our super-affordable subscription plans on our app. With the best chefs and the best team, NUTROME promises you quality food
7. **Current status:**

   App and website is ready, working on increasing the client base.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Subscription Plans
Active Plan
Hurry up
Available Plans
Silver Subscription
Our offer lays out 2 options, providing you with a regular supply of good health and happiness.
Amaze yourself by our delightful silver subscription and get the pleasure of our service.


Account
peeyush
sgdhhd,xbxb,121003,faridabad
Edit Address
Edit & Add New Address
Payments
Payments & Details
Subscription
Current Subscription
Contact Us
We would love to hear from you!
Help & Support
Facing any issue, reach us!
Account
Logout
Home
Food
Orders
Account

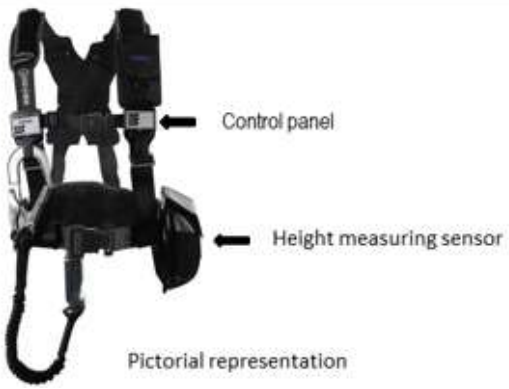
Account
peeyush
Edit Address
Payments
Subscription
Contact Us
Help & Support
Account

Nutro Me
OUR SPECIAL OFFER
upto 40%* off
Trending Now
Kadhi + baingan bharta
Rs.110.0 /-
Kadhi pakoda + Cabbage
Rs.110.0 /-
Home
Food
Orders
Account

Choose Wednesday Meal
Breakfast
Lunch
Dinner
Kadhi + baingan bharta
Rs.110.0 /-
Home
Food
Orders
Account

Project-09: Safety Harness System

1. **Project Title** **:** Safety Harness System
2. **Mentor Name** : Aastha Budhiraja.
3. **Student Team Names:** Sumit Chaudhary**.**
4. **Project Description:** Smart safety harness system.
5. **Project status at the beginning of the Year:** Safety Harness System is an innovative startup committed to revolutionizing worker safety in high-risk environments. By developing a state-of-the-art harness equipped with multiple sensors, their groundbreaking solution ensures continuous height measurement for workers suspended from the harness.
6. **Interventions made: With the intervention of NewGen IEDC** – Provided funding, and support to find the right equipment and provided adequate training with mentorship. We are developing this cutting-edge technology which provides real-time data on the worker's distance from the ground, enabling proactive risk management and immediate response in case of any dangerous height loss. Additionally, the harness sensors are programmed to detect any imbalance or irregular movement, instantly alerting both the worker and supervisors to potential safety hazards. With Safety Harness System, workplace safety is taken to new heights, empowering workers and organizations to proactively mitigate risks and ensure a secure working environment.
7. **Current status:**Prototype is under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Pictorial representation

Project-10: Multi Millet Probiotic Drink

1. **Project Title** **:** Multi Millet Probiotic Drink
2. **Mentor Name** : Lakvinder Kaur.
3. **Student Team** **:**
4. **Project Description:** Multi Millet Probiotic Drink.
5. **Project status at the beginning of the Year:** Introducing a promising start up on a mission to revolutionize the health and wellness industry with their innovative product: a multi-millet probiotic drink. This forward-thinking company recognizes the importance of gut health and the growing demand for natural.
6. **Interventions made: With the intervention of NewGen IEDC** the team received the opportunity to showcase their prototype in various events we developed Multi Millet Probiotic Drink by harnessing the power of multiple nutrient-rich millet grains and infusing them with a carefully selected blend of beneficial probiotics, their drink aims to deliver a delicious and convenient solution for improving digestion and overall well-being. With a commitment to quality, sustainability, and customer satisfaction, this start-up is poised to make a significant impact in the market, offering a refreshing and nutritious beverage that supports a healthy lifestyle.
7. **Current status:**Prototype is developed, working on packaging.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-11: Pill Box

1. **Project Title** **:** Pill Box
2. **Mentor Name** : Mr. Vikas Sharma.
3. **Student Team Names:** Himanshu, Raushan**.**
4. **Project Description:** A medicine box to remind you to take pills on time design with a single button that dispenses the exact pill needed.
5. **Project status at the beginning of the Year:** Pill Box is an innovative startup that is revolutionizing medication management for individuals who struggle with remembering to take their pills on time or for the elderly who may find it challenging to keep track of their medications. With their cutting-edge technology, Pill Box is developing a smart medicine box that addresses these issues with customizable alarms and easy pill dispensing.
6. **Interventions made: With the intervention of NewGen IEDC- Support in terms of mentorship, training workshops,** providing lab facilities and office space. We are developing a smart medicine box that is equipped with customizable alarms that remind users to take their medication at specific times, ensuring adherence to their prescribed schedules. Additionally, for older individuals who may have difficulty distinguishing between different pills, Pill Box has incorporated a user-friendly design with a single button that dispenses the exact pill needed. By providing a comprehensive solution, Pill Box is empowering individuals to effectively manage their medications, promoting health and well-being.
7. **Current status:** Under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-12: Spillmate

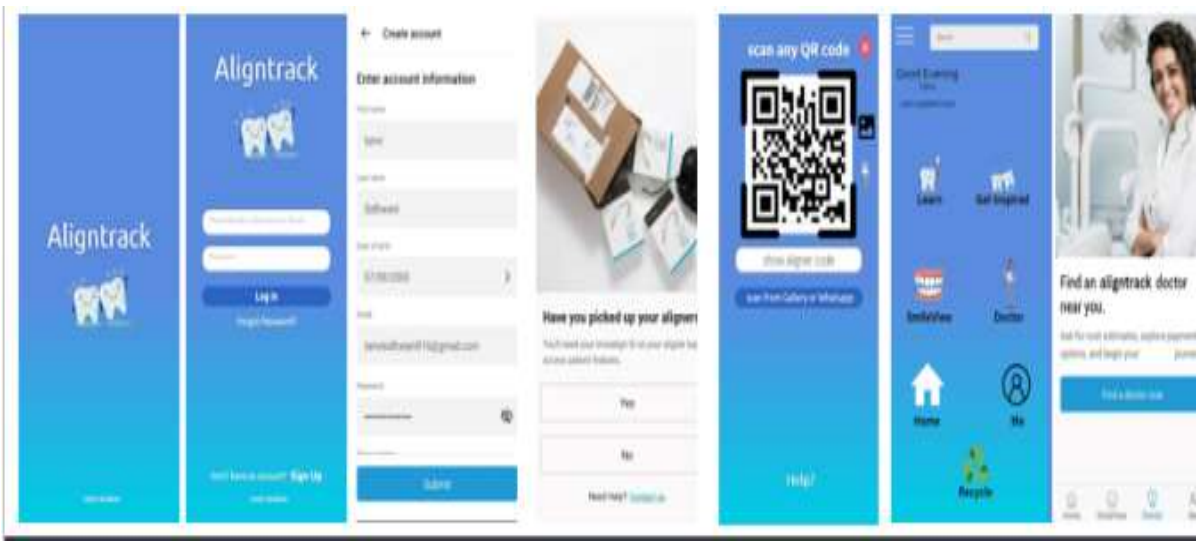
1. **Project Title** **:** Spillmate
2. **Mentor Name** : Dr. Niharika.
3. **Student Team Names:** Taha Siddiqui, Rehan Aziz, Tuhin Tarafder, Trisha Verma.
4. **Project Description:** Psychological Guidance System.
5. **Project status at the beginning of the Year:** SpillMate is an innovative startup at the forefront of developing an AI-based companion that revolutionizes emotional well-being and problem-solving. Their groundbreaking technology provides individuals with a unique platform to share their feelings, concerns, and challenges while receiving personalized solutions and support.
6. **Interventions made: With the intervention of NewGen IEDC –** Support provided for building an interdisciplinary team helped in website making and integrating AI technology. We are developing the groundbreaking technology which will provide individuals with a unique platform to share their feelings, concerns, and challenges while receiving personalized solutions and support. This AI companion serves as a trustworthy confidant, offering a safe space for users to express themselves openly and without judgment. Leveraging advanced machine learning algorithms, SpillMate analyzes user inputs, empathizes with their emotions, and provides thoughtful guidance, helping individuals navigate through life's ups and downs. With SpillMate, users can foster a deeper understanding of themselves, gain valuable insights, and find solace in a virtual companion dedicated to their emotional growth and well-being.
7. **Current status:** Under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-13: Pratihara

1. **Project Title** **:** Pratihara
2. **Mentor Name** : Dr. Charu Rajpal.
3. **Student Team Names:** Kaku Din, Anshi Srivastava**.**
4. **Project Description:** Extracting cadaverine from Lysine.
5. **Project status at the beginning of the Year:** Unlike conventional methods that rely on extracting cadaverine from dead fish, PRATIHARA has developed a process that utilizes lysine as a source, dramatically reducing production costs
6. **Interventions made: With the intervention of NewGen IEDC** -being helped for Equipment purchase, mentorship and team were sent to Startup Kumbh at BIMTECH to show case their business idea. We are developing innovative approach to extracting cadaverine. Cadaverine is an essential component widely used in agriculture for its ability to enhance plant growth and improve crop yields. Unlike conventional methods that rely on extracting cadaverine from dead fish, PRATIHARA has developed a cutting-edge process that utilizes lysine as a source, dramatically reducing production costs. By leveraging this novel technique, PRATIHARA not only ensures a more sustainable and eco-friendly approach to cadaverine extraction but also significantly decreases its production expenses, making it more accessible to farmers worldwide. With its game-changing solution, PRATIHARA is poised to transform the agricultural landscape and contribute to a more efficient and cost-effective farming industry.
7. **Current status:** Under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project.**

Project-14: Aligntrack

1. **Project Title** **:** Aligntrack
2. **Mentor Name** : Dr. Vineeta Sharma.
3. **Student Team Names:** Tanvi Sidhwani, Swasti Verma**.**
4. **Project Description:** Mobile application that enables orthodontic patients to easily track their progress with aligner treatments.
5. **Project status at the beginning of the Year:** Mission is to develop a user-friendly mobile application that enables orthodontic patients to easily track their progress with aligner treatments.
6. **Interventions made: With the intervention of NewGenIEDC** – Support for website making, office space mentoring and funding. AlignTrack is an innovative startup dedicated to revolutionizing orthodontic treatment tracking and promoting environmental sustainability in the field. Their mission is to develop a user-friendly mobile application that enables orthodontic patients to easily track their progress with aligner treatments, ensuring better treatment adherence and outcomes. Moreover, AlignTrack aims to create a comprehensive database for single-use orthodontic plastic, facilitating efficient recycling practices within the industry. By combining technology and environmental consciousness, AlignTrack strives to enhance the orthodontic experience for patients while minimizing the ecological impact of orthodontic materials, ultimately paving the way for a greener future in dental healthcare
7. **Current status:** Under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-15: Mattivani

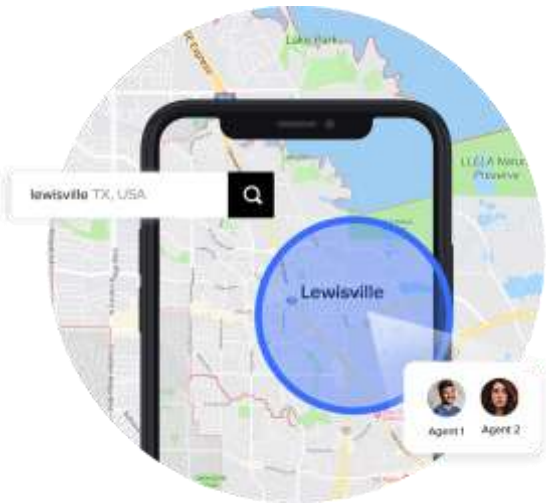
1. **Project Title** **:** Mattivani
2. **Mentor Name** : Mr Vikas Sharma.
3. **Student Team Names:** Kartik Shekhar Kachhawa, Tarun Pal Singh **.**
4. **Project Description : IoT-Based Solution for Monitoring Soil parameters**.
5. **Project status at the beginning of the Year:** Mittvanee is a groundbreaking IoT-based agro solution project designed to empower farmers and enable sustainable income through tree plantations. By harnessing the power of technology, Mittvaanee gathers crucial atmospheric and soil data to accurately predict upcoming conditions in the field
6. **Interventions made: With the intervention of NewGen IEDC:** Lab facilities, office space, mentoring and training workshop being imparted and thus we are able to develop a smart sensor bthatich can be inserted in the soil and by harnessing the power of technology it will gathers crucial atmospheric and soil data to accurately predict upcoming conditions in the field. This invaluable information equips farmers with the tools they need to effectively monitor their soil health and optimize production. By seamlessly integrating data-driven insights with traditional farming practices, Mittvaanee revolutionizes the agricultural landscape, fostering increased efficiency, profitability, and environmental sustainability for farmers worldwide.
7. **Current status:** Prototype developed now working on fabrication.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project- 16: Detect Pathogen

1. **Project Title** **:** Detect Pathogen
2. **Mentor Name** : Dr. Kanchan Bharadwaj.
3. **Student Team Names:** Pragya Vats, Anjali**.**
4. **Project Description: Technique for earlier detect of sepsis**.
5. **Project status at the beginning of the Year:** Detect Pathogen is a startup dedicated to revolutionizing the detection of sepsis, a life-threatening condition, by employing an innovative and cutting-edge technique.
6. **Interventions made: With the intervention of NewGen IEDC**, support in terms of mentoring, testing and help being given for the selection of equipments.we have been able to make a pioneering approach to transcend traditional methods by providing a comprehensive solution capable of identifying and diagnosing any type of pathogen responsible for sepsis. Through their tireless efforts, Detect Pathogen aims to transform the landscape of sepsis detection, empowering healthcare professionals with the means to swiftly intervene and administer life-saving treatments, ultimately enhancing patient outcomes and reducing the devastating impact of this critical condition.
7. **Current status:** Prototype is under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-17: Geodance

1. **Project Title** **:** Geodance
2. **Mentor Name** : Dr. Niharika Thakur, Dr. Yogita Joshi
3. **Student Team Names:** Ayush, Diya, Jatin, Shivam**.**
4. **Project Description:** Geo-location based LMS system .
5. **Project status at the beginning of the Year**: building a LMS or an attendance system which will detect your geo-location and mark your attendance if you are under institutions premises.
6. **Interventions made: With the intervention of NewGen IEDC-** Office space, adequate training, and funding have been given. **O**ur team has developed a powerful Learning Management System (LMS) coupled with an advanced geo-location-based attendance system. With Geo-Track, institutions can effortlessly track and mark attendance for their students and staff, ensuring accuracy and reliability. Using the latest geo-location technology, Geo-Track automatically detects the user's location upon arrival at the institution's premises. Once within the designated area, the system recognizes the individual and instantly marks their attendance, eliminating the need for manual sign-ins or paper-based systems.
7. **Current status:** Prototype is under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-18: EDUKIT

1. **Project Title** **:** EDUKIT
2. **Mentor Name** : Mr. Vikas Sharma, Mr. Devdutt
3. **Student Team Names:** Charan, Aditya, Shruti, Sai Verma
4. **Project Description:** life-saving skills and career-oriented education in science and technology to school going students**.**
5. **Project status at the beginning of the year:**EDUKIT is an innovative startup that aims to equip school-going students with life-saving skills and career-oriented education in science and technology.
6. **Interventions made: With the intervention of NewGen IEDC -**Mentoring support, technical and commercial aspects related training and funding support. we have been able reach school student and equipped them with module of life-saving skills and future-oriented knowledge. Through their comprehensive curriculum, EDUKIT offers hands-on training in vital life-saving techniques such as CPR (Cardiopulmonary Resuscitation), empowering students to respond effectively in emergency situations and potentially save lives. In addition, EDUKIT provides cutting-edge lessons and workshops that foster a deep understanding of science and technology, preparing students for future careers in these rapidly growing fields. By bridging the gap between academic knowledge and practical skills.
7. **Current status:** Prototype is under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-19: Petlytica

1. **Project Title** **:** Petlytica
2. **Mentor Name** : Dr. Abhilasha Shourie
3. **Student Team Names:** Paridhi Saini, Amit Dagar
4. **Project Description:** Decomposing the plastic waste from fungi**.**
5. **Project status at the beginning of the year:** Petlytica is an innovative startup at the forefront of tackling the global plastic pollution crisis. Leveraging the incredible power of fungi.
6. **Interventions made: With the intervention of NewGen IEDC** -The opportunity to solve the bigproblemsblem faced by the country. Support for chemical purchase, lab facilities and for testing the product at various external agencies. We at Petlytica is tackling the global plastic pollution crisis. Leveraging the incredible power of fungi, Petlytica has developed a groundbreaking solution to decompose plastic waste in an environmentally friendly manner. By harnessing the unique enzymatic properties of certain fungi species, they have created a bio-based process that breaks down plastic materials into their natural components. This revolutionary technology not only offers a sustainable alternative to traditional plastic disposal methods but also has the potential to significantly reduce the accumulation of plastic waste in landfills and oceans. Petlytica's pioneering approach not only showcases the immense potential of nature-inspired solutions but also represents a significant step towards a cleaner and more sustainable future.
7. **Current status:** Prototype is under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-20: Med-Plant Care

1. **Project Title** **:** Med-Plant Care
2. **Mentor Name** : Dr. Nidhi Didwania, Dr. Sweta Mogiya
3. **Student Team Names:** Sasanka, Nista, Deepak, Priti
4. **Project Description:** Mobile application to detect disease in plants**.**
5. **Project status at the beginning of the year**: Developing a groundbreaking mobile application. By simply capturing a photo of a plant's leaves or stems using their smartphone camera, users can instantly receive accurate disease identification
6. **Interventions made: With the intervention of NewGen IEDC-** Mentoring and training. the team trying to ca reate user-friendly app harnesses the powers of artificial intelligence and machine learning algorithms to analyze the uploaded plant images and compare them with a vast database of plant diseases. Plant Health Care's app not only saves time and effort but also promotes sustainable gardening practices by enabling early detection and targeted interventions. With this technological breakthrough, anyone can become an expert in plant health management, ensuring thriving gardens and contributing to the preservation of our green spaces.
7. **Current status:** Prototype is under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-21: VisidentX

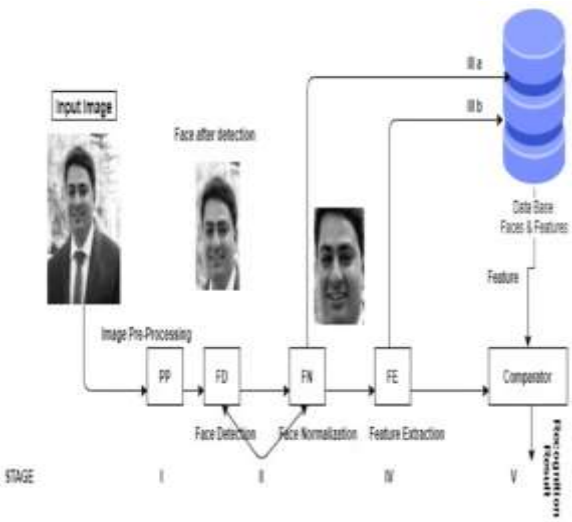
1. **Project Title** **:** VisidentX
2. **Mentor Name** : Dr. Roomani
3. **Student Team Names:** Ramya Shanta
4. **Project Description:** App to scan X ray report at home and get early detection**.**
5. **Project status at the beginning of the year**: Developing a groundbreaking mobile application. By simply capturing a photo of a plant's leaves or stems using their smartphone camera, users can instantly receive accurate disease identification.
6. **Interventions made: With the intervention of NewGen IEDC –** funding has been provided, support for website making and requisite training**. T**eam is developing groundbreaking technology that enables people to obtain early diagnoses from X-ray reports with a simple scan. With VisioDentX, individuals no longer have to rely solely on the expertise of radiologists to interpret their X-ray results. By leveraging advanced machine learning algorithms and image recognition techniques, the VisioDentX platform quickly and accurately analyzes X-ray images, providing users with clear and comprehensive reports. This not only saves valuable time but also empowers individuals to take proactive steps towards their health by identifying potential issues at an early stage. With VisioDentX, the future of medical diagnostics is transformed, making it more accessible, efficient, and empowering for everyone.
7. **Current status:** Prototype is under development.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-22: Plant Survival

1. **Project Title** **:** Plant Survival
2. **Mentor Name** : Ms. Prachie Bakshi
3. **Student Team Names:** Sneha, Mehul, Sabyasachi, Samriddhi
4. **Project Description:** Team approached us with the idea to build a device for reviving the dying plant by passing electric current.
5. **Interventions made: With the intervention of NewGen IEDC –** Mentorship, funds been allocated for equipment purchase and requisite training been imparted. team Introducing Plant Revival, an innovative startup dedicated to the revival and preservation of plants. Our team of skilled engineers and passionate horticulturists has developed a unique device that utilizes a low current to revive dying plants. By carefully passing this gentle electrical current through the plant's system, our device stimulates cellular regeneration, boosts nutrient absorption, and fosters overall plant health. Plant Revival's user-friendly and affordable device is designed to cater to a wide range of plant species, making it accessible to both plant enthusiasts and professionals. Join us in our mission to breathe new life into dying plants, and together, let's create a greener and more vibrant world.
6. **Current status:** Prototype is under development.
7. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-23: Ark Surveillance System

1. **Project Title** **:** Ark Surveillance System
2. **Mentor Name** : Dr. Meeta
3. **Student Team Names:** Harshit Valecha, Kshitiz**.**
4. **Project Description:** Team approached us with the idea to a strong surveillance system which will scan and detect faces of individuals and also can mark there attendance.
5. **Interventions made: With the intervention of NewGen IEDC** Funding made available for equipment purchase, mentorship guidance, and sent to various events to showcase their idea and to get exposure. Ark Surveillance System is developing a state-of-the-art system that can detect any unauthorized entry with unparalleled accuracy and efficiency. This innovative solution not only enhances security measures for various establishments but also offers a unique application for attendance marking. With its advanced crowd sensing capabilities, Ark Surveillance System provides a seamless and reliable method for tracking and recording attendance, eliminating the need for traditional manual systems. The startup's dedication to leveraging technology to improve security and streamline processes makes it a standout player in the industry.
6. **Current status:** Prototype is under development.
7. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



NewGen IEDC-B. N. M. Institute of Technology

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: Fifth Year (2022-23)

Name of the Institution hosting NewGen IEDC	B. N. M. Institute of Technology		
Year of starting NewGen IEDC	2017-2018		
Name of the Head of the Institution	Dr. Krishnamurthy G N		
Name of NewGen IEDC Coordinator	Dr. Vijayashree L.		
Contact Details of NewGen IEDC Coordinator • Mobile Number • E-mail ID	9980356098 vijayashreel@bnmit.in		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Sanction Order Details	1	EDI/DST/NEWGENIEDC/17-18/RLS-1/06, 19/7/17	60,00,000
	2		47,50,000
	3		60,00,000
	4		60,00,000
	5		60,00,000

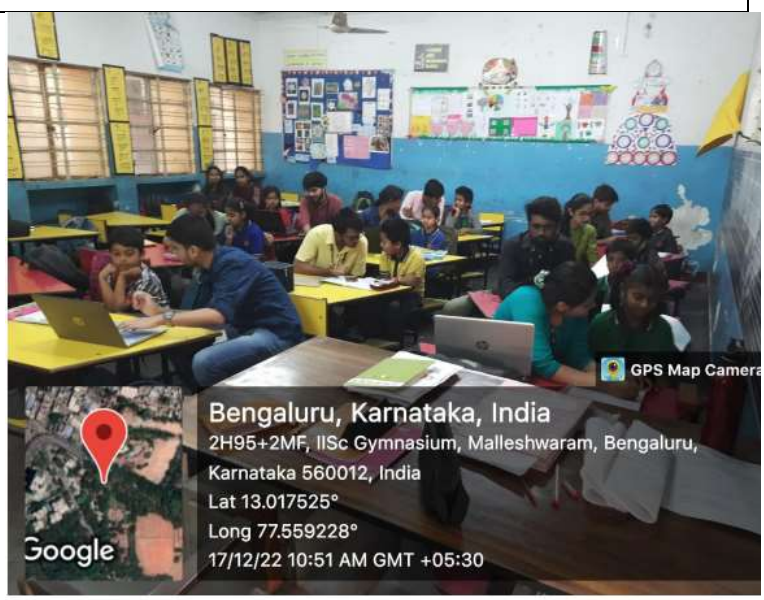
1. Details of Activities Undertaken during the year:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

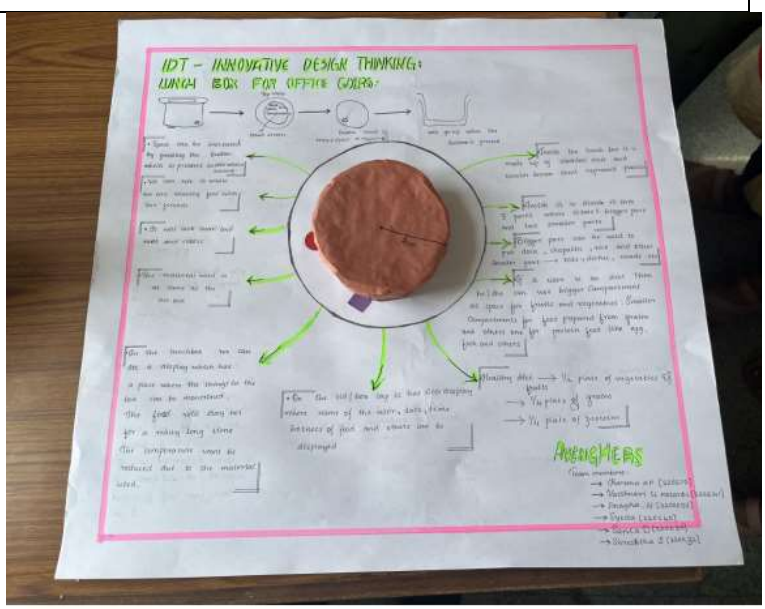
To Impart Engineering Knowledge to School Children” The Activity was conducted for 7 th, 8th and 9th standard students of BNM State School. The aim of the activity was to impart the elementary concepts of Electrical & Electronics Engineering to the school students. The session started with basics of physics that included, flow of electric current through a conductor, concept of electric field, magnetic field and electromagnetic field The students were briefed about different electrical components and their symbols, like battery, voltage supply, switch, lamp, resistor, ammeter and voltmeter. The students also understood the fundamental aspects of electric current with Ohm’s Law. Date: 15 th Nov 2022, Time: 11.00 am to 1.00 pm Venue: BNM State School	 Dr. Shubha Rao K, explaining the Street Light control using LDR Dr. Priyashree S, explaining the Working of Fuse

My Story - Motivational Session by Successful Entrepreneur. The lecture was delivered by Mr. Vikas Apaaji through online mode. The Speaker started with important points that benefits every student's progress such as, to make our 'presentation' successful, we must provide clarifications and conclusions.	Date 26th November ,2022 Organization : BNMIT Total Participants 40
My Story - Motivational Session by Successful Entrepreneur. The lecture was delivered by Mrs.Megha M R - Chairman, HMGR Media Pvt Ltd. Time : 11.00 am to 12.30 pm Date : 16th Nov 2022	

Entrepreneurship & Innovation as Career Opportunity. The workshop was organised with an objective of creating interest in Entrepreneurship and Innovation as Career Opportunity among the engineering students and provide the students an opportunity to interact with successful entrepreneurs. Mrs. Farheen Farhath Co-Founder, Princeton Smart Engineers, Bangalore spoke about her journey as an entrepreneur. She shared her analysis of the initial setbacks she faced in her entrepreneurial career with students. Mrs. Jeyalakshmi Venkatanarayanan, Founder at Universe Power Systems, Bangalore passionately motivated the students to become entrepreneurs and serve the nation. She highlighted the importance of being an employer and help the nation by creating job opportunities. Date: 14 th November 2022 Time: 2:00 PM to 4:00 PM Venue: A-215, BNMIT Student participants: 88 Faculty Participants: 06	 *Mrs. Farheen Farhath interacting with the students and faculty of BNMIT*

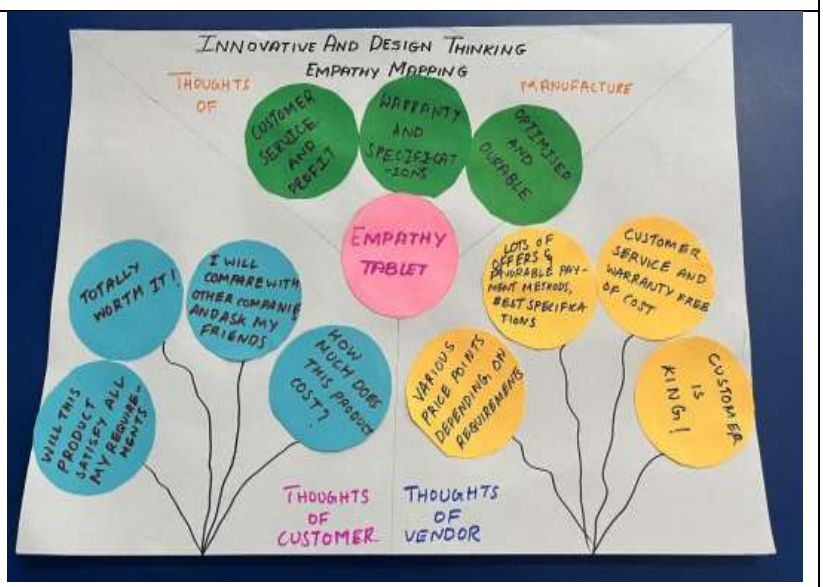
My Story - Motivational Session by our Alumni Mr.Skanda Prasad, Senior Associate, Morgan Stanley, Bangalore. The objectives of the Talk was to made students understand the importance of studies and creating awareness of the technology. The students understood the importance of communication and how to explore the market. They were told the need of the projects and preparation of research papers. Date : 17th December 2022 Time : 10.00 am No. of participants - 80	 Alumni Series on "My Motivational Story" by Mr. Skanda Prasad S, Senior Associate, Morgan Stanley, Bangalore.
Innovation & Entrepreneurship Outreach Program in Schools /Community. The students were given awareness about Innovations happening and the importance of entrepreneurship in their future. The workshop was a success and the interaction with the young minds were a great learning to the students. Date : 17.12.2022 Place : Kendriya Vidyalaya No. of participants : 35	 **Discussion with Students**

Workshop on Entrepreneur skill, Attitude and Behavior development. The Speaker started with the concept of Entrepreneurship, Importance of innovation and idea generation, Importance of problem solving, The skills, characteristics, attributes, and functions of Entrepreneurs & The importance of creative thinking and strategic thinking.	Date : 31th January ,2023 Organization : BNM INSTITUTE OF TECHNOLOGY Mode of Guest Lecture: Offline Total Participants : 120
Workshop on Entrepreneurship Skill, Attitude and Behaviour. The workshop was organised with an objective of inculcating in students the entrepreneurship skills, attitude, and behaviour. The resource person Dr. Pious Thomas interacted with the students and initiated the session. He spoke about the need to work hard and start early to realize one's entrepreneurial dreams. Date : 08/02/2023 Time : 11.30 am to 1.00 pm Place : BNMIT	 *Dr. Pious Thomas during the session on Entrepreneurship Skill, Attitude and Behaviour.*

Innovation and Entrepreneurship Outreach Program in Schools BNM Institute of Technology organised an Innovation and Entrepreneurship Outreach Program on 9th February 2023 at Karnataka Public School, Uttarahalli, Bangalore as a part of an objective to interact with school children to impart soft skills and highlight the importance of innovation and entrepreneurship. . The students hoped that initiatives like these will continue to help school children to develop the necessary skills to succeed in their personal and professional lives.	 Date: 9 th February 2023 Venue: Karnataka Public School, Uttarahalli, Bangalore Time: 10:30 AM to 4:30 PM Student participants: 120
Report on Problem solution fit and Product maker fit. Topics covered: Importance of Innovative design thinking Problem statement and Prototype Model development and testing. Outcomes: Our students gained thorough knowledge on developing a prototype Applications and capabilities of 3D printers in modern industries. Date : 21.2.2023 No. of participants : 53	 Figure 2: Box prototype Designed by students

[B] To identify, develop & commercialize students' innovative ideas

A workshop on Problem solving and Ideation Workshop conducted by Dr.Kavitha Jayaram, who spoke on How to solve a problem, Types of projects, elements of the problem, reasons why projects fail and where to apply for funds. Date : 23.11.2022 Time : 11.00 am to 12.30 pm No. of participants : 87	
Mentoring Event – Experts for mentorship support. Mr.Pranav, an alumni spoke about achieving the problem and called it solution fit and product –market fit. His talk was well received and the students as audience were impressed by his talk. Date : 28t February 2023 Time : 11.30 am to 1.00 pm	

Session on Essential Skills Needed among AIML Students to Identify and Achieve Problem-Solution Fit and Product-Market Fit • Identifying problem statement • Working on problem solution • How to work for product development • How to make the product- market fit Date : 24.01.2023 Time : 11.30 am No. of participants : 111	 Delivering Session by Mr. Sagar A H, International Educationalist, Philosopher and Multidisciplinary Resource Person.
Design Thinking, Critical thinking and Innovative Design. Topics covered: ➢ Importance of Innovative design thinking ➢ Problem statement and Prototype ➢ Model development and testing. Outcomes: ➢ Our students gained thorough knowledge on developing a prototype ➢ Applications and capabilities of 3D printers in modern industries. Date : 21.2.2023 No. of participants : 53	

[C] To enhance Industry-Academia interaction

The students of III Semester visited M/s Spectrum Tool Engineers Pvt. Ltd, Magadi Road, Bengaluru on 17.12. 2022. The company is a premier player in the field of design, mould making, injection molded plastic part production, sub-assemblies, mechanical parts production and complete product development. They provide end-to-end tooling solutions for a diverse range of industries such as telecom, electrical, automotive, electronics, health care, LED lighting, gaming industry.	 Date : December 17, 2022 No. of participants : 52
A field visit was for 5th sem students to TechbyHeart an IT company deal with cyber security and ethical hacking. Date : 7th December 2022 Place : TechbyHeart No. of Participants : 62	 Discussion with employee
Report on "Electrifying Traditional Agriculture" A brief discussion was held about the design & development of Low-power electric agricultural equipment's, especially for post-sowing inter-row and inter-crop operations like Deweeding, Inter-cultivation, Ridging, Spraying, Secondary tillage activities etc. using single machine. This equipment's are operated by DC Motors and powered by batteries that can either be chargeable through Grid or Solar panels. Date : 16th January 2023 Time : 11.00 am to 12.00 noon No. of participants : 92	 Demonstration of Weeder

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

-

3. Other important highlights (new initiatives), if any: Open day

Open Day @ BNMIT

A large number of students and parents from all departments of BNM Institute of Technology visited the College on June 2nd and 3rd 2023 as part of the Open Day. The event attracted more than 1800 visitors comprising of Parents, prospective students, school children, Industry stalwarts, Alumni and Academicians.

There were a total of 151 teams with 368 students who exhibited their projects across campus. This was covered by Asianet Suvarna News Channel and was broadcasted during their education hour special program.

A statement from the college said that industry experts spoke about the opportunities in the field of Information Technology (IT), new technologies such as Artificial Intelligence, Machine Learning, Cyber Technology, Blockchain, Internet of Things, besides Virtual Realty and Augmented Reality at a workshop specially organized for students.

“We at BNMIT, select NewGen IEDC projects after a rigorous scrutiny and based on the inputs we receive from Industry. We not only help converting their ideas into products, but help them in protecting it through various IPRs like patent, Copyright, Design Patent and also to start of their own venture”, said Dr. Vijayashree, Head Innovations at BNMIT.

This mega event would not have been possible without the voluntary support of our NSS students, Department Faculty Coordinators who worked relentlessly for the success of this event. The contribution of HoDs of all departments has to be mentioned. A special thanks to Dr. Anil Kumar B S – HoD, Mechanical Engineering and Dr.K.Venkatesha – HoD – Electrical and Electronics Engineering who were instrumental in bringing our the best in our students.

Our Chief Guest Dr. Sunil Shukla, Director General – Entrepreneurship Development Institute of India *(EDII),* and all visitors were very happy by the progress of our institution and appreciated the projects.

The support by the Management Team by visiting each stall and interacting with all students encouraged the students to bring out the best in them.

B.N.M. Institute of Technology
An Autonomous Institution under VTU
27th Cross, 12th Main Road, Banashankari II Stage, Bengaluru - 560 070
OPEN DAY
Looking to take a deep dive into the Tech-World and explore the new exciting worlds?
Then join us on the open day and explore all the technological advances happening in the industry.
2nd & 3rd June, 2023 Time : 10.00 AM to 3.00 PM
AR/VR Experience | 3D Printing |
EV Tech | AI&ML | Robotics
nirf
NBA
NAAC

4. Student Projects

Refer to ANNEXURE-A Below for Details of Student Projects with Prototype Photos

5. Provide a minimum two-page case let each on the two best student projects (either prototype developed or commercialized) from the above list. The case lets should include the following:

Best Student Project-01:

I. Mentors Name : Dr. Anil Kumar B. S., Dr. Kumara Swamy H. S. and Dr. Vjiayashree L

II. Student team details

Bhuvan J
Samarth S
Surya RS
Vaibhav K Rao

III. Brief description of the student start-up

Design and development of a solar powered refrigerated cart which maintains an ambient temperature of 10-12º C, thereby extending the shelf life of vegetables. The

electric motor assists the vendor on inclines and with full loads. The juicer in the cart acts as an additional source of revenue for the vendor.

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

Students are yet to start their startup. They are in the market test stage. The students have obtained Design Patent for their design in a very short period of time (Design Patent No.387348-001 dated 13/07/2023).

पेटेंट कार्यालय, भारत सरकार The Patent Office, Government Of India

डिजाइन के पंजीकरण का प्रमाण पत्र | Certificate of Registration of Design

डिजाइन सं. / Design No: 387348-001

तारीख / Date: 01/07/2023

कार्यालय तारीख / Reciprocity Date*

देश / Country

प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन के SOLAR POWERED REFRIGERATED VENDING CART के संबंध में, जो पंजीकरण, संख्या 12-02 में 1.B.N.M Institute Of Technology 2. Dr. Kumaraswamy H.S 3.Dr. Vijayashree L 4.Bhuvan J 5.Samarth S 6.Surya Ravishankar 7.Vaibhav Krishna Rao के नाम में उपयुक्त संख्या और तारीख में दर्ज किया गया है।

Certified that the design of which a copy is annexed hereto has been registered as of the number and date given above in class 12-02 in respect of the application of such design to SOLAR POWERED REFRIGERATED VENDING CART in the name of 1.B.N.M Institute Of Technology 2. Dr. Kumaraswamy H.S 3.Dr. Vijayashree L 4.Bhuvan J 5.Samarth S 6.Surya Ravishankar 7.Vaibhav Krishna Rao.

डिजाइन अधिनियम, 2000 तथा डिजाइन नियम, 2001 के प्रावधानों के अनुसार है।

In pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.

V. Contribution of NewGen IEDC in the same

- New Gen IEDC has given fund for the development of one prototype and mentoring support for the students. Also the market survey support is also given **by NewGen IEDC mentors.**

VI. Future plan

- Students have planned to start their venture after their market testing.

Best Student Project-02:

I. Mentors Name : Dr.Bindu S

II. Project Title : Mood Based Laser Guided Music System

III. Student team details

Shodhan K B
Shashi Naik G
Shivaprasad M Hegde
Sudarshan T R

IV. Brief description of the student start-up

Mood based music system will enhance the present mood of the users towards positive side and the enjoyment towards playing the music will give a high satisfaction to the users.

Students have created the high fidelity prototype and want to test in the market for the same before they start their company.

V. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

VI. Contribution of NewGen IEDC in the same

- New Gen IEDC has given fund for the development of one prototype and mentoring support for the students. Also the market survey support is also given by NewGen IEDC mentors. NewGen IEDC is supporting this project to apply for patent and Design Patent before commercializing the product.

VII. Future plan

- Students have planned to start their venture after their market testing.

Annexure-A

Details of Student Projects: Fifth Year

Project-01-Design and Development of Solar powered refrigerated cart using compressor

1. **Project Title** : Design and Development of Solar powered refrigerated cart using compressor

2. **Mentor Name** : Dr. Anil Kumar B. S., Dr. Kumara Swamy H. S. and Dr. Vijayashree L

3. **Student Team Names :** Bhuvan J, Samarth S, Surya RS, Vaibhav K Rao

4. **Project Description:** Design and development of a solar powered refrigerated cart which maintains an ambient temperature of 10-12º C, thereby extending the shelf life of vegetables. The electric motor assists the vendor on inclines and with full loads. The juicer in the cart acts as an additional source of revenue for the vendor.

5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High Fidelity Prototype

7. **Current status:** Ready for commercialization

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project.**

The Patent Office, Government Of India

Certificate of Registration of Design

Certified that the design of which a copy is annexed hereto has been registered as of the number and date given above in class 12-02 in respect of the application of each design to SOLAR POWERED REFRIGERATED VENDING CART in the name of 1.B.N.M Institute Of Technology 2. Dr. Kumaraswamy H.S 3.Dr. Vijayashree L 4.Bhuvan J 5.Samarth S 6.Surya Ravishankar 7.Vaibhav Krishna Rao.

In pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.

The students have obtained Design Patent for their design in a very short period of time (Design Patent No.387348-001 dated 13/07/2023).

Project-02: Design and Fabrication of Regenerative foldable E-Bike

1. **Project Title** : Design and Fabrication of Regenerative foldable E-Bike
2. **Mentor Name** : Dr. Raghavendra N
3. **Student Team Names :** Ashish Raj D, Ganesh Rathod, Likith N Swamy, Venkatesh CV
4. **Project Description:** The electric bike is driven with help of battery which is coupled to electric motor. Electric bike which works on the battery that is powered by the motor is the general mode of transport for local trip. The solar can be alternative source of charging for this by adding it to the system. Main purpose of using this e-bike is that it is user friendly, economical and relatively cheap.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High Fidelity Prototype
7. **Current status:** High Fidelity Prototype developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-03: Development of a robot to collect oil from ocean surface

1. **Project Title** : Development of a robot to collect oil from ocean surface
2. **Mentor Name** : Dr. D Shivalingappa
3. **Student Team Names :** Aditya Rai, Akash B M, Dharmendar L, Yuga Chandrashekhar
4. **Project Description:** The main objective of the project is to collect and recover the crude oil from the ocean surface. The device is provided with suction head to suck the oil and this oil is pumped into the separator tank which is divided into two parts. One part consists oil absorbing material to recover oil and second part is the settling tank the water is allowed to follow out of e-separator tank. The prototype is propelled using a DC motor and controlled by radio controller.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High Fidelity Prototype
7. **Current status:** High Fidelity Prototype developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

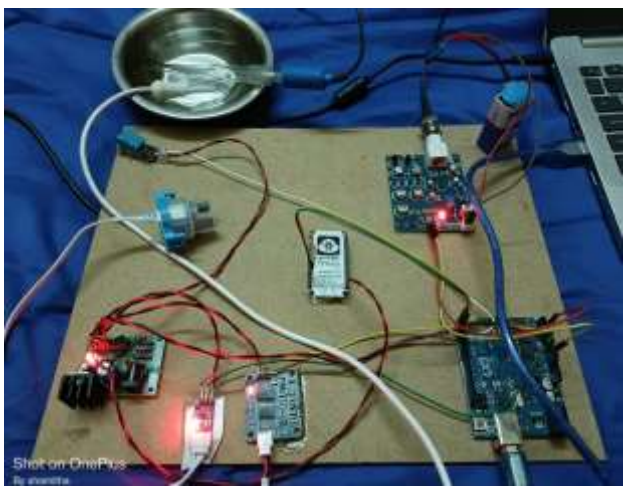
Project-04: Mood Based Laser Guided Music System

1. **Project Title** : Mood Based Laser Guided Music System
2. **Mentor Name** : Dr.Bindu S
3. **Student Team Names :** Shodhan K B, Shashi Naik G, Shivaprasad M Hedge, Sudarshan T R
4. **Project Description:** Mood based music system will enhance the present mood of the users towards positive side and the enjoyment towards playing the music will give a high satisfaction to the users. Students have created the high fidelity prototype and want to test in the market for the same before they start their company.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High Fidelity Prototype
7. **Current status:** High Fidelity Prototype developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

NewGen IEDC is helping the students for applying for Patent and Design Patent for the above project before commercialization.

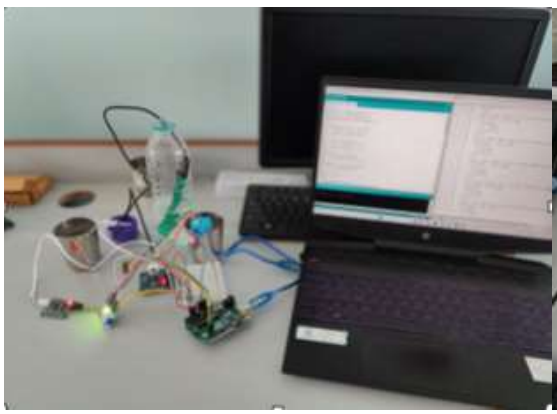
Project-05: Agrowaste biochar impregnated with nano particles for water purification

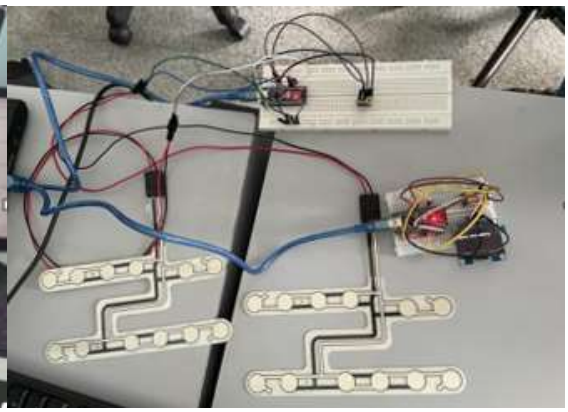
1. **Project Title** : Agrowaste biochar impregnated with nano particles for water purification
2. **Mentor Name** : Dr.Bindu S, Dr.Prathibha, Mrs.Sarala
3. **Student Team Names :** Rashmitha R Shet, Shamitha M, Varsha N
4. **Project Description:** Water pollution and the presence of harmful contaminants post significant threats to the public health worldwide. To address this issue, advanced water treatment technologies are continuously being developed. In recent years, the integration of silver nano particles(AgNPs) and activated charcoal has gained considerable attention due to their exceptional properties in water purification. The project is in the process of applying Design Patent.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High Fidelity Prototype
7. **Current status:** High Fidelity Prototype developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-06: Smart Campus using LoRaWAN

1. **Project Title** : Smart Campus using LoRaWAN
2. **Mentor Name** : Dr.Priya R Sankpal, Mr.Sridhar V
3. **Student Team Names :** Abhishek D, Dhanush, Kalle Sai Kiran, Rajashekhar V, Rohith J E, Safeer Shah
4. **Project Description:** This project aims to deploy sensor modules for monitoring the activities on campus based on LoRa Technology. The team is in the process of applying for Design Patent for this project.
5. **Project status at the beginning of the Year: I**deation
6. **Interventions made:** Low Fidelity Prototype, High Fidelity Prototype
7. **Current status:** High Fidelity Prototype developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





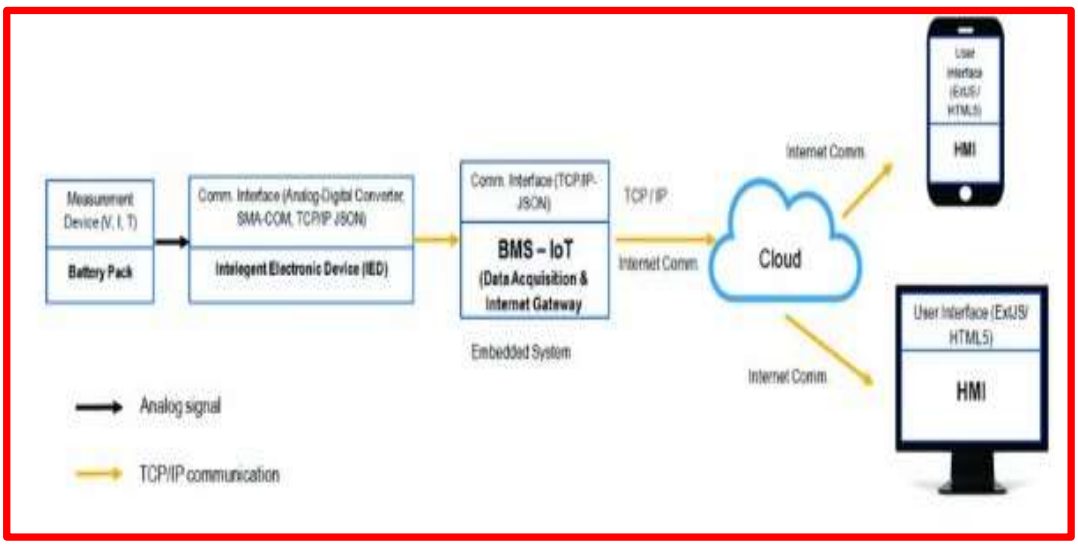
Project-07: Complex model based estimation of State of Charge for Batteries

1. **Project Title** : Complex model based estimation of State of Charge for Batteries
2. **Mentor Name** : Dr. Subha Rao, Smt. Karanam Vasudha
3. **Student Team Names :** Deepthi Anand, Sahana B Naik,T M Kavana, Paraag V
4. **Project Description:** The aim of the project is to improve the accuracy of estimation of State of Charge (SoC) of Battery. Conventional SoC estimation methods will be done On-site, which lags with memory and compute power hence complex models or algorithms that provide high accuracy are difficult to implement. This project sends the sensed data to cloud for processing and estimation of SoC using complex models that can be implemented to improve accuracy of SoC prediction.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:**

   Why this project? This project gives accurate value of SoC of Battery compared to on-site processing of SoC

   Expected outcome : Design of Battery pack, Sensing the parameters of Battery, wireless transmition of data to cloud, implementation of model based algorithms on cloud to estimate SoC.

   Benefits: Improved reliability on battery with accurate estimation of SoC.
7. **Current status:** Prototype in process
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-08: Design of 1 kW closed loop flywheel generator

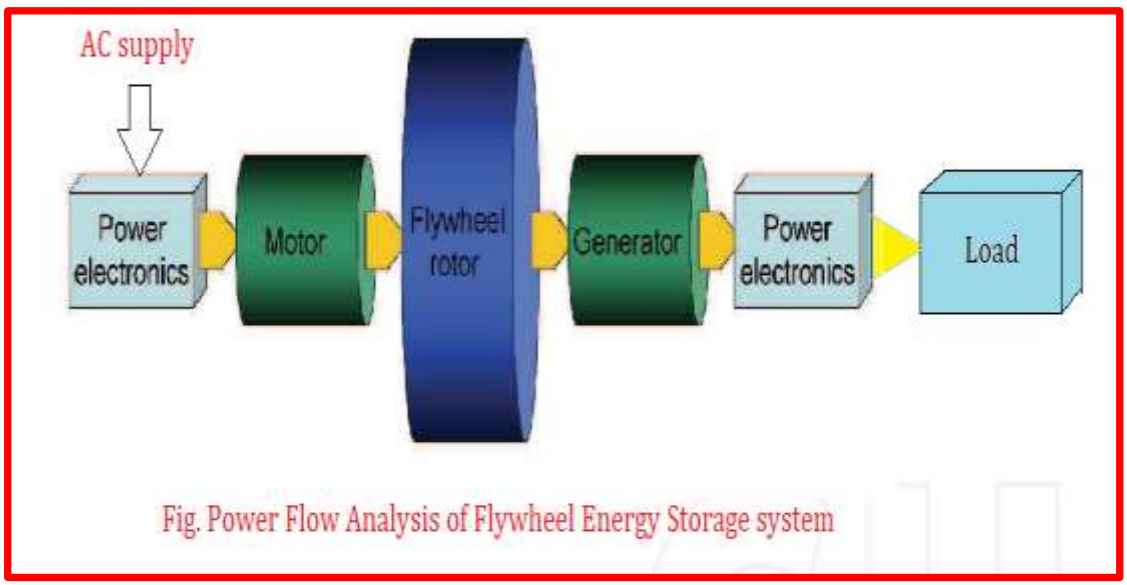
1. **Project Title** : Design of 1 kW closed loop flywheel generator
2. **Mentor Name** : Dr. Venkatesha K
3. **Student Team Names :** Kruthik L, R Benny David, Vaibhav patil
4. **Project Description:** The project deals with the design and development of closed loop flywheel generator to generate power up to 1 kW. The mechanical power is fed to the flywheel by connecting lower power rating AC motor with intervals to regulate the speed of the flywheel. Electrical power is generated using generator coupled to flywheel to which load can be connected.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:**

   Why this project? The project can be designed to generate huge power using flywheel that stores kinetic energy in mechanical form

   Expected outcome : Huge electical power generation. The same technique can be adopted for various mechanical loadings.

   Benefits: Electrical power generation, UPS, micro/macro power generators, mechanical laodings such as for blowers, Grinders, blenders, etc.

   The students are in the process of applying for patent for this project.
7. **Current status:** Prototype in process
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-09: Smart Cradle for Baby Monitoring System

1. **Project Title** : Smart Cradle for Baby Monitoring System
2. **Mentor Name** : Dr.S Srividya
3. **Student Team Names :** Manasa S, Mrudula Anna Manjunath
4. **Project Description:** Raspberry Pi high end model is required to capture the image of the child and process the image.
5. **Project status at the beginning of the Year:**

   Completed the literature survey and started with the implementation of the hardware module.
6. **Interventions made:**

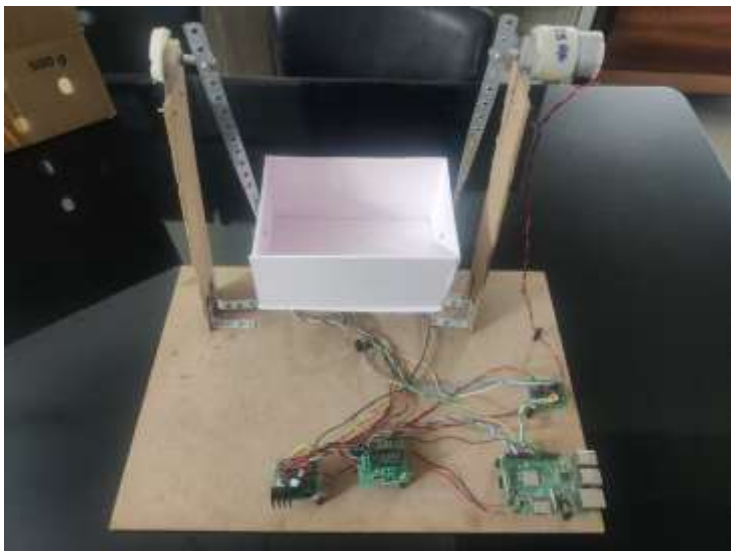
   To analyze behavioral patterns

   To soothe the irritable infant

   SIDS detection

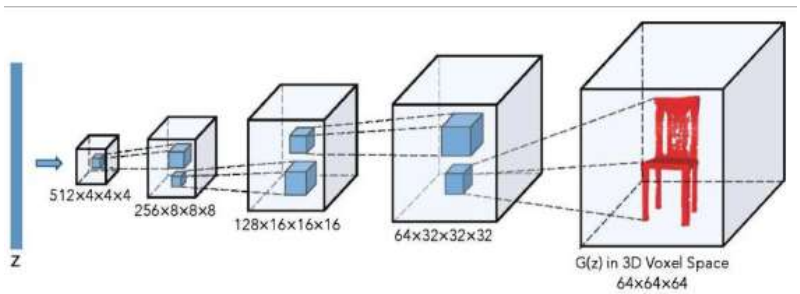
   The students are in the process of applying for Design Patent for this project.
7. **Current status:**

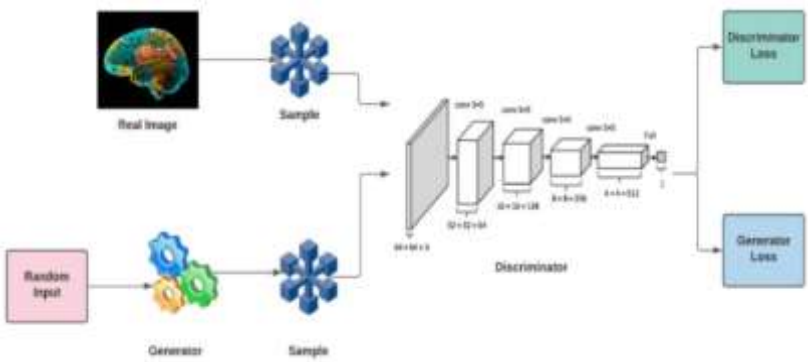
   Completed the project successfully.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-10: Generative Adversarial Network (GAN) based Art Generator for Object Detection and Categorization using Deep Learning

1. **Project Title** : Generative Adversarial Network (GAN) based Art Generator for Object Detection and Categorization using Deep Learning
2. **Mentor Name** : Dr.Laxmi V
3. **Student Team Names :** Aakansha Tiwari, Nallamalli Srilatha Chahna
4. **Project Description: CUDA -** enabled systems are required with 16GB storage for generating high quality art images. The proposed GAN-based Detection of Objects (GAN-DO) framework is not restricted to any particular architecture and can be generalized to several deep neural network (DNN) based architectures. The resulting deep neural network maintains the exact architecture as the selected baseline model without adding to the model parameter complexity or inference speed.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





Project-11: Drones in forest Fire Mitigation

1. **Project Title** : Drones in forest Fire Mitigation
2. **Mentor Name** : Ms.Jagruthi H
3. **Student Team Names :** Vaishnavi G Rao, Vaishnavi Y Nayak
4. **Project Description**: In the event of a fire, the primary objective of using drones is to gather situational awareness, which can be used to direct the efforts of the firefighters in locating and controlling hot spots. Just like urban fires, forest fires to require monitoring so that firefighters know what they are dealing with.

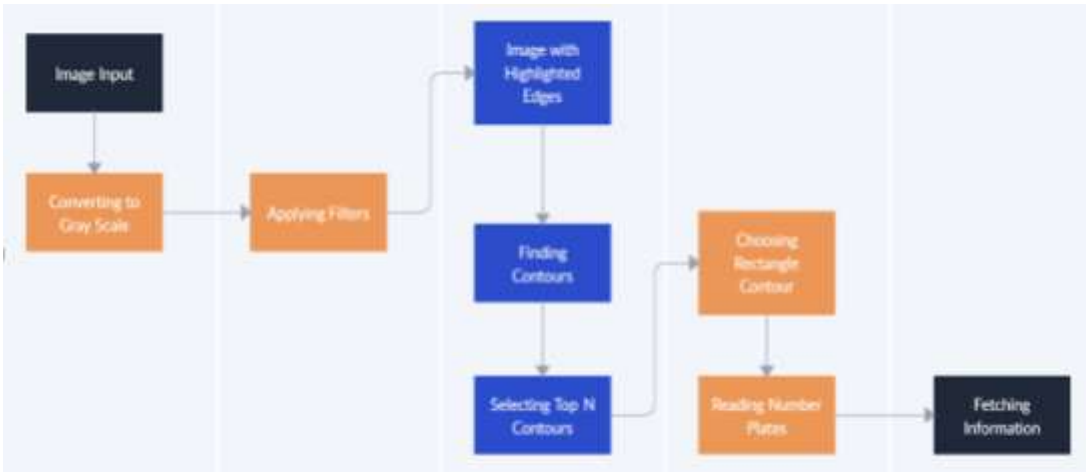
   Drones are increasingly used in firefighting operations for various tasks, such as providing real-time situational awareness, mapping the fire perimeter, and identifying hot spots.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-12: A Graphical User Interface to Automate Industrial Robotic Arm

1. **Project Title** : A Graphical User Interface to Automate Industrial Robotic Arm
2. **Mentor Name** : Dr. Santosh Reddy P, Mrs. Ashwini R Malipatil
3. **Student Team Names :** Aryan Patnaik, Mohit Sanjeev Mahajan
   Abhiram B S, Pranav K M
4. **Project Description:** Automation of Industrial Robotic Arms can significantly increase productivity and efficiency in manufacturing processes. This can lead to faster and more accurate manufacturing processes resulting in cost savings and increased profits. This can result in a safer working environment and reduce the risk of workplace injuries, The students are in the process of applying for copyright for this project.
5. **Project status at the beginning of the Year:**
   - Ideation
6. **Interventions made:**
   - Make customizable GUI
   - Hand shake signal between Arduino and Python
7. **Current status:**
   - Partially completed customizable GUI
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

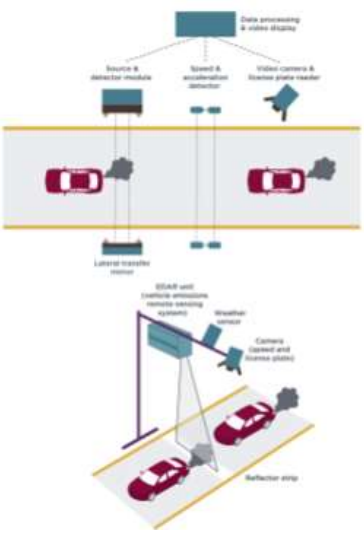
Project-13: Shadow Wheels: Computer Vision Motor aided vehicular tracking system

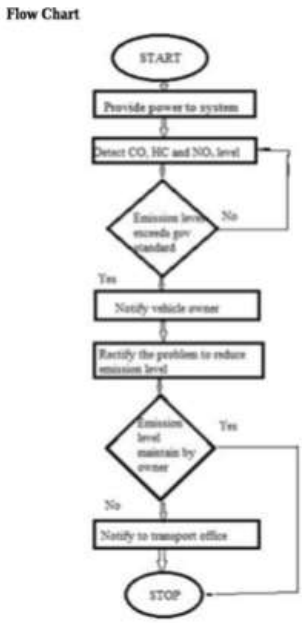
1. **Project Title** : Shadow Wheels : Computer Vision Motor aided vehicular tracking system
2. **Mentor Name** : Dr. Chayadevi M L, Dr.Kavitha Jayaram
3. **Student Team Names :** Parth Kumar Tiwari, Amogh Krishna, Surya Dev Singh, Rushil Sati
4. **Project Description:** With the growing number of vehicles on the road most nations are adopting an intelligent transport system (ITS) for handling issues like traffic flow density, queue length, the average speed of the traffic, and total vehicles passing through a point in a specific time interval. A camera is used to monitor the vehicles and to record the feed for image processing. Aurdino Uno and Raspberry Pi 4 are used for computing and processing. The students are in the process of applying for copyright for this project.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-14: Environmental protect by tracking emission test on registered vehicles

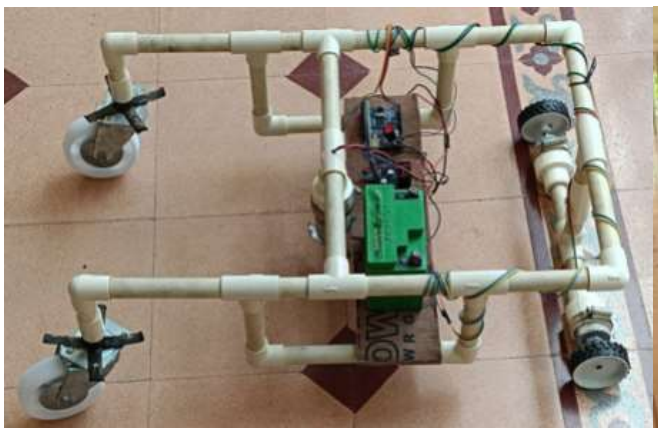
1. **Project Title** : Environmental protect by tracking emission test on registered vehicles
2. **Mentor Name** : Dr.Kavitha Jayaram, Dr.Jalaja
3. **Student Team Names :**
   i. Spoorthi O M
   ii. Suhas Bhat
   iii. Vineeth Phadke
   iv. Sanmathi S
4. **Project Description:** CO2 sensor detects Carbon di oxide in the exhaust. HC sensor use NDIR technology to detect methane, propane and butane in the ambient air. TGS 2602 has high sensitivity to low concentrations of odorous gases such as ammonia and H2S generated from environment. The students are in the process of applying for copyright for this project.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





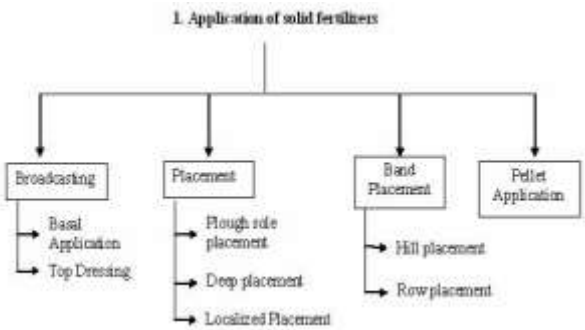
Project-15: Automated Lawn Mower Robot

1. **Project Title** : Automated Lawn Mower Robot
2. **Mentor Name** : Dr.Anitha N, Dr.Geetha
3. **Student Team Names :**
   i. Nischal U
   ii. Neha R Desphande
   iii. I. Rakshitha Raghuram
   iv. Kushal R
4. **Project Description:** It is a robot used to cut or mow grass at the specified height using blue tooth interface to control the movements of the robot via mobile applications. A typical robotic lawn mower requires the user to set up a border wire around the lawn that defines the area to be mowed. The robot uses this wire to locate the boundary of the area to be trimmed and in some cases to locate a recharging dock. Robotic mowers are capable of maintaining up to 30,000 m^2 (320,000 sq ft) of grass. The students are in the process of applying for Design Patent for this project.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-16: To Implement Site Specific Soil Nutrients Management System for Fertilizer Recommendations

1. **Project Title** : To Implement Site Specific Soil Nutrients Management System for Fertilizer Recommendations
2. **Mentor Name** : Dr.Chayadevi M L, Prof.Pallavi C V
3. **Student Team Names :** Kashyap Girish Rayas, Anand V A
   Aadithi Sampritha, Monica M, Keerthana K H
4. **Project Description:** The soil health is checked using old laboratory conservative methodology. Using this project on the ground soil nutrients can be tested and fertilizers can be recommended. The students are in the process of applying for Design Patent for this project.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



1. Broadcasting refers to spreading fertilizers uniformly all over the field.
2. Placement refers to the placement of fertilizers in soil at a specific place with or without reference to the position of the seed.
3. **Band placement** refers to the placement of fertilizer in bands.
4. Pellet application refers to the placement of nitrogenous fertilizer in the form of pellets 2.5 to 5 cm deep between the rows of the paddy crop.

Project-17: FakeOut: Revolutionizing Currency Security and Accessibility for All

1. **Project Title** : FakeOut: Revolutionizing Currency Security and Accessibility for All
2. **Mentor Name :** Dr. Sheba Selvam, Prof.Priyanka Padki
3. **Student Team Names :** Ajitesh kumarsoni, Sreyansh Baranwal
   Soham K Chatttopadhyay, Suman kumar
4. **Project Description:** 1. Implement a dependable and effective system that can accurately identify counterfeit currency notes through cutting-edge technologies such as machine learning, image recognition, and haptic feedback. 2. Develop a smartphone application that uses image recognition technology to help blind or visually challenged individuals identify the denomination of banknotes, thereby promoting financial inclusion and independence. 3. Incorporate tactile indicators on banknotes that are easy to recognize and differentiate by blind people. 4. Promote public awareness campaigns to educate citizens about the risks of using counterfeit currency and how to identify genuine banknotes.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-18: Design and Development of Ecofriendly device for air pollutant adsorption

1. **Project Title** : Design and Development of Ecofriendly device for air pollutant adsorption
2. **Mentor Name :** Dr.Prathibha B S, Ms.Shwethashree
3. **Student Team Names :** Mohammed Faizan, Monish V, Zabiulla Khan, Nandan Kumar P
4. **Project Description:** It is a novel project and it would help to mitigate the pollution level from the automobile exhaust. In adsorption, gaseous pollutants are removed from an air stream by transferring the pollutants to the solid surface of an adsorbent. Activated carbon is the most commonly used adsorbent. The students are in the process of applying for a Patent for this project.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-19: Fire Drill -Phase 2

1. **Project Title :** Fire Drill -Phase 2
2. **Mentor Name :** Dr.Shebha Selvam, Dr.Sunitha R, Dr.Vijayashree L
3. **Student Team Names :** Suraj S H, Samarth R Gowda, Somaiah K M Yashas R Rao
4. **Project Description:** The aim of the study is to evaluate the integration process of this virtual reality application into authentic learning environments in terms of student opinions. Case study methodology was used in the study. The results show that this technology provides useful and permanent learning, practice opportunity to students, and this technology increases the motivation and engagement to the courses as well. It has been pointed out by the students that this technology should be used as a practice environment after the theoretical courses in authentic learning environments because this technology can save time and prevent cost lost in addition to avoiding risk factors. The physical environment of the classes can be improved and wireless virtual reality goggles can be used for using this technology, more effectively and efficiently as a course support material in authentic learning environments.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status: :** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-20: Plant Simulator - Phase 2

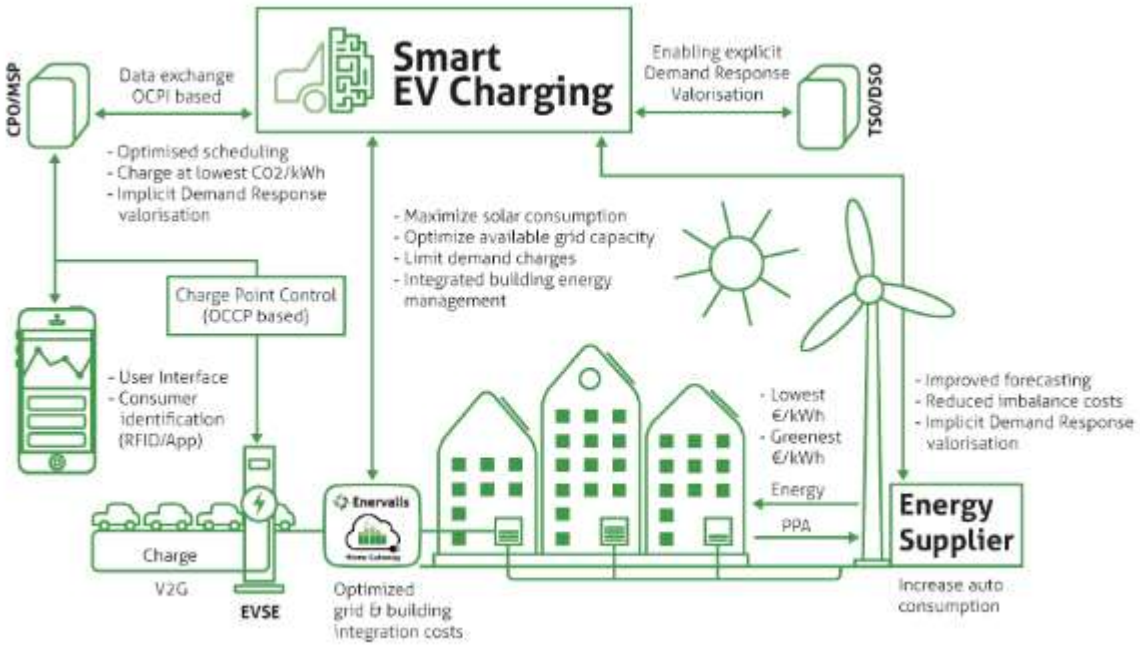
1. **Project Title** : Plant Simulator - Phase 2
2. **Mentor Name :** Dr.Shebha Selvam, Dr.Sunitha R, Dr.Vijayashree L
3. **Student Team Names :** Niharika J, Sachitha C, Vibha R Siddeshwar Yashashwini Pai
4. **Project Description:** The Plant Simulator (PS) is an IT infrastructure created to replicate the exact plant conditions and to enable both the CROP(s) and the Field Operator(s) (shortly referred to as FOP) to cooperate as they would do in reality, *i.e.* as a team. The PS allows for CROPs and FOPs to experience both rationally and emotionally the same situations they would live in reality in terms of process behaviour and consequences originated by either nominal or abnormal operating conditions.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-21: Industrial BOT

1. **Project Title** : Industrial BOT
2. **Mentor Name :** Dr.Srividya, Mr.Manjunath, Dr.Vijayashree L
3. **Student Team Names :** Arjun K Nadlumane, Jayatheerth P Zunjanwad
4. **Project Description:** Delivery Bots provide an automated service, bringing food or other items bought online to the end-customer. Composed of an area for the parcels they deliver, mounted on wheels, equipped with cameras and sensors, they are autonomous in their functioning
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-22: IOT Charging Station

1. **Project Title** : IOT Charging Station
2. **Mentor Name : Dr. Venkatesh K, Kruthi Jayaram**
3. **Student Team Names :** Madiha Khanum, Chethan M Gowda
4. **Project Description:** First, the IoT can be used to remotely monitor and manage charging station operations. This includes monitoring charger availability, managing user access, and providing real-time updates on charger status.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

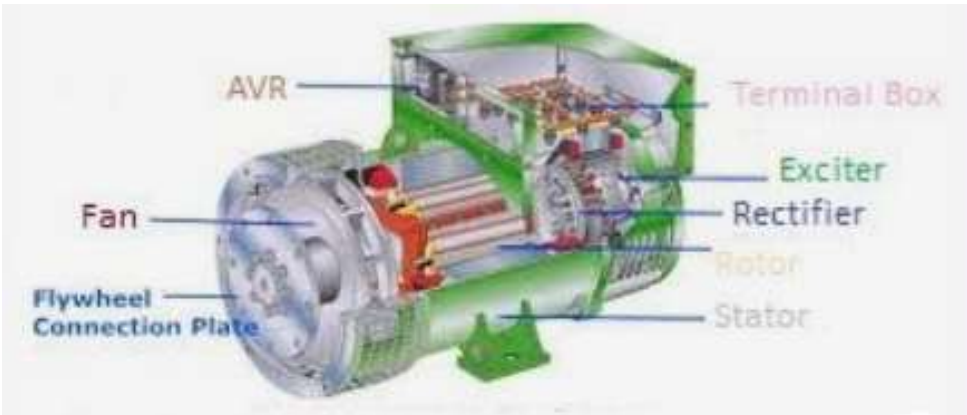


Project-23: Reception Kiosk

1. **Project Title** : Reception Kiosk
2. **Mentor Name : Dr. Anil Kumar, Dr. Vijayashree**
3. **Student Team Names :** Pradyumna B N, Bharath Kumar J
4. **Project Description:** Virtual reception can manage multiple visitors at once, big or small organisations, some with multiple entrances that may require more than one kiosk. Businesses that require that a health and safety form is read and signed. A photo may be required, a printed lanyard all of which is catered within the fantastic Virtual Reception offering.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

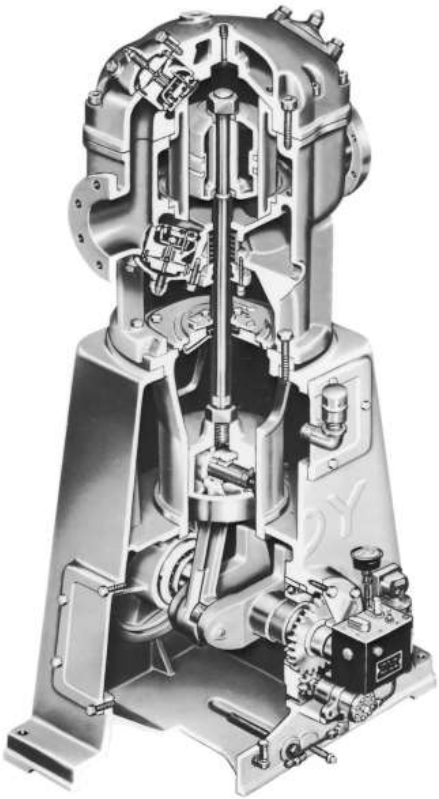
Project-24: ARVR Three-phase Induction Motor & Synchronous Generator

1. **Project Title** : ARVR Three-phase Induction Motor & Synchronous Generator
2. **Mentor Name : Dr. Venkatesh K, Prof.Ashwini, Dr. Vijayashree**
3. **Student Team Names :** Akshay Bhaskar Nayak, Aditya S Chakravarthy Sathvik G P, Shreyas S
4. **Project Description:** Synchronous generators are commonly used for variable speed wind turbine applications, due to their low rotational synchronous speeds that produce the voltage at grid frequency. Synchronous generators can be an appropriate selection for variable speed operation of wind turbines .They do not need a pitch control mechanism. The pitch control mechanism increases the cost of the turbine and causes stress on turbine and generator. Synchronous generators in variable speed operation will generate variable voltage and variable frequency power. Using an AVR for the excitation of the field voltage, the output voltage of the synchronous generator can be controlled. However, induction generators require controlled capacitors for voltage control. In addition, their operating speed should be over synchronous speed in order to operate in generating mode
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



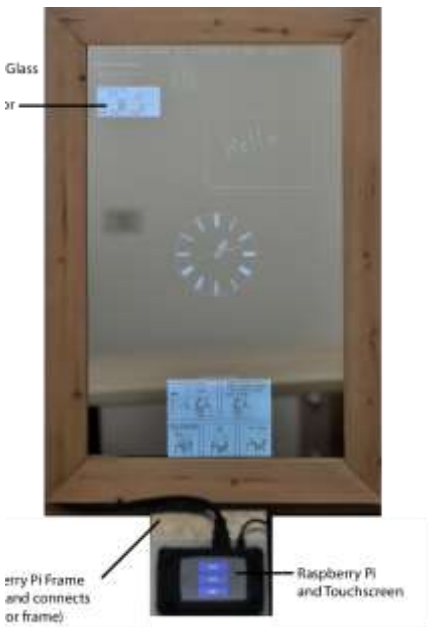
Project-25: Kinematics and Dynamics of Machines

1. **Project Title** : Kinematics and Dynamics of Machines
2. **Mentor Name : Dr.AnilKumar, Dr.Shivalingappa, Dr.Vijayashree L**
3. **Student Team Names :** Tejas V, Venika V, Sechana B Kinnara
4. **Project Description:** AR VR Model for the following topics will be developed to help the student community
   - Basics of machines, mechanisms, kinematic links and joints.
   - Mobility of a Mechanism and Calculating the Degrees of Freedom.
   - Inversions of a Four-bar Chain and Grashof' s Law.
   - Inversions of a single slider crank chain - Quick Return Motion Mechanisms, Rotary and Oscillating Cylinder Engine, Hand-Pump.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



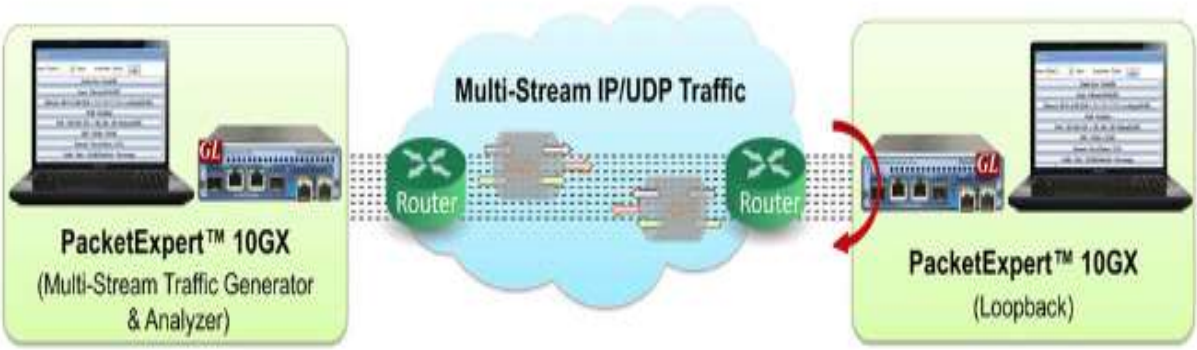
Project-26: AI Mirror for Smart Monitoring

1. **Project Title** : AI Mirror for Smart Monitoring
2. **Mentor Name : Dr.Jyothi RM, Dr.Vijayashree L**
3. **Student Team Names :** Deepak Aditya Y, Maaz Hussain
4. **Project Description:** Smart mirrors are devices that can display any kind of information and can interact with the user using touch and voice commands. Different kinds of smart mirrors exist: general purpose, medical, fashion, and other task specific ones. General purpose smart mirrors are suitable for home environments but the exiting ones offer similar, limited functionalities. In this paper, we present a general-purpose smart mirror that integrates several functionalities, standard and advanced, to support users in their everyday life. Among the advanced functionalities are the capabilities of detecting a person's emotions, the short- and long-term monitoring and analysis of the emotions, a double authentication protocol to preserve the privacy, and the integration of Alexa Skills to extend the applications of the smart mirrors.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** Low Fidelity Prototype, High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-27: Camera Traffic Generator

1. **Project Title** : Camera Traffic Generator
2. **Mentor Name :Dr.Ashwini Sawant Dr.Shebha Selvam Dr. Vijayashree L**
3. **Student Team Names :** Vineeth Bharadwaj, Ujwal Ramesh Karajgkar
4. **Project Description: Multi Stream UDP/TCP Traffic Generator and Analyzer** is a hardware-based Ethernet tester capable of generating multi-stream Ethernet traffic of varying packet length and also analyze the loopback traffic. It has the capability to Generate and Analyze up to 16 UDP streams of traffic of various packet lengths. This tool finds itself especially useful for end-to-end testing of 1 Gbps and 10 Gbps WAN (Wide Area Network) links.
5. **Project status at the beginning of the Year:** Ideation
6. **Interventions made:** High fidelity Prototype
7. **Current status:** Final Stages of High fidelity prototype
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



NewGen IEDC-University Science & Technology, Meghalaya

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: Fifth Year (2022-23)

Name of the College/Institution hosting NewGen IEDC	University Science & Technology, Meghalaya		
Year of starting NewGen IEDC	2017-2018		
Name of the Head/Principal of the Institution/College	Prof G. D. Sharma, Vice Chancellor +91 7987333308/ 9406218401 vcustm@gmail.com		
Name of NewGen IEDC Coordinator	Dr. Amit Choudhury		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	8761007133, 09854453170 sbusdean@gmail.com		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NEWGEN IEDC/17-18/07 Dated: 20/06/2017	Rs. 60,00,000
	2		Rs. 47,50,000
	3		Rs. 60,00,000
	4		Rs. 60,00,000
	5		Rs. 60,00,000

1. **Details of Activities Undertaken during the year:**

[A] **To inculcate the spirit of innovation and entrepreneurship amongst S&T students**

1. **Entrepreneurship Awareness Camp**

[3]

Activities	**Duration**	**Participation**
Entrepreneurship Awareness Camp		
EAC – 01 **02/11/2022 – 04/11/2022**	3 Days	Male – 29 Female – 31 Total – 60
EAC – 02 **07/11/2022 – 09/11/2022**	3 Days	Male – 19 Female – 26 Total – 45
EAC – 03 **14/11/2022 – 16/11/2022**	3 Days	Male – 20 Female – 04 Total – 24
EAC – 04 **17/11/2022 – 19/11/2022**	3 Days	Male – 05 Female – 29 Total – 34
EAC – 05 **24/11/2022 – 26/11/2022**	3 Days	Male – 25 Female – 17 Total – 42
EAC – 06 **28/11/2022 – 30/11/2022**	3 Days	Male – 32 Female – 14 Total – 46
EAC – 07 **01/12/2022 – 03/12/2022**	3 Days	Male – 24 Female – 12 Total – 36
EAC – 08 **05/12/2022 – 07/12/2022**	3 Days	Male – 25 Female – 12 Total – 37
EAC – 09 **08/12/2022 – 10/12/2022**	3 Days	Male – 02 Female – 08 Total – 10
EAC – 10 **13/12/2022 – 15/12/2022**	3 Days	Male – 11 Female – 13 Total – 24
EAC – 11 **16/12/2022 – 19/12/2022**	3 Days	Male – 09 Female – 16 Total – 25

Activities	Duration	Participation
EAC – 12 **20/12/2022 – 22/12/2022**	3 Days	Male – 13 Female – 05 Total – 18
EAC – 13 **27/12/2022 – 29/12/2022**	3 Days	Male – 39 Female – 27 Total – 66
EAC – 14 **02/01/2023 – 04/01/2023**	3 Days	Male – 41 Female – 29 Total – 70
EAC – 15 **05/01/2023 – 07/01/2023**	3 Days	Male – 21 Female – 32 Total – 53
EAC – 16 **09/01/2023 – 11/01/2023**	3 Days	Male – 29 Female – 12 Total – 41
EAC – 17 **17/01/2023 – 19/01/2023**	3 Days	Male – 20 Female – 18 Total – 38
EAC – 18 **20/01/2023 – 23/01/2023**	3 Days	Male – 31 Female – 23 Total – 54
EAC – 19 **24/01/2023 – 27/01/2023**	3 Days	Male – 15 Female – 13 Total – 28
EAC – 20 **28/01/2023 – 31/01/2023**	3 Days	Male – 21 Female – 18 Total – 39
EAC – 21 **01/02/2023 – 03/02/2023**	3 Days	Male – 28 Female – 17 Total – 45
EAC – 22 **06/02/2023 – 08/02/2023**	3 Days	Male – 38 Female – 29 Total – 67

2. Brainstorming Among Faculty of USTM and other members of the E-Club

3. Industry Visit

4. Motivational Talk by Successful Entrepreneurs/ Speakers

[B] To identify, develop & commercialize students' innovative ideas

1. Sensitization on Entrepreneurship among newly enrolled students of USTM
    - Entrepreneurial discussion led to promote projects directed towards prototype development
2. Brainstorming of Project development
    - Project Idea generated
3. Initializing of projects
    - 20 project groups shortlisted and Prototype development initiated.

[C] To enhance Industry-Academia interaction

1. Interaction and visit to NIFTEM
2. Institutional visit to Guwahati Biotech Park
3. Interaction and visit to CIPET
4. Industry visit to Kamdhenu Industry (food processing unit)
5. Speakers were invited from industries to sensitize and motivate students on Entrepreneurship and start-ups.
6. Student team took part in Global Entrepreneurship Summit in IIT Kharagpur.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any: NA

3. Other important highlights (new initiatives), if any:

- Awareness on IPR
- 38 IPR Applications made till date, and Novelty report had for 22 applications which are undergoing further modification as suggested in Novelty Report.
- Total of 4 in-house Start-ups created and 5 MoU signed with external agencies for creating Start-ups.
- 16 numbers of Start-ups are under the process of registration.
- Participation in
  - Global Entrepreneurship Summit, IIT Kharagpur
  - MSME Hackathon 2.0
  - NEATEHUB's Hackathon,
  - NECTAR's Exhibition,
  - MSETC Science Awareness Camp cum Business Exhibition
  - One students' group bagged 1st prize in the category of Health Science and another group bagged 3rd prize in the category of Basic Science in Anveshan Students Research Convention organised by AIU.
  - Two students' group bagged 3rd prize in FAME Biotech2.0, BioNEST IASST. One in the category of Prototype Stage and another in the category of Ideation Stage.
  - 15 students' teams got selected in the final round of Sustainable Hackathon Challenge at EDII, Ahmedabad.

4. Student Projects

Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos

5. Provide a minimum two-page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

Best Project-1:

I. **Project Title**: Mapping of Bharalu-Bahini river threshold points in Guwahati City and Design of a prototype of solid waste management mechanism in the City drainage system

II. **Mentor Name** : Dr Palme Borthakur, Dr Swarup Jyoti Baishya

III. **Student Team Names:**

I. Sylban Sangma
II. Mina Lamnunhoi Doungel
III. Ankita Sangma
IV. Karan Jamatia
V. Bakin Sitang

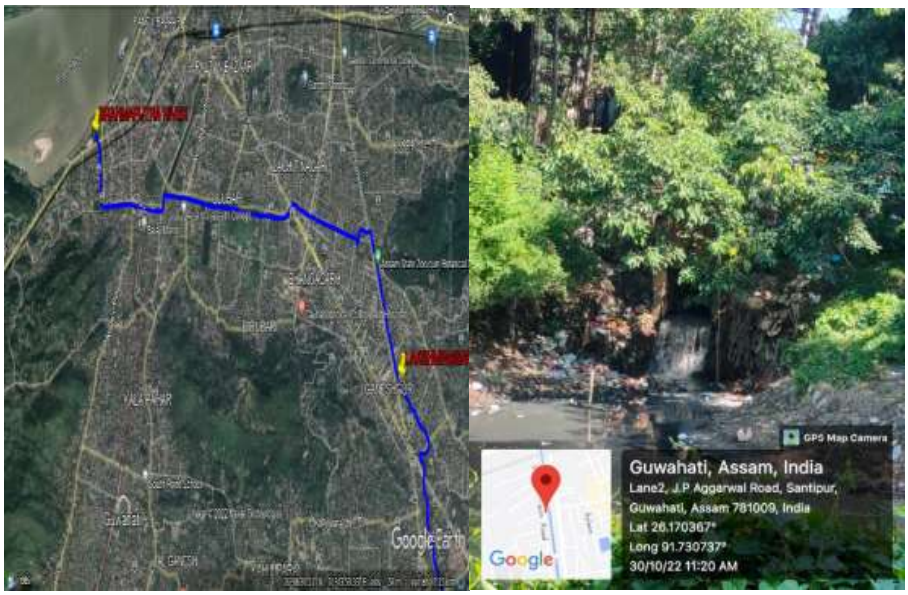
IV. **Project Description:**

The Bahini Bharalu channel has its outfall in the Brahmaputra and the Basistha channel flows into the low lying Deeper Beel, which again is connected to Brahmaputra through a stream known as Khona Jan (CDP,2006). The Bharalu channel with a catchment area of 42 sq.km to which most of the city drainage water both natural and man-made has been diverted does not have adequate capacity to cope with the discharge and accumulated solid wastes resulting frequent rain water floods, which submerge roads, streets and lanes as well as houses and establishments. In present days the river creates water logging and flood hazards within the Guwahati city every year. To get rid of this perennial problem the project aim find a sustainable solution.

OBJECTIVE(s):

- To map the river course of Bharalu-Bahini from source to confluence zone, locating threshold points within the Guwahati city region with the help of extensive field survey.
- To design a prototype of low cost solid waste management system to be placed in the City drainage system of Guwahati.

V. Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs.



VI. Contribution of NewGen IEDC in the same

- New Gen IEDC funded the whole project till prototype development and given the exposure to the students.

VII. Future plan

- To go for the commercialize the prototype and get it installed throughout the City.

VIII. Other important highlights: NA

Best Project-2:

1. **Project Title**: Combined Effects of Antibiotics and Nutrients in Dog Biscuits for Treating Bacterial Infections

2. **Mentor Name** : Dr Tamanna Bhuyan

3. **Student Team Names:**
   I. Uddipta Guha
   II. Dharitri Baro
   III. Eshaa Basumatary
   IV. Jishu Das
   V. Varsha Lamichane

4. **Project Description:**
   The aim of the project is to obtain novel functional biscuits for dogs with antibiotics to treat common dog-related bacterial infections. The project focus on the development of antibiotic-loaded nutritional biscuits to administer antibiotics to pets in a convenient manner. The incorporation of antibacterial medicine could turn these biscuits into a functional food optimum concentration of high-quality proteins, fat, mineral substances and vitamins required for pet metabolism

5. **Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs.**

6. **Contribution of NewGen IEDC in the same**
    - We have received the adequate fund to start up the Project
7. **Future plan**
    - To go for commercialising the prototype
8. **Other important highlights**: NA

Annexure-A

Details of Student Projects

Project-01: Development and commercialization of “fruit bar” from fruits, available in North East India

1. **Project Title** : Development and commercialization of “fruit bar” from fruits, available in North East India
2. **Mentor Name** : Dr. Saiyyad Alamdar Husain
3. **Student Team Names:**
   I. Miniswrang Basumatary
   II. Hachilo l Ezung
   III. S Dhole Key
   IV. Naorem Langlenthoi Devi
   V. Pragen joy Reang
4. **Project Description:**

   Fresh fruits are known to be excellent sources of energy, vitamins, minerals, antioxidants and fibres. Fruit bar or a fruit slab, is a dehydrated fruit-based confectionery dietary product which is often eaten as snack or dessert. It is chewy and flavourful, naturally low in fat and high in fiber and carbohydrates; it is also lightweight and easily stored and packed. Fruit leathers are referred to the dried sheets of fruit pulp that taste sweet and have a soft, rubbery texture. Fruit bar are restructured fruit made from fresh fruit pulp or a mixture of fruit juice concentrates and other ingredients after a complex operation that involves a dehydration step. They contain substantial quantities of dietary fibers, carbohydrates, minerals, vitamins, and antioxidants (which remain constituents of the finished product). As per the scenario of Meghalaya we will select important fruits of available in North east India. So far no research work is conducted on utilization of banana, carrot, beetroot, pineapple, rosella and star fruits local verity are conducted on utilization in fruit bar. Considering health benefits, delicious taste of different fruits or root vegetables, it is proposed to study on Development and Commercialization of value added fruit bar. The consumer choices over the two values added products “fruits bar” will be identified by using Sensory analysis and nutritional analysis. The developed products will be nutritionally rich with increased shelf life.

Significantly, the developed value added products would be the eye opener for many small and micro agro based industries.

5. **Project status at beginning of the Year:**

   Conceptualization – Brainstorming- Online Collection of information related to the project (literature)

6. **Interventions made:**

   Student Orientation -Collection of raw materials & Equipments- Preparations of various treatment combinations

7. **Current status:**

   Sensory evaluation of all the trials & Chemical Analysis at laboratory level

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-02: Valorization of Betalnut Husk Available in Meghalaya, India

1. **Project Title** : Valorization of Betalnut Husk Available in Meghalaya, India
2. **Mentor Name** : Dr Jayabrata Saha
3. **Student Team Names: .**
   I. Arpita Talukdar
   II. Khanom Toslima Yesmin
   III. Leeza Kalita
   IV. Teli Mili
   V. Chubatula A Tzuir
4. **Project Description:**
   Betal nut (*Areca catechu* L.) is an important commercial plantation crop which has a fibrous mesocarp, which has seeds along with a truncate base, the endosperm deeply ruminates with a basalar embryo. It is also known as “Betel nut” which is the kernel obtained from the fruit of arecanut palm. It is mostly used by the people as masticatory component and is an essential requisite during several religious, social and cultural functions of India. The betel nut husk (BNH) is the fibrous part of the fruit, which equals to approximately 60-80% of total volume and weight of betel nut. The husk part is the outer cover of the areca fruit which has the potential to serve as a raw material for food based formulations
5. **Project status at beginning of the Year:**
   - Idea generation and literature survey
   - Procurement of chemicals and glasswares necessay to persue the work
6. **Interventions made:**
   - Interventions were made
7. **Current status:**
   - Idea generated
   - 80% chemicals and glasswares necessary are procured, waiting for the second instalment

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-03: Designing of a water-resistant sustained release mono-herbal formulation for anti- ageing benefits

1. **Project Title** : Designing of a water-resistant sustained release mono-herbal formulation for anti- ageing benefits
2. **Mentor Name** : Ms. Bhanita Das, Kamallochan Barman
3. **Student Team Names:**
   I. Angkita Talukdar
   II. Riya Salam
   III. Ashmita Goswami
   IV. Tribeni Borgohain
   V. Sapina Begom
4. **Project Description:**
   Lipid nano carriers are spherical vesicles made up of phospholipids that have an aqueous core and can be employed as a delivery vehicle. Some studies have suggested that these carriers help active ingredients move through the stratum corneum and into the deep layers of the epidermis, where they are absorbed and needed the most. These lipid carriers are a useful tool for improving the stability of active cosmetic chemicals, increasing skin hydration through surface adhesiveness, improving dermal bioavailability and skin targeting, and protecting skin cells from external stressors like the sun or perspiration.
5. **Project status at beginning of the Year:**
   - Collection, drying and extraction of plant material
   - Pharmacognostical screening
   - Phytochemical screening
6. **Interventions made:**
   Extract collected
7. **Current status:**
   Extraction collection has been completed

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-04: Green conversion of low value wastes into highly sought after rhamnolipid biosurfactant

1. **Project Title** : Green conversion of low value wastes into highly sought after rhamnolipid biosurfactant
2. **Mentor Name** : Dr. Kaustuvmani Patowary
3. **Student Team Names:**
   I. Mrinmoy Kaushik Dutta
   II. Pulak Nath
   III. Prateeti Talukdar
   IV. Anwesha Talukdar
   V. Saurav Kumar Das
4. **Project Description:**
   The basic concept of the proposal indicates enormous prospect in waste exploitation for the cost-effective production of rhamnolipid biosurfactants. Significantly, the possible application of various waste materials will simultaneously assist in management of waste across the globe. Henceforth, a dual advantage of both cost-effective production of valuable rhamnolipid biosurfactants and waste management can be fulfilled.
5. **Project status at beginning of the Year:**
   We have successfully isolated six biosurfactant producing bacteria and successfully screened out one rhamnolipid type biosurfactant hyper-producing strain. The bacterial strain is biochemically characterized but yet to be identified by 16S rDNA sequencing method.

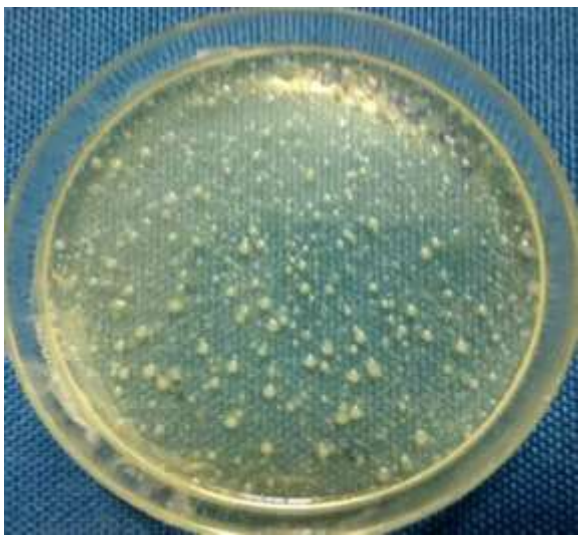
6. **Interventions made:**

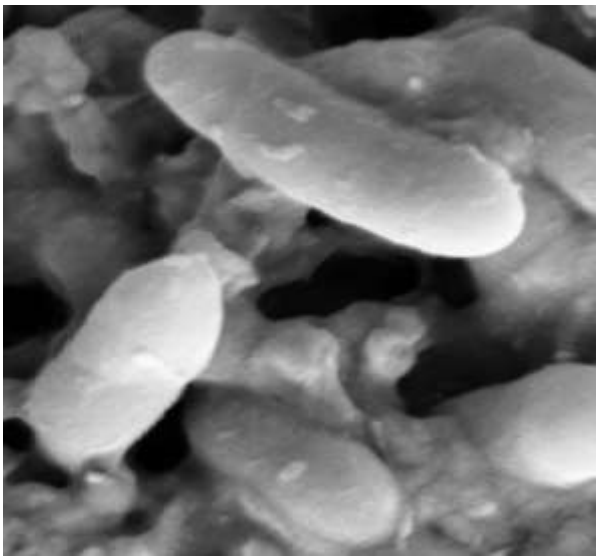
   Employing that bacterial strain, we have successfully used two different waste material namely **mixed rotten fruits** and **expired vitamin solution** for production of rhamnolipid. In case of the rotten fruit's extract additional nutritional salts were needed to be added. However, the expired multivitamin solutions can be used simply making dilutions.

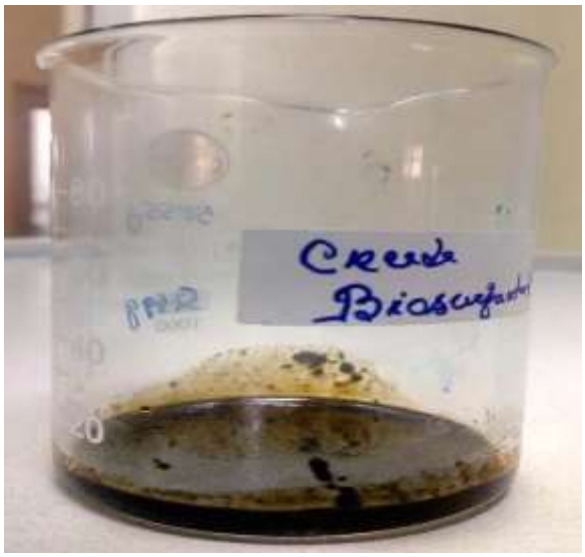
7. **Current status:**

   Detailed physico-chemical characterization of the newly extracted rhamnolipids is yet to be done. It is assumed to be rhamnolipid only based on physical appearance and biochemical assays. Optimization of the culture conditions for maximum lab- scale production also under preliminary process.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**







Project-05: Development of Ethno-medicinal Plant Based Insect Repellent Spray for Livestock

1. **Project Title** : Development of Ethno-medicinal Plant Based Insect Repellent Spray for Livestock
2. **Mentor Name** : Dr. Madhusmita Borthakur
3. **Student Team Names:**
   I. Habiba Nargish
   II. Manisha Kalita
   III. Jaiklong Narzary
   IV. Geemoni Misra
   V. Genmuanlal Suantak
4. **Project Description:**

   In the current scenario of commercial products filled with toxic chemicals, we aim to bring forth purely herbal/ ethno medicinal unexplored plant based product both eco and skin friendly for livestock. The repellant is derived from the unexplored ethnic plants i.e within Northeast India which is proven to have great medicinal properties. The product is a blend of all collected sample extract with essential bioactive compounds and no added toxic chemicals and preservatives.

   Repellents provide practical means of protection against tick borne diseases. Chemically synthesized repellents are in used for generations as an approach against different species of insects. Chemical insect controls are often

accomplished by the use of hazardous chemicals which might lead to environmental contamination along with heavy metal toxicity in the livestock.

The ethnic communities of North East India use untrapped virgin ethnic plants as a source of repellence for their livestock. Plants with wide range of phytochemicals like phenols, tannins alkaloids play an essential role to combat ticks and insect and prevent any dermal infections.

The study directs towards the development of safe and efficient insect repellent formulations obtained from the extracts of *Blumea lanceolaria*, *Micania micrantha*, *Alchornea cordifolia*, *Spilanthes acmella*, *Azardirachta indica*, *Nepeta cataria*, *Salvia rosmarinus*, *Tagetes* sp., *Litsea salicifolia*, *Flemingia strobilifera*, *Ocimum gratissimum* and Aloevera. Bioactive compounds from plants like *Azadirachta indica* contains azadirachtin which act as a biopesticides. *Ocimum* sp. contains eugenol and has a strong smell that naturally deters mosquitoes and flies.

The extract of *Nepeta cataria* is a non-toxic substitute to a chemical repellent DEET contains Nepetalactone, a primary ingredient in repelling mosquitoes. The formulated repellent showed a potent and efficient activity against ticks and insects.

This is the first report on formulation of Insect Repellent for livestock from the un-fragmented virgin ethno medicinal plants used by the ethnic community of North East India.

5. Project status at beginning of the Year:

First and foremost collection of samples was done in these following coordinates of region Northeast India. (1) 26.1076349, 91.7824412 (2) 26.4232N, 90.9801E (3) 26.4014, 90.2667 (4) 26.0955, 91.4421 (5)25.178116, 93.009846. Samples were well researched and hence collected with the knowledge of its medicinal properties.

6. Interventions made:

- Most of the samples were sundried while the remaining were dried using hot air oven.
- Followed by grinding and extraction with the help of ethanol, methanol, water and hexane while some were extracted with Soxhlet extraction and

essential oil was extracted with Clavenger. The sample was finally stored at Freezer at -20C for further use.

7. **Current status:**
   - The stored samples will be formularized based on their efficiency in varying ratio for the development of the final product which will be check for its shelf life and further packaging for marketing

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-06: Converting Organic Waste Into High Value Products

1. **Project Title** : Converting Organic Waste Into High Value Products
2. **Mentor Name** : Dr Mautushi Das
3. **Student Team Names:**
   I. Jackeychan Sangma
   II. Sabin Ronghangpi
   III. Mampee Daolagupu
   IV. Sramen Tokbi
   V. Aollen B Chang
4. **Project Description:**

   Flowers come as waste from various sources like hotels, marriages, gardens, temples, churches, Dargah and various other cultural and religious ceremonies. In India, religion is a path of life. It is an intrinsic element of the entire Indian culture. People worship God and are accustomed to go to the temples offering flowers, fruits, coconuts and sweets, etc. The bulk of the

flowers, leaves of different plants, coconut shells, milk and curd are piled up and then disposed off exclusively in water bodies. Organic wastes particularly from temples create nuiscence in nearby areas and particularly to water bodies. If such wastes are treated and developed into viable products, will be beneficial to human health, environment as well. The project can also generate income for local people. Organic wastes dumped into water bodies can be treated which will bring a waste management strategy to many water bodies. Overall, the present waste management approach will lead to a closed-loop environmental management through waste reduction and reutilization. It will also provide value-added materials for economic gains from waste. Thus, it can be promoted as a potential mechanism to maintain the environmental sustainability at wider scales.

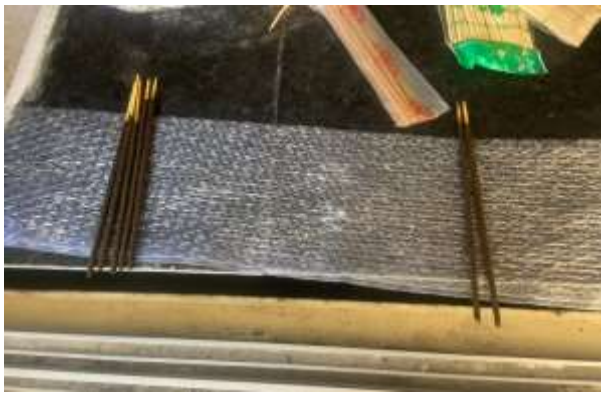
In India, worshiping is the way of living and people offer various offerings to the deities which mainly consist of flowers, leaves, fruits, coconuts, clothes etc. out of which floral offerings are found in huge quantity. Thus, temple waste has a unique share of flower waste in the total waste. After fulfilling their purpose, flowers along with other waste, find their way into the garbage or are discarded either into some water bodies or left up on the open places as a waste causing various environmental problems. The majorly offered flowers in temples are rose, jasmine, marigold, chrysanthemum, hyacinth, hibiscus, etc. This floral waste can be utilized in different ways to produce valuable products and can thus help to save environment from pollution caused due to improper disposal of flower waste. Techniques like vermicomposting, composting, dyes extraction, extraction of essential oils, making of holi colours and bio-gas generation can be used. Moreover, this flower waste can also be used for making incense sticks besides using them for some art and craft techniques. Petals of different flowers can also be utilized for handmade papermaking by extracting the pulp or by mottling them into the readymade pulp. In this paper, we have reviewed the ways by which temple waste can be utilized and managed to get valuable products which will lead to a healthier and waste free environment.

5. **Project status at beginning of the Year:**
   - Sample collection (flower waste, leaves, twigs) were collected from different temples of the City and outside.
   - Flower wastes were segregated and dried in Sun

6. **Interventions made:**
   - Few oil yielding plants were selected which are abundant in nature and essential was extracted which are of different fragrance.
   - Flower wastes which were dried were crushed and a mixture was prepared which is rough textured in nature.
   - Incense sticks (Ist prototype) was prepared from the flower waste.

7. **Current status:**
   - Conversion of organic waste (Flower waste) into high value products has been done.
   - The first product is "INCENCE STICKS". The product is ready for packaging.
   - Currently the project team is working on two objectives:
     - packaging of the Ist product (Incense sticks)
     - Developing the 2nd prototype (from organic wastes).

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-07: Solar Powered Incinerator for Solid Waste Disposal

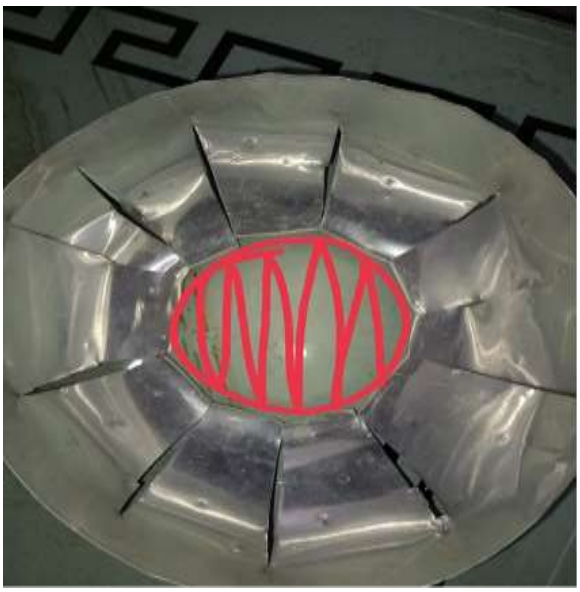
1. **Project Title** : Solar Powered Incinerator for Solid Waste Disposal
2. **Mentor Name** : Jahidul Islam, Dr. Priyanka Shankarishan
3. **Student Team Names:**
   I. Bhargab Kumar Thakuria
   II. Rahul Lakra
   III. Pranjal Gogoi
   IV. Shifa Siddique
   V. Himanshu Gogoi
4. **Project Description:**

   The product, “solar-powered incinerator for solid waste disposal”, is the simplest solution for the solid waste disposal problem which is affecting not only mankind but also the environment. Running completely without any grid, it can be installed in houses, hostels, hotels, and rural areas. It is the best product for solid waste disposal which is futuristic, sustainable & environmentally friendly, will be of great use in the rural areas & villages of India where there is no access to electricity & is designed keeping in mind the problems of rural people living in forests, villages, and hills where there is no grid.

   Objectives are:

   - ✓ To reduce the mass of solid waste (organic).
   - ✓ To utilize a renewable form of energy i.e. solar energy.
   - ✓ To have easy operations and low maintenance as well.
   - ✓ To reduce the landfill area.

5. **Project status at beginning of the Year:**
    - Literature Review and Planning.
    - Making the list of materials/items required
6. **Interventions made:**
    - Ordering the items/materials required
    - Collected the raw materials.
    - Started with the prototype development
7. **Current status:**
    - Development of the prototype
    - Collection of Feedback from the users
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-08: IoT (Internet of Things) Based Monitoring of Fermentation process parameters in Tea Industry.

1. **Project Title** : IoT (Internet of Things) Based Monitoring of Fermentation process parameters in Tea Industry.
2. **Mentor Name** : Palash Mukul Das, Pallavi Gogoi
3. **Student Team Names:**
   I. Rahul Ranjan Borah
   II. Bitupan Gayan
   III. Bhargobi Saikia
   IV. Kritakshee Lahkar
   V. Subhrajyoti Dhar

4. **Project Description:**

Tea **fermentation** is an important step in determining the quality of tea. It involves enzymatic oxidation where the chemical constituents and enzymes react in the presence of atmospheric oxygen is responsible for the **color, taste and body.**In the Indian tea industry, proper m1. onitoring and control of different tea process parameters like TEMPERATURE, RELATVE HUMIDITY, MOISTURE CONTENT(plays critical role in fermentation) at different level is done by manual means and guesswork. Here IoT could be used to maintain efficient control of these parameters.

The objective is to use of IOT (internet of thing) for efficient control of temperature, relative humidity and time parameters in the process of tea fermentation.

5. **Project status at beginning of the Year:**

- **Brainstorming** the idea
- Collecting various **research papers a**nd study them to get the know how about the tea industry
- Tea industries **business model** is studied.
- Also studied about the digital components required for the IoT use

6. **Interventions made:**

- Met and **interviewed** an official from **Tea board of India** to know about the **changing scenario** of tea industry in Assam .
- **Sensors** that wil be required for real time measurement of the **parameters** are acquired and assembled
- A Tea garden and **a tea plant** is visited to get a deeper insight on fermentation process and for pragmatic application of our idea

7. **Current status:**

- Next with the device we made testing will be done
- After the sensor device and connectivity part is over **data processing and user interface** part will done.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-09: Preparation and standardization of immune stimulant (formulation) from bamboo leaves available in North-Eastern region of India.

1. **Project Title**: Preparation and standardization of immune stimulant (formulation) from bamboo leaves available in North-Eastern region of India.
2. **Mentor Name** : Dr Pallab Kalita, Mr Aditya Bora
3. **Student Team Names:**
   I. Md Bazlur Rahman
   II. Meezan Haque Choudhury
   III. Abul Barkat Md Tufail Ahmed
   IV. Md Ehsanul Alam
   V. Himangshu Jyoti Sharma
4. **Project Description:**

   Immune-stimulants are substances (drugs) that stimulate the immune system by inducing activation or increasing activity of any of its components. In ancient japan and other parts of the world including India, bamboo had been used for various medicinal benefits and by the time passes other benefits of bamboo also has been discovered. One of the most remarkable properties of this plant is the presence of bio-constituents which can be used as immune stimulant, carried by the plant and especially its leaves. The tallest grass has been easily found in every part of seven sisters (north-east India), so it can be extracted easily and can be formulated and marketed easily. The organic nature of the immune stimulant also help us to promote safe and efficacious formulation which the need of our. Our targeted customers are all categories of patient excluding infants.

   OBJECTIVE(s):

   - Collection of raw materials, extracting the nutrients and analyse the miscibility for precise composition.
   - Sample will be checked for the effectiveness and any adverse reaction.
   - The prototype Development.
5. **Project status at beginning of the Year:**

   Collection of raw materials, extracting the nutrients and analyse the miscibility for precise composition.

6. **Interventions made:**
    - Collection of raw materials
    - Extracting the nutrients
    - Analyse the miscibility for precise composition.
7. **Current status:**
    - Extraction has been complete.
    - Formulation on process
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-10: Mapping of Bharalu-Bahini river threshold points in Guwahati City and Design of a prototype of solid waste management mechanism in the City drainage system

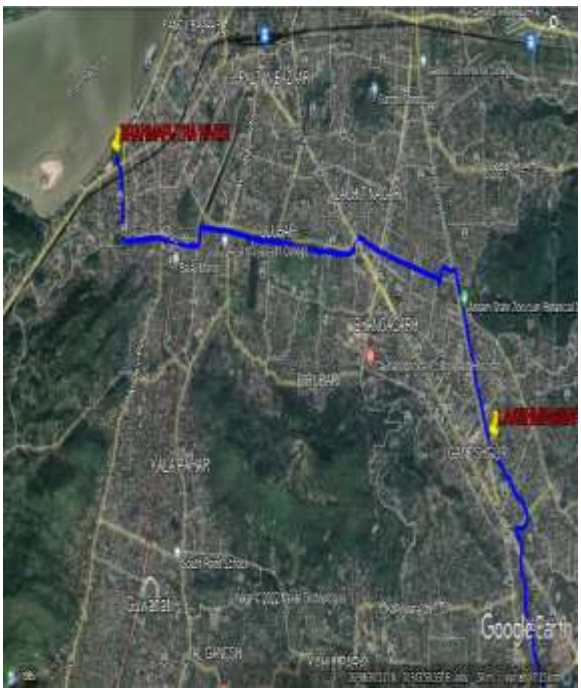
1. **Project Title** : Mapping of Bharalu-Bahini river threshold points in Guwahati City and Design of a prototype of solid waste management mechanism in the City drainage system
2. **Mentor Name** : Dr Palme Borthakur, Dr Swarup Jyoti Baishya
3. **Student Team Names:**
   I. Sylban Sangma
   II. Mina Lamnunhoi Doungel
   III. Ankita Sangma
   IV. Karan Jamatia
   V. Bakin Sitang
4. **Project Description:**

   The Bahini Bharalu channel has its outfall in the Brahmaputra and the Basistha channel flows into the low lying Deeper Beel, which again is connected to Brahmaputra through a stream known as Khona Jan (CDP,2006). The Bharalu channel with a catchment area of 42 sq.km to which most of the city drainage water both natural and man-made has been diverted does not have adequate capacity to cope with the discharge and accumulated solid wastes resulting frequent rain water floods, which submerge roads, streets and lanes as well as houses and establishments. In present days the river creates water logging and flood hazards within the Guwahati city every year. To get rid of this perennial problem the project aim find a sustainable solution.

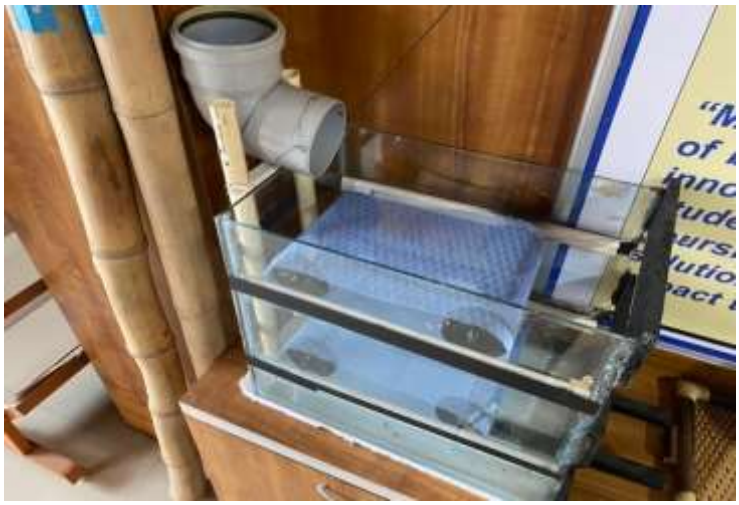
   OBJECTIVE(s):

   - To map the river course of Bharalu-Bahini from source to confluence zone, locating threshold points within the Guwahati city region with the help of extensive field survey.
   - To design a prototype of low cost solid waste management system to be placed in the City drainage system of Guwahati.

5. **Project status at beginning of the Year:**
   - In the surveyed region The Bharalu-Bahini river is being fed by built up watershed. Besides the natural watershed in upstream region the current flow in the river is mostly wastewater (mostly greywater and toilet outflows/discharge) from the nearby communities and rain runoff during rainy days.
   - In many areas people call it a Nala(drain) as it becomes too narrow in certain bands due to throwing garbage from nearby people.
6. **Interventions made:**
   - Thorough survey of the Bharalu-Bahini river done and a few threshold points identified.
7. **Current status:**
   - Mapping of the Bharalu-Bahini river.
   - Designing the model of the Prototype of solid waste management mechanism in the City drainage system.
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



WASTE COLLECTION
MODEL



PROCESS FLOW AT
NTER FOR INNOVATION INCUBATION AND ENTREPRENEURSHIP

Project-11: Integrated Farming System Techniques for Sustainable Development

1. **Project Title** : Integrated Farming System Techniques for Sustainable Development

2. **Mentor Name** : Dr. Papiya Dutta, Saikat Majumdar, Gayatri Saikia

3. **Student Team Names:**
   I. Marjish M Sangma
   II. Kasim Ampang Sangma
   III. Ringkangshri Basumatary
   IV. Marbarious ch Sangma

4. **Project Description:**
   Integrated Farming is playing a vital role in the current agricultural scenario to fulfil society's present food needs, without compromising the ability for current or future generations to meet their needs. It can be based on an understanding of ecosystem services. The Farmers used to believe in traditional agricultural farming system and engage themselves in monocropping mainly instead of multiple or mixed cropping.

5. **Project status at beginning of the Year:**
   - Feasibility study of the concept of multiple farming systems simultaneously.
   - Identification of the best suitable area for initiating integrated farming
   - Collecting the experts suggestion to turn an uneconomic land into an economic activities

6. **Interventions made:**
   - Plotting of the area under farming has been done
   - Crab mud box, duckery and poultry were introduced

7. **Current status:**
   - Yielding the results of continuing farming.
   - Paddy tray cultivation and apiculture need to be introduced soon

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-12: Development of Automatic Pineapple Peeler and Cutter for Small Scale Entrepreneurs

1. **Project Title** : Development of Automatic Pineapple Peeler and Cutter for Small Scale Entrepreneurs
2. **Mentor Name** : Mr Jishu Raj Chetia, Dr. Saiyyad Alamdar Husain
3. **Student Team Names:**
   I. Pranamika Deka
   II. Sweety Das
   III. Niharika Das
   IV. Hironya Kumar Gogoi
   V. Mousham Talukdar
4. **Project Description:**

   Peeling and slicing is also one of the important step in the processing of pineapple. The outer skin and the core of the pineapple is very hard to remove and at the same time it is time consuming and causes pain while peeling and cutting .The project consists of designing automated pineapple peeler and slicer which will be helping in remaining the quality of the pineapple intact as well as reducing the time consumption for the processing.

   OBJECTIVE(s): Manually peeling and slicing of pineapple is a time consuming and labour intensive process. Pineapple peeler and slicer are

required for reducing the size, obtaining uniform thick slices, proper shape finishing and further processing of pineapple quickly. Also, if the tools used have high wedge angle they may cause excessive damage and bruising which leads to poor quality of the product. The aim of the current proposal is to solve the problems related to cutting and peeling of pineapple automatically by maintaining the quality of the fruit. The product will be primarily designed for small scale entrepreneurs for convenient and quick processing of pineapples. The designed peeler cum slicer described in this article is very efficient, time saving, easy to operate and economical for the farmers.

5. **Project status at beginning of the Year:**

   In the first phase, we started by the measuring the parameters of different varieties and sizes of Pineapples. Testing of various tools and ways in which the fruit can be peeled to maintain its quality and quantity to maximum.

6. **Interventions made:**

   Prepared the blue-print of possible machine design and ways in which it can be assembled in an effective manner.

7. **Current status:**

   Currently we are preparing a model of the main machine to test its working.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-13: Anti-aging food supplement with fat burning properties

1. **Project Title** : Anti-aging food supplement with fat burning properties
2. **Mentor Name** : Bedabati Chowdhury
3. **Student Team Names:**
   I. Suchendra Gope
   II. Bilina Brahma
4. **Project Description:**
   - Our target is to develop product which is having antioxidant properties and can help people to combat aging
   - The product will also have hypolipidemic or fat reducing properties
   - This product is prepared using the herbs, fruits and vegetables available in North East India and that should be at low cost keeping the mind of local people and the demand of the new India. This project will not only explore the traditional knowledge but will also produce products from our local sources. This will also uplift the benefit of using local herbs, fruits and vegetables.
5. **Project status at beginning of the Year:**
   - Conceptualization of the idea
   - Orientation of the student
   - Brainstorming session of the students
6. **Interventions made:**
   - Collection of the plant material
   - Preparation of the extract
7. **Current status:**
   - Extract preparation is completed
   - Laboratory work-Biochemical analysis started

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-14: IoT Based Cattle Silent Heat Detection System

1. **Project Title** : IoT Based Cattle Silent Heat Detection System
2. **Mentor Name** : Rishiparna Choudhury, Priyanka Sarma, Dr. Monalisa Bora
3. **Student Team Names:**
   I. Tridip Mazumdar
   II. Salim Arif
   III. Debashish Nath
   IV. Bishal Bhardwaj
   V. Baibhav Patar

4. Project Description:

INTRODUCTION: An IoT based smart cattle silent heat detection system that helps farmers to detect the heat cycles of their cattle. The system uses IoT technology to monitor the behavior and physiological changes in the cows, and sends notifications to the farmers through a mobile app or a web interface. This enables farmers to optimize the breeding process and improve the efficiency of their operations.The purpose of this project is to develop an IoT based cattle silent heat detection system to help farmers monitor the heat cycles of their cattle. The system will use IoT technology to gather data on the behaviour and physiological changes of the cows, and provide farmers with real-time notifications on the heat cycles of their cattle.

ARCHITECTURE OF THE SYSTEM:

The cattle silent heat monitoring system is composed of hardware components, the cloud system, and the end-user application (**Fig. 1**). Hardware components include the monitoring device (called the CowDevice) and the infrastructure devices: the Hub, WiFi access points, and routers. The cloud system is composed of the Server hosting database and application server.

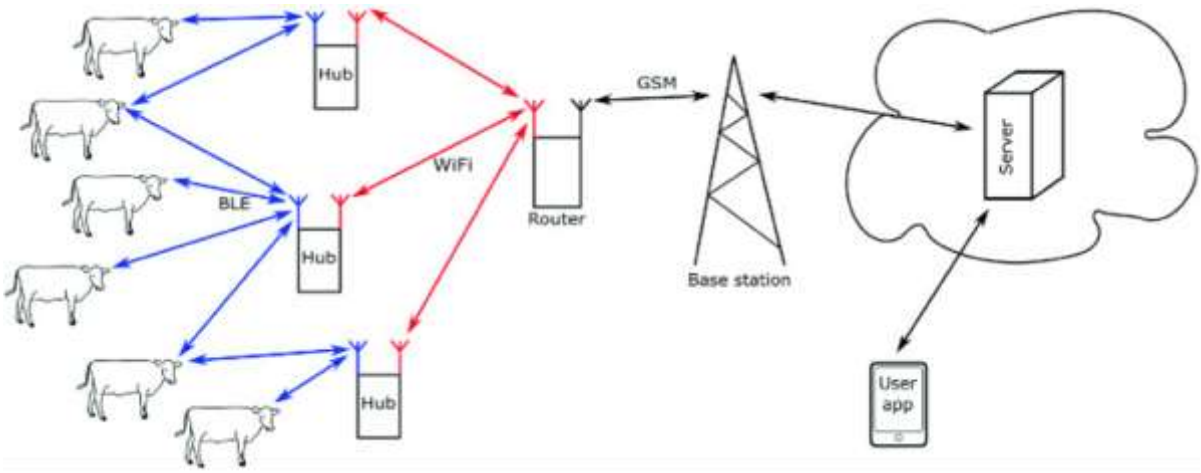


Fig.1 System Architecture of Cattle silent heat monitoring

SYSTEM DESIGN: The system consists of wearable devices for the cows and centralized monitoring platform. The wearable devices, which are attached to the cows, use sensors to gather data on their behavior and physiological changes. This data is then transmitted wirelessly to the centralized monitoring platform, where it is analysed and processed.

The centralized monitoring platform consists of a web interface and a mobile app. The web interface allows farmers to view and analyze the data on their

cattle's heat cycles. The mobile app, on the other hand, provides farmers with real-time notifications on the heat cycles of their cattle.

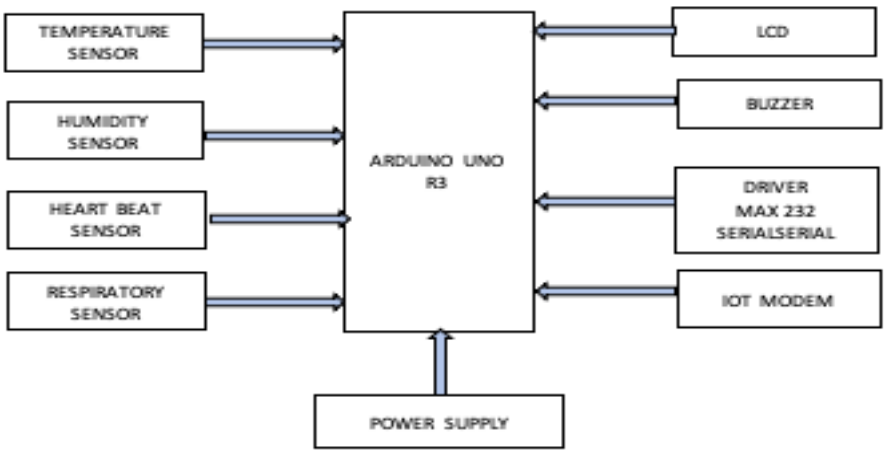


Fig.2: System diagram of cattle silent heat detection system

BASIC COMPONENTS REQUIREMENT:

I. ***Mocrocontroller:*** This is the brain of the system and is responsible for processing the data from the sensors and transmitting it to the centralized monitoring platform. The microcontroller used in the system should be low-power and capable of running for a long time on a single battery charge.Semsors:The sensors are used to gather data on the behavior and physiological changes of the cows. These sensors might include temperature sensors, accelerometers, and gyroscopes. The sensors should be accurate and reliable, and able to operate in harsh environmental conditions

II. ***Wireless Transmitter:*** This component is used to transmit the data from the wearable devices to the centralized monitoring platform. The wireless transmitter should be low-power and capable of transmitting data over long distances.

III. ***Battery:*** The battery is used to power the wearable devices. The battery should be rechargeable and have a long life so that it doesn't need to be replaced frequently.

IV. ***Connectors:*** Connectors are used to connect the components of the circuit and provide a way to attach the wearable devices to the cows.

AIM AND OBJECTIVES:

This report provides an update on the current status of the "**IoT based cattle silent heat detection system"** project.

The project **aims** to develop a wearable device that can detect silent heat in cattle and transmit the data to a centralized monitoring platform for analysis. The device will help farmers improve the efficiency of their breeding programs and reduce the cost of artificial insemination.

5. **Project status at beginning of the Year:**

   Conducted market research and identified key requirements for the wearable device

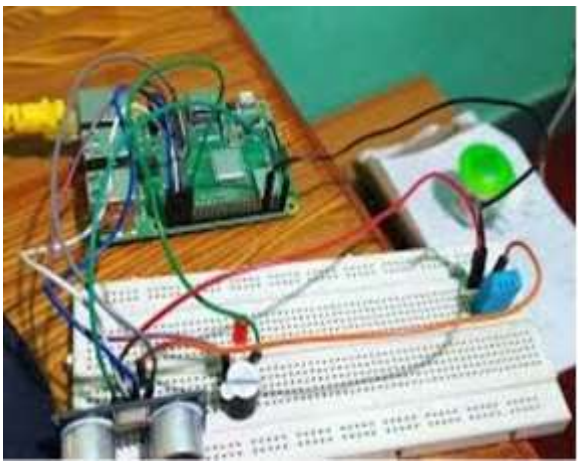
6. **Interventions made:**

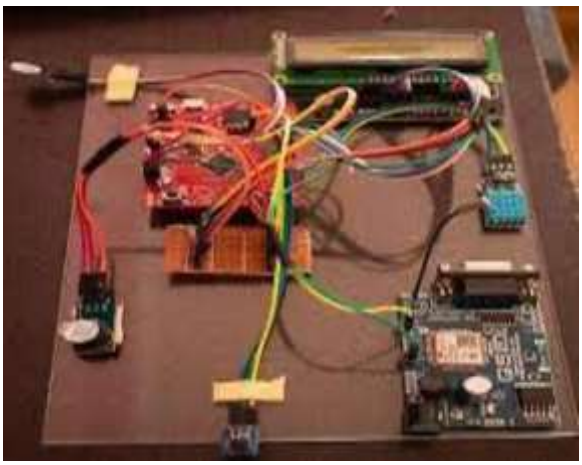
   Designed the circuit for the device, including the microcontroller, sensors, wireless transmitter, and battery

7. **Current status:**

   Developed a prototype of the wearable device and tested it in a laboratory environment

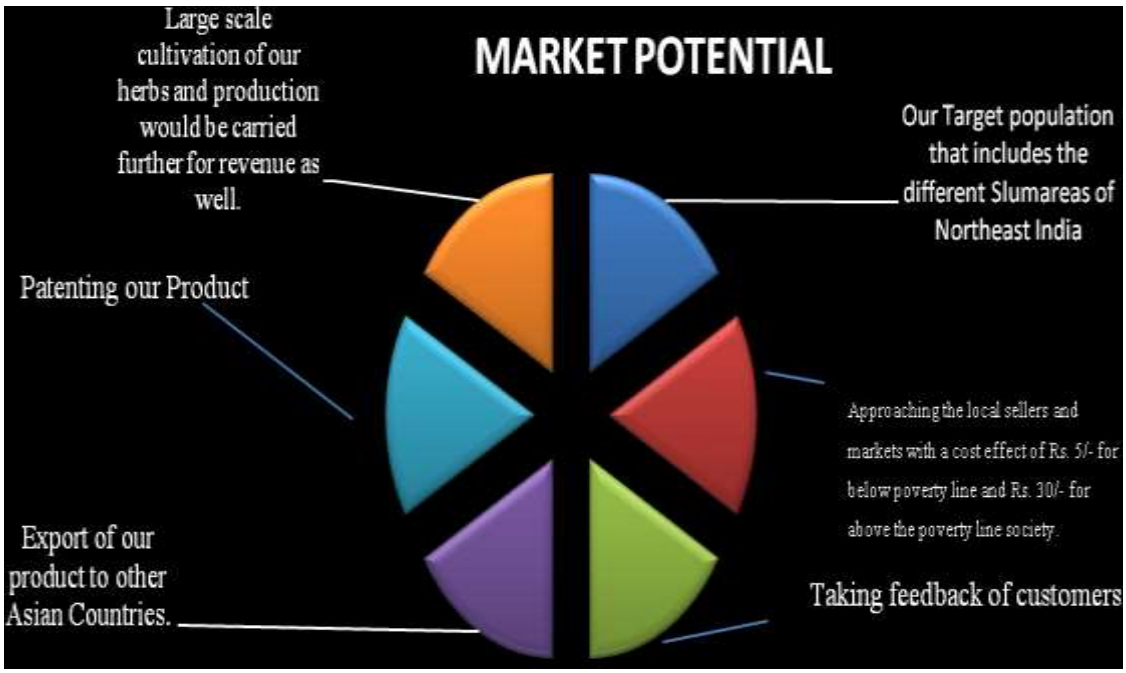
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





Project-15: Dietoceuticals for the Famine Neighbourhood

1. **Project Title** : Dietoceuticals for the Famine Neighbourhood
2. **Mentor Name** : Dr. Sudarshana Borah, Dr. Pallab Kalita
3. **Student Team Names:**
   I. Sharmina Begum
   II. Lobsang Tashi
   III. Tarik Aziz
   IV. Rupjyoti Kalita
   V. Elaf Hussain Uthman
   VI. Arif Mehedi Hussain
   VII. Rahul Gogoi
4. **Project Description:**
   We are proposing to develop a Vitamin B9, Vitamin C, Vitamin A and Minerals rich Dietoceutical candy from edible fruit peels and vegetables that would be served to the society suffering from shortfalls economically, socially and medically and scale up on large scale basis.
   OBJECTIVE(S):



5. **Project status at beginning of the Year:**
   - Brainstorming
   - Idea generation
   - Literature review

6. **Interventions made:**
   - Collection of raw material.
   - Production process.
7. **Current status:**

   The products have been developed at an initial stage and outreached at Jorbil Village, Meghalaya. Further standardization process in planned and is on process.
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-16: Combined Effects of Antibiotics and Nutrients in Dog Biscuits for Treating Bacterial Infections

1. **Project Title** : Combined Effects of Antibiotics and Nutrients in Dog Biscuits for Treating Bacterial Infections
2. **Mentor Name** : Dr Tamanna Bhuyan

3. **Student Team Names:**
   I. Uddipta Guha
   II. Dharitri Baro
   III. Eshaa Basumatary
   IV. Jishu Das
   V. Varsha Lamichane

4. **Project Description:**

   The aim of the project is to obtain novel functional biscuits for dogs with antibiotics to treat common dog-related bacterial infections. The project focus on the development of antibiotic-loaded nutritional biscuits to administer antibiotics to pets in a convenient manner. The incorporation of antibacterial medicine could turn these biscuits into a functional food optimum concentration of high-quality proteins, fat, mineral substances and vitamins required for pet metabolism

5. **Project status at beginning of the Year:**

   We have designed antibiotic-loaded nutritional biscuits made of black rice powder and dried chicken powder. The biscuits were loaded with antibiotic (vancomycin 0.35 mg/mL). The stability of the antibiotic after loading was tested.

6. **Interventions made:**

   Nutritious pet biscuits have been developed with antibacterial medications and specific ingredient sensitivities. Such pet biscuits could fundamentally fulfill the self-physiological nutritional requirements of pets and simultaneously treat some common bacterial infections. The proposed biscuit with antibiotic can indeed improve the physique and health of the pets and can prolong their lives.

7. **Current status:**

   Antibiotic-loaded nutritional biscuits have been developed. The disk diffusion method was employed to investigate the antibacterial activity of antibiotic loaded biscuits against pathogenic bacterial strains (Escherichia coli). The presence of functional components, stability of the biscuits, quality analysis, and packaging is under progess.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-17: Soil Toxicity detector

1. **Project Title** : Soil Toxicity detector
2. **Mentor Name** : Dr. Sony Kumari
3. **Student Team Names:**
   I. Satabdi Das
   II. Arpita Das
   III. Elizabeth Halam
   IV. Valiant Kro
   V. Peter G. Momin
4. **Project Description:**

   The project consists of finding out the toxicity of soil regarding a particular element in relation with pH. Our prototype would be simple to use and can be used by either professionals or normal farmers. Since toxicity is major cause for crop destruction, we plan to bring awareness about it without prototype.

   OBJECTIVE(s): Consumption of insecticide and pesticide through our food has been harmful to the human kind even including death. The aim of the current proposal is to solve the problems related to pesticides; a prototype will be developed which will help in determining the toxicity of soil/groundwater in an easier way. The product will be portable, cheap and less time consuming for pesticide detection so as to counter the ongoing exposure of toxicity in the soil. We need to become aware of the consequences so that we can stop/control the usage of pesticides by checking it with the proposed prototype.
5. **Project status at beginning of the Year:**
   - At the first phase, we started by the listing of the products such as sensors, electrodes etc as well as drawing the proper circuit diagram for the entire prototype.
   - Finding out the toxic pH level of soil that harms the farmers regarding a particular element such as Mercury, lead etc.
6. **Interventions made:**
   - Started to browse through the products that we need and assemble them.

7. **Current status:**
   - A basic circuit has been made. Trial for checking different types of toxicity level is still soil is still in process.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-18: Preparation and Standardization of Chicken Flavoured Deworming Cookies for Dogs

1. **Project Title** : Preparation and Standardization of Chicken Flavoured Deworming Cookies for Dogs

2. **Mentor Name** : Gaurav Kumar Bhargav, Dr. Pallab Kalita

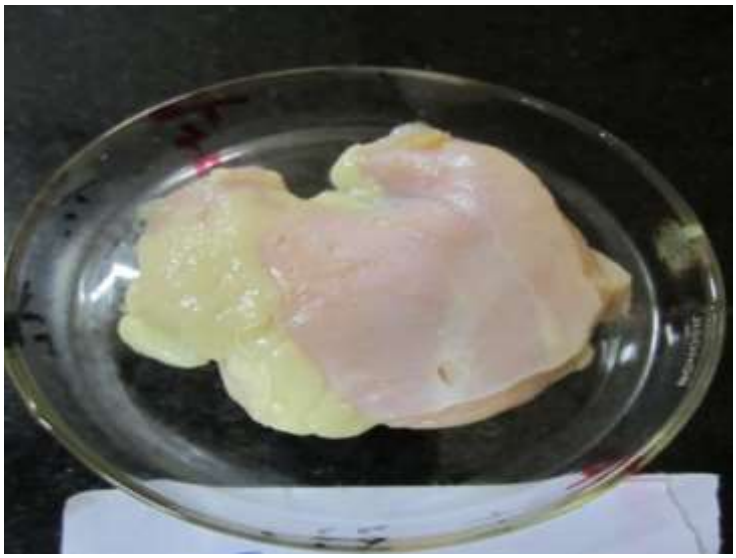
3. **Student Team Names:**
   I. Ayusmaaan Limbu
   II. Minakshi Saikia
   III. Dharabjit Dutta
   IV. Naima Nuri
   V. Mafida Begum
   VI. Bhaiswati Das
   VII. Sumu Boruah
   VIII. Ebnabin Jesmin Ahmed
   IX. Raktim Bania

4. **Project Description:**
   In our project, we're aiming to prepare deworming cookies for dogs. Cookies are like a dog's favourite treat. So we are preparing a cookie, made of chicken

flavour where the drug particles will be entrapped and easy to eat for the dog. The cookie will be small in size (about the size of a coin) due to which there won't be any problem even if the dog directly swallows it.

5. **Project status at beginning of the Year:**
   - Brainstorming
   - Idea Generation
6. **Interventions made:**
   - We have ordered 4 standard drugs and the Soxhlet apparatus
7. **Current status:**

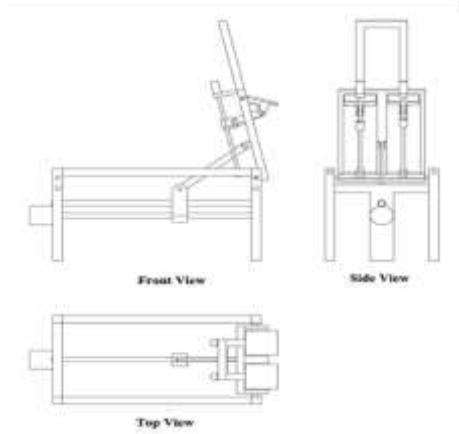
   For the chicken flavored cookie, we are ready to perform the extraction of the dried chicken and liver chunks
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

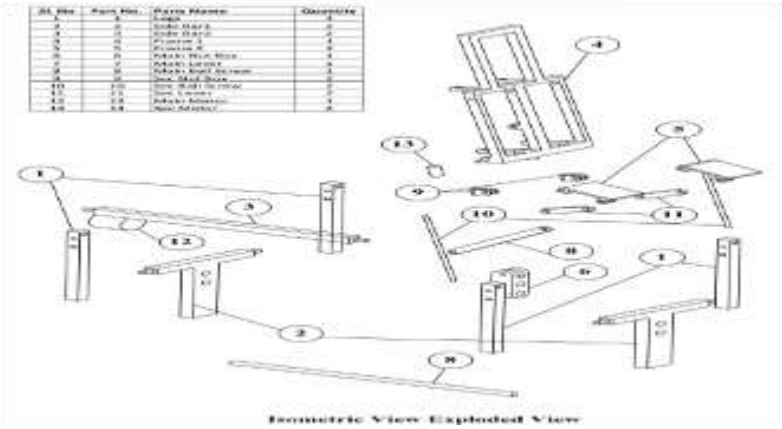


Project-19: Low Cost Tilt Table for Patients

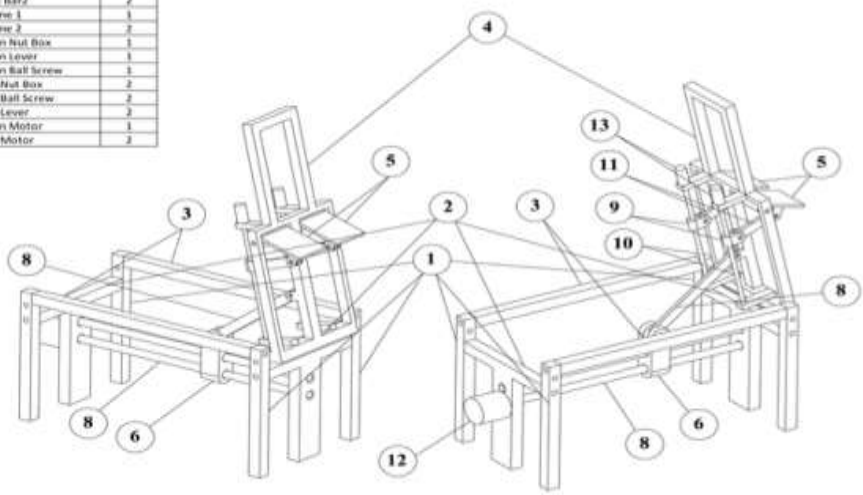
1. **Project Title** : Low Cost Tilt Table for Patients
2. **Mentor Name** : Dr. Pooja Choudhuri
3. **Student Team Names:**
   I. Yanna W.Sangma
   II. Mridusmita Das
   III. Akibuz Zaman
   IV. Jyotirmoy Sarma
   V. Nafisa Mohsina
4. **Project Description:**
   Tilt tables are used by physiotherapists to reintroduce patients to the vertical position. The most common reasons for inclusion of tilt table treatment in rehabilitation are to: facilitate weight bearing (94.8% of those who tilt); prevent muscle contractures (86%); improve lower limb strength (81%); and increase arousal (70%). The tilt table was most frequently applied to patients with neurological conditions (63.8%) and also during long-term ICU stay (43.1%). This electric tilt table is a padded table with a top capable of being rotated on its transverse axis so that a patient lying on it can be brought into the erect position. Initially used as a diagnostic tools 'Tilt Table Test' for assessment of syncope.
5. **Project status at beginning of the Year:**
   - Brainstorming and Idea Generation.
   - Literature Review.
   - Planning and making list of materials or items required
6. **Interventions made:**
   - Ordering the required materials.
   - Started making the 3D – design
7. **Current status:**
   - The 3D model has been designed.
   - The prototype is under making

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





Sl. No	Part No.	Parts Name	Quantity
1	1	Legs	4
2	2	Side Bar1	2
3	3	Side Bar2	2
4	4	Frame 1	1
5	5	Frame 2	2
6	6	Main Nut Box	1
7	7	Main Lever	1
8	8	Main Ball Screw	1
9	9	Sec Nut Box	2
10	10	Sec Ball Screw	2
11	11	Sec Lever	2
12	12	Main Motor	1
13	13	Sec Motor	2

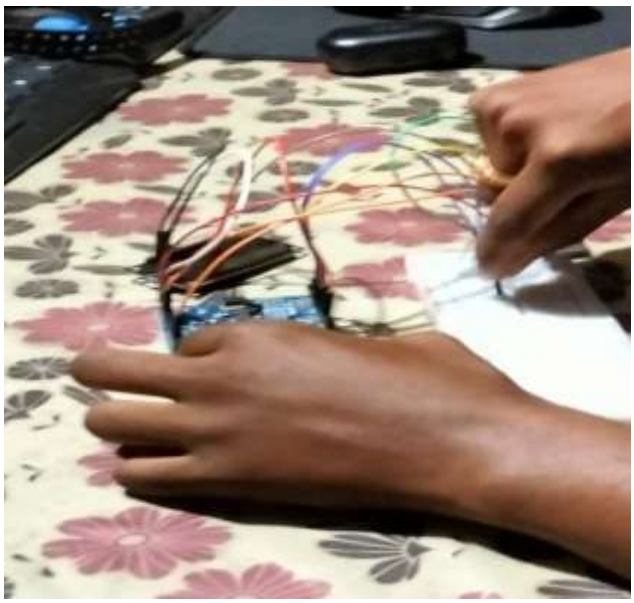


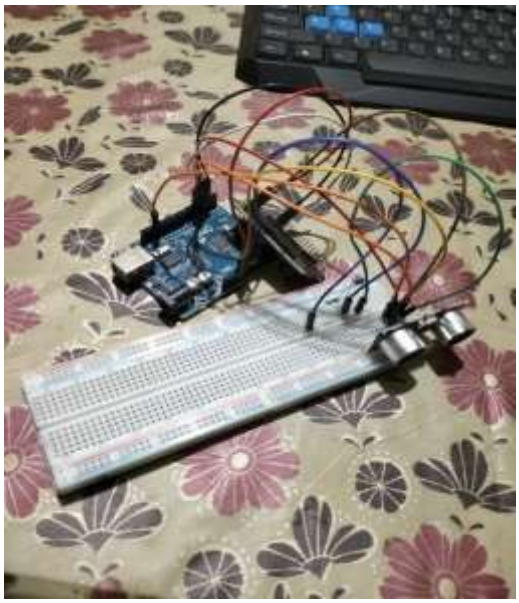
Project-20: Smart IV Infusion Monitoring System

1. **Project Title** : Smart IV Infusion Monitoring System
2. **Mentor Name** :
3. **Student Team Names:**
   I. Chayandeep Ghatowar
   II. Amatya Sahu
   III. Mostafa Kamal Hussain
   IV. Patrick Khamujai
   V. Ellora Rabha
4. **Project Description:**
   IV drips need to be regularly monitored and replaced. The flow of the fluid also needs to be metered depending on the patient and their ailment. This Smart IV Drip Monitoring System uses a weight sensor to detect as the fluid level in the IV Infusion bottle goes down and transmits the data over IoT. Once the system detects that the IV drip bottle has gone empty, it sends an alert over IoT.

   OBJECTIVE(s):
   - Automatic IV Drip Monitoring and Alert
   - Data Logging as well Online Transmission of data via IoT
5. **Project status at beginning of the Year:**
   - Purchase of a part of hardware required for the project.
6. **Interventions made:**
   - Arduino UNO board of one circuit has been connected with a WiFi module and an ultrasonic sensor and undergoing testing
7. **Current status:**
   - One circuit is currently under testing.
   - Remaining part of the project under development pending purchase of remaining equipment.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





NewGen IEDC-College of Technology and Engineering

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: Fifth Year (2022-23)

Name of the College/Institution hosting NewGen IEDC	College of Technology and Engineering		
Year of starting NewGen IEDC	2017-2018		
Name of the Head/Principal of the Institution/College	Prof. (Dr.) P.K. Singh Dean, College of Technology and Engineering, Maharana Pratap University of Agriculture and Technology, Udaipur, +91-294-2470378; +91-294-2471056		
Name of NewGen IEDC Coordinator	1. Dr. Navneet Agarwal 2. Dr. Trilok Gupta		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	Mobile: 09828276279 Email: navneetctae@gmail.com Mobile: 9414406223 Email: guptatrilok@rediffmail.com		
Financial Details	**Sr. No.**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC/17-18/08 Date: 15/06/2017	Rs. 60,00,000
	2		Rs. 47,50,000
	3		Rs. 60,00,000
	4		Rs. 60,00,000
	5		Rs. 60,00,000

1. **Details of Activities undertaken during the year :**

Sr. No.	Date	Activity / Event	Remarks	Photos
1.	28.04.2022	Introduction Session for IP	National IP Awareness Mission	
2.	11.06.2022	Entrepreneurship Drive	An MEET UP was organised by NewGen IEDC cell of Udaipur. Encouraging the students towards the latest Developments in the area of Science and Technology at NewGen IEDC cell of Udaipur Centre. Students of our college joined the meet up. Miss. Kunj Preet Arora, a young Entrepreneur was the chief guest.	

3.	30.12.2022	Entrepreneurship & Motivational Programme	Motivational Programme dated 30th Dec. 2022 was organised by NewGen IEDC cell of Udaipur. Encourage the students towards the Development in the area of Science and Technology at NewGen IEDC cell of Udaipur Centre. Mr. Narayan Lal Gurjar Founder of "Eco-Friendly Polymer Pvt. Ltd." a young Entrepreneur was the chief guest.	
4.	31.01.2023	Pitching Competition	10 Innovators proposals pitching their ideas in front of Committee.	

5.	UTHAAN	Organized a district level techno-cultural event. Igniting the Innovation was an event organized by students for spreading the idea of entrepreneurship, startup and innovation in the minds of learners	An event was held to bring light on the scenario of business startups which failed and attained success. Students started putting their foot forward for starting their startups.	
6.	21.03.2023	Pitching Competition	15 Innovators proposals pitching their ideas in front of Committee.	

7	03.03.2023	Participation in iStart programme	20 Innovators from CTAE college participated in TECON 2023 a "Startup & Entrepreneurship Summit" in collaboration with iStartNest of Govt. of Rajasthan on 3rd March 2023.	

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students:

Sr. No.	Activities	Outcome/Achievements
1.	"Uthaan : Igniting the Innovation" . Organized a district level techno-cultural event.	The event was organized by students for spreading the idea of entrepreneurship, startup and innovation in the minds of learners. It focused on the scenario of business startups which failed and attained success. Students started putting their foot forward for starting their startups.
2.	Entrepreneurship Drive meet up:	A MEET UP was organized by NewGen IEDC cell of Udaipur. Encouraging the students towards the latest Developments in the area of Science and Technology at NewGen IEDC cell of Udaipur Centre. Students of our college joined the meet up.

Sr. No.	Activities	Outcome/Achievements
		Miss. Kunj Preet Arora, a young Entrepreneur was the chief guest.

[B] To identify, develop & commercialize students' innovative ideas:

Sr. No.	Activities	Outcome/Achievements
1.	Industry –Institute Meet	NewGen IEDC cell of Udaipur organised a programme to encourage the students towards the development in the area of Science and Technology and commercialize the idea. Executives from UCCI (Udaipur Chamber of Commerce and Industries) gave special tips and resolve the query of the innovators. Mr. Narayan Lal Gurjar Founder of "Eco-Friendly Polymer Pvt. Ltd." a young Entrepreneur was the chief guest.
2.	IP Awareness mission	An exhaustive training cum workshop on patent filing, IPR, copyright was organised in April 2022. Around 150 student /innovator s participated and were benefitted. Sh. Subrut Sahu, Patent officer and examiner, IPR cell, New Delhi was the key speaker of the event.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Linkages established with Institutions in the regions: • The Creative Centre for Rural Development, New Delhi • Udaipur Chamber of	Create opportunity for student to attend local and national workshops, trainings, seminars and other technical events. These institutions represent large set of small to medium industry. Interaction with them leads to identification of input

Sr. No.	Activities	Outcome/Achievements
	Commerce and Industries (UCCI) • Small Scale Industries Association, Udaipur • MSME, Udaipur • Indian Council of Medical Research, Udaipur • National Innovation Foundation, Ahmadabad • Various Technical colleges/ Universities (25 Nos.) of Rajasthan • Start-up Oasis Jaipur • Rajasthan State Innovation Council, Jaipur • Regular interaction with entrepreneurs • Indian Institute of Management, Udaipur • Indian Society of Agricultural Engineers, India • Institution of Engineers, India.	resources needed by these, which can be converted into start-up idea or a regular enterprise by student entrepreneur.
2	Talks of entrepreneurs: Success stories	• Strategies for tackling day to day problems; • Understanding organization processes; • Sources of finance and other resources.
3	Planned visits to local industries	• Students get opportunity to interact with people in these industries which help them in diagnosis of problem areas and specific problems for finding solutions

Sr. No.	Activities	Outcome/Achievements
		which can be further converted into innovative solutions.
4	Expert Lectures, Workshops, & Industrial Visit under MoU with Secure Meters Pvt Ltd Udaipur.	• Skill Improvement with innovative approach, and exposure to latest industrial problems.
5	Expert Lectures, Workshops, & Industrial Visit under MoU with Hindustan Zinc Pvt ltd Udaipur.	• Improvement in Critical thinking and Employability enhancement.
6	Technical Quits, Design Contest, & Workshops, under MoU with Texas Instruments (TI).	• Improvement in Design skills through hands on design practice.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Most of the proposed action plan activities were organized / conducted during the year without deviations.

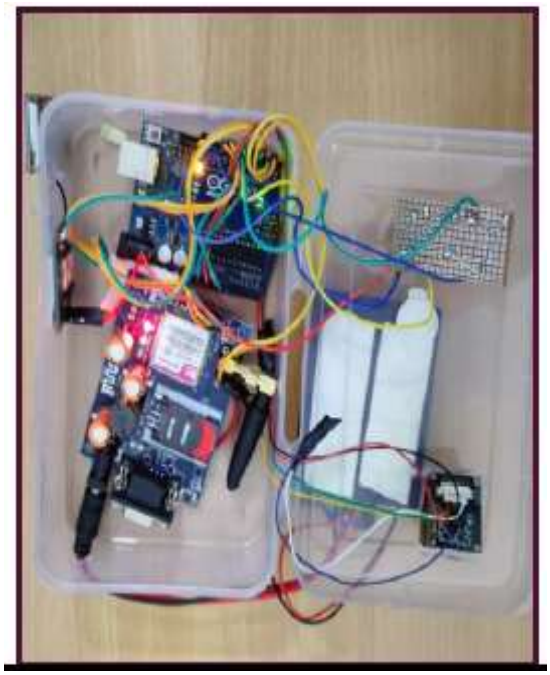
3. Other important highlights (new initiatives), if any:

CTAE NewGen Genesis Club: Organized a district level techno-cultural event, UTHAAN. Igniting the Innovation was an event organized by students for spreading the idea of entrepreneurship, startup and innovation in the minds of learners. This event was held to bring light on the scenario of business startups which failed and attained success. This event had called renowned speakers to inspire student to move forward in their career and never look back. Students started putting their foot forward for starting their startups.

“Surya-Samidha”

“Portable Electric Rover”

“Two-Stage Dark Fermentation System for the Production of Green Hydrogen through Organic Waste”



“Emergency Safety Device with Automatic Tracking and Alert System”

“Development of IOT Based Smart Solar Street light System ”

“Warehouse Robot”

4. **Student Projects**

Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos

5. **Provide a minimum two-page case-let each on the two best student projects (either prototype developed or commercialized) from the above list.**

Best Student Project-01: Development of Two-Stage Dark Fermentation System for the Production of Green Hydrogen through Organic Waste

I. **Mentors Name** : Dr. N. L. Panwar

II. **Student team details**

1. Rupal Jain
2. Naina Sachdeva

III. **Brief description of the student start-up**

Hydrogen can be used as a clean alternative fuel instead of conventional fossil fuel in transportation sector as well as in chemical industries as a raw material for formation of many other substance like ammonia, urea etc. The production method will be Eco-friendly and utilized fuel is abundantly available renewable energy sources that are free from any types of harmful greenhouses gases. Direct conversion to electricity can also be achieved through fuel cell. This technology provides suitable environment for the fermentation of agricultural waste/ waste biomass through which organic waste can be converted to clean alternative hydrogen fuel. It helps to eliminate the COD content of waste influent by proper digesting the waste streams.

IV. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**

V. Contribution of NewGen IEDC in the same

- The machine and raw material has completely been funded by NewGen IEDC center.

VI. Future plan

- Commercialization of the machine

VII. Important highlights

The machine has been developed and design patent has been granted for the machine in the name of NewGen IEDC , College of Technology and Engineering , Udaipur by patent office of Govt of India with design registration no 384367-001 dt. 20.04.2023

Best Student Project-02: Portable Electric Rover

I. Mentors Name : Dr. Bheru Lal Salvi

II. Student team details

1. Pranshu Vajpayee
2. Yogesh Tailor
3. Sonal Rathore
4. Vishal Rawat
5. Kushal Kumawat

III. Brief description of the student start-up

Portable Electric Rover is a type of personal transportation that uses electric motors to mover the board. The propulsion of the vehicle is controlled via a processing unit i.e, electronic control unit. The battery sends power to the motor, which turns the wheels and propels the board forward. Riders can control their speed by using a remote control. The change of direction takes place with the help of trucks by leaning in the desired direction. The rover has a top speed of around 15mph (25km/hr), which is controlled via motor controller. The range on full charge is projected to be close to 30 miles(50km) before needing to be recharged, which varies with driving style(high speed/low speed), drive terrain(plane/slope), weight on the vehicle, etc. the rover being portable and lightweight which makes it easier to man-oeuvre it and carry it from one place to another.

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

V. Contribution of NewGen IEDC in the same

The whole design has been made in-house by the students of Mechanical Engineering department and the financial assistance has been given by NewGen IEDC center of CTAE Udaipur.

VI. Future plan

Commercialization of the proto type developed unit.

VII. Important highlights : Applied for Design Patent

Annexure-A

Details of Student Projects: Fifth Year

Project-01: Development of Two-Stage Dark Fermentation System for the Production of Green Hydrogen through Organic Waste

1. **Project Title** : Development of Two-Stage Dark Fermentation System for the Production of Green Hydrogen through Organic Waste
2. **Mentor Name** : Dr. N.L. Panwar
3. **Student Team Names** : I. Rupal Jain II. Naina Sachdeva
4. **Project Description** : Hydrogen can be used as a clean alternative fuel instead of conventional fossil fuel in transportation sector as well as in chemical industries as a raw material for formation of many other substance like ammonia, urea etc., if production method will be Eco-friendly and utilized abundantly available renewable energy sources that are free from any types of harmful greenhouses gases. Direct conversion to electricity can also be achieved through fuel cell.

   This technology provides suitable environment for the fermentation of agricultural waste/ waste biomass through which organic waste can be converted to clean alternative hydrogen fuel.

   It helps to eliminate the COD content of waste influent by proper digesting the waste streams.
5. **Project status at beginning of the Year** :
   - Proof of concept was prepared
6. **Interventions made** :
   - Procurement of raw materials and fabrication is done. Product is ready for commercialization.
7. **Current status** :
   - Completed and working in Laboratory

8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each project:**

Project-02: Surya-Samidha

1. **Project Title :** Surya-Samidha

2. **Mentor Name :** Dr. B.L.Salvi, Dr.N.L. Panwar

3. **Student Team Names :** I. Tanay Pansari II. Mohammed Saif Khan III. Nikhil Sharma

4. **Project Description :** This project aims to solve the problem of supply of hot water in hostels during the season of winter. Presence of fog during winter season and/or overcast situation renders the solar water heating system useless and/o r less effective. This system is designed contemplating this problem. In this heat exchanger, biomass (waste wood) will be burnt in a combustion chamber and the heat of the flue gases will be utilized to raise the temperature of cold water and the heated water is then supplied to the overhead tank of the system. Schematic diagram of the Surya-Samidha system below, recirculation of the water from the solar tank system and the heat exchanging system will take place till the

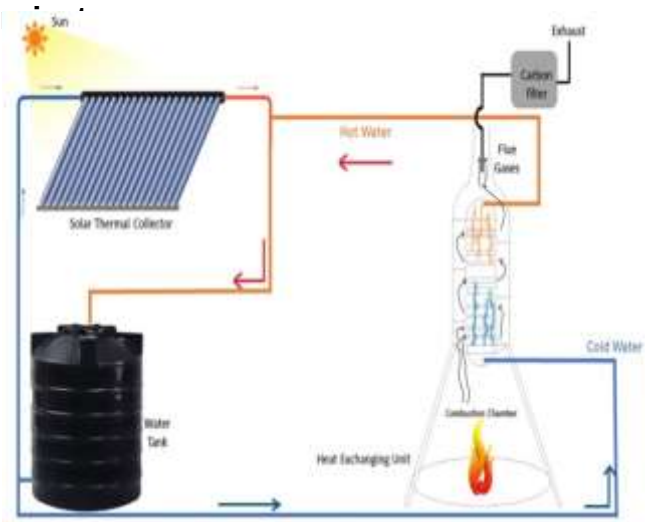
required temperature of water is achieved. This entire system will be optimized in such a way that it will deliver maximum efficiency with least possible cost.

5. **Project status at beginning of the Year :**
   - Proof of concept was prepared

6. **Interventions made :** Procurement of raw materials procurement and fabrication is done.

7. **Current status :**
   - Field Testing is going on

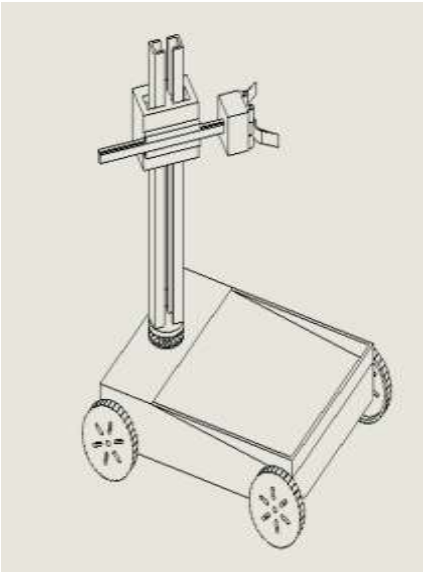
8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each p**



Project-03: Design and Development of Warehouse Robot

1.	**Project Title**	Design and Development of Warehouse Robot
2.	**Mentor Name**	Dr. Navneet Agrawal
3.	**Student Team Names**	I. Hariom II. Ketan Agrawal
4.	**Project Description**	The robots for heavy industrial purposes are mainly stationary and for only object pickup and for transportation different robots are used. So, both the systems will be integrated into one. Synchronization of the various systems and the overall efficiency of the system is the main challenge of the system. The robot works on an algorithm which drives the robot from its initial location to the destination using a preprogrammed map. The robotic arm is installed to help with the pickup and drop the object. The final product will be a robot for the industrial warehouses or shops to help pick up and drop off an object to and from desired location. This can be controlled via prem fed program or manually using a Bluetooth remote. The end product will help the society as it has got wide applications in small warehouse/Shops. The robot will be capable of handling objects of various shapes and sizes. The robot will have the flexibility to carry from metal parts to delicate glassware. It will be simple ,cost effective with Automated and manual driving modes.
5.	**Project status at beginning of the Year**	• Proof of concept was prepared
6.	**Interventions made**	• Mentored for product development, designed and tested in the laboratory.
7.	**Current status**	• Completed

8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each project:**



Project-04: Design and Development of a Hydrogen Separation System for Fluidized Bed Gasifier

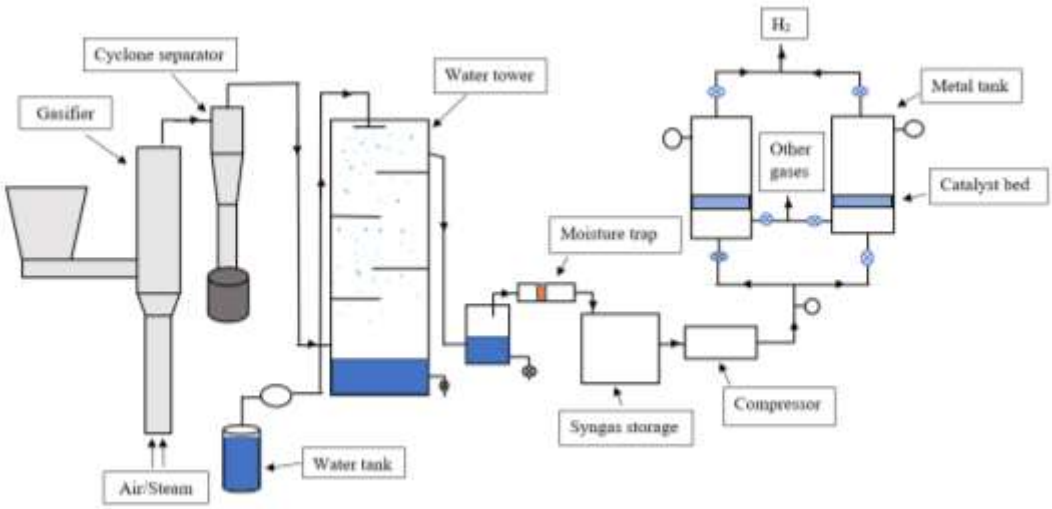
1.	**Project Title**	**:**	Design and Development of a Hydrogen Separation System for Fluidized Bed Gasifier
2.	**Mentor Name**	**:**	Dr. N. L. Panwar
3.	**Student Team Names**	**:**	I. Lanjekar Pranay Rajendra II. Amit Singh
4.	**Project Description**	**:**	Hydrogen is considered today as a promising fuel of the future in order to address the existing environmental concerns associated with the use of fossil fuels. Hydrogen production is likely to play an important role during the development of the economy and is likely to become a fuel of tomorrow. Development of a Hydrogen Separation system for fluidized bed gasifier not only saves fossil fuels but also reduces greenhouse emissions. It will also help to protect the environment as well as human health. The burning of hydrogen emits only water vapors. It can also help to reduce the burning of crop residue due to surplus biomass being used for energy generation. It will be helpful to reduce our dependency on fossil fuels.

5. **Project status at beginning of the Year :**
   - Proof of concept was prepared

6. **Interventions made :** Procurement of raw materials procurement and fabrication is done.

7. **Current status :**
   - Lab testing is going on for the Prototype developed

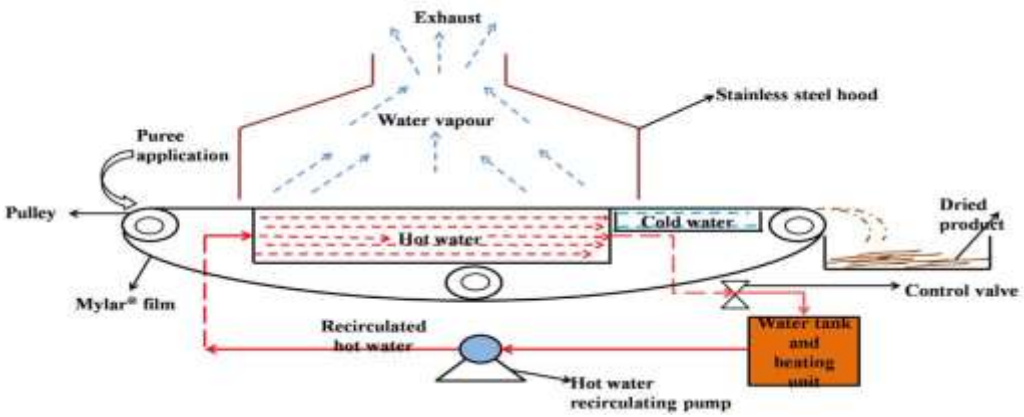
8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each project:**



Project-05: Development of Prototype of Refractance Window Drying System

1.	**Project Title:**	Development of Prototype of Refractance Window Drying System
2.	**Mentor Name :**	Dr. S. K. Jain, Dr. N. L. Panwar & Dr. Deepak Rajpurohit
3.	**Student Team Names :**	I. Kalse Sandeep Baban II. Yudhisther III. Jagdish Chaudhary
4.	**Project Description :**	The food material can be dried using several drying methods such as spray drying, vacuum drying, freeze drying, and foam mat drying. These drying methods require high temperatures and extensive drying times, resulting in discoloration and loss of flavour components, nutrients, and bioactive compounds and also expensive. This is an innovative drying method useful to converts different liquid, viscous solutions and suspensions into powders or flakes or leather. The system will be composed of PET film, FIR heaters, Exhaust fan, Peristaltic pump, Energy meter, Heating tank, Hot water reservoir. A stainless-steel hood is provided at the top of the film to exhaust the vapor. The material in the form of paste is placed at one end of the on transparent plastic film PET film conveyor belt which moves over hot water supported by two end pulleys. The water tank is placed in which hot water is circulated and maintains the temperature between 95-97 ‘C to supply heat to the material to be dried. The plastic film is positioned at the bottom surface of the film and in contact with the surface of hot water. The forwarded moving conveyor passes over cold water and avoids sticking of product to belt and removal of dried product by scraper tool.
5.	**Project status at beginning of theYear :**	• Proof of concept was prepared
6.	**Interventions made :**	• Procurement of raw materials procurement and fabrication is done.
7.	**Current status**	• Lab testing of the proto type developed is Ongoing

8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each project:**



Poject-06: Portable Electric Rover

1. **Project Title** — Portable Electric Rover

2. **Mentor Name** — Dr. Bheru Lal Salvi

3. **Student Team Names**
   I. Pranshu Vajpayee
   II. Yogesh Tailor
   III. Sonal Rathore
   IV. Vishal Rawat
   V. Kushal Kumawat

4. **Project Description :** Portable Electric Rover is a type of personal transportation that uses electric motors to mover the board. The propulsion of the vehicle is controlled via a processing unit i.e, electronic control unit. The battery sends power to the motor, which turns the wheels and propels the board forward. Riders can control their speed by using a remote control. The change of direction takes place with the help of trucks by leaning in the desired direction. The rover has a top speed of around 15mph (25km/hr), which is controlled via motor controller. The range on full charge is

projected to be close to 30 miles(50km) before needing to be recharged, which varies with driving style(high speed/low speed), drive terrain(plane/slope), weight on the vehicle, etc. the rover being portable and lightweight which makes it easier to man-oeuvre it and carry it from one place to another.

5. **Project status at beginning of the Year**

- Proof of concept was prepared

6. **Interventions made**

Procurement of raw materials procurement and fabrication is done. Field testing is also completed .

7. **Current status**

- Completed

8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each**

Project-07: Design and Development of IOT based Smart Solar Street Light System

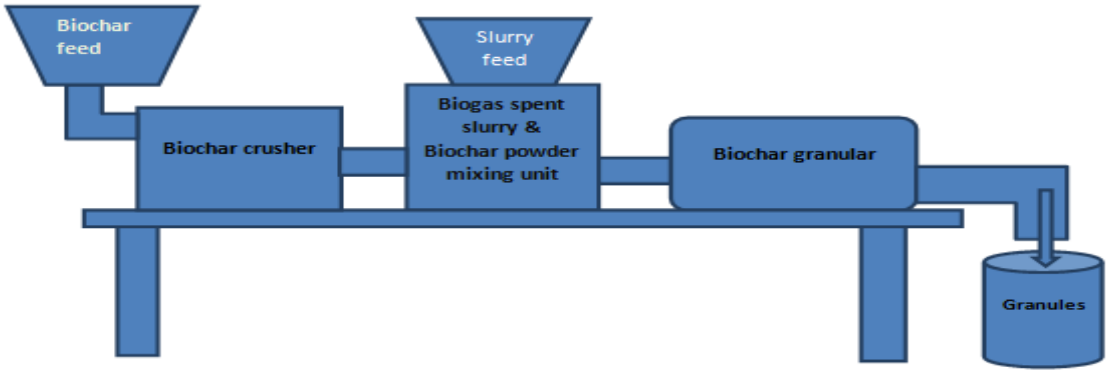
1.	**Project Title**	Design and Development of IOT based Smart Solar Street Light System
2.	**Mentor Name**	Dr. Navneet Agrawal
3.	**Student Team Names**	I. Ketan Agrawal II. Ravina Sargara III.Shagufta Khanam IV. Shraddha Amta
4.	**Project Description**	The proposed project of the smart street light system makes use of number of sensors to collect data on the environment, including ambient light levels, motion, temperature, and humidity, dust etc. Thus can work as mini weather station. It includes PIR sensor, thus can be used for home security system. The sensor data are analyzed using data analytics tools to inform maintenance and energy optimization decisions. The data analytics tools can identify patterns, anomalies, and trends in the sensor data to predict maintenance requirements and optimize energy consumption. The smart street light system uses energy optimization techniques, such as dimming the lights during low traffic periods or adjusting the light levels based on ambient light levels, to reduce energy consumption and costs. The smart street light system can be remotely controlled and monitored using communication devices. This allows for real-time adjustments to the light levels, as well as the ability to monitor the system's operation and performance.
5.	**Project status at beginning of the Year**	• Proof of concept was prepared
6.	**Interventions made**	Developed complete setup for Smart street light system
7.	**Current status**	• Completed

8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each project:**

Project-8: Design and development of biochar granular machine- bio fertilizer for production of biochar granules from biochar and biogas spent slurry enhance farm productivity and soil health

1.	**Project Title**	Design and development of biochar granular machine- bio fertilizer for production of biochar granules from biochar and biogas spent slurry enhance farm productivity and soil health
2.	**Mentor Name**	Dr. N. L. Panwar
3.	**Student Team Names**	I. Kanhaiya Lal Dhakar II. Ashish Sharma III. Gagan Kumar IV. Jay Khatik V. Bhanu Pratap Singh
4.	**Project Description**	Developing a biochar granular – bio fertilizer, we are not only producing biochar granules but also preserving our environment from harmful causes. This system will increase soil nutrients. This whole system conserves the non-renewable energy sources used in the production of biochar granules and also conserves the environment from the agriculture waste and the use of chemical fertilizer for farming. The developed technology will be a socially inclusive, ecosystem-based approach to address the more efficient use of local resources such as agriculture residue to improve food quality and while reducing dependence on external inputs like chemical fertilizer for such farmers. Also, the positive impacts on rural poverty and health because of a combined biomass-energy production system.

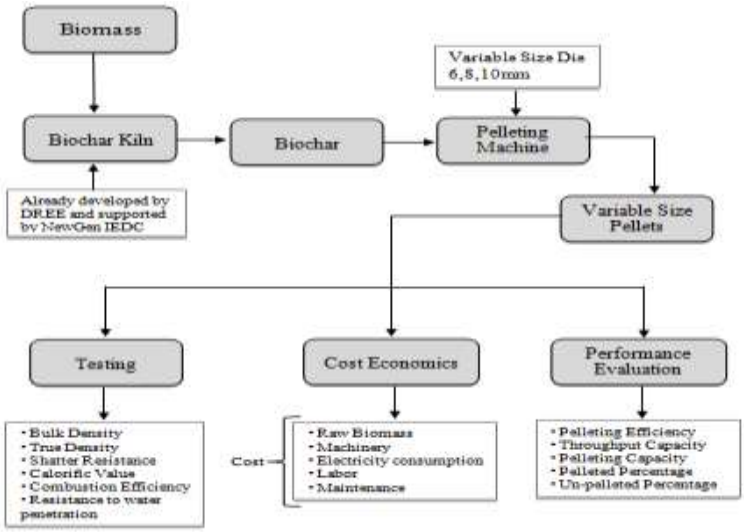
5. **Project status at beginning of the Year**
   - Proof of concept was prepared
6. **Interventions made** Procurement of raw materials procurement and fabrication is done. Product has been developed.
7. **Current status**
   - Completed and working in Laboratory
8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each project:**



Project-09: Development of Pelleting Machine for production of Power Pellets from Biochar

1.	**Project Title**	Development of Pelleting Machine for production of Power Pellets from Biochar
2.	**Mentor Name**	Dr. N. L. Panwar
3.	**Student Team Names**	I. Aditya Ojha II. Rajvardhan Singh Sarangdevot III. Rohit Singh IV. Diya Pachori
4.	**Project Description**	• Biomass has always been an important energy source for the country considering the benefits it offers. It is renewable, widely available, carbon-neutral and has the potential to provide significant employment in the rural areas. Developing this Biochar pelleting machine, we are not only producing Biochar pellets which have higher energy per unit volume but also improving the handling, transportation and storage capabilities of Biochar. This system will also help in protecting the environment from the greenhouse gases which otherwise would be produced on directly burning the biomass.
5.	**Project status at beginning of the Year**	• Proof of concept was prepared
6.	**Interventions made :**	• Fabrication is over. Product development and design is over.
7.	**Current status :**	• Completed and working in Laboratory

8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each project:**



Project-10: Development of a PCM Based Solar Dryer

1. **Project Title :** Development of a PCM Based Solar Dryer
2. **Mentor Name :** Dr. N. L. Panwar
3. **Student Team Names :** I. Komal Sharma II. Maga Ram Patel III. Mahi Gupta IV. Vidhi Champawat
4. **Project Description :** The developed technology can be useful for the small industries and the innovative farmers to achieve the high yield of crop. This planter can be reducing the greenhouse gas emission and air pollution compared to the engine operated planters. This planter will reduce the labor requirement and drudgery/cumbersome of the labor. This research works provide new innovate rice sowing process for improving productivity which provides huge benefits to the farmers. This planter can be used for large farm and reduces the timeliness of planting for farmers. This research work reduces the labor requirement in peak periods in labor deficient areas and uniform sowing of pellets increases rice production.

5. **Project status at beginning of the Year :**
   - Proof of concept was prepared

6. **Interventions made :**
   - Proto type model has been developed

7. **Current status :**
   - Product field testing is Ongoing

8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each project:**

Project-11: Solar Powered Quadrotor UAV

1. **Project Title :** Solar Powered Quadrotor UAV
2. **Mentor Name :** Dr. Chitranjan, Dr. Trilok Gupta, Dr. N.L Panwar
3. **Student Team Names :** I. Harsh Vardhan Swami II. Harsh Kothari
4. **Project Description :** This project aims to promote the use of renewable energy and improve the average flight time of a quadcopter. The idea is to use an array of miniature monocrystalline solar cells placed on the arms of quadcopter drone which will charge the battery through a solar charging circuit. This system is designed to utilize renewable energy derived from sunlight. The photovoltaic modules, composed of semiconductor material, absorb light rays from the sun and transfer the energy to electrons in the semiconductor material, resulting in a flow of current in the connected electrical circuit. Since the generated power needs to be stored for later use, lightweight and high-capacity batteries are essential for efficient operation of the quadcopter system Numerous studies have been conducted to

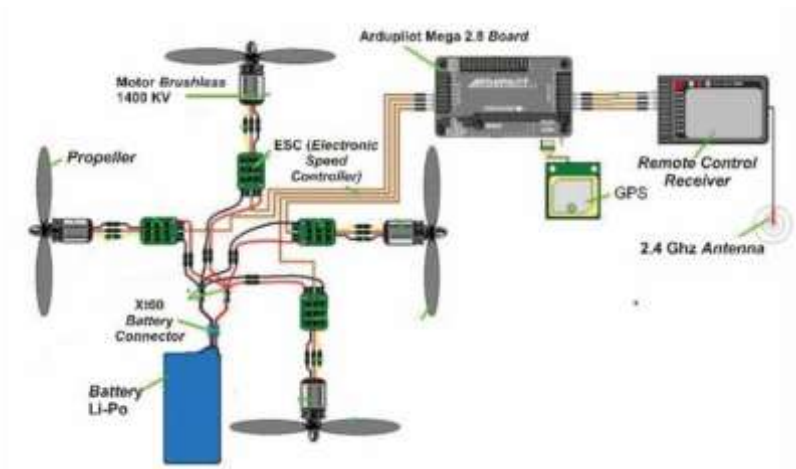
overcome the issue of limited flight duration in quadcopters, with many researchers attempting to integrate solar power utilization in UAVs. Early prototypes were developed to rely entirely on solar panel-generated energy, albeit with the aid of a backup battery also charged by the solar panel.

5. **Project status at beginning of the Year :**
   - Proof of concept was prepared

6. **Interventions made :**
   - Mentored for product development, design and selection of equipment.

7. **Current status :**
   - Ongoing

8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each project:**



Project-12: Design and Development of User Friendly Books Accession System

1.	**Project Title**	Design and Development of User Friendly Books Accession System
2.	**Mentor Name**	Dr. Navneet Agrawal
3.	**Student Team Names**	I. Anirudh Sharma II. Nikhil Shrimali III. Arjun SumanIV. Sapna Kumari V. Shreya Gupta
4.	**Project Description**	There are many platforms available assisting the search of suitable books for the undergrad and post grad students of renowned universities. There is no such facility for the students studying in MPUAT and specially CTAE students. Because of this, the students have to undergo severe problem in search of suitable book as per course curriculum of our college. The juniors, who just enter in the college, are the most sufferers. In order to tackle their problems and all the college students as a whole, we want to develop an App which can assist them and will be useful for every student of the college irrespective of branch and their year of studies. In addition to the Text and reference books, the App will incorporate all the hand written and printed notes and PPTs also in its data base. Inclusion of Model Question papers, Old Question papers etc is an added feature. A web page developed is having links for all the websites from where the Books, notes and ppts are downloadable. Primarily the product / App will be useful for our Engineering college students. Later on features will be added and it will be extended to cater students from other universities and for the non-engineering students also.
5.	**Project status at beginning of the Year**	• Proof of concept was prepared
6.	**Interventions made**	• Software and web page development work completed.
7.	**Current status**	• Completed

8. **High resolution pictures showing the Prototype / product along with the**

students and their mentor for each project:

Project-13: Development of Organically Pelleted Remote Controlled Unmanned Paddy Planter

1.	**Project Title :**	Development of Organically Pelleted Remote Controlled Unmanned Paddy Planter
2.	**Mentor Name :**	Dr. S.S Meena
3.	**Student Team Names :**	I. Bharth Kumar II. Khushal Kumar III. Sirvi Kamlesh
4.	**Project Description :**	The developed technology can be useful for the small industries and the innovative farmers to achieve the high yield of crop. This planter can be reducing the greenhouse gas emission and air pollution compared to the engine operated planters. This planter will reduce the labor requirement and drudgery/cumbersome of the labor. This research works provide new innovate rice sowing process for improving productivity which provides huge benefits to the farmers. This planter can be used for large farm and reduces the timeliness of planting for farmers. This research work reduces the labor requirement in peak periods in labor deficient areas and uniform sowing of pellets increases rice production
5.	**Project status at beginning of the Year**	• Proof of concept was prepared
6.	**Interventions made**	• Fabrication work is completed
7.	**Current status**	• Field testing is Ongoing

8. **High resolution pictures showing the Prototype / product along with the**

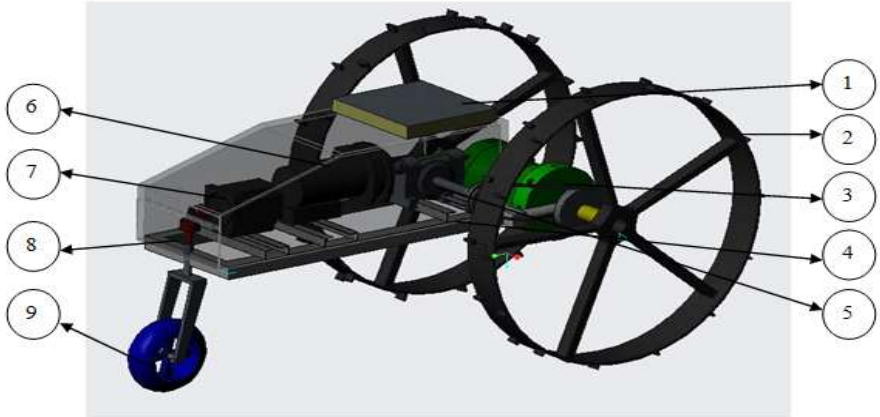


Fig. 1: Isometric view of conceptual design of the Remote-controlled Unmanned Robotic paddy planter (1: Micro controller board, 2: drive wheel, 3: seed hopper, 4: battery, 5: worm gear box, 6: dc motor, 7: stepper motor, 8: Bevel gear assembly, 9: Front steering wheel).

students and their mentor for each project:

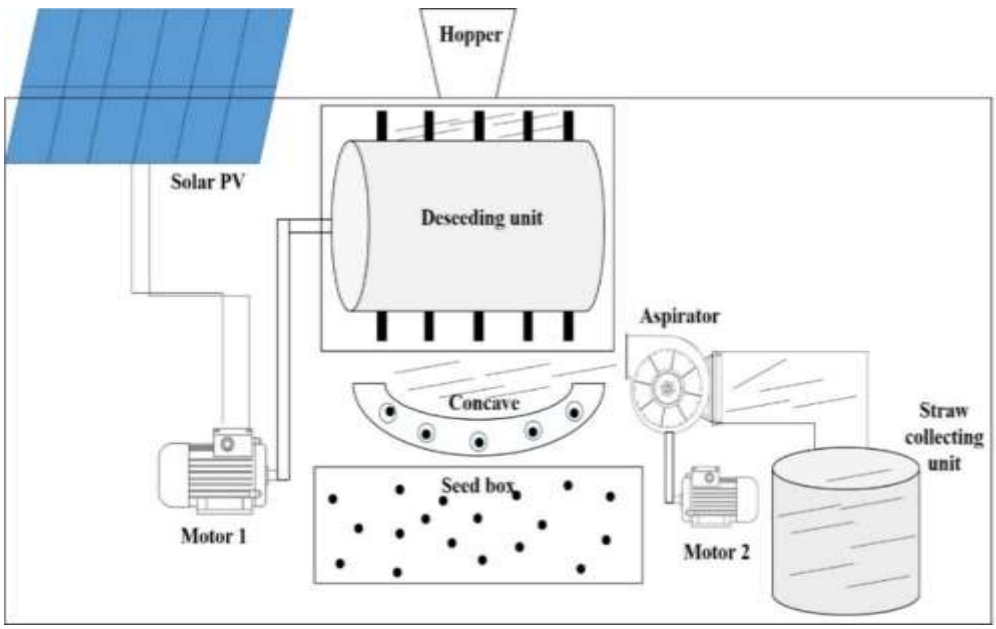
Project-14: Design and Development of Solar Operated Moringa De-Seeder

1. **Project Title** Design and Development of Solar Operated Moringa De-Seeder
2. **Mentor Name** Dr. S.K.Jain
3. **Student Team Names :** I. Ramapa II. Md. Aman Sheikh III. Riddham Agrawal
4. **Project Description :** Moringa pods are still manually removed by hand or by hitting a bag containing the pods, which is labor-intensive, time-consuming, and uneconomical. Innovative deseeding methods that increase the Moringa seed's market value are required by the need for high-quality oil-bearing Moringa seeds, which have numerous industrial applications. In the current project a Moringa deseeding machine has been created to address these issues, although studies on performance evaluation and the best parameter settings are scarcely documented.

   The Moringa seeds separated by the deseeder can be utilized for the making of value added products. A wide range of bioactivities, such as antibacterial, antioxidant, antiviral, anti-diabetic, hepatoprotective, anticancer, and cardio-protective activity, have been demonstrated by the bioactive peptides or protein hydrolysates derived from Moringa seeds. Additionally, Moringa protein can be used as a natural alternative to modify functional food properties like the ability to absorb oil and water,

the solubility of emulsions, the stability and activity of foaming, the hydrophobicity of food surfaces, the functionalization of fluorescence intensity, etc. India is the prime producer of Moringa (Drumstick) with an annual production of 2.2 million tonnes of tender fruits from an area of 43,600 ha leading to the productivity of around 51 tonnes per ha. As fas as the innovation's benefit to the society is concerned , the developed technology can be useful for the small industries and the innovative farmers to achieve the high efficiency of work can be done in short time. The manual operation of the post-harvest process requires more manpower but this can avoid the drudgery. This can be reducing the greenhouse gas emission and pollution by using the solar power and also creating the economic development.

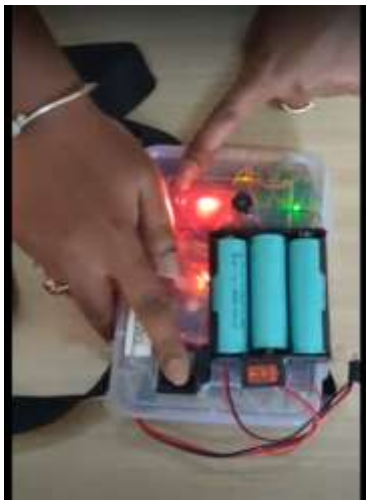
5. **Project status at beginning of the Year :**
   - Proof of concept was prepared
6. **Interventions made :**
   - Proto type model has been developed
7. **Current status**
   - Product field testing is Ongoing
8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each project:**

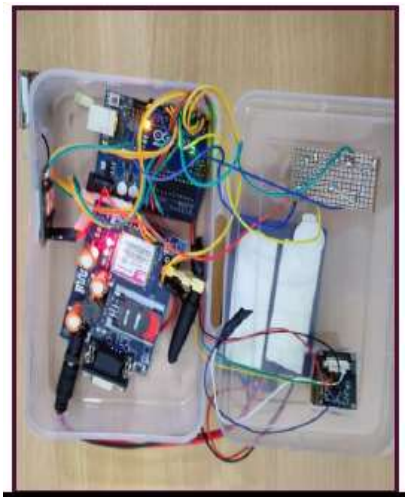


Project-15: Emergency safety device with automatic tracking and alert system

1.	**Project Title**	Emergency safety device with automatic tracking and alert system
2.	**Mentor Name**	Dr. Navneet Agrawal
3.	**Student Team Names**	I. Prashant Sharma II. Priyansha Singh III. Abhishak Nakwal IV. Ashish Kumar V. Vineet Kumar
4.	**Project Description**	As the threat against the senior citizens, women and children are increases rapidly, here we propose a system in order to provide a security precaution, so that person never feels helpless while facing any kind of social challenges. This project quite concerns to a wireless technique in the form of Embedded device namely “Emergency Safety Device” for women, senior citizen and children. The model has been designed in such a way that it detects the location of victim and allows the rescue system to take action accordingly, based on the electronic gadgets like GPS, Buzzer informing the police control room and the relatives on pre-fed contact numbers keeping the user and their associate safe 24/7. The basic approach of the use of Arduino is sending and receiving data by the GSM shield provided in the Arduino board. The current location of the object is identified by the GSM network using Arduino UNO by initiating the user’s smartphone At once the Arduino UNO gets the directs of the current location the Arduino transfers the coordinate details to the registered user’s smartphone via Arduino GSM shield. The SOS light is a signal used to alert the person walking by and it gives the sign of universal help to the victim. The alarm buzzer is activated if the woman is in a threat location. At times of critical situations when the woman is not able to send message or make a call to the registered contacts via GSM and GPS this device automatically sends the alert. Even the device is lost, the message is sent continuously.
5.	**Project status at beginning of the Year**	• Proof of concept was prepared

6. **Interventions made**
   - Proto type model has been developed and tested in the college.
7. **Current status**
   - Completed
8. **High resolution pictures showing the Prototype / product along with the students and their mentor for each project:**





NewGen IEDC-Dr. M. G. R. Educaional and Research Institute

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: Fifth Year (2022-23)

Name of the Institution hosting NewGen IEDC	Dr. M. G. R. Educaional and Research Institute		
Year of starting NewGen IEDC	2017-2018		
Name of the Head of the Institution	Mr. ACS. Arun Kumar		
Name of NewGen IEDC Coordinator	Dr. J. Arun Kumar		
Contact Details of NewGen IEDC Coordinator • Mobile Number • Email ID	+91 6379554847 dean-ie@drmgrdu.ac.in		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Sanction Order Details	1	EDII/DST-NewGen IEDC/17-18/09	Rs. 60,00,000
	2		Rs. 47,50,000
	3		Rs. 60,00,000
	4		Rs. 60,00,000
	5		Rs. 60,00,000

1. **Details of Activities Undertaken during the year:**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No	Activities	Duration	Period
1	Tech Talk on Accelarating startup success	1 Day	November 2022
2	Business Canva Model	1 Day	November 2022
3	Entrepreneurship Journey	1 Day	November 2022
4	Mastering your startup story's	1 Day	December 2022
5	FDP on Innovation to Incubation	1 Day	December 2022
6	ISR Events on collaboration with Industry	1 Day	January 2023
7	National Intellectual Property awareness mission	1 day	January 2023
8	Business hackathon	1 Day	Febraury 2023
9	FDP on Innovation and Entrepreneurship	2 Days	March 2023
10	Session on entrepreneurship	1 Day	May 2023
11	Innovation week	6 Days	June 2023
12	Unleash the Entrepreneurial Potential	1 Day	July 2023
13	Pitch Session	2 Days	August 2023
14	Green Innovation and Sustainable Entrepreneurship conference	1 Day	August 2023
15	Entrepreneurship Bootcamp	3 Days	September 2023
16	Break the Tech Session	1 Day	October 2023
17	NewGen Awards	1 Day	October 2023

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Duration	Period
1	IIT Pals Lab to Market	1 Day	November 2022
2	Workshop on Patenting of intellectual Property	3 Days	January 2023
3	Brainstorming on growing your business	3 Days	Febraury 2023
4	Entrepreneurial workshop for design thinking	1 Day	March 2023

Sr. No.	Activities	Duration	Period
5	Brainstroming on growing your business	1 Day	April 2023
6	IPR session	4 weeks	May 2023
7	Matching solutions with real world Problem	1 Day	June 2023
8	Hackathon	5 Days	June 2023
9	FDP on Innovation and Entrepreneurship	5 Days	July 2023
10	Session on venture vision	3 Days	August 2023
11	ERRC (Eliminate-Raise- Reduce-Create) model debrief session	1 Day	September 2023

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Duration	Period
1	NIUA Madras Chamber of commerce Planning for Net Zero City	1 Day	December 20233
2	4th Chamber-Indo UAE Economic Chamber of Commerce	1 Day	January 2023
3	Startup gravity - Deshpande Startup	3 Days	Febraury 2023
4	Indian step and Business Incubator Association	3 Days	March 2023
5	Tamilnadu Smart and Advanced Manufacturing centre	1 Day	April 2023
6	TICEL Biopark visit	1 Day	May 2023
7	Redington Startup Connect	1 Day	June 2023
8	Entrepreneurship Awareness Program TANSTIA-FNF experts regarding B plan	1 Day	July 2023
9	MMC- Incubation Manager Hustle	1 Day	August 2023

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Nil

3. Other important highlights (new initiatives), if any:

4. Student Projects

Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos

5. Provide a minimum two-page case let each on the two best student projects (either prototype developed or commercialized) from the above list. The case lets should include the following:

Best Student Project-01:

I. **Mentors Name** **:** Mr. Dhilipkumar

II. **Student team details**

Shahira Shabnam S

S. Sreeram

Manvitha Pradayini

III. **Brief description of the student start-up**

- In a world striving for eco-conscious solutions, the concept of crafting bags from plastic waste has emerged as a powerful response to the global issue of plastic pollution. By repurposing discarded plastic materials, this innovative approach not only addresses environmental concerns but also paves the way for a sustainable alternative to traditional bags. Creating bags from plastic waste embodies the concept of upcycling, transforming materials that would otherwise contribute to environmental degradation into functional and practical products. This approach aligns with the principles of circular economy and contributes to reducing the demand for new raw materials. Bags from plastic waste can be designed in various shapes, sizes, and styles, catering to diverse consumer preferences. These bags are often designed to be sturdy and long-lasting, reducing the need for frequent replacements.

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

- The journey of Indian Bevite began with a simple yet impactful idea - repurposing PET bottles into sustainable bags. The founders envisioned a solution that could address the plastic waste problem while creating functional products. The ideation phase involved brainstorming sessions, research on plastic recycling techniques, and exploring design possibilities.

V. Contribution of NewGen IEDC in the same

- NewGen IEDC provides startups with physical infrastructure, office space, and access to essential amenities, creating an environment conducive to innovation and collaboration.
- One of the significant contributions of NewGen IEDC is its mentorship and guidance. It connects startups with experienced entrepreneurs, industry experts, and mentors who provide insights, advice, and guidance on various aspects of business development, strategy, and problem-solving.
- Incubation cell facilitates networking events, industry interactions, and pitch sessions, providing startups with opportunities to connect with potential investors, partners, customers, and collaborators.

VI. Future plan

- Recognizing the potential for innovation, the students plan to enhance the efficiency and capabilities of their PET bottle-to-bag converter. They aim to incorporate advanced technologies that streamline the conversion process, ensuring higher precision and speed while maintaining the quality of the final product.
- The students aspire to collaborate with fashion designers who share their passion for sustainability. By combining their converter technology with innovative designs, they can create unique bags that not only make a statement but also contribute to reducing plastic waste.
- The students plan to track and measure the positive impact of their initiative on both the environment and local communities. They aim to create a transparent system that showcases the number of PET bottles diverted from landfills, carbon emissions reduced, and jobs created through their efforts.

VII. Important highlights

- The students embarked on a remarkable journey by recognizing the power of collaboration with existing industries that specialize in converting PET bottles into fabrics. Their partnership with these industry brings a new dimension to their mission of sustainability and innovation.

Best Student Project-02:

I. **Mentors Name** **:** Ms. Ranjitha

II. **Student team details**

Dharshini

Dinesh

Sanjairam

III. **Brief description of the student start-up**

The students working on the startup dedicated to redefining sun protection through the power of herbal ingredients. Recognizing the increasing concern for both effective sun defense and natural skincare, a unique herbal sunscreen that provides superior protection while prioritizing the well-being of the skin and the environment.

At the core mission it is a commitment to harnessing the potency of herbal extracts and botanicals known for their natural sun-shielding properties. The startup's research and development team meticulously selects and blends these ingredients to create a sunscreen that offers broad-spectrum protection against harmful UV rays, without the use of harsh chemicals or synthetic additives.

This herbal sunscreen is carefully formulated to cater to diverse skin types, ensuring a gentle and soothing experience for all users. The herbal ingredients not only shield the skin from the sun's rays but also deliver nourishing antioxidants, vitamins, and minerals that contribute to overall skin health. This innovative approach aligns with the growing demand for skincare products that not only perform effectively but also contribute positively to skin vitality**.**

IV. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**

The team of skincare enthusiasts and herbal experts who shared a vision of revolutionizing sun protection. They identified the need for a herbal sunscreen solution that embraced the power of nature's ingredients to shield and care for the skin. Extensive research was conducted to explore the benefits of various herbs and botanicals in sun protection and skincare.

Armed with a wealth of herbal knowledge, the team embarked on formulating a sunscreen that harnessed the sun-shielding properties of botanicals. They

collaborated with experienced chemists to blend herbal extracts, natural oils, and soothing ingredients into a sunscreen formula that not only offered protection but also nourished and rejuvenated the skin.

V. Contribution of NewGen IEDC in the same

- NewGen IEDC provides startups with physical infrastructure, office space, and access to essential amenities, creating an environment conducive to innovation and collaboration. This support allows startups to focus on developing their ideas and products without the burden of administrative and logistical challenges.

VI. Future plan

- Sustainability remains a top priority for the students. They plan to explore innovative packaging solutions that minimize environmental impact. This might include biodegradable materials, refillable containers, or packaging designs that offer extended product life with reduced waste. They are also working in future collaboration with the esixting solutions.

VII. Important highlights

The team's dedication to their sunscreen innovation has yielded promising results, as they conducted thorough testing with a diverse group of users, receiving exceptionally positive feedback. This validation highlights the efficacy and appeal of their product.

Annexure-A

Details of Student Projects: Fifth Year

Project-01: Agro Dev

1. **Project Title** : Agro Dev
2. **Mentor Name** : Dr. Swapna
3. **Student Team Names:** Meenakshi, Mahalakshmi, Keerthana
4. **Project Description:**

   AgroDev appears to be a comprehensive agricultural device tailored for small-scale horticulture. By providing essential materials, efficient irrigation, and innovative soil solutions, it aims to make gardening and cultivation more accessible and productive for individuals with limited space and resources. The inclusion of a water sprinkler system simplifies irrigation and ensures even water distribution across the garden or small landhold. This is beneficial, especially for users who may not have the time or resources to water their plants manually. Instead of traditional soil, AgroDev offers a coco peat mixture soil. Coco peat is a renewable resource made from coconut husks and has excellent water retention properties. It can improve soil structure, promote root growth, and reduce the need for frequent watering. Through this device the soil quality can be monitored as well as with the better efficiency in crop yielding can be done in easier way.
5. **Project status at the beginning of the Year:**
   - Ideation and uncorroborated process
6. **Interventions made:**
   - Defining and understanding the problem and its causes
   - Identifying which causal or contextual factors are modifiable
   - One on One meeting with the Mentor and farmers.
7. **Current status:**
   - Confirmed process and mechanism for Proof of Concept development.
   - Completion of Initial Market research and customer’s survey.

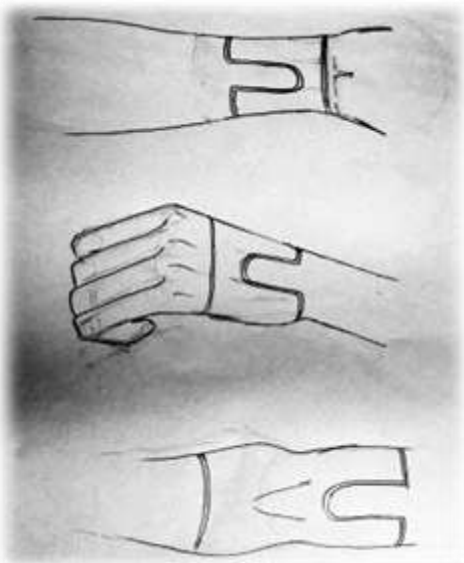
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-02: Cannula Protector

1. **Project Title** **:** Cannula Protector
2. **Mentor Name** **:** Dr. J. Arun Kumar
3. **Student Team Names:** Mohamed Shakeel Athar , Ashwin Raam V
4. **Project Description:** In our project, we aim to address a critical aspect of medical care by focusing on enhancing the safety and comfort of patients who require cannulas for various medical procedures. Our mission is to develop a specialized cannula band that offers superior stability and security, reducing the risk of accidental movement. Its main focus is comfort, safety and uninterrupted treatment for patients for a secure medical environment in the

hospitals and houses especially for the bed ridden patients. Through our product the blood leakage and other menace situations can be avoided.

5. **Project status at the beginning of the Year:**
   - Ideation stage without any proofs or samples.
6. **Interventions made:**
   - Defining and understanding the problem and its causes
   - Survey among the patients and care takers of them haven taken.
   - One on One meeting with the mentor and patients.
7. **Current status:**
   - The basic design and concept of the device have been completed.
   - In the process of developing Lab type prototype.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-03: Floreal- Flower Waste Management

1. **Project Title** **:** Floreal- Flower Waste Management
2. **Mentor Name** : Ms. Varsheni Nagarajan
3. **Student Team Names:** Hitarthi Sharma**,** Maga Shree T., Syed Shabbir Ahmed
4. **Project Description:** After serving their decorative purposes in various social and religious ceremonies, they get dumped and that's so brutal. Dumping and disregarding of flowers leads to the accumulation of floral waste which in-turn poses huge threats like water pollution, land pollution, water clogging, death of aqua life and water/air borne infections. This problem has spread its roots so much that more than 80 million metric tonnes of floral waste is generated just in India while the world statistics cross the ratio of billions. For overcoming this problem of accumulation of floral waste and tackling its fatal after effects, we have come up with our solution: FLO-REAL. FLO-REAL is the name of our company which is all set to revolutionise the herbal industry and bring justice to all those discarded flowers by recognising their actual potential that goes far beyond only serving as decor for humans. Within the span of 3 days, flowers from various places like marriage ceremonies, religious places, etc. will be gathered and altogether they will be sent for processes like crushing, turbulence, enfleurage, distillation and extracting. Furthermore, these will be used for making our major FLO-REAL products i.e., non-alcoholic perfumes, lip balms, scented candles, floral soaps, scented candles, skin oils and lemon grass/chrysanthemum tea. Not only our products will bring a big solution to solve the problem of floral waste but also, they will be a new and safe addition to the herbal industry in terms of health, hygiene and beauty and products. We satisfy the 3 R's i.e., Reuse, Reduce and Recycle.
5. **Project status at the beginning of the Year:**
    - Ideation stage without any proofs or samples.
6. **Interventions made:**
    - Brainstorming session with the team.
    - On field interaction with the decorators and flower vendors.
    - One on One meeting with the mentor and patients.

7. **Current status:**
    - Samples of perfumes, dyes and flower extracts have been made.
    - Working on the customer segments and market survey.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

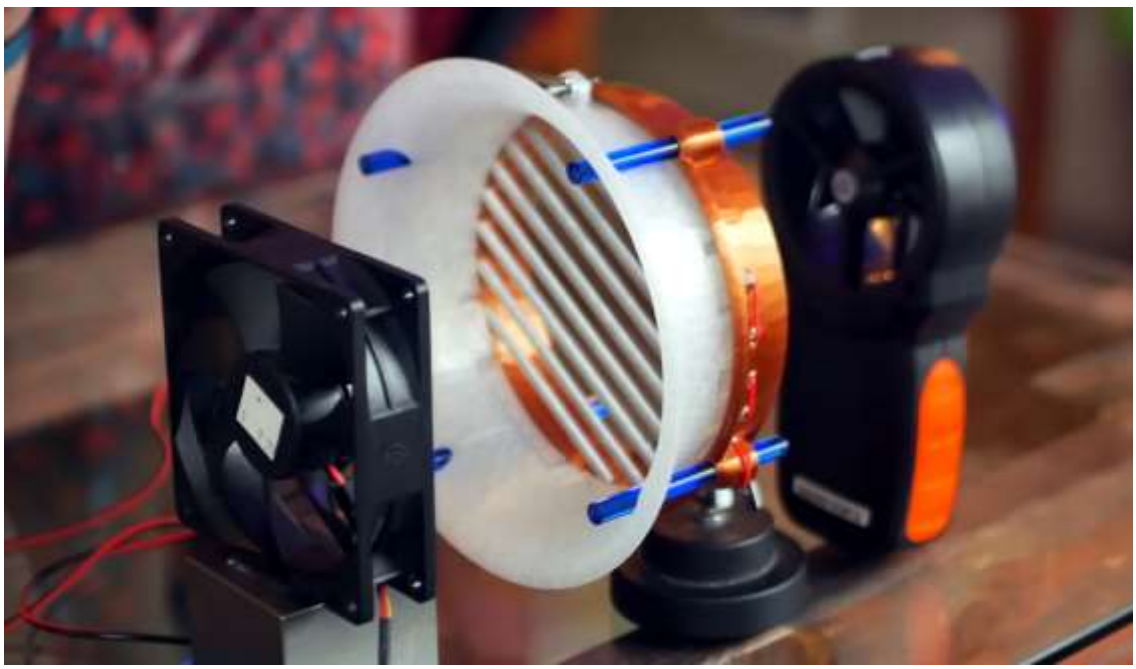
Project-04: Herbal Sunscreen Sachet

1. **Project Title** **:** Herbal Sunscreen Sachet
2. **Mentor Name** **:** Ms. Ranjitha
3. **Student Team Names:** Dharshini, Dinesh, Sanjay Ram, Sanjeev
4. **Project Description:** Synthetic and chemical substance present in sunscreen that is already existed in market. High cost for dermatologically recommended sunscreen. Causing white cast problem in product application. Currently semi synthetic sunscreen product in the market. We provide affordable sunscreen sachet in pharmacy store and dermatology clinical pharmacy in hospital. Availability of our product in the local stores 90 percentage of natural ingredients is used in our sunscreen. Since we are planning to sell our product in the Sachet form we could able to reach more people market where the existing brands and sunscreen products lags. Since our product has been manufactured majorly using the natural ingredients there isn't need of huge investments for the chemicals and preservatives.
5. **Project status at the beginning of the Year:**
   - Ideation with a sample of developed sunscreen.
6. **Interventions made:**
   - Customer need and market survey requirement.
   - Produced sample have been improved based on consumer feedbacks.
   - One on One meeting with the Mentor.
7. **Current status:**
   - Samples of sunscreen extracts have been made.
   - Working on the customer segments and market survey.
   - Finalizing the formulation and licensing of the product.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-05: Plasma Thrusters for Dones

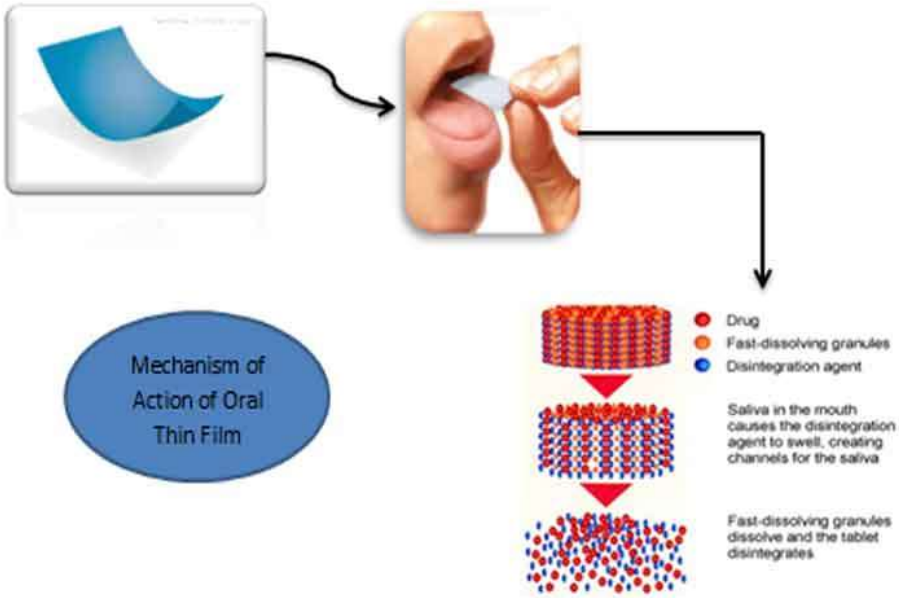
1. **Project Title** **:** Plasma Thrusters for Dones
2. **Mentor Name** **:** Mr. Madheshwaran
3. **Student Team Names:** Mohammad Ayesha Summaiyya
4. **Project Description:** In the current developing technological world drones plays a major role in surveillance and other purposes depending on the needs, but the battery storage and capability aren't enough to withstand the necessity duration of fly time for the surveillance and other operational purposes. By the potential of plasma-based propulsion, this project aims to enhance the performance, agility, and versatility of military drones, ultimately transforming their capabilities for reconnaissance, surveillance, and tactical operations. Our idea of implementing the plasma thruster in the drone can resolve this problem and this will increase the lifetime as well as efficiency of the drone. Through this the carbon emission and the carbon footprints in the atmosphere caused via the production and charging the batteries can be reduced. Plasma thruster Development by cutting-edge plasma thrusters capable produces high thrust-to-weight ratios and efficient propulsion, enabling drones to achieve unprecedented speeds, maneuverability, and endurance. We can make with plastic like ABS, PTEFS, PLA, PC.
5. **Project status at the beginning of the Year:**
    - Ideation stage with a theoretical study.

6. **Interventions made:**
    - Defining and understanding the problem and possibility.
    - Identifying which causal or contextual factors are modifiable.
    - One on One meeting with the Mentor.
7. **Current status:**
    - Lab test model of demonstrating the operation of principle.
    - Working on the improvisation and practical implementation.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-06: Buckal Films for Mouth Ulcer

1. **Project Title** : Buckal Films for Mouth Ulcer
2. **Mentor Name** : Dr. Geethalakshmi
3. **Student Team Names:** Dev R, Naresh
4. **Project Description:** Currently there aren't any herbal product available for the mouth ulcer, only the home made remedies and other chemical gels are used as the immediate solution for the mouth ulcers. Our product is completely made of herbals without any preservatives our team is on the researching and selecting herbal ingredients known for their anti-inflammatory, antiseptic, and healing properties. Formulating the buckal using the selected ingredients to create an effective and safe product. Conducting comprehensive testing, including clinical trials, to assess the balm's efficacy and safety. Designing appropriate packaging that highlights the product's natural ingredients and benefits.
5. **Project status at the beginning of the Year:**
   - Ideation stage with a developed sample of film.
6. **Interventions made:**
   - Defining and understanding the problem with customer survey's.
   - One on One meeting with the Mentor.
7. **Current status:**
   - Working on the licensing and formulation of the product.
   - Development of lab sample for testing and trial samples.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-07: Patrone – Drones for Traffic survillence

1. **Project Title** **:** Patrone – Drones for Traffic survillence
2. **Mentor Name** **:** Mr. Dhilipkumar
3. **Student Team Names:** Govardhan A.V**,** Hussain S
4. **Project Description:** The main motive of the project is to solve the causes of damage of drones and to improve its safety standards in an effective and innovative approach. The repair and refurbishing cost of the drones are costlier therefore it's not much affordable for all the users. A much more safe and effective drone with improved safety standards. Implementing a new and innovative approach in drone, a constantly developing field. The final product depicts developed and cost effective drone to all the users by reducing the repair and refurbishing cost. This will increase the overall lifetime of the drones and will reduce the wastes produced via the drones that get damaged easily.
5. **Project status at the beginning of the Year:**
   - Ideation stage with a theoretical study and proof.
6. **Interventions made:**
   - Defining and understanding the problem with market research data.
   - Brainstorming sessions have been made with the team.
   - Conducted one on one interview with the customers.

7. **Current status:**
    - Working on the prototype development.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-08: Indian Bevite – Bags made of Pep bottles

1. **Project Title** **:** Indian Bevite – Bags made of Pep bottles
2. **Mentor Name** **:** Mr. Dhilipkumar
3. **Student Team Names:** Shahira Shabnam S, S. Sreeram, Manvitha Pradayini
4. **Project Description:** In a world striving for eco-conscious solutions, the concept of crafting bags from plastic waste has emerged as a powerful response to the global issue of plastic pollution. By repurposing discarded plastic materials, this innovative approach not only addresses environmental concerns but also paves the way for a sustainable alternative to traditional bags. Creating bags from plastic waste embodies the concept of upcycling, transforming materials that would otherwise contribute to environmental

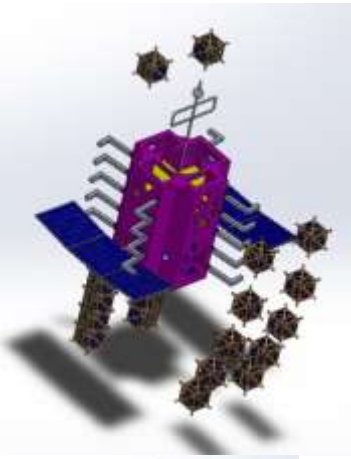
degradation into functional and practical products. This approach aligns with the principles of circular economy and contributes to reducing the demand for new raw materials. Bags from plastic waste can be designed in various shapes, sizes, and styles, catering to diverse consumer preferences. These bags are often designed to be sturdy and long-lasting, reducing the need for frequent replacements.

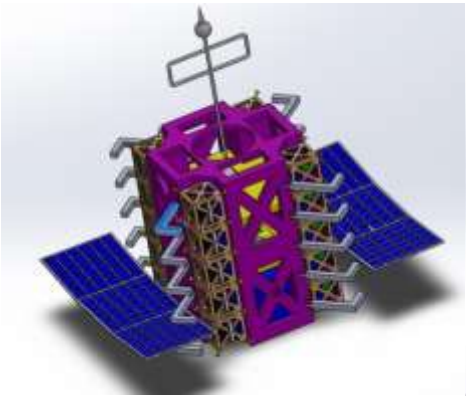
5. **Project status at the beginning of the Year:**
    - Ideation stage with confirmed process and methodology.
6. **Interventions made:**
    - Brainstorming session has been made.
    - One on One meeting with the Mentor.
7. **Current status:**
    - On process of collaboration with plastic recycling industry.
    - The basic design of the bag is designed.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

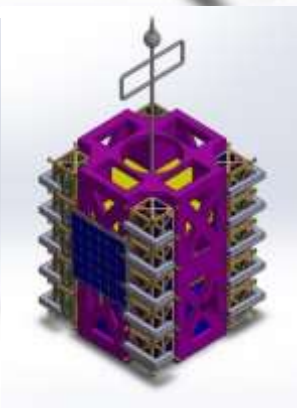
Project-09: AEGIS Swarm Satellite

1. **Project Title** **:** AEGIS Swarm Satellite
2. **Mentor Name** **:** Mr. Madheshwaran
3. **Student Team Names:** Priyanka, Sedhukarasi, Shivathmika
4. **Project Description:** In an era of advancing technology, satellite surveillance has emerged as a powerful tool to support sustainable fisheries management. By providing real-time data and insights, satellite technology offers invaluable assistance to fishing communities, regulatory agencies, and environmentalists alike, ensuring the responsible utilization of marine resources. Satellite surveillance involves the use of satellite imagery, communication, and tracking systems to monitor fishing activities, detect illegal practices, assess fish stock levels, and promote sustainable management of marine ecosystems. Fishing vessels are equipped with satellite-linked transponders that transmit their real-time location, enabling authorities to monitor vessel movements and detect unauthorized activities. Satellites capture high-resolution images of oceanic areas, helping to identify fishing hotspots, illegal practices, and changes in marine environments. Satellite technology aids in estimating fishing yields and monitoring catch sizes, contributing to sustainable quota management and preventing overfishing. Satellites assess factors like sea surface temperature, chlorophyll levels, and ocean currents, providing insights into ecosystem health and dynamics. Satellite surveillance promotes responsible fishing practices by enabling informed decision-making and preventing overexploitation of marine resources. Real-time tracking and monitoring discourage illegal, unreported, and unregulated (IUU) fishing activities. By monitoring environmental indicators, satellites aid in protecting fragile marine ecosystems and biodiversity. Satellite-generated data helps policymakers formulate evidence-based regulations and conservation strategies.
5. **Project status at the beginning of the Year:**
    - Ideation stage with a Proof of Concept model.

6. **Interventions made:**
    - Brainstorming session has been made.
    - Customer discovery and the market research surveys have been initiated.
7. **Current status:**
    - Working on the development for MVP.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



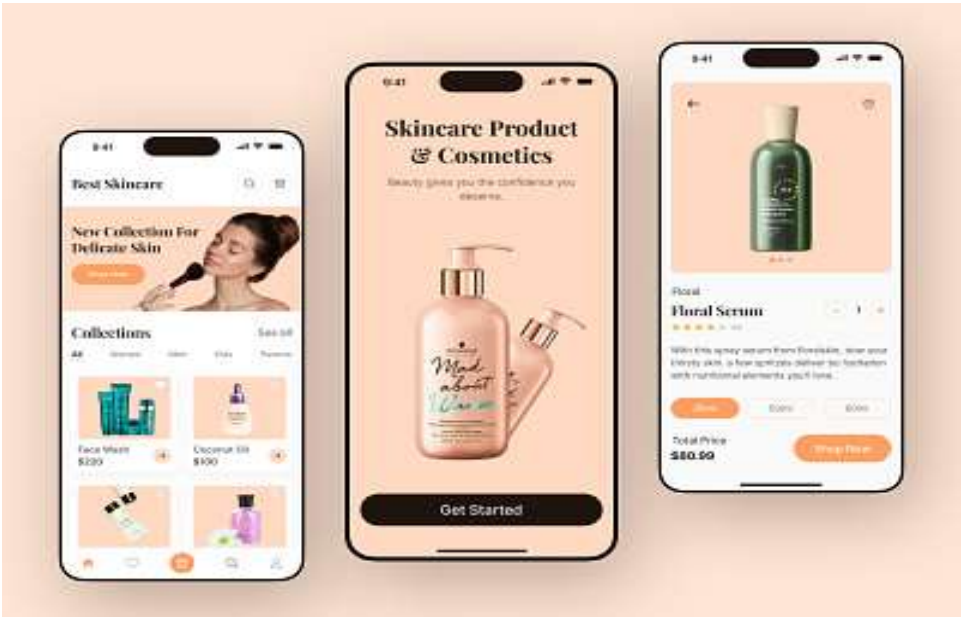




Project-10: Online platform for Dermatology

1. **Project Title** **:** Online platform for Dermatology
2. **Mentor Name** **:** Ms. Gomathi
3. **Student Team Names: Girshani Sathish, Keerthi**
4. **Project Description:** Derma-ConX is a revolutionary solution addressing a significant issue affecting people's quality of life – limited access to vital skincare services. This problem is especially prevalent in low-income communities, where dermatologist availability is scarce. Research shows that a substantial portion of the population, ranging from 7% to 60%, grapples with various skin complications. Existing solutions like Cureskin, Plum, and Skinkraft attempt to fill this void, but Derma-ConX goes beyond, offering an all-encompassing remedy. Our simple mobile application serves as a one-stop-shop for a wide array of skin-related concerns. With a comprehensive range of remedies and expert consultations, we're dedicated to addressing these issues effectively. Leveraging cutting-edge technology, Derma-ConX is powered by BuildFire – an intuitive app builder requiring no coding knowledge. Its drag-and-drop interface, robust features, and user-friendly dashboard ensure a seamless user experience. Users gain access to a wealth of skin care remedies and expert consultations, all within the app. Our target market primarily focuses on major cities, representing approximately 20% of the total population. The immense potential customer base spans the age bracket of 20 to 35, reflecting a sizable demographic. By targeting this audience, we're poised for substantial growth and expansion.
5. **Project status at the beginning of the Year:**
    - Ideation stage with the basic market research.
6. **Interventions made:**
    - Defining and understanding the problem.
    - Brainstorming have been made with the team.
7. **Current status:**
    - Working on the customer segment and niche market.
    - In process of designing the application/webpage interface.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-11: AI to detect and monitor Pet

1. **Project Title** **:** AI to detect and monitor Pet
2. **Mentor Name** **:** Mr. Kamesh
3. **Student Team Names: Hemachandran PD**
4. **Project Description:** In recent years, technological advancements have revolutionized various industries, and the pet care sector is no exception. One such innovation that holds immense potential in the pet care industry is "PetFit" – a cutting-edge remote health monitoring device designed to keep a watchful eye on your beloved pets and provide real-time health insights to pet owners. With its seamless data collection and mobile integration, PetFit has

the potential to make a significant impact on the way we care for our furry companions. PetFit is a compact and lightweight device that attaches comfortably to a pet's collar or harness. Equipped with a range of sensors and advanced monitoring technologies, the device continuously tracks various health metrics, including heart rate, activity levels, temperature, and even sleep patterns. The device is designed to be comfortable for pets to wear, ensuring that it doesn't cause any discomfort or disturbance to their daily activities. Real-Time Data Collection: PetFit's sensors work in tandem to gather a wealth of data throughout the day. The device employs state-of-the-art algorithms to process the collected data and generate comprehensive health reports. Pet owners can access these reports through a dedicated mobile app or web portal, providing them with a real-time overview of their pet's well-being. Early Detection: PetFit's continuous monitoring helps detect potential health issues at an early stage, enabling timely intervention and reducing the risk of complications.

5. **Project status at the beginning of the Year:**
    - Ideation stage with the basic field research.
6. **Interventions made:**
    - One on One interviews have been made with the veterinarian.
    - Brainstorming session has been made to improvise the idea.
7. **Current status:**
    - In process of MVP development.
    - Finalizing the design of the MVP.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-12: Herbal Mouth Wash

1. **Project Title** **:** Herbal Mouth Wash
2. **Mentor Name** **:** Ms. Gomathi
3. **Student Team Names: Sidda Rithika Reddy,**
4. **Project Description:** Prakrithi Danta Swasthya is an innovative oral care startup dedicated to providing consumers with a premium, effective, and natural mouthwash solution. Our mouthwash is specially formulated to promote oral health, eliminate bad breath, and ensure a refreshing mouthfeel, all while using eco-friendly and sustainable ingredients. With a team of passionate scientists, and entrepreneurs, we aim to revolutionize the oral care industry and improve the daily oral hygiene routines of millions of people. Our mission is to empower individuals to achieve optimal oral health through the use of our natural and eco-friendly mouthwash. We aim to be the leading oral care brand known for its commitment to sustainability, scientific innovation, and consumer satisfaction. Prakriti Danta Swasthya innovative approach to oral care, coupled with its dedication to sustainability, sets it apart in the market. We are excited to revolutionize the oral care industry, one refreshing mouthwash at a time, while leaving a positive impact on the environment and communities worldwide. Together, let's achieve healthier smiles and a cleaner planet with Prakriti Danta Swasthya
5. **Project status at the beginning of the Year:**
   - Ideation stage with few ayurvedic samples research.
6. **Interventions made:**
   - Defining and understanding the problem.
   - Validating the market size and customer need.
7. **Current status:**
   - In process of getting infield contacts with the customers and consumers.

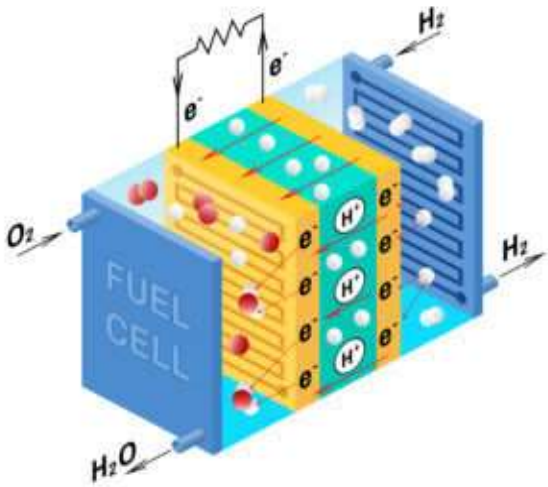
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

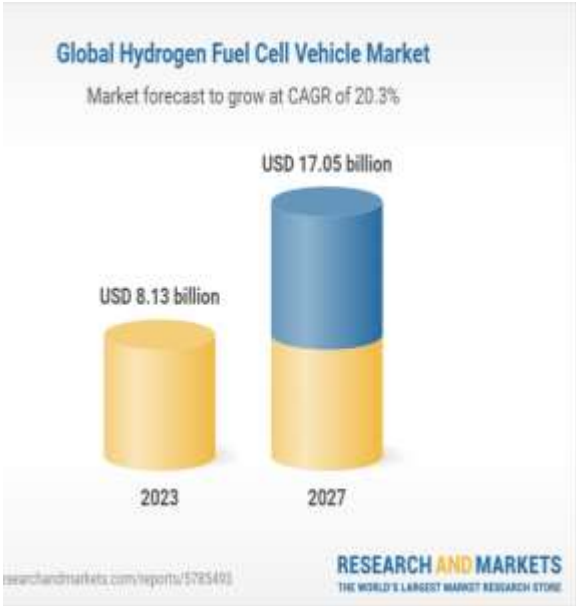
Project-13: Efficient Miniature Hydrogen fuel cells

1. **Project Title** **:** Efficient Miniature Hydrogen fuel cells
2. **Mentor Name** **:** Ms. Nivitha
3. **Student Team Names:** Yashwanth Chowdary
4. **Project Description:** In the quest for sustainable energy solutions, miniature hydrogen fuel cells have emerged as a game-changing innovation. These compact powerhouses harness the potential of hydrogen to generate electricity with remarkable efficiency, offering a clean and versatile energy source for a wide range of applications. The Essence of Miniature Hydrogen

Fuel Cells: Miniature hydrogen fuel cells are compact devices that convert hydrogen and oxygen into electricity through an electrochemical process. These fuel cells operate silently, emit only water vapor as a byproduct, and are uniquely suited to provide clean energy in situations where traditional power sources are impractical or unsustainable. Despite their small size, miniature hydrogen fuel cells pack a significant energy punch, enabling long-lasting power generation. Hydrogen fuel cells produce electricity without emitting greenhouse gases or pollutants, contributing to a cleaner environment. Refueling hydrogen fuel cells is swift and comparable to filling up a conventional vehicle, making them suitable for time-sensitive applications. From portable electronics and drones to remote sensing devices and backup power systems, miniature fuel cells cater to diverse energy needs. Hydrogen fuel cells operate silently, making them ideal for scenarios where noise pollution is a concern.

5. **Project status at the beginning of the Year:**
    - Ideation stage.
6. **Interventions made:**
    - Brainstorming has been made.
    - New insights have been implemented on the idea.
7. **Current status:**
    - In process of developing Proof of Concept.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





Project-14: Systematic design of Water recreational terrace gardening

1. **Project Title** : Systematic design of Water recreational terrace gardening
2. **Mentor Name** : Ms. Swetha
3. **Student Team Names:** Harini S, Balasubiksha S
4. **Project Description:** The concept of water recreational terrace gardening seamlessly blends the beauty of lush gardens with the tranquility of water features. This innovative design approach transforms conventional terrace gardening into an immersive oasis that not only nurtures plant life but also provides a serene and recreational environment for relaxation and enjoyment. Water recreational terrace gardening harmoniously integrates elements of water features, lush greenery, and recreational spaces into a single design. By incorporating water bodies, such as pools, fountains, or small ponds, alongside carefully curated plant arrangements, this concept redefines terrace gardening as a holistic sensory experience.Conduct a thorough analysis of the terrace's layout, sunlight exposure, wind patterns, and structural capacity. Create a detailed plan that outlines the placement of water features, green spaces, seating areas, and pathways. Carefully select water features that complement the terrace's size and style. Consider options like cascading waterfalls, reflecting pools, or meandering streams to add visual appeal and soothing sounds. Choose a mix of plants that thrive in the terrace's microclimate. Create layers of plant arrangements, using varying heights and

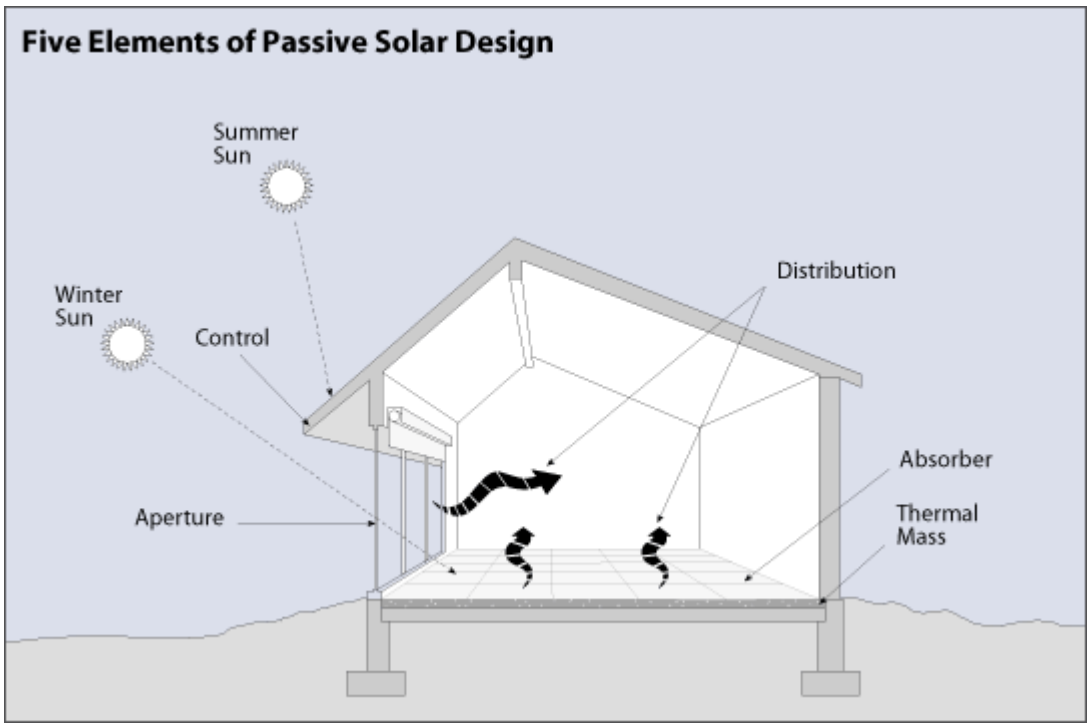
textures for visual interest. Incorporate ornamental plants, flowering species, and even small trees to enhance the garden's beauty. Integrate seating areas, lounges, or even hammocks strategically throughout the garden

5. **Project status at the beginning of the Year:**
    - Ideation stage with few Proof of Concept model.
6. **Interventions made:**
    - Developing the Unique Value Proposition on the product.
    - Market necessity and Cost structure of the product.
7. **Current status:**
    - Development of MVP.
    - Customer research and Market survey.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-15: Sustainable Indoor Environment using Sunlight

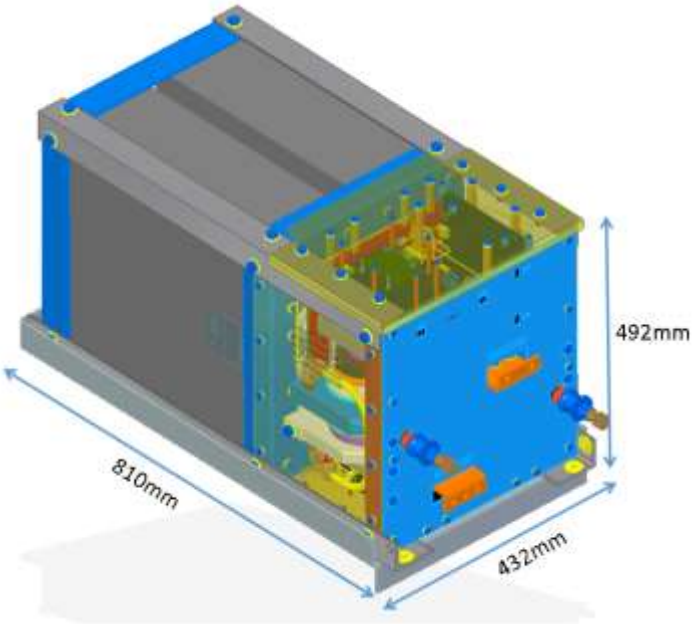
1. **Project Title** **:** Sustainable Indoor Environment using Sunlight
2. **Mentor Name** **:** Ms. Swetha
3. **Student Team Names:** A Harinya Meenu
4. **Project Description:** As the world embraces sustainability, the concept of using sunlight to enhance indoor environments gains prominence. This innovative approach not only reduces energy consumption but also promotes well-being by bringing the benefits of natural light and warmth into indoor spaces. Creating a sustainable indoor environment using sunlight involves strategic design, technological integration, and a commitment to minimizing the carbon footprint. Harnessing sunlight to create a sustainable indoor environment involves maximizing the use of natural light and solar energy for illumination, heating, and even power generation. By incorporating architectural features, smart technologies, and thoughtful design, indoor spaces can become more energy-efficient, visually appealing, and conducive to occupant well-being. Architectural elements like large windows, skylights, and light wells are strategically positioned to capture and distribute natural light throughout the interior space. Automated systems adjust artificial lighting levels based on the amount of available sunlight, reducing energy consumption without compromising illumination quality. Properly oriented windows and thermal mass materials help capture and store solar heat, regulating indoor temperatures naturally. Solar panels integrated into building facades or rooftops can convert sunlight into electricity, supplementing power needs sustainably. Dynamic glass with adjustable tint or shading properties can control the amount of light and heat entering indoor spaces, optimizing comfort and energy efficiency.
5. **Project status at the beginning of the Year:**
    - Ideation stage with simulation proof and research works.
6. **Interventions made:**
    - Understanding the market requirement and custoerm need.
    - Discussed with different architects with result produced via the stimulation.

7. **Current status:**
    - In process of getting infield contacts with the customers and **consumers.**
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-16: Modular Multilevel Convertor for Domestically usage

1. **Project Title** **:** Modular Multilevel Convertor for Domestically usage
2. **Mentor Name** **:** Dr. E. Sheeba Percis
3. **Student Team Names: BodduTejaswini,**
4. **Project Description:** The Modular Multilevel Converter (MMC) stands as a cutting-edge power conversion technology that has transformed the landscape of high-voltage direct current (HVDC) and medium-voltage applications. With its unique modular design and advanced control capabilities, the MMC has revolutionized the efficiency, stability, and flexibility of power transmission and distribution systems across various industries. At its core, the MMC is an innovative power converter that employs a modular architecture comprising multiple sub-modules or arms. Each sub-module consists of power electronic switches, capacitors, and other components, forming a series of voltage levels. This layered structure enables the MMC to achieve superior voltage waveform quality, reduced harmonics, and precise control of power flow.
5. **Project status at the beginning of the Year:**
   - Ideation stage with theoretical study.
6. **Interventions made:**
   - Design thinking was made with the team on the concept.
   - Improvising the idea for commercialization.
7. **Current status:**
   - In process of development lab model and Proof of Concept (PoC).
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

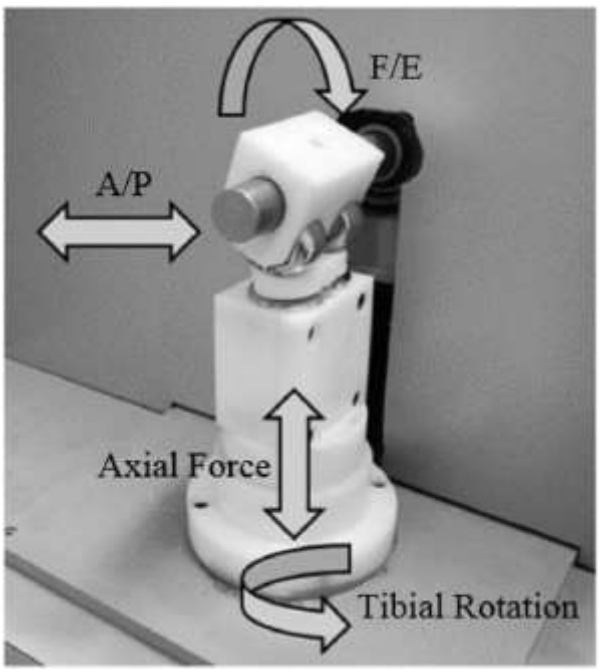


Project-17: Wear Test Simulator for Medical Implants

1. **Project Title** **:** Wear Test Simulator for Medical Implants
2. **Mentor Name** **:** Dr. N. Ethiraj
3. **Student Team Names:** Sateesh Shyav, Jeevan J and John Arthur. A
4. **Project Description:** The Medical implants, which is one of the trending topics at recent times, the implantable materials have various distinct characteristics, which are not exhibited by other materials. One of the most important factors which are needed to be checked before implant is the wear resistant, this factor which is responsible for the materials life period, and also determines when to make a retrieval surgery or replace the implant. Considering the various classification of implantable materials, each material has its own application, and also designed for distinct purpose. According to some of the background study, the wear test for a material is being done using various different techniques, such as Pin-on-disc, Linear reciprocating tribometer, etc., and some of the wealthiest countries uses some advanced devices such as simulators, but those kinds of simulators are very costly and also not every hospital can afford for those kinds of machine. Therefore, developing a simulator which can be useful for measure the wear resistance of an implantable material has its own significance in marketing and also very useful in estimating the life period of an implantable material. The price value of the implantable materials depends on the durability of a material, amount of

fatigue caused during the process, in case of biocompatible implants those materials are subject to various motion caused by the particular part of the body.

5. **Project status at the beginning of the Year:**
    - Ideation stage.
6. **Interventions made:**
    - Validating the problem and UVP.
    - Validating the market size and customer need.
7. **Current status:**
    - In process of developing the Proof of Concept.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-18: Automatic Variable Filtration (AVF) technology

1. **Project Title** **:** Automatic Variable Filtration (AVF) technology
2. **Mentor Name** **:** Dr. L. Ramesh
3. **Student Team Names:** Hariram Chandar
4. **Project Description:**

   The company will be called Smart RO Plant Chennai. It will provide a smart RO water purification system that uses AVF technology to automatically adjust the filtration process based on the quality of the incoming water. This will improve the efficiency and lifespan of the system, and it will also make it more affordable for customers.

   The target market for Smart RO Plant Chennai is households and businesses in Chennai. The city has a population of over 10 million people, and the demand for clean and safe drinking water is growing. Smart RO Plant Chennai will be well-positioned to capitalize on this demand with its innovative AVF technology.
5. **Project status at the beginning of the Year:**
   - Ideation stage with theoretical proof
6. **Interventions made:**
   - Brainstroming session with the Industrial persons.
7. **Current status:**
   - Working on design and practical implementation of the prototype.
   - Reverse Engineering the exhisting models and systems.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-19: An Extra-Terrestrial Laboratory for R&D

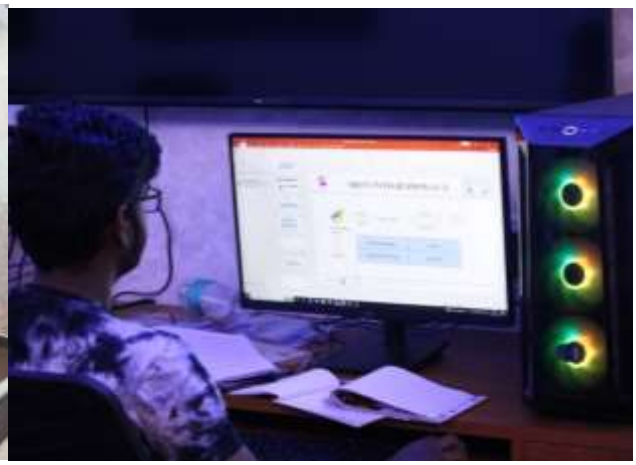
1. **Project Title** : An Extra-Terrestrial Laboratory for R&D
2. **Mentor Name** : D. Vishwanathan
3. **Student Team Names**: Madhan S, Naresh Kumar S and Sri Siva Sruthika St
4. **Project Description:**

   The difficulties with researching on the ISS are that not all researchers can get access, it takes a long time for the experiment to reach orbit and get the results back, it is very costly, and the experiments get only a shorter experimentation time before they are replaced with the other experiments. The most crucial point is that the ISS will be shut down by 2030, leaving only a few expensive choices. To solve this problem, we have a cost-effective, simple, and efficient solution. Our solution is to provide the customers with a platform on which they can host their experiments, which will be launched into orbit to begin the experimentation. Here, the customers can have as much experimentation time as possible, it is easier and faster to launch, and most importantly, anyone can do research in space with our services.

   Our market is the research and development section of various industries that would benefit from doing part of their R&D in space. In their analysis of the potential of microgravity by McKinsey & Company, they have found that if the following industries, like pharmaceuticals, beauty and personal care, semiconductors, food, and nutrients, move part of their R&D to space, they can grow their revenue by more than a billion dollars annually. If we look into the pharmaceuticals industry, they spend about $ 280 billion annually on their R&D, so if they move a small part of their R&D to space that benefits them in new drug development, testing procedures, etc., by providing services to this industry by allowing them to do research in space at a faster pace and cost-effectively, we can capture a part of the industry's spend on R&D annually.

5. **Project status at the beginning of the Year:**
   - Ideation stage.
6. **Interventions made:**
   - Validating the problem and UVP.
   - Validating the market size and customer need.

7. **Current status:**
    - In process of developing the Proof of Concept
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



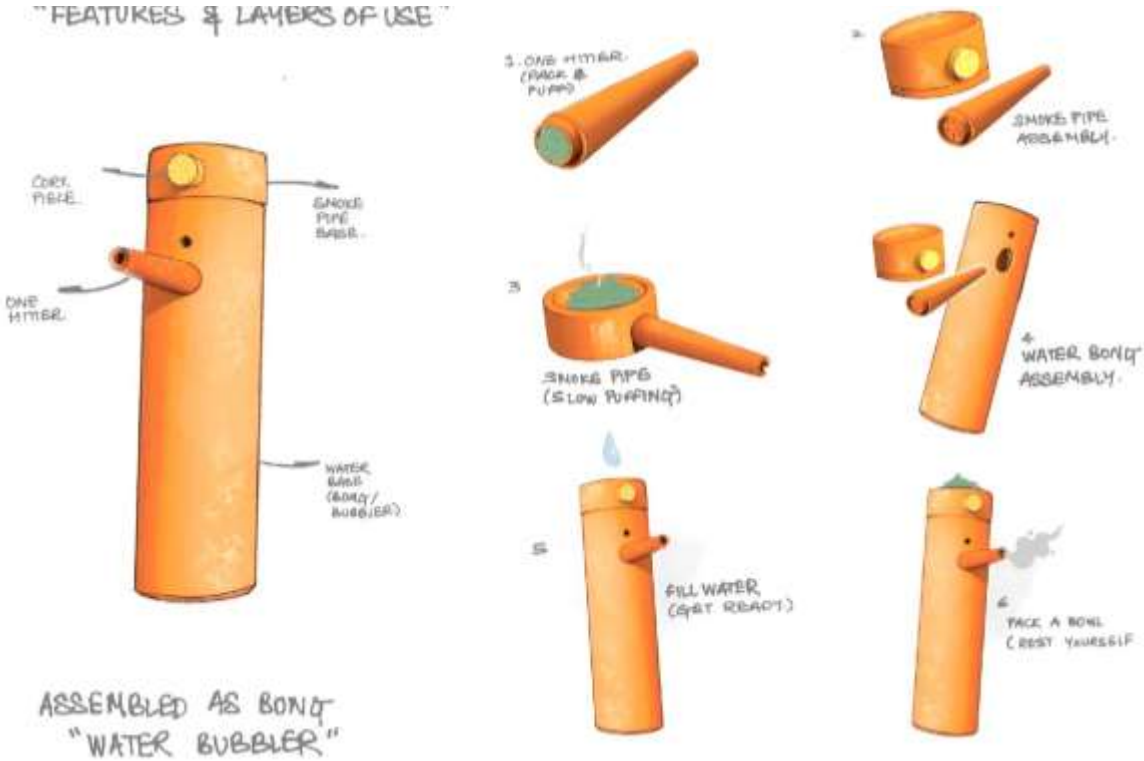
Project-20: Healing Balm

1. **Project Title** **:** Healing Balm
2. **Mentor Name** **:** Dhilipkumar M.
3. **Student Team Names:** S. Mohana Divya
4. **Project Description:**

   Nostril problems, such as congestion, irritation, and infections, can disrupt daily life and well-being. Existing remedies often fall short in providing holistic relief and convenient application methods. Turmeric's natural healing properties offer potential solutions, but conventional application methods can be messy and ineffective. There is a need for an innovative approach to harnessing turmeric's benefits for nostril health.

   The proposed solution is a turmeric-infused nasal balm stick that combines the healing benefits of turmeric with the convenience of a user-friendly application. This stick is formulated with a blend of natural ingredients, including turmeric extract, soothing oils, and healing botanicals. The innovative design allows users to easily apply the balm directly to the nostrils for targeted relief and overall nostril health improvement.
5. **Project status at the beginning of the Year:**
   - Ideation stage with proof of concept.
6. **Interventions made:**
   - Brainstroming session have made
   - Working on the customer survey & market research
7. **Current status:**
   - In process of getting infield contacts with the customers and consumers.
   - Working on the development of Minimal Viable Product (MVP)

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



NewGen IEDC-National Engineering College

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: Fifth Year (2022-23)

Name of the Institution hosting NewGen IEDC	National Engineering College		
Year of starting NewGen IEDC	2017-2018		
Name of the Head of the Institution	Dr. K. Kalidasa Murugavel		
Name of NewGen IEDC Coordinator	Dr. I. Sankar		
Contact Details of NewGen IEDC Coordinator • Mobile Number & e-Mail ID	Dr. I. Sankar Associate Professor Mechanical Engineering Department National Engineering College K.R.Nagar-628503 Kovilpatti Mobile: 9894697322 Email: sankarmech@nec.edu.in & edcell@nec.edu.in		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Sanction Order Details	1	EDII / DST-NewGen IEDC/17-18/RLS-1/10 & 31.07.2017	60,00,000
	2		47,50,000
	3		60,00,000
	4		60,00,000
	5		60,00,000

1. **Details of Activities Undertaken during the year**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. **Brief of the programme** : National Engineering College Entrepreneurship Development cell (NEC-EDC) in association with AURCT – IEDP HUB, Tirunelveli conducted a sponsored event on the title "Awareness Program on Entrepreneurship and Innovation " on 29.08.2022 from 10.00 AM to 1.30 PM at CSE department seminar hall.

   Participants: 80 students of NEC.

   Outcome of the programme: Students understand the need of entrepreneurial skills and the benefits provided by government to develop self-sustainable growth

2. **Brief of the programme** Entrepreneurship Development cell of National Engineering College (NEC_EDC) conducted an awareness program on the title “Innovation Voucher Program” on 29.09.2022 from 3.00 PM to 4.30 PM at Placement cell seminar hall, Techpark.

   Participants: 111 students (NEC, K.R arts, LAPC)

   Outcome of the programme : To share the support mechanisms provided by EDII TN government schemes available for young entrepreneurs and product developers

3. **Brief of the programme** : Entrepreneurship Development cell organized a workshop on the title “E – Leaders Workshop” for the student entrepreneur on 14.10.2022 & 15.10.2022.

   Participants: 50 students (from 25 different colleges)

   Outcome of the programme : Students are motivated to speak about their views on entrepreneurship and highlighted the ways to improve further towards start-up

[B] To identify, develop & commercialize students' innovative ideas

1. **Brief of the programme** : Anna University Regional Centre Tirunelveli-IEDP Hub and EDII, Chennai will organize "Tamilnadu Student Innovators-2022" competitions in three stages. To equip students towards TNSI'22, NewGen IEDC of National Engineering College organized a guest lecture on the event TNSI 2022 on 12.01.2023 from 11.00AM to 1.00PM for the students.

   Participants: 80 students

   Resource person: Mr. Siva Bharathi, field co-ordinator, EDII TN, Tirunelveli

   Outcome of the programme : to identify and prepare student's innovative ideas for the development and commercialization of product ideas.

2. **Brief of the programme** : Entrepreneurship Development cell (EDC) and NewGen IEDC of National Engineering College organized a review for the mentors and student teams of NewGen IEDC projects 2020-21 (fourth batch) on 28.12.2022 from 09.30AM to 12.30PM for the students.

   Resource person: Mr. P.Ramesh Kannan, Intellectual property consultant, M/s QUADRIGA, Chennai

   Outcome of the programme : to improve the quality of content writing and comments for improving the draft which makes it unique in the application process of Intellectual Property Rights (IPR)

3. **Brief of the programme :** Entrepreneurship Development cell (EDC) and NewGen IEDC of National Engineering College organized a

FDP for the mentors of NewGen IEDC projects 2020-21 (fourth batch) on 28.12.2022 from 2.00PM to 5.00PM

Participants: 17 Faculties

Resource person: Mr. P.Ramesh Kannan, Intellectual property consultant, M/s QUADRIGA, Chennai

Outcome of the programme : to discuss the precautious measures to be considered while drafting the product patent preparation**.**

[C] To enhance Industry-Academia interaction

-

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Due to the academic and exam schedules of the students, many of the planned events were could not be conducted as per the action plan and scheduled to conduct in forthcoming days.

3. Other important highlights (new initiatives), if any:

- One of the student startup company **M/s Tersbyte technologies LLP,** established from our NewGen IEDC 4th batch, received Innovation Voucher Program (Level-A) grant of Rs.1,60,000/- from EDII-Tamilnadu in the year 2023

4. Student Projects

<u>Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos</u>

5. **Provide a minimum two-page case let each on the <u>two best student projects</u> (either prototype developed or commercialized) from the above list. The case lets should include the following:**

Best Student Project-01:

I. **Project Title:** Smart ANAEROBIC Community Digester

II. **Mentors Name:** Mrs M.Balameshwari M.E, Mr P.Kasirajan M.E

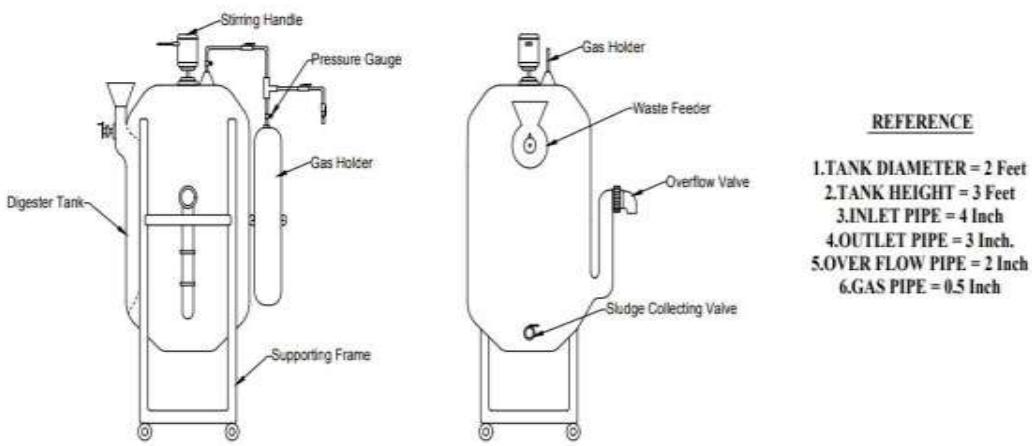
III. **Student team details:** Sneha.K , Ganesh Prabu.V, Sanjeev.B, Karthick .E

IV. **Brief description of the student start-up**

To develop an “anaerobic digester” which is basically a mechanical stomach that decomposes the biodegradable waste in the absence of oxygen producing the biogas and fertilizer as by-products.This digester concentrates mainly on biodegradable waste .we have designed our digester with stainless steel which is resistant to corrosion and can stay long, An automated stirrer is provided to mix the waste for uniform decomposition, A proper inlet and outlet systems are provided to feed the waste and remove them periodically without affecting the anaerobic condition .Sensors are attached to the tank to monitor the temperature , humidity , ph., biogas production in the tank and can be created as a report periodically through an app called Mr. Digester ,this make the process assisted by artificial intelligence.

V. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**

ANAEROBIC DIGESTER TANK



VI. Contribution of NewGen IEDC in the same

NEWGEN supported with required time for complete study and analysis of different cases for adaptation of efficient process and funds to produce a prototype and final product without compromising the objective of the innovation. Regular reviews are conducted to record the progress and suggestions are provided for the betterment of the product.

VII. Future plan

Anaerobic digestion is a process that involves the breakdown of organic materials in the absence of oxygen. This process can occur in an anaerobic digester tank, which is designed to create an environment that is conducive to the growth of microorganisms that break down the organic matter.

There are several potential future work plans for anaerobic digester tanks, including:

1. **Increasing the efficiency of the process**: There are several ways that the efficiency of anaerobic digestion can be improved. For example, the use of advanced monitoring and control systems can help to optimize the conditions within the tank and ensure that the microorganisms are working at their maximum capacity. Additionally, improvements in the design of the tank itself can help to improve the flow of materials and increase the surface area for microbial growth.
2. **Developing new feedstocks:** Anaerobic digestion can be used to process a wide variety of organic materials, including agricultural waste, food waste, and sewage sludge. However, there may be other types of feedstocks that could be used to produce biogas in anaerobic digester tanks. For example, research is currently underway to explore the potential of using algae as a feedstock.

3. **Exploring new applications for biogas**: Biogas produced in anaerobic digester tanks can be used to generate electricity, heat buildings, or fuel vehicles. However, there may be other applications for biogas that have not yet been fully explored. For example, biogas could potentially be used as a feedstock for the production of chemicals or as a source of renewable natural gas.
4. **Improving the sustainability of the process**: Anaerobic digestion is already a sustainable process, as it helps to reduce the amount of organic waste that goes to landfills and produces renewable energy. However, there may be ways to make the process even more sustainable. For example, the use of renewable energy sources to power the anaerobic digester tank could help to reduce its carbon footprint even further. Overall, the future of anaerobic digester tanks is likely to involve continued improvements in efficiency, the exploration of new feedstocks and applications for biogas, and an increased focus on sustainability.

IMPORTANT factors to be considered are :

1. Fabrication of tank as per the design with all requirements.
2. Conduction of different trials to find the optimum conditions in the digester tank.
3. The carbon, hydrogen, oxygen, and other elements ratio in a food can influence the production of biogas during anaerobic digestion. Generally, foods that have a high carbon to nitrogen ratio (C/N ratio) tend to produce more biogas, as the microorganisms in the digester require carbon for energy and nitrogen for protein synthesis.
   - Food waste: Food waste typically has a C/N ratio of around 20-30:1, which is ideal for biogas production. Food waste is also high in carbohydrates and fats, which can be easily broken down by the microorganisms in the digester.
   - Agricultural waste: Agricultural waste such as crop residues, animal manure, and poultry litter have a C/N ratio of around 20-40:1. These wastes are also high in cellulose and lignin, which can be difficult to break down but can still produce biogas.
   - Energy crops: Energy crops such as maize, grasses, and sugarcane have a high carbohydrate content and a C/N ratio of around 30-60:1. These crops can be grown specifically for biogas production and can provide a reliable source of feedstock.

- Industrial waste: Industrial waste such as brewery waste, cheese whey, and paper pulp have a high organic content and can be used as a feedstock for biogas production.

It is important to note that the specific carbon, hydrogen, oxygen, and other element ratios in a food can vary depending on factors such as the age of the food, the processing method used, and the presence of other compounds. Therefore, it is important to analyze the feedstock before using it in an anaerobic digester to determine its biogas potential.

VIII. Important highlights

❖Sensors are used to monitor the temperature, pH , humidity and gas formation.

❖To record the above information an application is being developed.

❖Activated sludge is used to speed up the rate of decomposition of waste.

❖design of smart anaerobic digester with appropriate advancement.

Project-2: Compact Fish Descaling Machine

I. Project Title : Compact Fish Descaling Machine

II. Mentors Name : Mr. A. Andrews

III. Student team details: Ezhil Azhagan R.T., Venkatveerabaghu A., Harish Raghavendra S. & Samuel Raja S.

IV. Brief description of the student start-up

- The start-up's primary focus is on creating a user-friendly and cost-effective solution for fish processing businesses. The Compact Fish Descaling Machine aims to increase productivity, reduce labor costs, and improve overall efficiency in fish descaling operations. By automating a traditionally labor-intensive task, the machine allows businesses to scale up their production while maintaining consistent quality standards.
- The start-up is committed to continuous innovation, refinement and striving to stay at the forefront of the fish processing industry. The goal is to become a trusted provider of fish descaling solutions, catering to the evolving needs of fish processors worldwide. With the Compact Fish Descaling Machine, the start-up aims to revolutionize fish descaling, making it a faster, cleaner, and more efficient process for businesses across the globe.

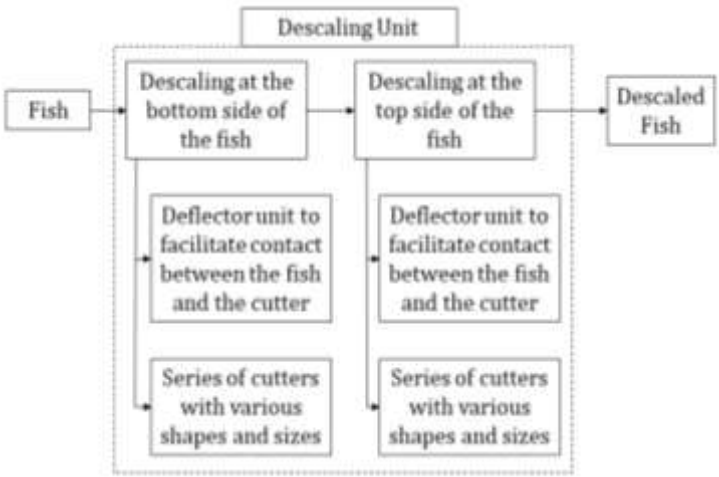
V. Startup's entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

Ideation Stage

In the ideation stage, new ideas were generated and explored to identify potential product concepts and improvements. The area of the product is decided and the target customers were identified.

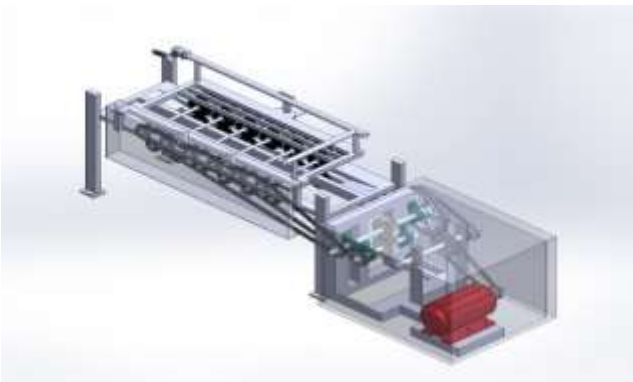
Concept Development

In this stage, selected ideas from the ideation stage are further developed as product concepts. The concepts outline the basic features, functionality, and value proposition of the product. Market research and feasibility studies have been conducted to assess the concept's potential market demand and technical feasibility.



Design

Once the concept was deemed feasible, the design and prototyping activity started. We worked together to create detailed product specifications, developed prototypes, and refined the product's aesthetics, functionality, and user experience. In this stage, the CAD model of the product has been built and analyzed for its feasibility. After the CAD model satisfies the expectations the 2D Drafting has been made.



Fabrication

After successful design and analysis, the product is prepared for manufacturing. In this stage, production processes were undergone, and quality control measures were endured. Finally, the product is fabricated as per the designed dimension and tolerances.

VI. Contribution of NewGen IEDC in the same

- NewGen IEDC contributed an impactful role in this product. They had given the financial aid support/fund for this product.
- The periodic review and their suggestions in the product design and fabrication process helped us to fabricate the product efficiently.

VII. Future plan

- The product is planned to be launched in the market soon.
- It is planned to make a commercial advertisement like posters, Attending expos, etc. to advertise the product among the targeted customers.

VIII. Important highlights

This Compact fish descaling machine has the following features,

- It can carry the fish automatically with the help of the roller and wire brush arrangement.
- The Blades are made in different dimensions to ensure that the scales in all parts of the body can be descaled in a single attempt.
- The spring attachment is designed in such a way that it can adjust the frame to descale any size of fish.
- It can descale a whole fish within ten to fifteen seconds.
- The fish is also cleaned while descaling, saving a lot of time.
- The water jet arrangement helps to clean the fish quickly and neatly.
- The whole mechanism is driven by a single motor.

- Fishes of different sizes can be descaled without changing the machine's parts.
- The machine can be rolled anywhere as it has a movable base comprised of a wheel.

Best Student Project-02:

I. **Mentors Name** **:** Mrs. M.Balameshwari M.E, Mr. P.Kasirajan M.E

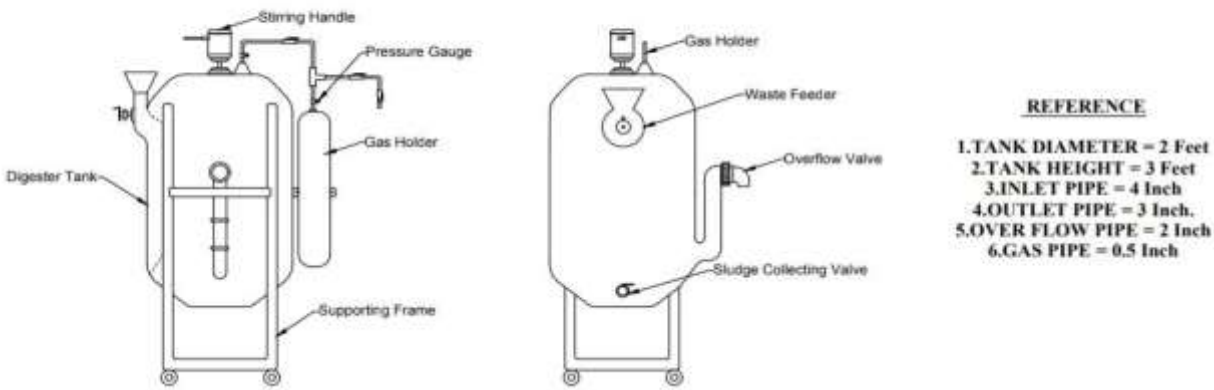
II. **Student team details:** Ganesh Prabu V, Sneha K., Sanjeev B. & Karthick E

III. **Brief description of the student start-up**

To develop an "anaerobic digester" which is basically a mechanical stomach that decomposes the biodegradable waste in the absence of oxygen producing the biogas and fertilizer as by-products.This digester concentrates mainly on biodegradable waste .we have designed our digester with stainless steel which is resistant to corrosion and can stay long, An automated stirrer is provided to mix the waste for uniform decomposition, A proper inlet and outlet systems are provided to feed the waste and remove them periodically without affecting the anaerobic condition .Sensors are attached to the tank to monitor the temperature , humidity , ph., biogas production in the tank and can be created as a report periodically through an app called Mr. Digester ,this make the process assisted by artificial intelligence.

IV. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**

ANAEROBIC DIGESTER TANK



V. Contribution of NewGen IEDC in the same

NEWGEN supported with required time for complete study and analysis of different cases for adaptation of efficient process and funds to produce a prototype and final product without compromising the objective of the innovation.regular reviews are conducted to record the progress and suggestions are provided for the betterment of the product.

VI. Future plan

Anaerobic digestion is a process that involves the breakdown of organic materials in the absence of oxygen. This process can occur in an anaerobic digester tank, which is designed to create an environment that is conducive to the growth of microorganisms that break down the organic matter.

There are several potential future work plans for anaerobic digester tanks, including:

1. **Increasing the efficiency of the process**: There are several ways that the efficiency of anaerobic digestion can be improved. For example, the use of advanced monitoring and control systems can help to optimize the conditions within the tank and ensure that the microorganisms are working at their maximum capacity. Additionally, improvements in the design of the tank itself can help to improve the flow of materials and increase the surface area for microbial growth.
2. **Developing new feedstocks:** Anaerobic digestion can be used to process a wide variety of organic materials, including agricultural waste, food waste, and sewage sludge. However, there may be other types of feedstocks that could be used to produce biogas in anaerobic digester tanks. For example, research is currently underway to explore the potential of using algae as a feedstock.
3. **Exploring new applications for biogas**: Biogas produced in anaerobic digester tanks can be used to generate electricity, heat buildings, or fuel vehicles. However, there may be other applications for biogas that have not yet been fully explored. For example, biogas could potentially be used as a feedstock for the production of chemicals or as a source of renewable natural gas.
4. **Improving the sustainability of the process**: Anaerobic digestion is already a sustainable process, as it helps to reduce the amount of organic waste that goes to landfills and produces renewable energy. However, there may be ways to make the process even more sustainable. For example, the use of renewable energy sources to power the anaerobic digester tank could help to reduce its carbon footprint even further.

   Overall, the future of anaerobic digester tanks is likely to involve continued improvements in efficiency, the exploration of new feedstocks and applications for biogas, and an increased focus on sustainability.

IMPORTANT factors to be considered are :

1. Fabrication of tank as per the design with all requirements.
2. Conduction of different trials to find the optimum conditions in the digester tank.
3. The carbon, hydrogen, oxygen, and other elements ratio in a food can influence the production of biogas during anaerobic digestion. Generally, foods that have a high carbon to nitrogen ratio (C/N ratio) tend to produce more biogas, as the microorganisms in the digester require carbon for energy and nitrogen for protein synthesis.
   - Food waste: Food waste typically has a C/N ratio of around 20-30:1, which is ideal for biogas production. Food waste is also high in carbohydrates and fats, which can be easily broken down by the microorganisms in the digester.
   - Agricultural waste: Agricultural waste such as crop residues, animal manure, and poultry litter have a C/N ratio of around 20-40:1. These wastes are also high in cellulose and lignin, which can be difficult to break down but can still produce biogas.
   - Energy crops: Energy crops such as maize, grasses, and sugarcane have a high carbohydrate content and a C/N ratio of around 30-60:1. These crops can be grown specifically for biogas production and can provide a reliable source of feedstock.
   - Industrial waste: Industrial waste such as brewery waste, cheese whey, and paper pulp have a high organic content and can be used as a feedstock for biogas production.

   It is important to note that the specific carbon, hydrogen, oxygen, and other element ratios in a food can vary depending on factors such as the age of the food, the processing method used, and the presence of other compounds. Therefore, it is important to analyze the feedstock before using it in an anaerobic digester to determine its biogas potential.

VII. Important highlights

❖Sensors are used to monitor the temperature, pH, humidity and gas formation.

❖To record the above information an application is being developed.

❖Activated sludge is used to speed up the rate of decomposition of waste.

❖design of smart anaerobic digester with appropriate advancement.

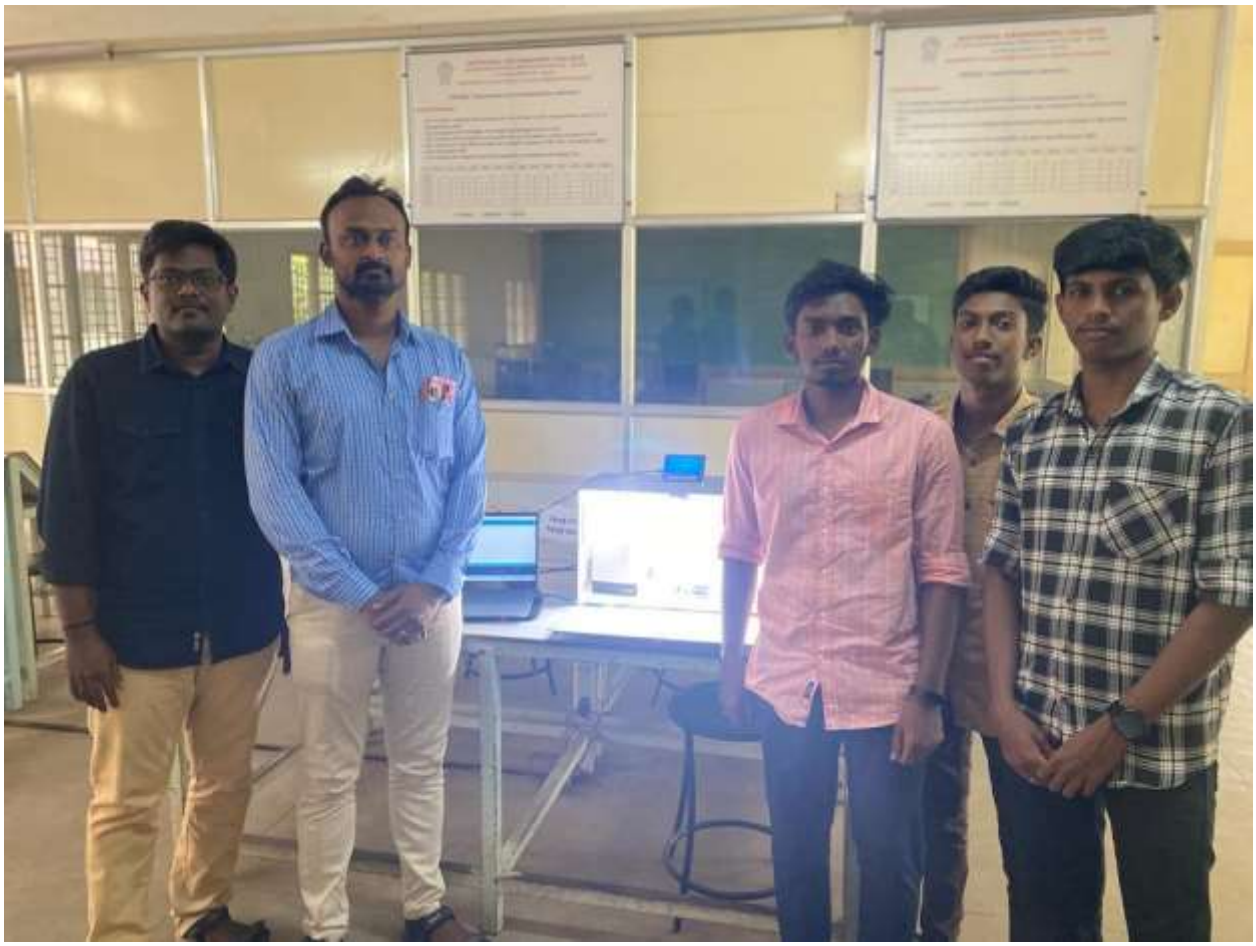
Annexure-A

Details of Student Projects: Fifth Year (2022-23)

Project-01: Computer Vision based meat quality checker

1. **Project Title** : Computer Vision based meat quality checker
2. **Mentor Name** : Dr.B.Vigneshwaran AP(SG)/EEE
   Mr. M.Sivapalanirajan AP/EEE
3. **Student Team Names:**
   Raja Sekaran. E
   Mohamed Althaf Wahid. T.S
   Mohamed Musab. V.M
   Sudalaimani. G
   Sundar Raj. P
4. **Project Description:**
   - Through literature survey, portable meat quality checker based on computer vision is not readly available in market.
   - The product may install in Malls (To check the quality of meat immediately by the consumers in the shop). It may also used for food inspectors to check the quality of the meat.
5. **Project status at the beginning of the Year:**
   - Layout of project finalized.
   - Dataset for meat image taken with microscopic camera completed.
6. **Interventions made:**
   - Field survey conducted at food quality lab and food quality inspector.
   - Different training optimizers were used in deep learning architecture to enhance the recognition rate with minimum computation time.
7. **Current status:**
   - Currently the product is developed to check the quality of meat (goat) using deep learning technique.
   - The quality of meat is recognized by image as well as pH value of the test meat.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-02: Compact Fish Descaling Machine

1. **Project Title** : Compact Fish Descaling Machine
2. **Mentor Name** : Mr. A. Andrews
3. **Student Team Names:**

   Ezhil Azhagan R.T.

   Venkatveerabhagu A.

   Harish Raghavendra S.

   Samuel Raja S.
4. **Project Description:**

   Compact Fish Descaling Machine is a machine that can remove the scales in the fish within seconds without damaging the flesh. This machine not only descales the fish but also cleans the fish during the process.
5. **Project status at the beginning of the Year:**

   Design were completed and it was in the fabrication process.

6. **Interventions made:**
   - Field Survey
   - Patent & Product Survey
   - Design Thinking Tools
     - Customer Journey Map
     - House of Quality
   - Iterative Design
   - Usability Testing
   - Risk Analysis
7. **Current status:**

   Completed Fabrication and preparing for commercialization.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-03: Smart TENG for biomedical monitoring

1. **Project Title** : Smart TENG for biomedical monitoring
2. **Mentor Name** : Dr. R. Manjula Devi, Dr. I. Vivek Anand
3. **Student Team Names:** R. Sharan Kishore, M. Guru Prasad, R. Abiudh Durairaj
4. **Project Description:** A Tribo-Electric Nanogenerator (TENG) has been developed to utilize the mechanical energy generated by the human body's natural movements. This energy, helps us to charge up the biomedical devices. Then these can be integrated into wearable sensors or implanted devices, allowing continuous and sustainable power generation. This

eliminates or reduces the need for external power sources or frequent battery replacements, enhancing device autonomy and offering a self-powered solution for biomedical applications.

5. **Project status at the beginning of the Year:** Prototype had been successfully developed to prove the concept and order has been placed for further integration with biotelemetry.
6. **Interventions made:** Nil
7. **Current status:** TENG has been integrated with a sensor module in order to achieve biotelemetry.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-04: Smart Baby Cradle Using IoT

1. **Project Title** : Smart Baby Cradle Using IoT
2. **Mentor Name** : 1. Dr. D. Venkat Kumar
   2. Dr. K. Mohaideen Pitchai
   3. Dr. S. Dheenathayalan
3. **Student Team Names:** 1. Madhusudhanan S
   2. Pradheep Kumar V
   3. Jeyaram P
   4. Hariram M
4. **Project Description:**

   The Cradle that automates the swinging mechanism so that no manpower is needed to swing the cradle. It will swing automatically when the baby crying

sound is detected. It continuously monitors the baby with video surveillance. It also detect whether the baby urinates and immediately intimate to the parents via mobile app. Play songs whenever baby cries. Also monitors the body temperature.

5. **Project status at the beginning of the Year:**
   - App work completed
   - Sensors interfacing completed
6. **Interventions made:**
   - Designed and simulated the cradle structure in solidworks.
   - Designed the cradle to bare more weight than the baby
   - No sensors are in direct contact with the baby
7. **Current status:**
   - Fabrication completed
   - Sensors need to be fit in the model
   - App need to be interfaced with the cradle
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-05: Semi Automatic Potato Chips Preparator

1. **Project Title** : Semi Automatic Potato Chips Preparator
2. **Mentor Name** : Mr.R. Jayavenkatesh, M.E., (Ph. D).,
   Dr.R. Vijayakumar, M.E., Ph.D.,

3. **Student Team Names** : Hebron Jones.E
Balaganesh.P
Manikandan.V
Surendhar.P

4. **Project Description:**

The proposed product is aimed at peel, slice and dry the potatoes for making chips. The Process of peeling a potato takes a signification amount of time, not to mention the loss of the material during the process. The following process which is slicing and frying also increase the duration of the process. Hence the problem is simply solved by introducing technology with in the process thereby gaining the advantage of mass production within a limited amount of time with minimum cost.

5. **Project status at the beginning of the Year:**
   - Conceptual sketch and Initial design completed.
6. **Interventions made:**
   - Intially designed one motor for both peeler and dryer. Then it is changed to separate motors for peeler and dryer due to lack of torque.
   - Slicer design has been modified
7. **Current status:**
   - 70% Fabrication work of the product has been completed
8. **High-resolution pictures showing the Prototype along with the students and their mentor for each project:**

Project-06: Match Stick Solar Drier

1. **Project Title** : Match Stick Solar Drier
2. **Mentor Name** : Mr.R. Vignesh kumar, M.E., (Ph.D.).,
   Mr.R. Jayavenkatesh, M.E., (Ph. D.).,
3. **Student Team Names** : Kalaiselvan. K
   Rikash. J
   Kosal Ram. R
   Vignesh. A
4. **Project Description:**

   The proposed product is aimed to dry the wetted match stick for quality output. Drawbacks like drit mixing, over drying, wetted in rain, etc may occur in conventional open drying. Solar assisted walk in type drying system rectifies all those drawbacks mention in the previous conventional one. Atmospheric air is heated while it passes over absorber surface. Both the hot air and direct sunlight helps to dry the wetted product kept at drying trays. Proposed system provides comfort environment to the labours in terms of avoiding bright sunlight, rain, dust etc,.
5. **Project status at the beginning of the Year:**
   - Conceptual sketch and Initial design completed.
6. **Interventions made:**
   - Initially planned for manual loading and unloading. But now it is changed to automatic loading and unloading process.
   - Humidifier controller in the system helps to maintain the uniform desired condition inside the dryer.
7. **Current status:**
   - 70% Fabrication work of the product has been completed

8. **High-resolution pictures showing the Prototype along with the students and their mentor for each project:**

Project-07: Palm Jaggery Storing Unit

1. **Project Title** : Palm Jaggery Storing Unit
2. **Mentor Name** : K.Sudalaiyandi
3. **Student Team Names:**

   S.Manokaran
   Atul Kumar Singh
   V.P.Sabariesh
   P.Muthuraj

4. **Project Description:** By using, small heating setup outside from the warehouse. The flue gas is passed with the help of blower, through metal tubes which attached in the wall of room. By convection effect the heat is transferred from flue gas to inside air of warehouse. This eliminates the direct contact of flue gas and product so it will eliminate carbon deposition. Charcoal is used as fuel instead of wood. We go through the Indirect contact of Heating to avoid Carbon Deposition and maintain constant Temperature.
5. **Project status at the beginning of the Year:**
   Initial design completed
6. **Interventions made:**
   - Height adjusted
   - furnce modified
   - number of ventilation holes increased
   - coils winding increased

7. **Current status:**
    - Prototype Fabricated
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-08: Techepede

1. **Project Title** : Techepede
2. **Mentor Name** : Dr. J.Naskath, & Dr. Shunmugapriya.B
3. **Student Team Names:**
    1. PandiMuniasamy M
    2. Sundaram S
    3. Heena Fathima
    4. Suja G
4. **Project Description:** TechePede is a smart bicycle which has all the features embedded into it to enhance the user experience and provide safety to the bicycle. This includes five modules namely mobile charging module, Location module, Fingerprint security module, Movement detection module, Calorie tracking module. The power source which powers most of the components in the cycle. It is removable and is rechargeable. The power source is charged from the electrical energy which is converted from the mechanical energy produced by the rotation of the wheels of the bicycle. It can also be used as a charger for the mobile

through wired connection. The inductive proximity sensor fitted with the cycle is used to measure the speed of the cycle and sends the data to the LCD screen. The fingerprint sensor is connected with the cycle which inputs the individual's fingerprint and only if the fingerprint match is found then the cycle lock opens. The NodeMCU has inbuilt Wifi which enables faster Internet Connectivity with faster 4G/3G communication. The GPS module attached to the arduino uno can be used to know the bicycle's current position. Even if there is a slight detection in the movement of the bicycle without unlocking, it is detected by MEMS sensor and immediately the buzzer is activated and alert notification will be sent to the user through app.Calorie tracking module is used to calculate the calories burnt by the user while pedaling the bicycle.

5. **Project status at the beginning of the Year:**
   - At the beginning of the year, the mobile charging unit and calorie tracking module has been completed. Dc motor has been attached with the bicycle back wheel which will be rotated when we pedal the bicycle. The mechanical energy from pedaling is converted into electrical energy which is stored in the rechargable battery. We used lithium ion battery in our product . From this storing device mobile phone can be charged during the ride or after the ride.
   - For calorie tracking module we used inductive proximity sensor which is used to measure the speed and distance during the ride. With the help of the speed and distance we calculated the calories burned by the user during the ride

6. **Interventions made:**
   - Several interventions have been made by the reviewer to enhance the calorie tracking module. Previously, we have calculated the calories by using the speed and distance with the help of inductive proximity sensor.
   - To improve the accuracy of the calories calculated we were asked to consider the factors such as force produced during pedaling in different environmental conditions.

7. **Current status:**

   Currently, the product has undergone significant developments and progress. After completed the two modules, currently we have completed the next three modules which are fingerprint module, movement detecting module, GPS tracking module. The fingerprint sensor is connected with the cycle which inputs the individual's fingerprint and only if the fingerprint match is found then the cycle lock opens otherwise alert notification will be sent to the used through mobile app. The movement of the cycle is detected with the help of mems sensor. If any movement found when the cycle is locked then also notification will be sent to user using the app. The gps module is used to detect the current position of the bicycle. The redefinition of calories module and integration of other modules with the mobile app is yet to be completed.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-09: Comfortcare Cot For Bed Bound Patients

1. **Project Title** : Comfortcare Cot For Bed Bound Patients
2. **Mentor Name** : Dr. J. Naskath, Dr. S. Iyahraja
3. **Student Team Names:** Dhanush Krishna K
   Vigneshwaran J
   Shunmuga Nathan K

4. **Project Description:**

   A wheelchair cum bed is a piece of equipment that can be used both as a wheelchair for mobility and as a bed for resting or sleeping. It provides a convenient solution for individuals who require both mobility and a comfortable sleeping surface, such as those with disabilities or limited mobility. The goal of this product is to design and construct a functional prototype of a wheelchair cum bed that can be easily converted from a wheelchair to a bed and vice versa.

5. **Project status at the beginning of the Year:**

   At the beginning of the year, the product had made significant progress in terms of the cot's structure. The entire structure had been designed, indicating that we had completed the necessary planning and conceptualization phase. This involved determining the dimensions, materials, and overall layout of the cot. Additionally, the basic structure of the cot had been developed. This means that we had likely constructed the framework or skeleton of the cot, giving it a solid foundation. The basic structure serves as the starting point for further development and refinement of the cot's design. By having the entire structure designed and the basic structure developed, the product had achieved important milestones. It signifies that we had successfully translated the initial design concepts into tangible progress. However, it is important to note that there are several steps remaining to complete the product.

6. **Interventions made:**

   Several interventions have been made in the product to enhance its functionality, performance, and user experience. These interventions include:

   Revisiting the Design: The initially proposed design was thoroughly evaluated and revised to address any shortcomings and optimize its overall performance. This involved analyzing user feedback, considering industry standards, and incorporating innovative ideas to ensure the final design meets customer expectations.

   Structural Implementation: The structure of the cot has been fully implemented, ensuring its stability, durability, and safety. The team has

worked diligently to construct a robust framework that can withstand the intended usage and provide a secure resting place for the user.

Recliner Functionality: One significant intervention in the product is the integration of a recliner feature. This allows the cot to be converted into a wheelchair, providing users with increased mobility and versatility. The implementation of actuators enables smooth and efficient transformation, ensuring a seamless transition between cot and wheelchair modes.

Wheelchair Movement: Efforts have been focused on refining the movement of the wheelchair component. By fine-tuning the mechanics and controls, the team aims to ensure smooth navigation, easy maneuverability, and a comfortable experience for users when operating the wheelchair mode.

Iterative Improvements: Continuous improvement is an essential intervention in the product's development. Feedback from users, stakeholders, and testing results is collected and carefully analyzed to identify areas for enhancement. This iterative process allows us to make necessary adjustments, fine-tune features, and optimize the overall design based on real-world usage scenarios.

Safety Enhancements: Interventions have been made to prioritize user safety. Measures such as implementing robust safety mechanisms, incorporating ergonomic design principles, and ensuring compliance with relevant safety standards have been taken to mitigate potential risks and provide a secure user experience.

7. **Current status:**

Currently, the product has undergone significant developments and progress. After revisiting the initially proposed design, several changes have been made to enhance its functionality and performance. These revisions reflect our commitment to delivering a superior product that meets the needs and expectations of our users. One notable achievement is the full implementation of the cot's structure. The team has successfully brought the design to life, ensuring that all components and elements are in place. This milestone marks a significant step forward in the project, as the physical construction of the cot is now complete. Moreover, we have

made considerable progress in implementing the recliner feature, which enables the cot to transform into a wheelchair. This innovative addition has been made possible through the integration of actuators, which facilitate the conversion process. By incorporating this functionality, we aim to provide increased mobility and convenience for users, allowing them to transition seamlessly between cot and wheelchair modes. At present, the focus is on fine-tuning the movement of the wheelchair. We are diligently working to optimize and refine the wheelchair's mobility, ensuring smooth and effortless navigation for users. This aspect is crucial in delivering a product that not only meets high-quality standards but also provides a comfortable and user-friendly experience.

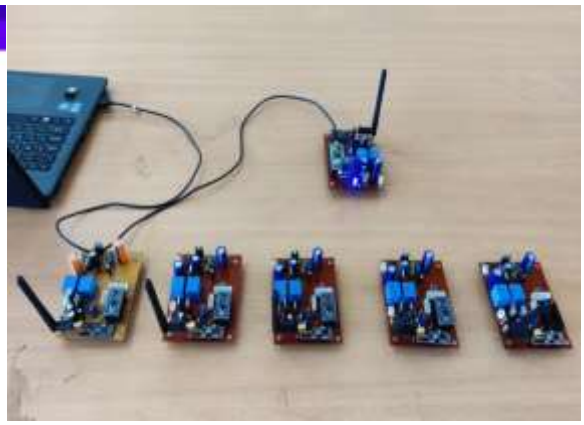
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-10: Cold Container Monitoring & RISC Assessment System for Naval Transportation

1. **Project Title** : Cold Container Monitoring & RISC Assessment System for Naval Transportation.
2. **Mentor Name** : Mr. F Antony Jeffrey Vaz
   Mr. K Karthik Kumar
3. **Student Team Names:** Jessiicaa A
   Selva Priya A
   Aarthi S
   Meena G
4. **Project Description:**

   The Cold storage Facility is monitored and scanned by various sensors consisting of Temperature, Humidity, Gas Sensors and GPS. The system consists of four-to-five-unit stations located at different places of the cold storage facility, these nodes are fitted with these above mentioned sensors. Node stations scan the environment and gather data. The data collected are forwarded to the remote base station via RF wireless network mesh operation at 2.4GHz frequency band. The data received by the base station is processed and forwarded to the database server. User can login into their Android application and track the environment of their commodity under transit. In case of any malfunction in cold storage system can be detected in earlier and the food products transported can be saved from rotten.

5. **Project status at the beginning of the Year:**
   - We completed 50% of both hardware & software at the beginning of this year.
6. **Interventions made:**
   - Here we used nrf24L01 module ,wireless network.
   - We made the product into a compact size.
   - We enabled android application to analyze the data.
7. **Current status:**
   - Both hardware and software part completed.
   - The outer case is in progress.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-11: Smart Info System for Bike

1. **Project Title** : Smart Info System for Bike
2. **Mentor Name** : Mr.B.Venkatasamy, Mr.F.Antony Jeffrey Vaz,
3. **Student Team Names:** M.Jenithra.M
   S.Ragul
   M.Balamurugan

4. **Project Description:** The product is basically an optional hardware attachment to the bike with mobile APP. When the ignition switch is turned ON, the conditions such as tyre pressure with temperate, oil level with viscosity, fuel level with millage information will be communicated to the mobile APP of the user through Bluetooth. Whenever these parameters are less than the threshold value, an alert will be made by the APP as SMS/Notification.

   The bike incorporated with GPS module and Position control system. If any minor or major accident met by the person, an alert is message/call will be sent to the corresponding family member/helpline with geo location. Whenever required, the family members can know the location of the bike if it is running. It will be helpful for the owner to prevent the bike from the theft also.

5. **Project status at the beginning of the Year:**

   The detailed literature and product study was carried out. Initial level Mobile Application Development was done. Initial level component procurement was made. The type suitable sensor and its controller selection took a considerable period of time and it was selected. Some of the sensors was procured and tested.

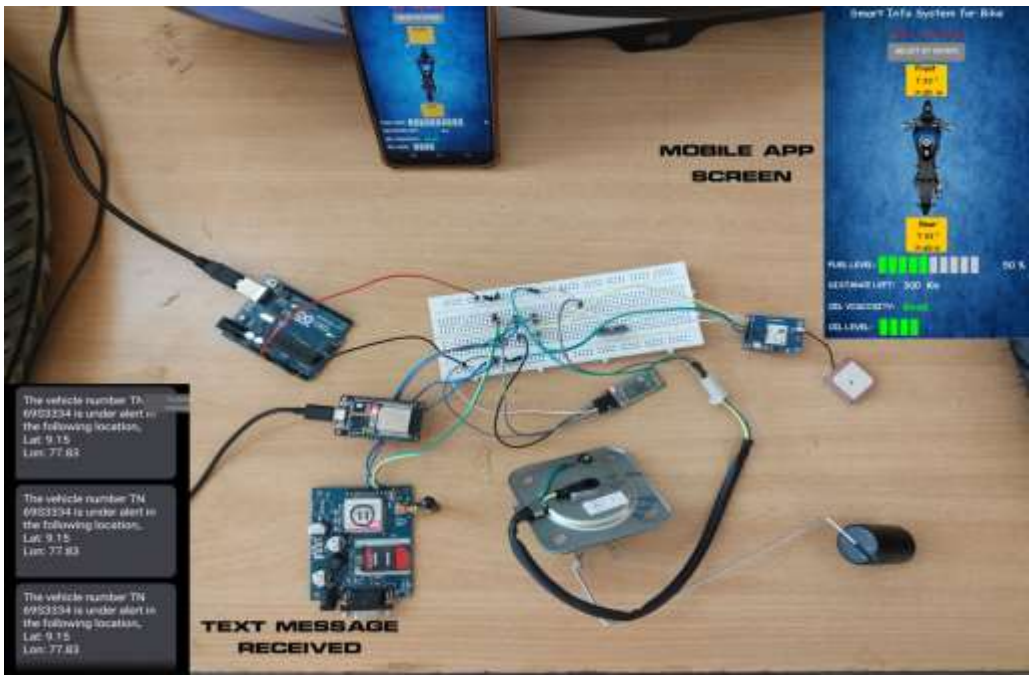
6. **Interventions made:**

   During the hardware development phases, the selection of the controller for the required features took complex process and time. Taking Tyre pressure from running wheel became a complex task and it has been completed after a struggle. The remote sensor for tyre pressure with controller selection ant its power up process was a little complex.

7. **Current status:**

   The customized mobile application was completely done. Taking tyre pressure with temperature to the controller and Mobile APP is completed. Fuel level is measured with sensor and communicated, displayed in the APP. The Accident information system using GPS and GSM is completed and tested there by completed the 60 to 70% of the product.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-12: LoRa based Smart Starter for Agriculture

1. **Project Title** : LoRa based Smart Starter for Agriculture
2. **Mentor Name** : Dr. L. Kalaivani, Mr. B. Venkatasamy
3. **Student Team Names:** M. Vigneshwaran, V. Vijayabalan
   S. Ragul
   M. Balamurugan
   Ramya J. & Priyadharshini L.

4. **Project Description:**

According to the need of the Farmer, the pump can turn ON/OFF using his mobile phone. Using the dedicated mobile APP, the user can monitor the water level in the Well/Bore, How many hours the motor will run. If the motor runs empty (without water), the control system suddenly trips the motor, sending the information to the user through the above communication medium. The protection system is also incorporated like single phasing, low voltage, and winding defects. The wireless communication is done through LORA Gateway. LoRa (Long Range) is a proprietary low-power wide-area network doesn't require an internet connection, and its coverage will be up to few kilo meters.Drip-water irrigation needs water flow control, here using the mobile application the flow (i.e., water outlet form pump) is controlled by the farmer using the APP from anywhere else. Also, in drip-water irrigation, the number of valves will be opened /closed by means of the mobile APP.

5. **Project status at the beginning of the Year:**

The detailed literature and product study was carried out. Initial level Mobile Application Development was done. Initial level component procurement was made. LoRa to LoRa communication was establishment. Cloud and Gateway establishment was carried out.

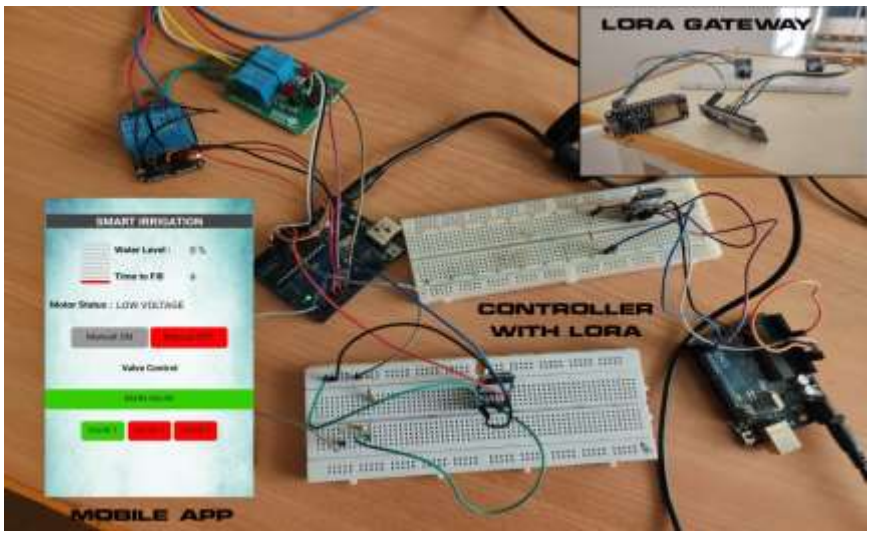
6. **Interventions made:**

During the hardware development phases, the selection of the controller for the required features took complex process and time. LoRa to LoRa bi-directional communication between the pump and LoRa gateway was the difficult task includes hardware configuration and bias flash customization.

7. **Current status:**

The customized mobile application was completely done. The Complex Task of LoRa to LoRa with bidirectional communication was carried out. The Prototype model of the proposed work is developed includes motor and pump setup, various valve connection and testing. The one way communication from Pump to mobile APP using Lora Gateway is tested there by completed the 60 to 70% of the product.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-13: Biogas-assisted solar hybrid dryer for fish drying

1. **Project Title** : Biogas-assisted solar hybrid dryer for fish drying
2. **Mentor Name** : Dr. W. Beno Wincy, Asst. Prof., Mech. Engg.
3. **Student Team Names** **:** Akash K., Bala Murugan B
   EBI Shanthakkumar P & Muthu Kumar R
4. **Project Description:**

   Drying is one of the processes to preserve food for a longer time and also it increases the food value. Fish drying is being done in the shore areas to preserve the easily spoilable fish. Dried fish have huge demand in the market for their flavour and taste. Hence a significant effort is being made by various dryer manufacturers in this energy-intensive area to minimize energy consumption, and utilization of renewable energy resources and to perform an economic drying process. Thus, an initiative has been made by us to develop a fish dryer which could utilize solar and biogas energy at a minimal operating cost. Hence the developed dryer has been named a 'Biogas assisted solar hybrid dryer'

   A uniform fish drying process requires a drying time of around 11 hours, much shorter than the normal sun drying method (18-24 hours). However, the continuous drying process is preferred to complete a batch of fish within a day to increase production and product quality. Thus, the dryer is needed to operate during the sunshine and non-sunshine hours. The developed system produces uniform heat for drying using solar energy. To obtain uniform heat from solar, solar air heaters and solar PV-operated heating coils have been used. The major portion of the heat demand is generated by the solar air heater. It consists of two solar air heaters connected in series. The variation in the heat generated from the solar air heater is compensated by the heat generated through the solar PV-based heat-generated system. It consists of a solar PV panel, an AC-DC inverter, and a heating coil. The energy needed during the non-sunshine hours will be managed by the biogas-based heat generation system. This consists of a biogas plant, a biogas storage system, and a combustion chamber. A centralized blower, proper insulation, and flow control valves are employed at the proper sites. A simple tray-type dryer is used.

This system can dry the fish in a temperature-controlled environment throughout its drying time and will complete the drying process in a shorter duration. This could produce the products with premium quality, less energy consumption and a minimal running cost. As it needs to operate a single blower throughout the drying time. Due to faster operation, the fisherman can produce a large quantity of dried fish and can increase the profit.

5. **Project status at the beginning of the Year:**

   Based on the processing capacity, the actual energy required has been identified. Upon the energy requirement, the capacity of solar air heater, solar PV panel, inverter, heating coil, combustion chamber, biogas plant, biogas storage tank, dryer size have been determined. The design phase was completed.

6. **Interventions made:**

   Three sources have been involved to supply the heat at the required time. biogas is used to supply heat only during the non-sunshine hours and the rest of the time, solar energy will be utilized thorugh solar air heater and PV based heat energy generation system.

7. **Current status:**

   Quotations from various suppliers have been collected for different equipment and the final purchase decision has been made.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Proposed Biogas assisted solar hybrid dryer

Project-14: Peanut Qualifier for Price Fixation

1. **Project Title** : Peanut Qualifier for Price Fixation
2. **Mentor Name** : 1. Dr. S. Tamil Selvi, Prof & Head / ECE
   2. Mr. B. Ganapathy Ram AP(SG)/ECE
3. **Student Team Names:** 1. S. Vijaya Krishnan
   2. M. Selva Bharathi
   3. K. Athi Guru
4. **Project Description:**

   Peanut is a major oilseed of India and it is one of the major crops in the southern districts such as Thoothukudi, Tenkasi, Virudhunagar, and Madurai. Moreover, Kovilpatti city of Thoothukudi has been granted geographical identity for peanut candy. The quality is determined by two traditional methods. Depending on the manual practice of shelling the peanuts and calculating the weight using this method, there is a probability of loss for farmers or retailers based on the randomized selection of 1 kg of peanuts in an overall 80 kg of peanuts. Another method is the fixation of price by analyzing the moisture content of the peanut. These two methods are unfair in price fixation with fewer samples, which are not satisfactory to the farmers and makes peanut agriculture in distress. To overcome these problems, it is proposed to design a fully automated peanut qualifier that incorporates two methodologies to qualify the peanut while procuring it from farmers. One to five kgs of unshelled peanuts are weighed in the load cell. Shells of the peanuts are removed by using a mini shelling mechanical arrangement. The shelled peanuts are again weighed in the load cell and the moisture level is analyzed through a moisture sensor. Depending on the load cell values, a proposed algorithm does fixation of price. This product will ultimately support the farmers to get good revenue for better yields. It also motivates the farmers to cultivate quality peanuts.
5. **Project status at the beginning of the Year:**

   Patent, Literature, Market and Customer surveys Proof of concept
6. **Interventions made:**
   - Design and manufacturing of mechanical setup for shelling the peanut
   - Design and development for electronic setup for procurement weight determination

7. **Current status:**
   - Product development has been completed.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-15: COCOA POD Breaker

1. **Project Title** : COCOA POD Breaker
2. **Mentor Name** : Mr. K. Thoufiq Mohammed
3. **Student Team Names:** Kishore Suresh M
   Loganathan B
   Abinathab Sathya Singh B
   Yoga Prakash V
4. **Project Description:** A machine to split the cocoa pod to remove the cocoa pulp without damage.
5. **Project status at the beginning of the Year:**
   - The detailed design was completed in the month of January 2023.
6. **Interventions made:**
   - The Fabrication Process was carried out the entire fabrication works were completed.
7. **Current status:**
   - Fabrication Completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-16: 6-axis Robot for Education Institution Laboratory

1. **Project Title** : 6-axis Robot for Education Institution Laboratory
2. **Mentor Name** : K Pradeepraj(AP/Mech), J Karthikeyan(AP/CSE)
3. **Student Team Names:**

   R. Siva Prakash

   M. Balamurugan

   P. Sugumar

   A. Manikandan

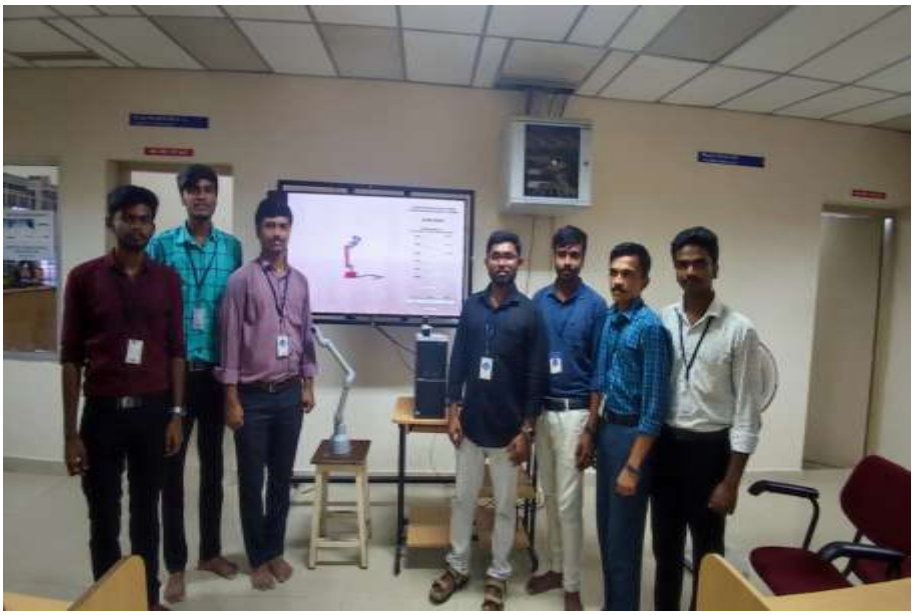
   A. Santhos Pandian

   K. Muthu Kumar
4. **Project Description:**

   Our aim of this project is to develop a 6-axis robotic arm for an education institution laboratory. The robotic arm will serve as an educational tool, allowing students to learn and gain practical experience in the field of robotics and automation. The project will focus on programming the robotic arm to perform various tasks, enabling students to explore its capabilities and applications.
5. **Project status at the beginning of the Year:**

   Design and analysis were completed and validated the kinematics model with generated forward kinematics in 3d software (UNITY)

6. **Interventions made:**
   - Patent & Product Survey
   - Iterative Design
   - Analysis of designed components
   - Torque calculations
   - Defining Robot parameters(DH parameters)
   - Defined equation for forward kinematics and inverse kinematics
   - Velocity calculation(Joint velocity calculation)
   - Developed a simulation software(up to forward kinematics)
7. **Current status:**
   - Started Fabrication process.
   - Calculating a Trajectory equation
   - Developing a inverse kinematics module and Path generation
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

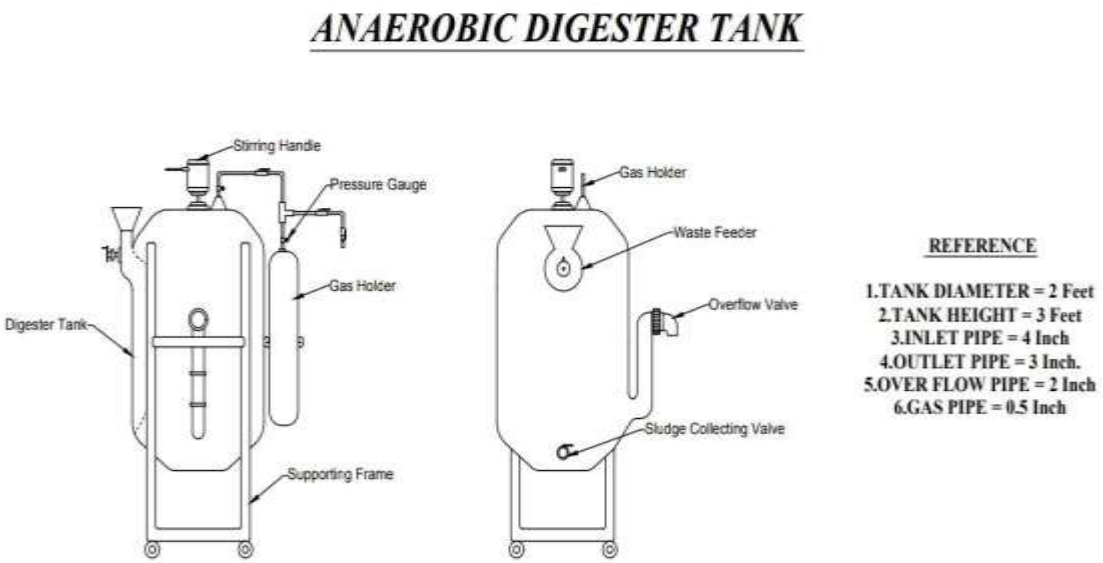


Project-17: Smart anaerobic community digester

1. **Project Title** : Smart anaerobic community digester
2. **Mentor Name** : Mrs M.Balameshwari M.E, Mr P.Kasirajan M.E
3. **Student Team Names:** Sneha.K , Ganesh prabu.V, Sanjeev.B, Karthick .E
4. **Project Description:** To develop an “anaerobic digester” which is basically a mechanical stomach that decomposes the biodegradable waste in the absence of oxygen producing the biogas and fertilizer as by-products.This digester concentrates mainly on biodegradable waste .we have designed our digester with stainless steel which is resistant to corrosion and can stay long,

An automated stirrer is provided to mix the waste for uniform decomposition, A proper inlet and outlet systems are provided to feed the waste and remove them periodically without affecting the anaerobic condition .Sensors are attached to the tank to monitor the temperature , humidity , ph., biogas production in the tank and can be created as a report periodically through an app called Mr. Digester ,this make the process assisted by artificial intelligence.

5. **Project status at the beginning of the Year:** Designing of anaerobic digester tank and adaptation of suitable process .
6. **Interventions made:** 1 kg of food waste produces 500 grams of methane. Hence the tank is designed with a capacity of 25 litres which can hold upto 25 litres of waste. Percapita waste production is about 70 grams of solid waste .the tank is designed in the way of preventing corrosion at low pH and temperature during the process with the ability of digesting 500 kg of waste in 8 hours .this can be used as an replacement for LPG .
7. **Current status:**
   - Prototype of anaerobic digester and optimum conditions were created and the process were also studied.
   - Design of anaerobic tank is completed.
   - Fabrication is under progress and will be completed within the second week of July.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project**



Project-18: NavIC Signal Based Guidance System

1. **Project Title** : NavIC Signal Based Guidance System
2. **Mentor Name** : Mr. T. Deva Kumar AP(SG)/ECE,
   Mrs. C. Kalieswari AP/ECE,
   Mr. Gangadhara T. Venkadesh Instructor/ECE
3. **Student Team Names:**
   M. Amuthan,
   A. Jerwin Solomon,
   K. Muthuraj
4. **Project Description:**
   The visually impaired people face a lot of difficulty in perceiving and interacting with the surroundings. The project is based on a precise analysis of the person's, who is blind, way finding activity or do they take into account the guidance methods used in actual fact. Understanding the users' needs will certainly provide insight for the development of the improved usability of the proposed assistive device.

   Also, for independent mobility, generating localized navigation an instruction like positional and spatial orientation plays a major role. In this project, the advancement in differential NavIC techniques for determining location accuracy along with way finding guidance are considered for development of navigational assistive system.

   This is the novelty of this proposed project. Since, this proposed system is programmable it can be implemented in blind schools across our country.

5. **Project status at the beginning of the Year:**
   - We had developed an idea to provide an audio-based navigation solution using NavIC signal that empowers individuals with visual impairments to navigate the campus independently and safely.
6. **Interventions made:**
   - Prototyping and Testing: As we conclude the initial research phase, we transited into the prototyping stage. By developing a working model, we evaluated and tested the system's functionality, accuracy, and effectiveness in providing audio guidance to blind users within the closed campus environment. This iterative process will help us identify and address any shortcomings or areas for improvement.
     - First, we configured a GPS module with Arduino UNO to analyze a satellite data and decoded a NMEA sentence.

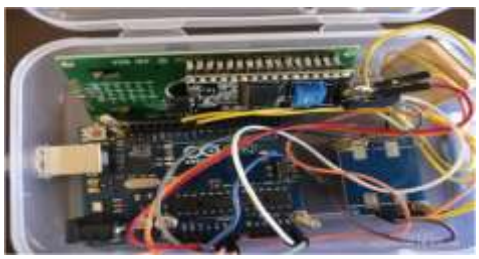


Fig. Arduino with GPS Module

     - Done a compilation of code to convert a NMEA sentence to defined information's like latitude, longitude, time, etc.,

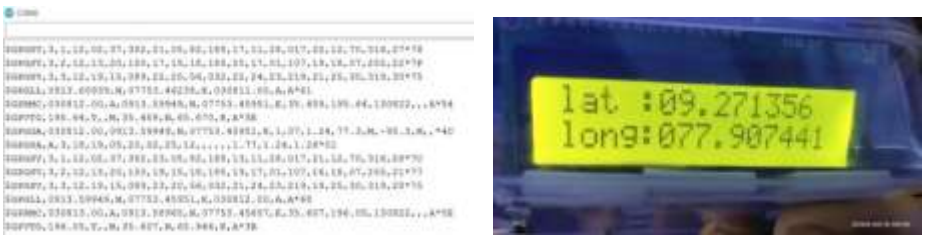


Fig. Display – latitude & longitude information

     - NavIC signal receiver, interface the receiver with Raspberry pi with UART protocol

Fig. NavIC receiver with Raspberry pi

- Design Power supply module with necessary connections.

Fig. Power Supply Model

- User Feedback and Iterations: User feedback is invaluable in creating a solution that truly meets the needs of the visually impaired community. We got input from blind individuals during the testing phase, incorporating their insights and suggestions to refine and iterate upon the system. By involving the end-users throughout the development cycle, we can ensure the system is tailored to their specific requirements.
- Organize an interaction meeting with visually impaired students in Anne Jane Askwith Higher Secondary School in Tirunelveli.

Fig. Field Visit @ Blind school

- Campus Mapping: A crucial step towards creating an effective guidance system is to develop a detailed and accurate map of the closed campus. Our team is diligently working on mapping out all essential landmarks, pathways, buildings, and points of interest. This meticulous mapping process will form the foundation for seamless audio guidance ensuring blind individuals can easily navigate the campus.
  - Our team has developed a systematic approach to record NavIC data at specific points of interest throughout the campus. We utilize NavIC

receivers or devices equipped with NavIC capabilities to capture location coordinates accurately.

Fig. Field Survey

7. **Current status:**

   Our team has developed a NavIC based navigation module that can assist between two defined locations. We are focusing on add more location information by getting more accurate data from NavIC receiver.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-19: Floating Garbage Collecting Machine for Ponds

1. **Project Title** : Floating Garbage Collecting Machine for Ponds
2. **Mentor Name** : Ms.S.Santhi, AP/IT
   Mr. K.Sudalaiyandi, AP/Mech

3. **Student Team Names:** M.Harini
P.Narmatha
S.Selvavarshini
S.Lakshmanan
S.Viknesh Babu

4. **Project Description:**

An autonomous device for collecting the garbage floating on the water is designed. A robot like device which is able to float over the water level and remotely controlled by the user through wireless technology and has physical devices to collect and capture the garbage and store them in the temporary storing unit. The stored garbage will be disposed on the shore.

5. **Project status at the beginning of the Year:**
   - Completion of creating dataset for detection.
   - Trained the dataset
   - Obtained results by detecting the floating garbage.

6. **interventions made:**
   - No man power is required as the machine is automated.
   - No harm to aquatic organisms as it is not trained for detection.
   - Obstacles are detected using sensors.

7. **Current status:**
   - Validated detecting of floating garbage in water surface.
   - Designed structure of the machine (boat).
   - Interfacing the detected results with the camera.
   - App is to be interfaced with the machine.

8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

Project-20: Implementation of Augmented Reality and Virtual Reality in Mechanical Engineering Design

1. **Project Title:** Implementation of Augmented Reality and Virtual Reality in Mechanical Engineering Design

2. **Mentor Name:** Dr.M.Vivekanandan, Adjunt Faculty / MECH
   Mr.J.Karthikeyan, Assistant Professor / CSE

3. **Student Team Names:** Leyo Jaffrin Clington S, Aswin S
   Mathavan B & Stephen Jebaraj M

4. **Project Description:** Using Augmented Reality and Virtual Reality technology to create the Mechanical Engineering designs in 3D model to visualize the created 3D model which can be intracted using Mobile tablet (AR). With AR, Engineers can use mobile tablets to superimpose virtual 3D models onto the

real world. This enables them to see how the mechanical components will fit within an existing space or environment. To show the working principle Assemble & Disassemble of any mechanical model.

In addition to AR, VR technology offers a more immersive experience for mechanical engineering design. The created 3D models can be deployed in Oculus Quest Head Mounted Devices (HMDs), allowing engineers to step into a virtual environment where they can explore and interact with the designs on a whole new level. Creating a 3D model of an Already exisiting industry and create a walkthrough of the existing industry virtually in 360 degree. To Design and development of an Augmented Reality and Virtual Reality based Virtual assistant to support the maintenance and working principles of Machines.

5. **Project status at the beginning of the Year:**

   At the Beginning of the year 2023, Our project focused on Augmented Reality (AR) and Virtual Reality (VR) technology to enhance the process of creating 3D model of mechanical components. To enhance the interaction with the 3D models, we incorporated touch gestures and controls into the mobile application. We conducted rigorous testing and iterative improvements to ensure the stability, performance and user friendliness of both the AR and VR applicaitons.

6. **Interventions made:**

   - Technology selection – Selecting the appropriate AR and VR technologies is crucial for the project's success. This includes choosing the right hardware devices such as mobile tablets with AR capabilities and VR headsets like the Oculus Quest. It also involves selecting the appropriate software tools and platforms that align with the project requirements.
   - Software Development - Developing custom software applications or leveraging existing AR and VR development frameworks is a critical intervention. This includes programming the applications to visualize and interact with the 3D design models, enabling features such as rotation, scaling, component manipulation, and real-time updates.
   - Continuous Improvement - Continuously monitoring the implementation, gathering user feedback, and making iterative improvements is a vital intervention.

7. **Current status:**
    - Interaction with the 3D model using touch gestures on the tablet, allowing them to rotate, scale and manipulate the virtual components. Completed AR based mobile application and deployed in Samsung S8 mobile tablet.
    - Completed VR based mobile application and deployed in Oculus Quest Head Mounted Device.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

NewGen IEDC-Velammal Engineering College

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: Fifth Year (2022-23)

Name of the Institution hosting NewGen IEDC	Velammal Engineering College		
Year of starting NewGen IEDC	2017-2018		
Name of the Head of the Institution	Dr. N. Duraipandiyan, Principal		
Name of NewGen IEDC Coordinator	Dr. Jeeva Kathiravan		
Contact Details of NewGen IEDC Coordinator • Mobile Number • Email ID	09840659486 hodit@velammal.edu.in		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Sanction Order Details	1	EDII / DST-NewGen IEDC/17-18/RLS-1/11 & 31.07.2017	60,00,000
	2		47,50,000
	3		60,00,000
	4		60,00,000
	5		60,00,000

1. **Details of Activities Undertaken during the year.**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No	Activities	Outcome/Achievements
1	Idea / Patent / Product Development 16th Nov 2022, Dr. V. Ponraj (Scientific Advisor to President, then)	785 participants, learned various opportunities
2	My Story - Motivational Session by Ilakkanam Private Limited. Mr. M. Yuvaraj and Mr. P. Thennarasu Founder & Co-Founder Ilakkanam Private Limited 29th Oct 2022	180 participants; Various sessions are conducted relevant to the start-up
3	Workshop on Patent drafting for kapila scheme.24th Dec 2022	How to convert Idea into a Patent, 160 participants.
4	Entrepreneurship Skill, Attitude and Behaviour Development, on 15th Feb 2023. Mr. Purushothaman, Founder and CEO EPR Labs	60 participants are participated, demonstrated & understood the comprehensive Entrepreneurship skills.
5	IEDC Project Expo, on 07th Feb 2023, Mr. Ram Prasad, (Innovation Expert, Senior Manager, KoneElevators)	All the projects done by the students from beginning demonstrated.
6	Unleashing innovation: Strategies and Techniques for Driving Growth and Success 23rd Jan 2023	From fundamentals to market strategies discussed.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No	Activities	Outcome/Achievements
1	Career to start-up on 23rd Feb 2023. Mr.Meyyappan Meenakshisundaram Business and Learning Consultant, Training Management Professional, Co-Founder of Scapable (Learning Solutions), Chennai.	Students motivated to take up start-up as their next goal.

Sr. No	Activities	Outcome/Achievements
2	Entrepreneurship and Innovation in Drones as Career Opportunity 31st Oct 2022. Mr. Balaji Thiru CEO & Founder, Village Technology School. & Mr.Balaji Varadhan Co-Founder & Coo, Village Technology School	Students given motivation to take up startup in the domain related to drones mentored.

[C] To enhance Industry-Academia interaction

Sr. No	Activities	Outcome/Achievements
1	Visit to TANSAM on 21st Feb 2023 & TBI Visit - Vel Tech 26th Nov 2022	MoU to be signed

2. **Deviation (shortfall) from the proposed action plan (with reasons), if any: Nil**

3. **Other important highlights (new initiatives), if any:**
   I. MSME Business Incubator Approved and Inaugurated.
   II. MSME Idea hackathon 3.0 conducted and 60 proposals submitted to MSME.

4. **Student Projects** (Please provide the following details for each student project) Refer to Annexure-A for Details of Student Projects with Prototype Photos

5. Provide a minimum two-page case let each on the **<u>two best student projects</u>** (either prototype developed or commercialized) from the above list**:**

Best Student Project 1: Nature Inspired Solar Panel

I. **Project Title** **:** Nature Inspired Solar Panel

II. **Mentor Name** : Dr. V. RameshKumar & Dr. J. Arumugam

III. **Student Team Names: Joshua Samuel Susai, Mechanical**

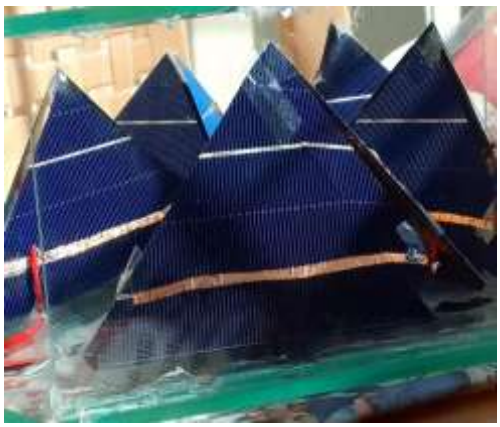
IV. **Brief description of the student project/start-up**

Its about designing of solar panel such a that to improve its efficiency. This solar panel design has surface area with maximum sunlight illumination over the day.

WWS (World Wide Solar) company

V. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

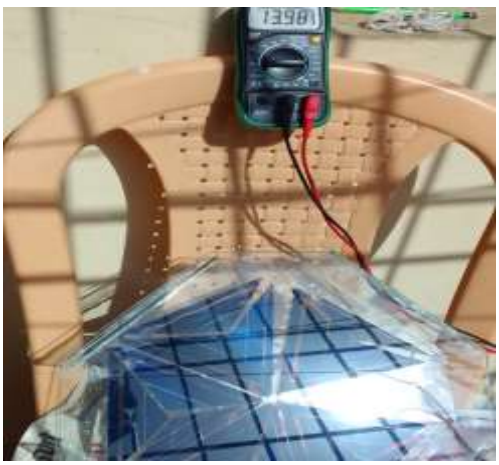
Product/Service	: Product
Investment	: IEDC
Employment generated	: Yet to Hire
Commercialized or not	: Yes



Side View

Top View

Voltage 7.241V



Current 13.98 mA

Students and Mentors with product. (Left. Dr. J. Arumugam (Mentor), Middle Mr. Joshua Samuel susai (Student), Right, Dr. V. Ramesh Kumar (Mentor))

VI. Contribution of NewGen IEDC in the same

- Provided funds and infrastructure to prepare and synthesize the materials.
- Provided patenting support
- Provided company registration and mentoring support.

VII. Future plan

- We plan to develop a hybrid model of the same to enhances and power output in small area and storing it. We confirms that our model to be futuristic model in near future particularly for EV automobiles.

VIII. Important highlights

- Design Patent filed
- Company registration – being pursued

Best Project-02: Tidy Water Purifier For Domestic Purposes

I. Project Title: Tidy Water Purifier For Domestic Purposes

II. Mentors Name : Dr.V. Chandran, Associate Professor

III. Student team details

1. Mr. S. Vishnu Prasad
2. Mr. A Viswanathan

IV. Brief description about the student Project

The National Green Tribunal (NGT's) of India order prohibiting use of RO water purifiers. RO water purifiers have become an vital household item for any general Indian household today. The public to avoid consumption of polluted water and associated health benefits has been hugely investing in RO water purifiers. However, the NGT through its expert committee report has highlighted that RO water purifier system demineralizes water where TDS in water is less than 500milligram/litre (500 PPM), thereby making it unhealthy for human consumption. .

AIM

The main aim of project is design and develops the tidy water purifier for domestic purposes The current RO water purifier has more disadvantages to the society like more wastages of water, removes healthy minerals, provide lower pH value and etc. The proposed smart water purifier will satisfy the all these issues. Our proposed model consists of four stages filters like sediment filter, carbon filter, UV filter and RO filter.

V. Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs.

Name of the Company/Start-up : PP-VAC Engineering Solutions Pvt. Ltd.

Corporate Identity Number : U27900TN2023PTC163627

Highlights of the Company/Start-up (Please include the following);

Product :

1. Detachable Thermoelectric device
2. Nozzle Pipe Micro Turbine
3. Tidy Smart water Purifier

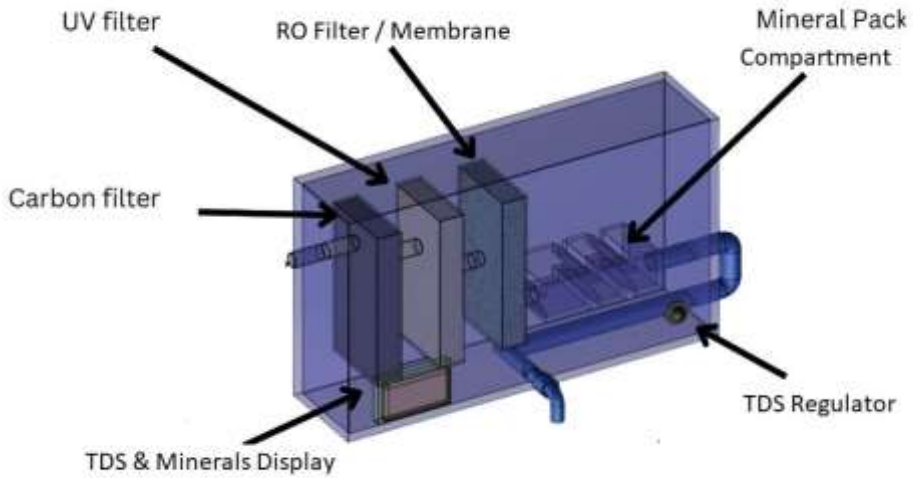
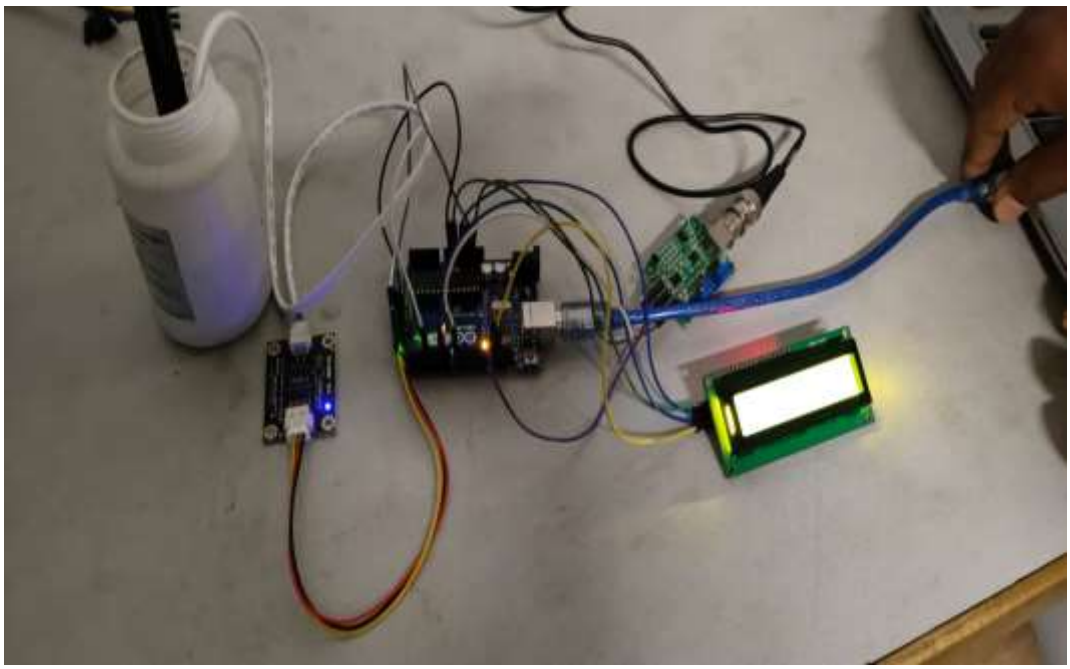


Fig. 1 : Schematic diagram of isometric view of tidy smart water purifier



VI. Contribution of NewGen IEDC in the same

- Provided funds and infrastructure to prepare and synthesize the materials.
- Provided patenting support
- Provided company registration and mentoring support.

VII. Future plan

- **Investment** : Plan for Loan or getting from investor
- **Employment Generated** : Plan to give employment
- **Commercialized or not** : Shortly

VIII. Important highlights

- Patent to be filed
- Company registered

Annexure-A

Student Project Details-Fifth Year (2022-23)

Project-01: Tidy Water Purifier for Domestic Purposes

1. **Project Title** **:** Tidy Water Purifier for Domestic Purposes
2. **Mentor Name** **:** Dr.V. Chandran, Associate Professor
3. **Student Team Names:**
   1. Mr. S. Vishnu Prasad
   2. Mr. A. Viswanathan
4. **Project Description:**

   The National Green Tribunal (NGT's) of India order prohibiting use of RO water purifiers. RO water purifiers have become an vital household item for any general Indian household today. The public to avoid consumption of polluted water and associated health benefits has been hugely investing in RO water purifiers. However, the NGT through its expert committee report has highlighted that RO water purifier system demineralizes water where TDS in water is less than 500milligram/litre (500 PPM), thereby making it unhealthy for human consumption.

   AIM : The main aim of project is design and develops the tidy water purifier for domestic purposes The current RO water purifier has more disadvantages to the society like more wastages of water, removes healthy minerals, provide lower pH value and etc. The proposed smart water purifier will satisfy the all these issues. Our proposed model consists of four stages filters like sediment filter, carbon filter, UV filter and RO filter.
5. **Project Status at beginning of the Year:**

   First we have collected various data about tidy water purifier. We have conducted survey to know about various types of water purifier units and their materials, holding mechanisms, cost, customer category, customer satisfaction and strength & weakness of the products.

   - Then we have conducted survey to know about various water purifiers (TWP) like types, specifications, capacity, manufacturing, cost, customer category, customer satisfaction and strength & weakness of the products. Also, we have conducted survey for industrial and domestic water purifier working and effectiveness.

- We have identified that no self Tds control unit, minerals display in the current water purifier system.
- There are no 100% self TDS control Unit currently in the market.
- We have identified following technologies to design an efficient tidy smart domestic water purifier.
- **Supplementary Compartments** (calcium, magnesium, copper, iodine and etc.,), which is used to add the supplements in the water while minerals deficiency occur in the raw water or human body,
- **Total Dissolved Solids (TDS) Regulator,** which is used to control the TDS levels by means of proposed technology adopted in RO, Based on customer needs, it will regulate the TDS in the range of 10-600 PPM. Also, it will help to regulate the concentration of minerals and taste of water as needed for our family health.
- **Digital Display Unit**, which displays minerals concentration, DTS level and pH value in the drinking water.
- **Filter Adoption Technology:** Based on raw water condition, can be absence or activate of any filter in the system, hence it will help to reduce the large water wastages.
- **Warm UV Filter**: it is used to destroy the all type of viruses, bacteria and micro organisms effectively.
- We need to construct the Self TDS controlled / Tidy smart water purifier by using the above mentioned technologies**.**

6. Interventions made:

- This product is having the distinctive features which holding the societal benefits, Following things are newly incorporated in our product.
- TDS Regulator Unit
- TDS and Minerals Display Unit
- Minerals package Unit
- Filter Adoption System /Technology
- Warm UV Filter

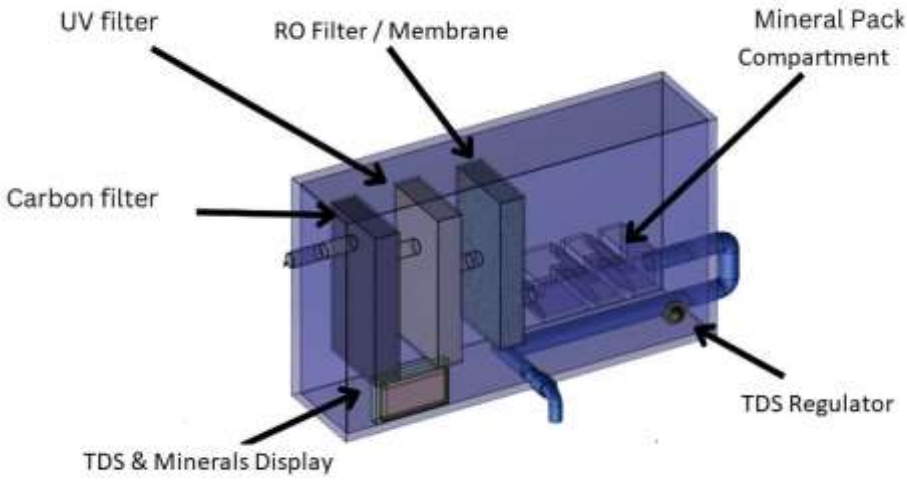


Fig. 1 : Schematic diagram of isometric view of tidy smart water purifier

Fig. 2: Pertaining accessories of water purifier

7. Current Status:

1. Name of the Company/Start-up : **PP-VAC Engineering Solutions Private Limited**

   Corporate Identity Number : **U27900TN2023PTC163627**

2. Highlights of the Company/Start-up (Please include the following);

   Product :

   a. Detachable Thermoelectric device
   b. Nozzle Pipe Micro Turbine
   c. Tidy Smart water Purifier

.

8. **High resolution pictures showing the prototype/product along with the students and their mentor for each project:**

The below demonstrated image is the sample image of IP camera for our project.

Fig. 3: Testing of TDS control -POC

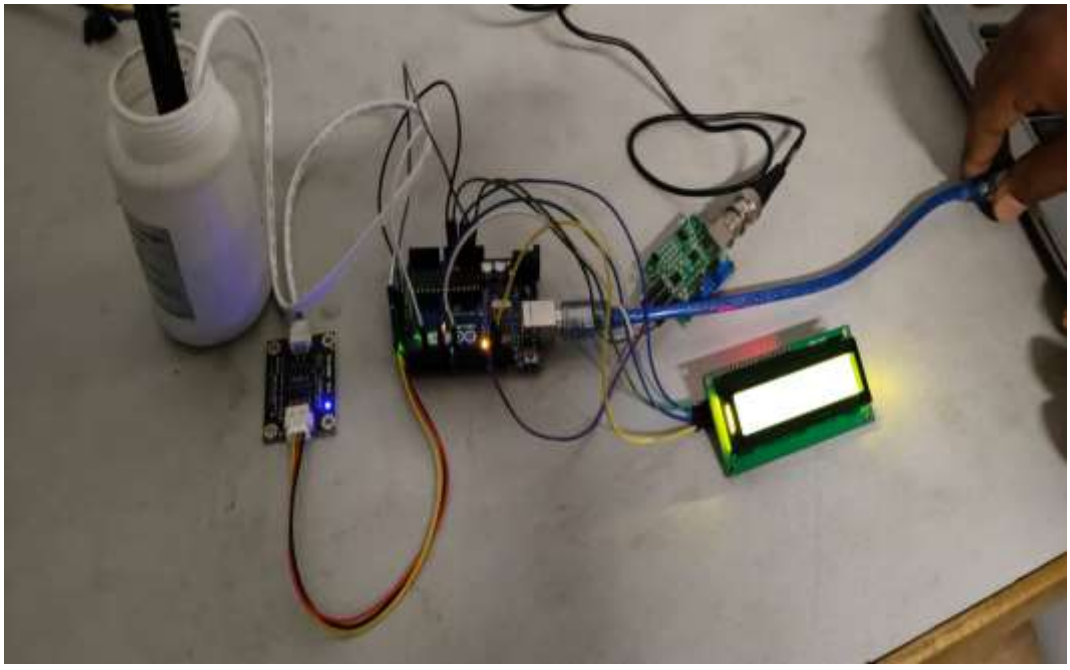


Fig. 4: Testing of Minerals display-POC

Project-02: Rainwater harvesting using Readymade Permeable Kit

1. **Project Title** : Rainwater harvesting using Readymade Permeable Kit
2. **Mentor** Name : Dr. R. Sudharsanan**,** Associate Professor
3. **Student** Members
   1. A.J. Pranav Kumaar
   2. U. Gokul
   3. Roshan Balaji
   4. S. Gokul
   5. C. Rajadurai
   6. P. Karthik
4. **Project Description**

   Generally, Rainwater Harvesting Structure (RWH) will be constructed at one or two locations within a building in the form of recharging pit without considering the site specifications. There are number types of rainwater harvesting techniques are adopted. In all those types, the rainwater collected from the roof and other areas will be allowed to enter directly into these structures. Within a period of 2 to 3 years, the RWH pit gets clogged due to the impurities flowing along with the rainwater. The lifespan of the traditional rainwater harvesting system is only less than 4 or 5 years depending on the soil conditions. Hence, the structure unable to recharge the sub surface and major portion of rainwater gets stagnated on the top and reaching the nearby storm and/or sewage drains.

   To make it properly functional RWH pit, cleaning of entire clogging must be done frequently which is a difficult task and over a period it becomes impossible. Hence, a RWH with easy cleaning option with control on fine particle entry is very much required. Therefore, in this project a readymade RWH kit is prepared by using permeable concrete with a removable layered filter (can be varied based on the site condition). This facilitates the easy cleaning and other maintenance activities and allows the rainwater without impurities. Additionally, the entry of fine particles are controlled by providing mini sedimentar at one side of the RWH kit. The reduction in entry of sediment into the RWH system will increase the performance and its life. This will results in improvement of groundwater potential both in terms of quantity as well as quality.

OBJECTIVES:

The main aim of the project is to provide a readymade kit for Rainwater Harvesting System with easy cleaning option to enhance it's the life and performance. To achieve this following objectives are formulated:

- To fix the mix proportion for the permeable concrete for various permeability rate;
- To optimize the thickness, type of material and it's arraignment of the filter layer of the RWH kit;
- To design and fabricate the RWH kit with mini Sedimentar using interlocking and layered system;
- To assess the performance of the RWH kit at laboratory as well as field conditions in terms of water quantity and quality aspects, and
- To finalize the dimensions and filter arrangements for the RWH kit.

5. **Project Status at the beginning of the year** : '

In this project a readymade RWH kit is prepared by using permeable concrete. In RWH kit, a removable layered filter is provided (can be varied based on the site condition) to allow the rainwater without impurities so that the clogging can be restricted. The top surface of filter is covered by a Permeable Paver Block allows easy cleaning at the top and prevent the entry of larger particles in the rainwater harvesting structure. Each layer of filter material is kept in the geo-synthetic bag which facilitates easy removal of them for future cleaning purpose. This can be installed at the entry point to filter the rainwater collected from the roof top. Additionally, Mini Sedimentar is added on one side of the entry point, reduces the sediment load into the filter in the case of RWH structure collects rain water from the ground surface. This will act as a mini sedimentation basin for the RWH system and ensures the proper functioning of RWH.

6. **Interventions** made :

- The permeable filter is kept at the top and filter layers at the bottom of RWH are easily detachable.
- This setup allows easy cleaning of entire setup and prevents the entry of larger particles and clogging of RWH system.
- Inclusion of Mini Sedimentar at the side of main RWH kit further reduces the entry of fine particles in the RWH system, and which will improve the performance and life.

- The entire setup is made in multiple layers which facilitate the ease of transportation, erection, as well as change of dimension of RWH kit. The interlocking facility provides stability to the structure at the field.

7. **Current** Status :

   All the six student team members and mentor are interested to start the new Startup in Chennai. Once site is identified the works will be initiated. The Invention Disclosure Form is submitted to file the patent for the above Readymade Permeable Rainwater Harvesting Kit.

8. **High resolution pictures showing the prototype/product along with the students and their mentor for each project:**

Figure 1. Specimen with cement, 6 mm agg and 20 mm agg

Figure 2. Testing of Permeability of Concrete Figure 3. Testing of Permeability of Concrete

Project-03: Design and Development of Organic Waste Compostor

1. **Project Title** : Design and Development of Organic Waste Compostor
2. **Mentor Name :** Dr. A. Jebamalar, Professor & Head
3. **Student Team Names:**
   1. Mr. Visvanth
   2. Ms. Venkata Neeraja
   3. Mr. Y. Wesley Sam Thomas
   4. Mr. M. Luthufur Rahman
   5. Mr. A. Kamal
4. **Project Description:**

   The project deals with the Design and Development of Organic Waste Compostor system for converting Food Waste and Garden Waste into Organic Manure.

   The OWC is designed to be of 25 kg semi-automatic type system wherein the garden waste in dry form are shredded separately using a separate Shredder equipment. The OWC is designed and fabricated to 25 kg combined capacity in semi- automatic mode. That is the OWC container is designed mainly for mixing and blending the two wastes types into a homogeneous mass, which upon open air curing in crates for about a week's time gets converted into organic manure.

   The entire system is designed and developed to yield an output of 75 to 100 kg per day of single shift. The weekly output ready for sales to the general public is of the order of about 300 kg per week.
5. **Project status at the beginning of the Year:**

   Designed and Fabrication works started
6. **Interventions made:**

   The Design has been optimized to minimize the dimensions of the roller mixer so that the manufacturing cost as well as the routine operational costs are reduced.

   The OWC system being of semi-automatic type, helps in reducing the routine operational power consumption costs.

7. **Current status:**

   System completed and operations started

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Data Collection

Dry Waste Collection

Wet Waste Collection

Food & Kitchen Waste

OWC Machine

Storage of Mixed Waste For Curing

Dry Manure

Project-04: Asphyxiator using Acoustic Waves

1. **Project Title** : Asphyxiator using Acoustic Waves
2. **Mentor Name** : Dr. B. Murugeshwari
3. **Student Team Names:**
   1. Thirumalai N.
   2. Vasanth M.
   3. Krithik R.
   4. Poovarasan P.
4. **Project Description:**

   The need for fire extinguishing methods is essential as fire accidents are catastrophic in nature, leading to unrecoverable loss. Depending on the cause of the fire and the material, A significant fire extinguishing system should be used. The current fire extinguishing methods come with numerous drawbacks and are not eco-friendly. Thus, A potential alternative proposal can be achieved by using Acoustic waves i.e. Longitudinal pressure waves at a lower frequency, that is when spilled from a subwoofer able to agitate air molecules away from the fuel of the flame. When the pressure waves are directed at the source of the fire, they decrease the pressure at the source and in turn decrease the temperature of the fire. This innovative approach is used to reduce the overall cost and maintenance. Such a product is to be equipped with an intelligent module for flame detection and automated activation of the product. Accordingly, this

Acoustic wave-based fire crushing technology could be used to tackle the early stages of fire accidents. This proposal is to manufacture a physical hand-gun for laboratory assistance to put off the fire, subsequently saving the equipment and modules with very minimal damage. Addition of these modules in Kitchen chimneys, Electric vehicles can prevent the cause of fire at the preliminary stage. Production of AI (Artificial Intelligence) robots to act as a lifesaver in fire rescue operations. In these cases the acoustic waves of the fire extinguisher are well transmitted to the flame even in the structure in which the obstacle is convoluted. The pollution caused by this type of extinguisher is much less than chemical extinguishers thus considered as an optimal type for extinguishing fire.

5. **Project status at the beginning of the Year:**

   At the beginning of the year, our project was in the initial stages of planning and preparation. We embarked on a comprehensive literacy survey to assess our project's requirements, meticulously evaluating the materials essential for its successful execution. Our team dedicated significant effort to scrutinize and identify the precise materials needed, ensuring that each component aligns seamlessly with our project objectives. As we now approach the culmination of this survey phase, we are poised to move forward with confidence, armed with a clear understanding of our material requirements and a well-defined roadmap for procurement. This diligent analysis of materials not only underscores our commitment to precision but also sets a solid foundation for the upcoming phases of our project.

6. **Interventions made:**

   Low-Frequency Sound Wave Device: The development of a low-frequency sound wave device itself is a significant innovation for a novel application - fire extinguishing.

   Subwoofer Integration: The incorporation of a subwoofer tailored for resonance with low-frequency sound waves is an innovative approach to ensure optimal sound wave delivery to extinguish flames efficiently.

   Fire Extinguishing Methodology: The application of sinusoidal sound waves as an eco-friendly, low-cost means to extinguish flames represents a groundbreaking innovation, offering a safer alternative to traditional fire suppression methods.

Vortex Connection: The connection of the subwoofer to a vortex, as indicated by the fundamental approach model, represents an innovative technique to control and enhance the dispersion of sound waves for improved fire suppression.

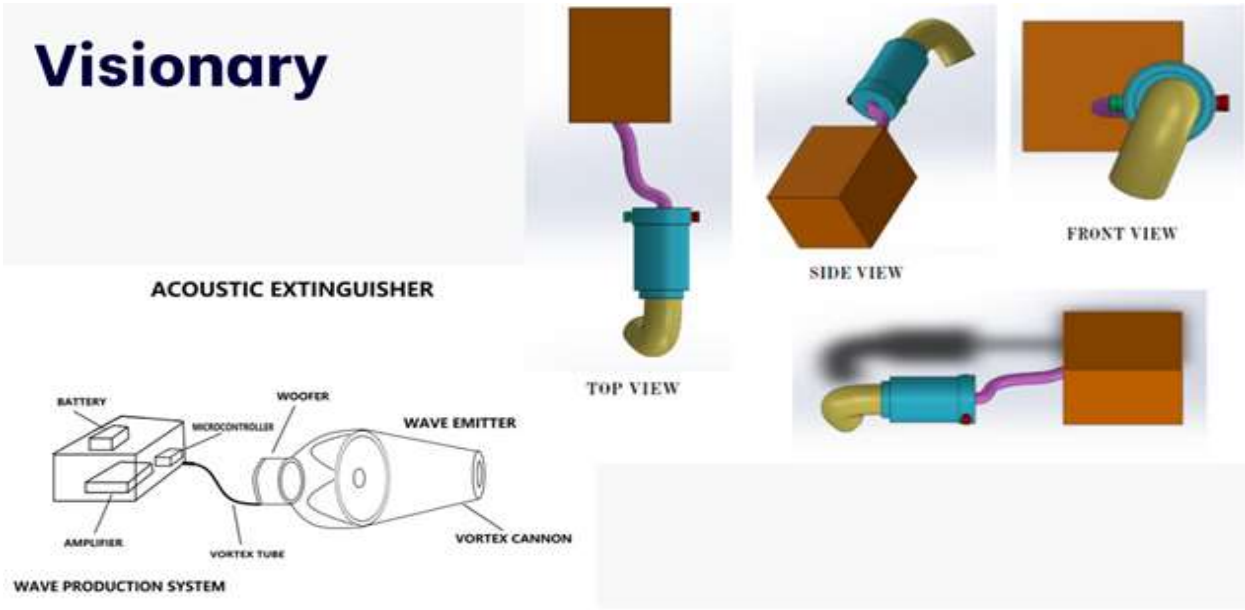
7. **Current status:**

   The current status of the project is in the advanced stages of development, with significant progress achieved in both the proof of concept and the assembly of the complete device. The acoustic wave generator, powered by a digital tone generator, successfully generates sinusoidal sound waves of various frequencies. These waves are efficiently amplified through a series of cascaded amplifiers, which are supplied power by a dedicated transformer. The amplified waves are then directed to a subwoofer for further processing. The key breakthrough is in the proof that these waves can be harnessed for extinguishing flames, providing an effective and cost-efficient means for fire suppression. The project is now focused on optimizing the system for practical use. With an effective approach model indicating a connection to a vortex, the project holds promise for a novel and impactful fire suppression solution.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Product testing started

Successful completion of the Testing process



Project Outcomes

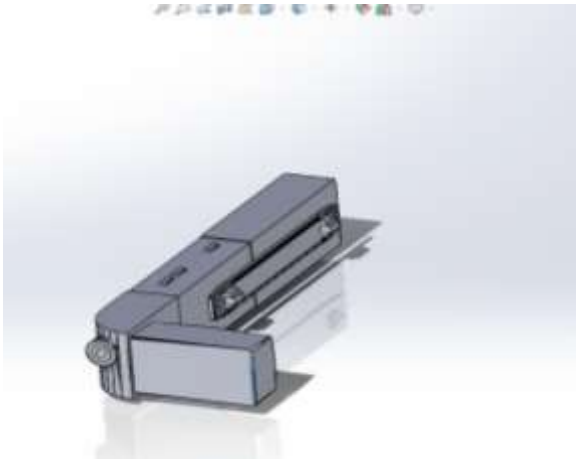
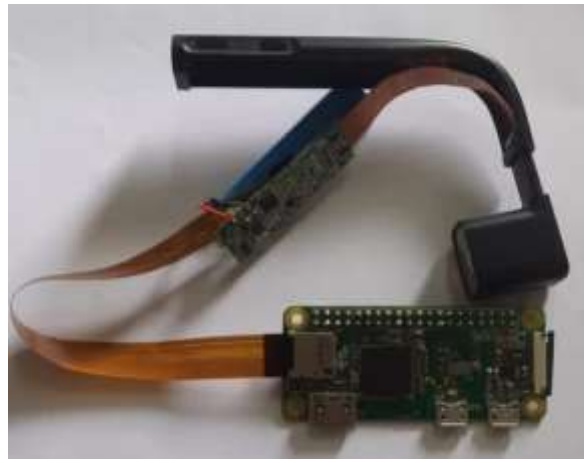
Achieved at project expo titled as "Asphyxiator using Acoustic Waves"

Paper presentation at International conference

Project-05: Smart Glasses

1. **Project Title** : Smart Glasses
2. **Mentor Name** : Mrs.T. Subashini, Assistant professor
3. **Student Team Names:**
   1. Hariharan B.
   2. Raghul S.
   3. Aravintakshan A. G.
   4. Arshad S.
   5. Priyadharshini M.
   6. Aadhi Narayanan K.
   7. Gowtham.R
4. **Project Description:** The project is to build a promising gadget with future potential. These innovative glasses have the ability to update and access the knowledge you need directly from an eyewear database, making them a versatile and convenient wearable device. One of their key features is the integration of text and image recognition technology, which allows blind individuals to perceive and understand their environment through auditory cues.
5. **Project status at the beginning of the Year:**
   Our initial efforts were focused on meticulously planning the overall generic design of the project and the hardware to be used, ensuring it aligned with our project goals. Moreover, we engaged in productive discussions, particularly regarding the incorporation of artificial intelligence for communication purposes and object detection. These are the early steps in our project.
6. **Interventions made:**
   Visited “Little flower convent higher secondary school” that is for blind and deaf students to gain their knowledge and experience in using the existing products and to identify our project needs and requirements to be fulfilled .Started working on the AI that controls the entire hardware and other software modules and started working on user interface and experience for the hardware module.
7. **Current status:**
   - Started working on the fabrication of the hardware unit.
   - Completed working on the AI.
   - Completed working on the user interface and experience.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

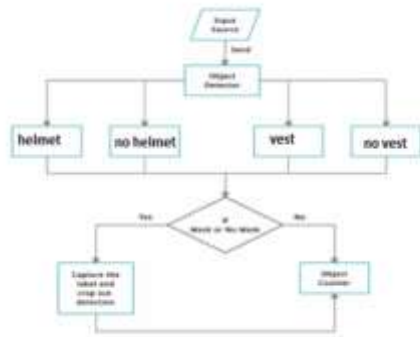
Project-06: PPE kit using Open CV and GSM Module

1. **Project Title** : PPE kit using Open CV and GSM Module
2. **Mentor Name** : Dr. S. Rajalakshmi
3. **Student Team Names:**
   1. Shreenath S. P.
   2. Archita Ritu M. A.
   3. Bhavan Kumar V.
   4. Sanjeev Kumar R.
   5. Kuralovian C.
4. **Project Description:**

   This innovative mobile application, powered by machine learning and GSM technology while utilizing AWS for storage, is designed to predict and enforce Personal Protective Equipment (PPE) compliance across diverse industries.

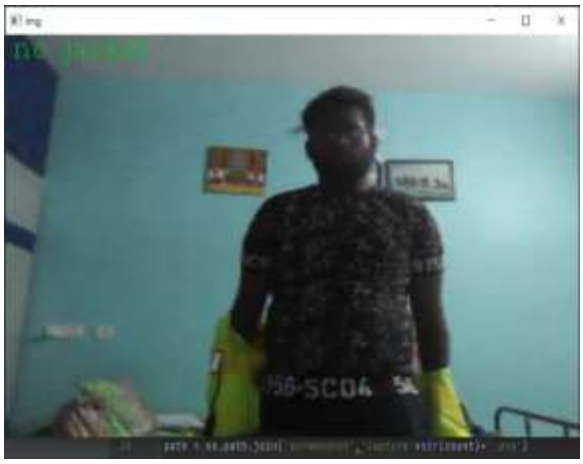
By reducing the burden on manual monitoring, it not only enhances safety but also offers economic potential by improving safety standards in challenging environments. Its origin in Amazon's warehouse operations and subsequent adaptation for adventurous sports underscores its versatility, while its core innovation lies in real-time blind spot detection, making it a game-changer for automotive safety and workplace security.

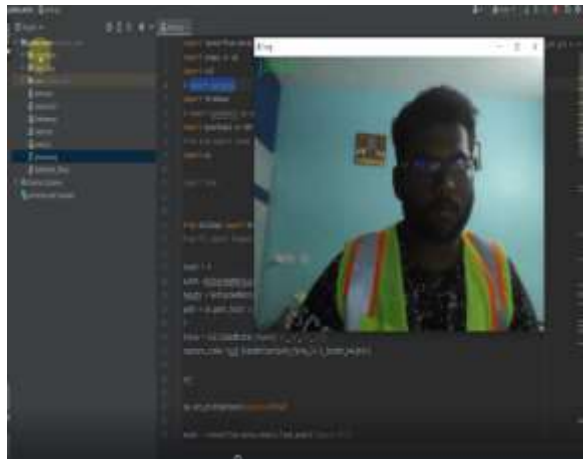
5. **Project status at the beginning of the Year:**
   - Working prototype was complete
6. **Interventions made:**
   - Implementation of YOLOv3-based CNN model for safety compliance prediction.
   - Data collection from construction sites for training and testing.
   - Real-time alarms and reports upon non-compliance detection.
7. **Current status:**
   - Working on the mobile application
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

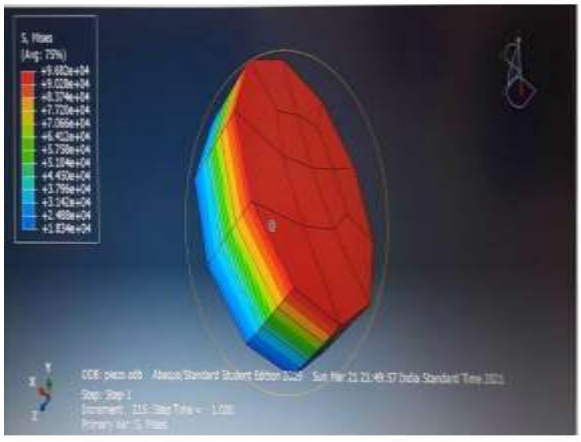


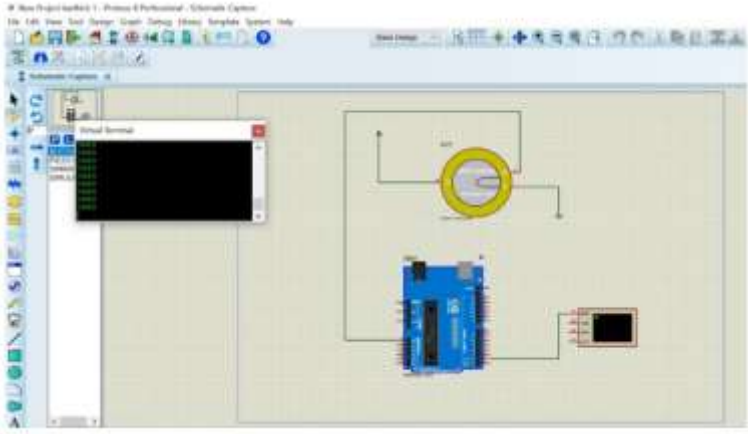
Helmet 0.79
Vest 0.66

No-Helmet 0.71
Vest 0.73









Project-07: Object Detection and Classification using Pytorch and Detectron with edge devices and Infrared Camera for Smart Security and Surveillance

1. **Project Title** : Object Detection and Classification using Pytorch and Detectron with edge devices and Infrared Camera for Smart Security and Surveillance.

2. **Mentor Name** : Dr. S. Mary Joans, & Mr. K. Radhakrishnan

3. **Student Team Names:**
   1. Sudarvanan K.
   2. Sooriya Kumar S.
   3. Charneeshwar K. S.
   4. Karthikeyan N.

4. **Project Description:**
   This project is a cutting-edge security and surveillance system that leverages the power of computer vision and deep learning on edge devices. The system is equipped with a pan and tilt mechanism and an infrared camera, enabling it to monitor a wide area and operate effectively in various lighting conditions. The final product is designed to withstand high temperatures and harsh environments, making it suitable for both home and industrial use. The AI built on Google Cloud Vision API ensures accuracy and provides easy access to users. The user-friendly GUI of the controller app allows users to control and customize the camera without any coding knowledge required. This innovative solution not only enhances security but also offers real-time monitoring, efficient resource utilization, scalability, and user-friendly alerts. It's a ready-to-use module that can be easily installed and bought from a local store, making advanced surveillance technology accessible to everyone.

5. **Project status at the beginning of the Year:**
   The project began in the first year with a clear vision: to revolutionize the field surveillance system by integrating artificial intelligence, thereby reducing the need for constant human assistance and minimizing errors. The team was acutely aware of the inefficiencies and high margin of error in the manual surveillance systems used in various fields at the time. The existing models lacked the sophistication of artificial

intelligence and were heavily reliant on human intervention. The first phase of the project was dedicated to research and development. The team conducted an extensive study of existing surveillance systems, identifying their strengths and weaknesses. They also delved into the latest advancements in artificial intelligence, exploring how these could be harnessed to enhance surveillance capabilities. The second phase involved designing a prototype.

The team aimed to create a system that was energy-efficient, running on just 15W of power. This would ensure a large battery backup when running on battery, making it ideal for field conditions where access to power might be limited. The design also focused on compactness, with all components integrated into a single module for optimized performance. This not only enhanced efficiency but also reduced the area required for installation, making it suitable for various field conditions. One of the key features of the system was real-time streaming. This allowed users to watch the feed from anywhere in the world, adding a layer of convenience and flexibility that was missing in traditional systems. In addition, the team decided against requiring specialized servers at the field.

This decision was driven by a desire to reduce costs and complexity, making the system more accessible and user-friendly. The final phase of the first year involved testing and refining the prototype. The system's pan and tilt mechanism was designed to cover a large area with auto focus. An auto-switch infrared camera was incorporated for night vision capabilities, ensuring round-the-clock surveillance. Throughout this first year, the team faced numerous challenges but remained committed to their vision. Their dedication and innovative approach laid a strong foundation for what would become a game-changing solution in field surveillance.

6. Interventions made:

- In response to the project head's feedback and to enhance performance, we made crucial updates, including replacing the Raspberry Pi with the Jetson Nano due to poor performance, and swapping the 2MP camera for an 8MP Sony infrared camera.

7. **Current status:**

The benchmarking of the hardware is done, a finalized set of apparatus is drafted which is going to be present in final project. The project has now reached a significant milestone, with 60% of the work completed. The team has successfully implemented the system's core functionalities for both restricted access and open areas. In restricted access areas, the camera continuously records the surroundings, much like any other security system. However, our system stands out in its use of TensorFlow to scan the data collected from the camera. If a person's details do not match with the database, the camera tracks the unknown individual across the area using its pan and tilt mechanism. This feature allows a single camera module to cover a large area. If a high threat probability is detected, an alert is immediately sent to the user. In open areas, the system operates in a static mode, scanning all individuals entering the area. If it detects a person with a threat probability of more than 75%, that person is tagged and an alert is sent to the user.

In both scenarios, the camera hosts a live stream that can be viewed on the user's mobile device. This real-time surveillance feature adds another layer of security and convenience for the user. The team has been working diligently to ensure that all features are functioning as expected and that any bugs or issues are promptly addressed. The next phase of the project will focus on refining these features and conducting extensive testing to ensure optimal performance.

Despite some challenges along the way, the team remains committed to delivering a state-of-the-art surveillance system that integrates artificial intelligence to enhance security and efficiency. With 60% of the project completed, we are well on our way to achieving this goal.

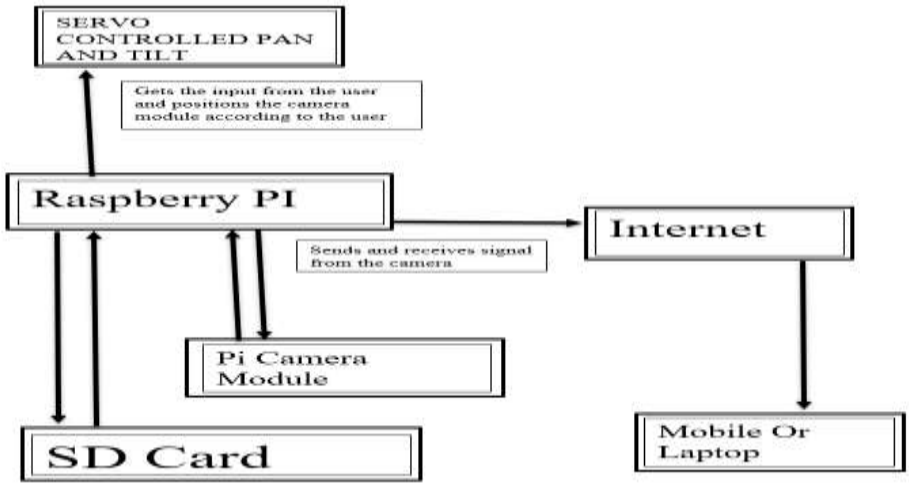


Fig. 1 Block diagram of proposed model

Iterations performed during the project :

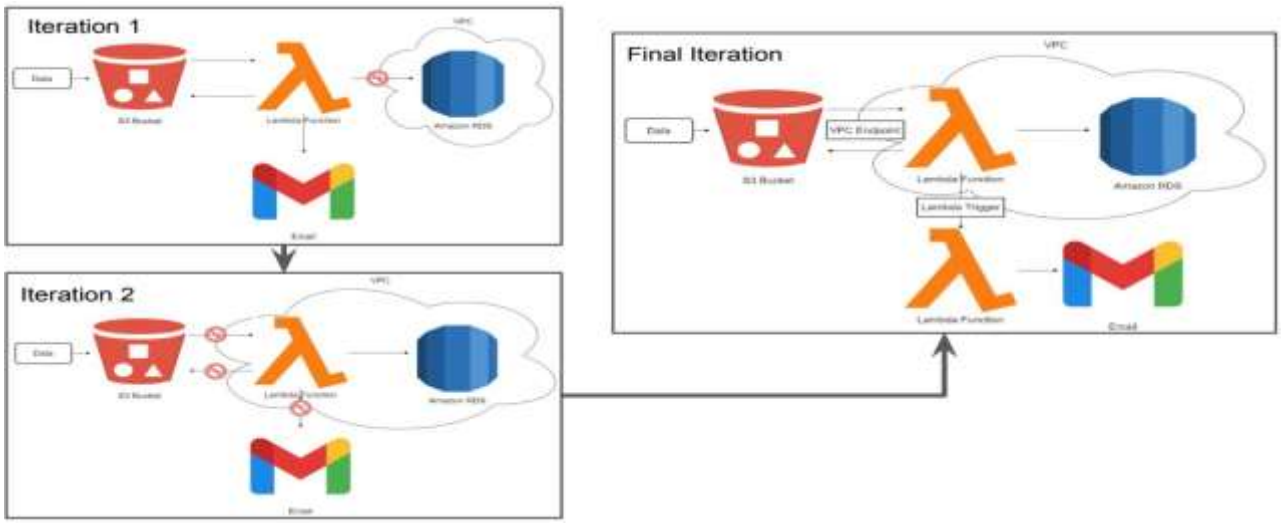


Fig. 2 Iteration performed in the proposed model

Basic Concept:

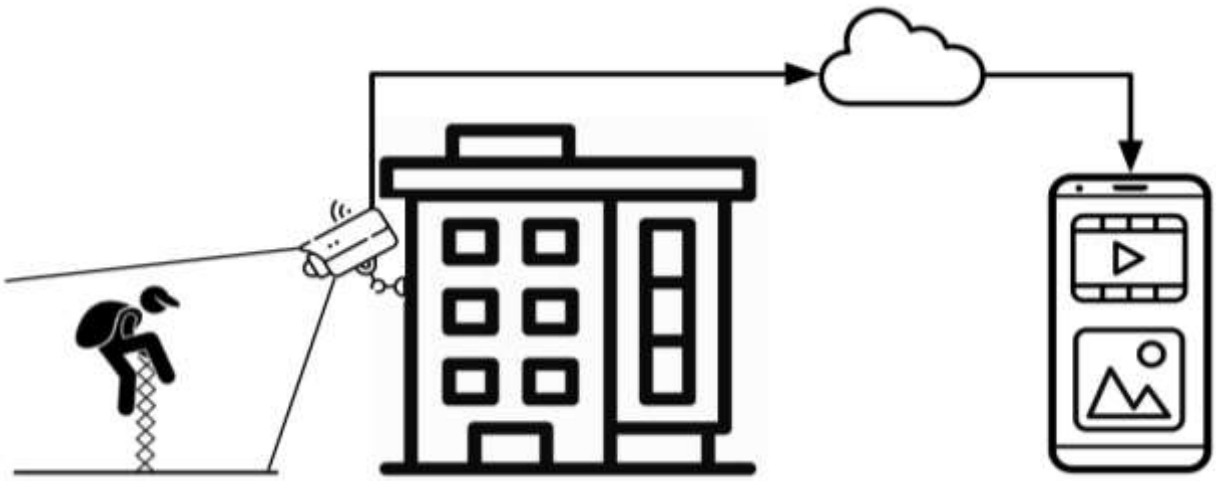


Fig.3 Basic Concept of proposed model

Flowchart:

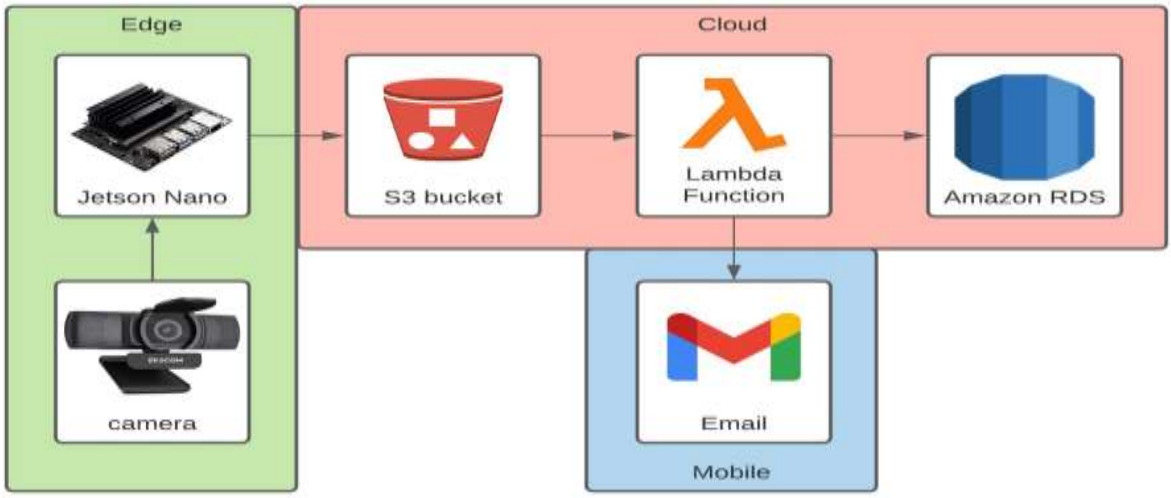


Fig. 4 Flow chart

Components and software used :

Fig. 5 Components and Software in the project

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Prototype of the Project :

Fig.6 Hardware components

Fig.7 Hardware components

Fig.7 Prototype demo

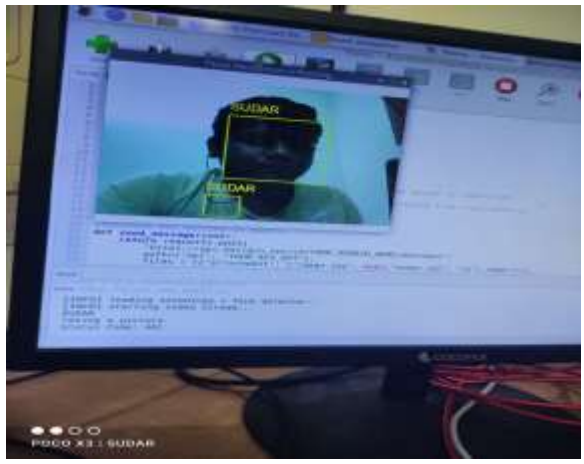


Fig.11 Facial recognition running

Project-08: Battery Operated Kettle with Water Purifier using IoT for Temperature Monitoring and Heating

1. **Project Title** : Battery Operated Kettle with Water Purifier using IoT for Temperature Monitoring and Heating
2. **Mentor Name** : Gangadurai E
3. **Student Team Names:**
   1. Raj Kisan S.
   2. Vijay A .
   3. Draviya M.
   4. Monisha M.
   5. Santhosh M.
4. **Project Description:**

   The project involves the development of a battery-operated kettle with an integrated water purifier and IoT capabilities for temperature monitoring and heating. Currently in its initial testing phase, the project has made substantial progress in evaluating the battery's capacity, charging time, and durability, as well as the efficiency and thermal stability of the heating filament. Further development and refinement are necessary to optimize performance, address any identified issues, and enhance user satisfaction. This includes fine-tuning battery technology, optimizing heating filament design, and refining IoT integration. Iterative testing and refinement cycles will ensure the final product meets high standards of performance, reliability, and safety, aiming to fulfill user needs effectively.

5. **Project status at the beginning of the Year:**

   The project underwent rigorous testing with a range of heating elements to determine the most optimal choice for meeting its specific heating requirements. This comprehensive evaluation included assessing the performance of Ceramic cartridge heaters, PTC heaters, Soldering Iron heating elements, Nichrome heating elements, and Polyimide heating elements. The objective was to identify the heating element that would best align with the project's needs, ensuring effective and efficient heating for its intended purpose.

6. **Interventions made:**

   Following extensive testing of various heating elements, it was determined that the most effective choice was the Polyimide heating element. This element exhibited the capability to generate sufficient heat to achieve the desired temperature increase, accomplishing this task with a power output of 120W. Consequently, based on the outcomes of the conducted tests, it was established that the Polyimide heating element successfully delivered the required heating performance..

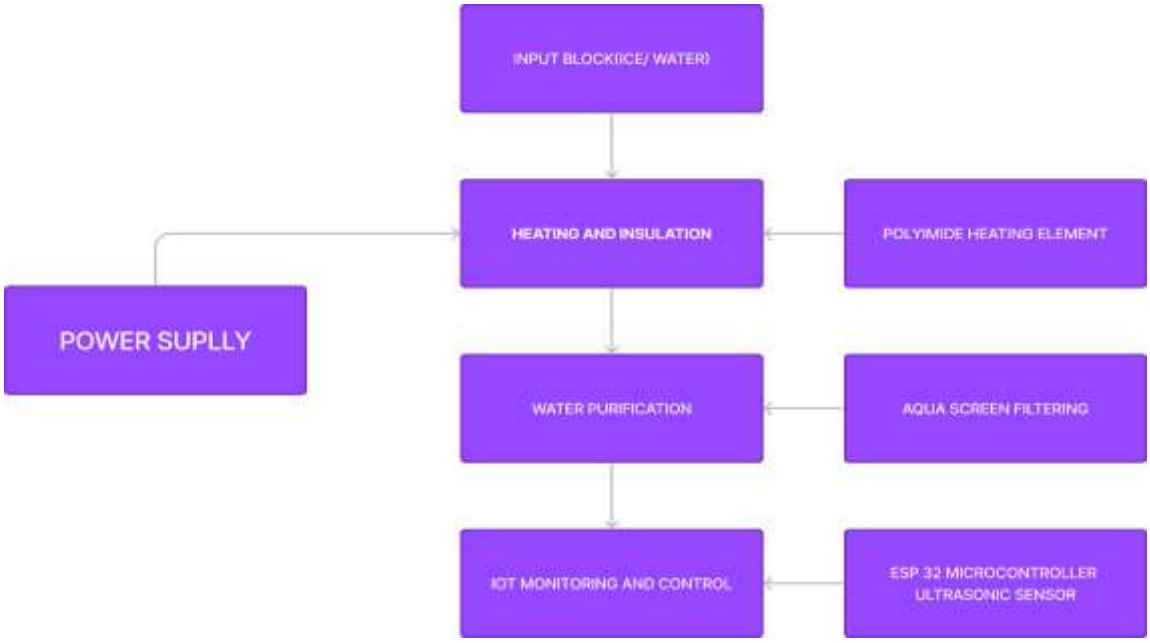
7. **Current status:**

   We have selected the best heating element for our requirements,now it has to be integrated along with the rest of the segments like IoT monitoring, to produce the desired output.

8. **High-resolution pictures showing the Current Status of the Prototype/product along with the students and their mentor for each project:**

   Brief Description about Project and Tests Conducted

BLOCK DIAGRAM



The container is designed to display the findings such as temperature of the liquid which is present.The side view and the top view is shown below.The efficacy of the container was gradually tested wherein the results are shown below.

The body of the container was tested against different heating elements which includes a

- Ceramic cartridge heater
- PTC heater
- Soldering Iron heating element
- Nichrome heating element
- Polyimide heating element

With Cartridge Heating Element:

- Cartridge **heating element** was used to test the efficiency of heat produced.
- The cartridge was able to produce around 40W with 12V power.This was the primary test with AC power.

The PTC Heater:

The 12V PTC with wattage around 30W was used to test the heating performance by evaluating the heat output temperature.distribution .The testing was done to check the ability to maintain stable temperatures within tight tolerances.

The Soldering Iron Heating Element:

Heating test with soldering iron heating element was carried out to find raise in temperature of the liquid inside the container.The maximum temperature of the element is close to 400 degree Celsius with 65 W.

The Nichrome Heating Element:

Another test was carried out with ‘Nichrome’ as an heating element which is covered with polyimide sheets.It produced enough heat with 5-12V DC supply.It was one of the tests that was carried out by using DC power supply.

The Polyimide Heating Element:

The polyimide heating was able to produce heating which was sufficient enough to raise the temperature.It was able to produce sufficient heat with 120W.Hence with the above findings of the performed test, polyimide film was able to produce the desired results

Project-09: Edible Fish Audio Lure System

1. **Project Title** : Edible Fish Audio Lure System
2. **Mentor Name** : Mrs. S. Padma
3. **Student Team Names:**
   1. Malini R.
   2. Gowri.D.
   3. Riya Valdaris
4. **Project Description:**The goal of this project's execution is to create a product that generates vibrations at acoustic (sound/audio) frequencies that, when calibrated to a precise range, will draw fish to the sea in groups. Different fishes are attracted to different ranges of sound frequencies, so implementing this technique and creating a product that will attract the fishes en bloc (all together or all at the same time) into the fisherman's net will fetch them more fishes from the same area rather than a wide spread of search.The needed frequency may be created from a frequency generator using a customised Microcontroller kit, and the signals are then passed to an audio noise amplifier, which filters out undesired frequencies. This is then sent into the underwater speaker, and Databoy may communicate with it.
5. **Project status at the beginning of the Year:**

   Basic Principles Observed: An basic scientific research was began.

   Technology Concept Formulated: This project comprises of a customised microcontroller unit, a filter unit, an underwater speaker, and an IPC Standard Data Boy Enclosure. A fish caller creates a waveform of a specific frequency by adjusting POT. This gadget is made up of a microcontroller that can create sine and square waves, as well as a knob that can be used to adjust the frequency as desired. The signal draws predatory fish to the caller. The auditory waves were designed to mimic the hydrodynamically produced disruptions that are generally associated with active predation. A wave form generator source is included in the leaked fish caller. The waveform generator signals are routed through the audio noise filters. Typically, the filter circuit is a low pass filter for the audio frequency range. and relayed via an underwater speaker. The filtered signals were then transferred to an underwater speaker manufactured of Piezo electric FLEXURAL Disc

Technology that would not rust or corrode even when utilised in sea water. The signals are then sent to the floating system through IOT utilising an IPC Standard Data Boy Enclosure with dimensions of 10*20*20 cm and a rubber cover with a thickness of 2 mm for wire grip. Because the design product will be placed in the water to entice fish, the complete system must be water resistant.

Technology Validated in Relevant Environment: The technology is tested in an environment that closely resembles the intended operational conditions.

6. **Interventions made:**
   Transmitting the frequency to attract the fish
7. **Current status: Working to implement the concept in underwater sea**
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

MEGA 0E1 5W MICROCONTROLLER

ATTRACTION OF FISH WHILE VARYING FREQUENCY

ATTRACTION OF FISH USING ACOUSTIC SIGNALS

Project-10: Palliative Auto Nutrient Feeder

1. **Project Title** : Palliative Auto Nutrient Feeder
2. **Mentor Name** : Mr. Rengarajan (Assistant Professor EEE)
3. **Student Team Names:**
   1. Lethika R
   2. Madhumitha A.
   3. Muthudhivakar M
4. **Project Description:**

   The project aims to develop an automatic feeding system for ICU (Intensive Care Unit) patients, streamlining the process of providing nourishment to these individuals. Extensive research and planning have been completed, including the design phase, bringing the project closer to realization. The primary objective is to ensure that patients receive their required nutrition consistently and accurately, minimizing human error and maximizing efficiency.

   The system is being designed to cater specifically to ICU patients who may have restricted mobility or limited ability to consume food orally. By automating the feeding process, the project aims to alleviate the burden on healthcare professionals, allowing them to focus on other critical aspects of patient care.The initial phase of the project involved comprehensive research, where existing automatic feeding systems were studied to gather insights and identify potential improvements. The team also examined the specific requirements of ICU patients and consulted with medical professionals to ensure the system's design meets the highest standards of patient safety and comfort.Once the research phase was completed, the planning stage commenced. This involved mapping out the system's architecture, determining the required components, and establishing the technical specifications. The team also considered factors such as patient dietary needs, portion control, and hygiene standards during the planning process. The project has successfully progressed to the design phase, where the team has developed a prototype of the automatic feeding system. This prototype incorporates advanced technologies such as programmable controls, sensors, and monitoring systems to ensure accurate and controlled food delivery to patients. The design also takes into account ease of use for

healthcare professionals, with intuitive interfaces and ergonomic considerations.At this stage, the project has completed the requirement analysis, ensuring that all necessary functionalities and features have been identified and incorporated into the system design. The next steps will involve prototype testing and refinement to address any potential issues or challenges that may arise.

5. **Project status at the beginning of the Year:**

The core objective of this project is to introduce a groundbreaking transformation in the delivery of nutrition to critically ill patients within the Intensive Care Unit (ICU). The primary focus revolves around achieving unwavering consistency and precision in the provision of essential nourishment, effectively disrupting the conventional manual feeding methods prevalent in healthcare settings. To realize this vision, the project initiated with an extensive and comprehensive research phase. This research phase encompassed a meticulous exploration of the existing landscape of automatic feeding systems, dissecting their functionalities, strengths, and weaknesses. Moreover, it entailed an indispensable engagement with healthcare professionals who bring invaluable frontline experience to the table. Their insights and expertise were instrumental in shaping the project's direction, serving as a compass to navigate the complexities of ICU patient care.The subsequent planning phase was equally meticulous. It was marked by the careful delineation of the system's architecture, a precise determination of essential components, and the establishment of rigorous technical specifications. This phase was characterized by an unwavering commitment to adhering to the most stringent standards of patient safety and comfort. Every facet of the system's design was subjected to scrutiny, including factors such as dietary requirements, portion control, and stringent hygiene standards.

6. **Interventions made:**

A pivotal intervention in the development of this automated feeding system was the meticulous design of the system architecture, coupled with the incorporation of a sophisticated enteral feeding tube. This tube represents a critical component, serving as the conduit for delivering essential nutrition to ICU patients. However, what sets this system apart is its ability to exert

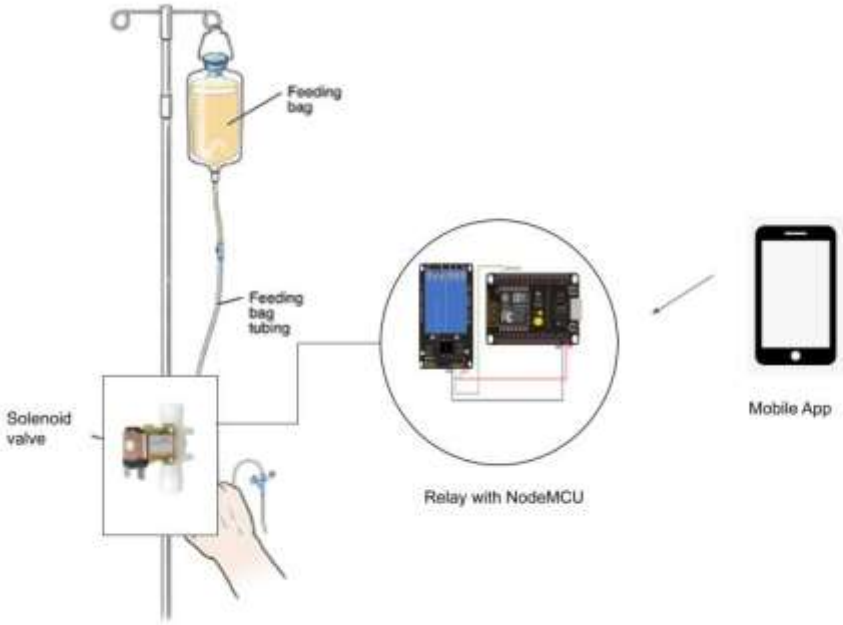
precise control over the flow of liquid through this feeding tube. The enteral feeding tube is no longer a passive conduit but a dynamic element of the system. It features advanced control mechanisms that enable automated monitoring and regulation of the liquid flow. This level of automation signifies a significant departure from traditional manual feeding methods, where flow control often relies on human intervention and is susceptible to human error.The system's innovation lies in its capacity to employ physical parameters as the basis for automated control. It utilizes a virtual switch, a digital interface, to dynamically adjust the liquid flow rates based on real-time physical measurements. These measurements might encompass factors such as the patient's condition, nutritional requirements, or other critical health parameters. By harnessing these physical parameters, the system ensures not only consistency but also adaptability in nutrition delivery. It can respond in real-time to changes in the patient's condition, optimizing the feeding process for maximum effectiveness. This automated control mechanism not only enhances efficiency but also minimizes the risk of overfeeding or underfeeding, thereby promoting patient safety and well-being.

7. **Current status:**

The envisioned future advancement of the project, which harnesses image processing to identify food presence in the stomach and automate the enteral feeding process, represents a revolutionary leap in healthcare technology. This innovative approach integrates cutting-edge image processing techniques into the system to ensure precise and automated delivery of nourishment to ICU patients. At the core of this advancement is the ability to monitor food presence in the stomach in real-time. By analyzing data from the feeding tube, the system can accurately detect the presence of food within the patient's gastrointestinal tract. This information is then used to trigger automated actions, ensuring that the right amount of food is delivered to the patient's body at the right time. This level of automation enhances the patient's comfort and safety while reducing the burden on healthcare professionals. Furthermore, the system includes an intelligent monitoring mechanism for the food container. In the event that the container becomes empty or runs low on food, the system promptly notifies doctors and nurses. This proactive alert system ensures that the feeding process remains uninterrupted and that patients receive continuous nutrition. In essence, this

future advancement not only streamlines the feeding process but also introduces a level of precision and automation that significantly enhances patient care in ICU settings. It minimizes the risk of overfeeding or underfeeding, reduces the workload on healthcare professionals, and enhances patient safety by ensuring the timely delivery of nutrition.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Block Diagram of Palliative Auto Nutrient Feeder

Team members - Palliative Auto Nutrient Feeder

Invasive type food level measuring - Palliative Auto Nutrient Feeder

Prototype of Palliative Auto Nutrient Feeder

Project-11: Power Quality Conditioner for Electric Vehicle Charger

1. **Project Title** : Power Quality Conditioner for Electric Vehicle Charger

2. **Mentor Name** : Mr. V. Jagadeesh Babu
3. **Student Team Names:**
   1. Joan Daniel A.
   2. Prakash M.
   3. Samiksha B.
4. **Project Description:**

   Introduction: In recent years, with the increasing use of power electronics, the quality of electricity supply, together with energy efficiency, has become a key issue, and company energy responsible are more and more aware of the benefits of paying attention to that.The main representation of power quality is the harmonic distortion, which represents the deviation between the ideal sinusoidal waveform.

   Problem Statement: During Electric Vehicle(Two wheeler) charging ,where it converts AC supply to DC Power to charge the battery. This conversion process in turn generates Harmonics predominantly 3, 5 and 7th - (Higher order Harmonics are reduced). This overheats the neutral and increases the N-E voltage which causes failure of electronic components.

   Objectives:

   - To design and develop a Power Quality Protection circuit using Inductor, Capacitor and Control circuits.
   - Introducing a power quality circuit for the battery.
   - To solve a problem as switching losses happening during charging and discharging, series and shunt power active filters can be used.

   Design Objective: From this project we able to design and implement a low cost, scalable, reusable and simplest smart arresting circuit with tempered proof reliable device to be used for plug in and plug out during charge.

   To implement the following features:

   I Convectional time 3-4 years.

   II Circuit design

   III Fabrication

   IV Testing with different vehicle

Methodology Followed: The methodology for addressing power quality issues in electric vehicle (EV) charging systems, particularly concerning the mitigation of harmonics and voltage stabilization, involves a systematic approach. It begins with the identification and definition of the specific power quality challenges associated with EV charging, such as harmonics generation and voltage fluctuations. A comprehensive literature review is then conducted to gather existing knowledge and relevant standards. Real-world data is collected from EV charging stations to understand the extent of the problem and identify dominant harmonic frequencies.

With a clear understanding of the issues at hand, the next step is the design and development of a Power Quality Protection circuit. This circuit includes inductors, capacitors, and control circuits, which are carefully designed based on the identified harmonics and voltage profiles. Additionally, series and shunt power active filters are integrated into the design to effectively filter harmonics and stabilize voltage.

Simulation and modeling are crucial for assessing the circuit's performance under various conditions, helping to refine the design. Once a satisfactory prototype is developed, it undergoes rigorous laboratory testing to evaluate its effectiveness in reducing harmonics and stabilizing voltage during EV charging.

The integration of the developed solution with the EV charging infrastructure is a critical phase, ensuring compatibility and seamless operation across different charging systems and grid setups. Real-world testing at EV charging stations provides valuable feedback and data on power quality improvements.

Throughout the process, continuous monitoring and data collection are essential to track the long-term performance of the Power Quality Protection circuit. This data guides ongoing optimizations and adjustments, ultimately contributing to improved power quality in EV charging systems. The entire methodology is documented comprehensively, and the optimized solution is deployed at EV charging stations, with a commitment to continuous monitoring and improvement.

5. **Project status at the beginning of the Year: IDEAL Stage**

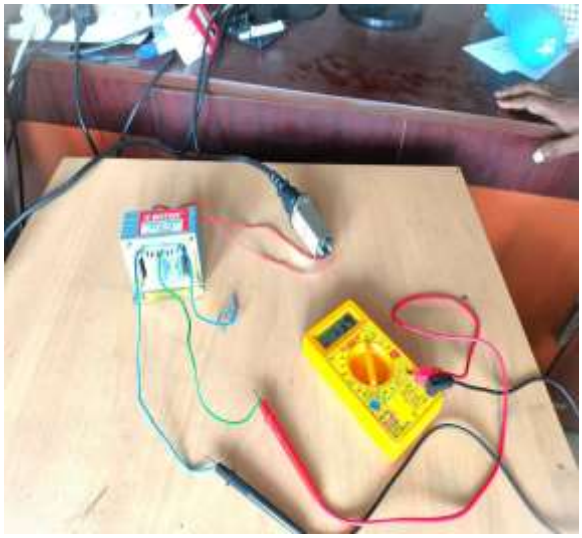
6. **Interventions made:**

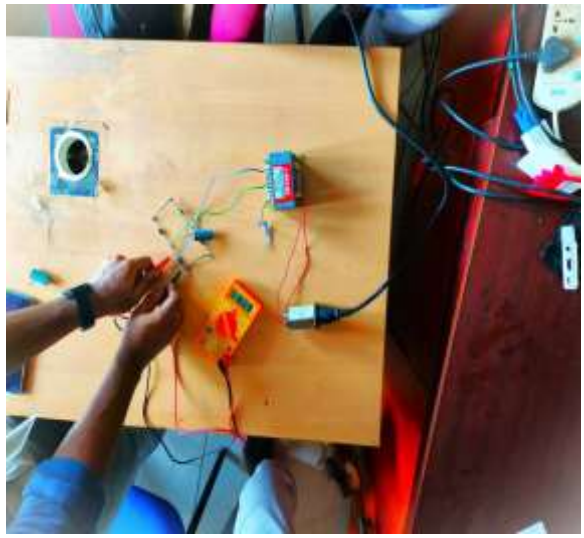
   From this project we able to design and implement a low cost, scalable,reusable and simple smart sealing system, that send alert information with geo tagging and time stamp when tampered on a running train en- route. With the help of this system, immediate actions can be taken to secure the luggages when tampering action is detected. It will ensure the security of valuable goods or luggage in running train in case anyone try to tamper the immediate alert will send to control room with location and time stamp

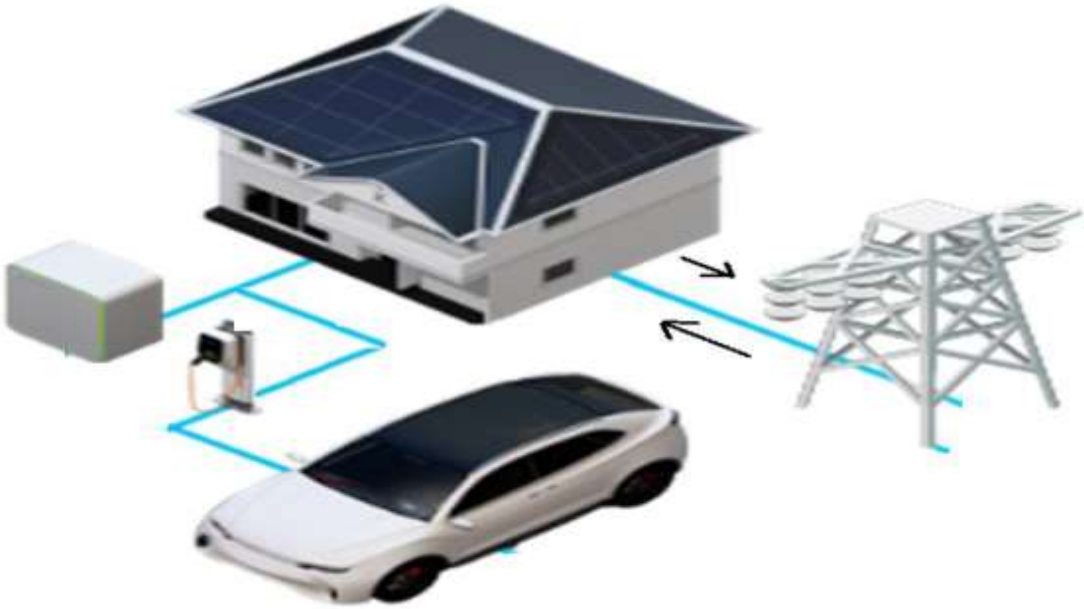
7. **Current status:**

   Product is Development Stage

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**







Project-12: VARICOM - Adaptive Compression Ratio Engine Technology for Increased Efficiency and Power

1. **Project Title** : VARICOM - Adaptive Compression Ratio Engine Technology for Increased Efficiency and Power
2. **Mentor Name** : Mr. D. Dineshbabu
3. **Student Team Names:**
   1. Mr. Gohul G.
   2. Karthigeyan S.
   3. Arun R.
   4. Naveen D
4. **Project Description:** The Adaptive Compression Ratio Engine Technology, addresses the enhancement of conventional internal combustion engines by converting them into variable compression engines. This conversion aims to improve fuel efficiency and power output while minimizing engine knocking and detonation issues.
5. **Project status at the beginning of the Year:**
   - Theoretical calculation completed
6. **Interventions made:**

   The varicom engine leverages scientific principles and innovative engineering to tackle a significant challenge in the automotive and industrial sectors. It offers a novel solution to improve the performance and efficiency of internal combustion engines.

   In summary, the VARICOM attachment represents an inventive and cost-effective approach to enhance the efficiency and power output of conventional internal combustion engines while minimizing the risks associated with variable compression. Its adaptability and scientific precision make it a promising technology for the automotive and industrial markets.

7. **Current status:**
   - Product developed.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-13: Design and performance Analysis of a Novel Energy Efficient Water Dispenser Unit

1. **Project Title** : Design and performance Analysis of a Novel Energy Efficient Water Dispenser Unit
2. **Mentor Name** : Dr. M. Karthick
3. **Student Team Names:**
   1. Kamalesh.V
   2. Saravanaraj.R
   3. Siva Gnana Sambanthan. S.E
   4. Vignesh C.
4. **Project Description:**

   In today's sophisticated world, water dispenser is used most often by both public and private sector to dispense hot and cold water. Moreover, the heating and cooling process are done in water dispenser to be prepared by the principle of vapour compression refrigeration cycle and Joule's heating effect of heater. However, in modified water dispenser, we have modified the heating process by two stages using bypass condenser coil of vapour compression refrigeration system and heater resistor. Both heating and

cooling process takes place effectively by using R600a as a refrigerant. By heat recovery from bypass condenser, the waste thermal energy rejected to atmosphere is converted into useful energy for purpose of heating the water, which paves a way to energy conservation and prevents global warming without fail in working condition.

5. **Project status at the beginning of the Year:**

   Design of the product was completed and the components purchase has been initiated.

6. **Interventions made:**

   The complete design methodology of the product was completed and the components needed for the product are identified.

7. **Current status:**

   The components of the product to be developed are purchased and yet to be fabricated. The frame design is completed and work is in progress for the assembly of the components

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-14: Development of biodegradable plastic containers for pesticide packing applications

1. **Project Title** : Development of biodegradable plastic containers for pesticide packing applications.
2. **Mentor Name** : Dr. K. Varatharajan
3. **Student Members**:
   1. Ajay D.
   2. Badri Naarayanan D.P.
   3. Keshaavaan S.
   4. Mohnish K.
4. **Project Description**:
   In recent year, there has been increasing concern about the growing amount of non-degradable plastic waste coming from our day-to-day life. Plastic pollution is a serious issue of global concern which affects millions of people's livelihoods, food production capabilities and eco-system. Biopolymer based plastics are degradable and environment friendly. Strict regulations are imposed by governments throughout the World to reduce the use of conventional plastics. Bioplastics are proposed alternative to conventional non-degradable plastics. Pesticide industry is one of the top plastic consuming industries and it is in the urgent need of finding an alternative solution to replace the non-degradable HDPE containers for packing.

The bioplastic Poly lactic acid (PLA) is used as the base material for making the containers because of its availability and cost. However, it has some drawbacks such as brittleness, poor mechanical strength, shorter shelf life and formability issues. In order to solve these issues various kinds of environment friendly additives have been developed. Samples with different composition of bioplastics are prepared and tested tensile strength, density, impact strength, elasticity, hardness test, moisture and oxygen permeability, glass transition temperature. The best sample composition is mixed in screw extruder and the containers are moulded in an injection moulding machine. The containers are further tested for BIS standards for pesticide containers like leakage test, stress crack resistance test, drop test and ink adhesion test for certification.

5. **Project status at the beginning of the year**

   A complete literature survey from the research papers and patents was completed. Materials properties are tested.

6. **Interventions made**:

   Polylactic acid with impact modifier reduces the brittleness and improves the shelf life of the container.

7. **Current status**:

   Materials for making biodegradable containers are purchased. The fabrication and testing of the plastic containers will be done at CIPET Chennai. The process for making container is approved by the CIPET officials and waiting for the availability of injection moulding machine for fabrication.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-15: Design and fabrication of a luxurious air-conditioned dog cage

1. **Project Title**: Design and fabrication of a luxurious air-conditioned dog cage
2. **Mentor Name**: S.Pradeep Kumar, Dr.Karthick
3. **Student Team Names:**
   1. Sireesh P
   2. Rohith S
   3. Rakesh P.
4. **Project Description:**

   The "Design and Fabrication of a Luxurious Air ConditionedDog Cage" was created by a group of ambitious engineers and animal lovers as a creative student enterprise. The startup's main goal is to develop a cutting-edge dog cage that delivers unmatched comfort and safety for canine friends, especially in inclement weather.

   The Luxurious Air Conditioned Dog Cage is made with premium materials, state-of-the-art air conditioning technology, and creative engineering to give dogs a comfortable living environment. The cage is designed to solve the problem of heat-related problems that dogs encounter in hot, excessively humid environments.
5. **Project status at the beginning of the Year:**

   Design and theoretical calculations completed

6. **Interventions made:**

   Financial assistance for making the component purchases and doing the fabrication process

7. **Current status:**

   Project fabrication completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Students Assembling Air Conditioner System Components

Compressor and Condensor

Door Panels

Stainless Steel Cage

Project-16: Automatic Grain Collecting and Bagging Weighing Machine

1. **Project Title**: Automatic Grain Collecting and Bagging Weighing Machine

2. **Mentor Name**: S.Pradeep Kumar

3. **Student Team Names:**
   1. Sireesh P.
   2. Rohith S.
   3. Praveen Kumar S. V.

4. **Project Description:**
   Traditional grain collecting and bagging techniques have long been labour-intensive, time-consuming, and prone to measurement and weighing errors. The need for more precise and efficient processes is clear as farming enterprises expand in size. By combining automation and cutting-edge technology, the Automatic Grain collects and Bagging Weighing.Technology continues to play a crucial role in streamlining operations and boosting productivity in the dynamic world of agriculture and industrial efficiency. The Automatic Grain Collecting and Bagging Weighing Machine is one such amazing development that will revolutionize the way grains are gathered, weighed, and bagged and offer farmers and industries a state-of-the-art solution for their harvesting requirements.

5. **Project status at the beginning of the Year:**
   Design and theoretical calculations completed

6. **Interventions made:**
   Financial assistance for making the component purchases and doing the fabrication process

7. **Current status:**
   Project fabrication completed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Fabrication of Grain Rollers Sheet by Students

Components

Vaccum Filters **Mesh Separator** **Full Assembly Unit**

Project-17: HMI Controller for Converting Older Machines to adapt newer Technologies

1. **Project Title** : "HMI Controller for Converting Older Machines to adapt newer Technologies"
2. **Mentor Name** : Saravanan Mathialagan
3. **Student Team Names:**
   1. Vasanth
   2. Srinivas R.
   3. Vignesh M.
   4. Supendran K.
   5. Suriyendran K.
4. **Project Description:** Since day to day the Engineering and Technologies are updating a lot. The technology available today, may not exist no longer. Every Technology got a change of hardware and software. VEC has invested crores of money to buy the Laboratory Equipment's for students to cater the 2002, 2004, 2008, 2013, 2017 Anna University Curriculums & 2019 Autonomous curriculums. The Apparatuses bought for the older curriculums have been upgraded by the supplier continuously. The available older machines are not adapting these newer technologies. To cater the newer technologies of modern curriculum, we need to buy a new laboratory equipment costing a lot.

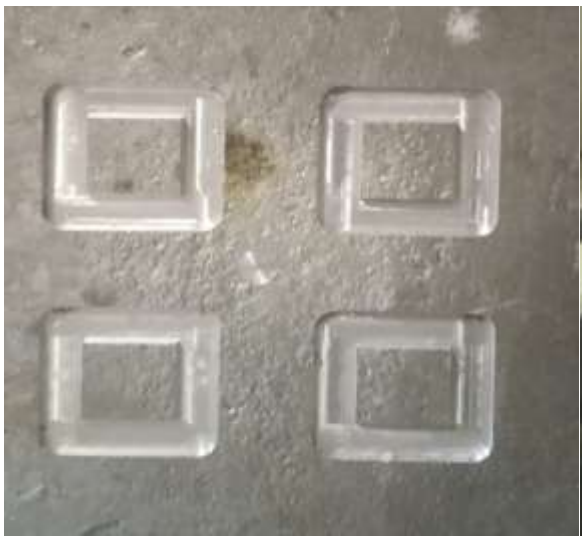
   Hence, we have decided to modify the existing older machines by incorporating the Add-On's to adapt the newer technologies.

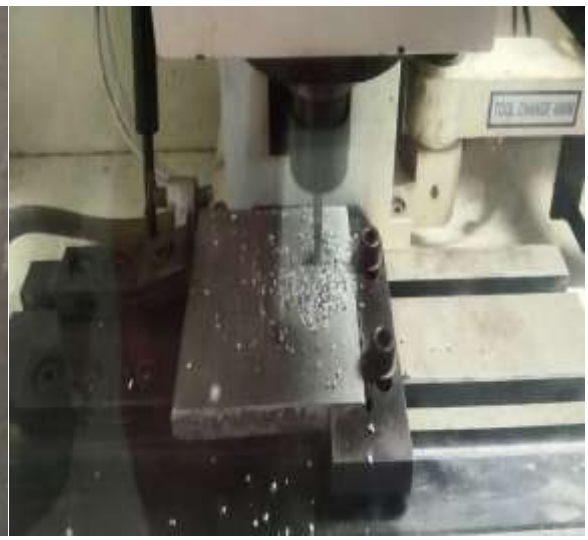
   We took the apparatus MTAB CNC Mill Trainer machine, which was bought during 2002 to apply our concept.
5. **Project status at the beginning of the Year:**
   - Unused MTAB CNC Machine was identified to implement this idea.
6. **Interventions made:**
   - DAQ and got printed in Microsoft Excel.
7. **Current status:**

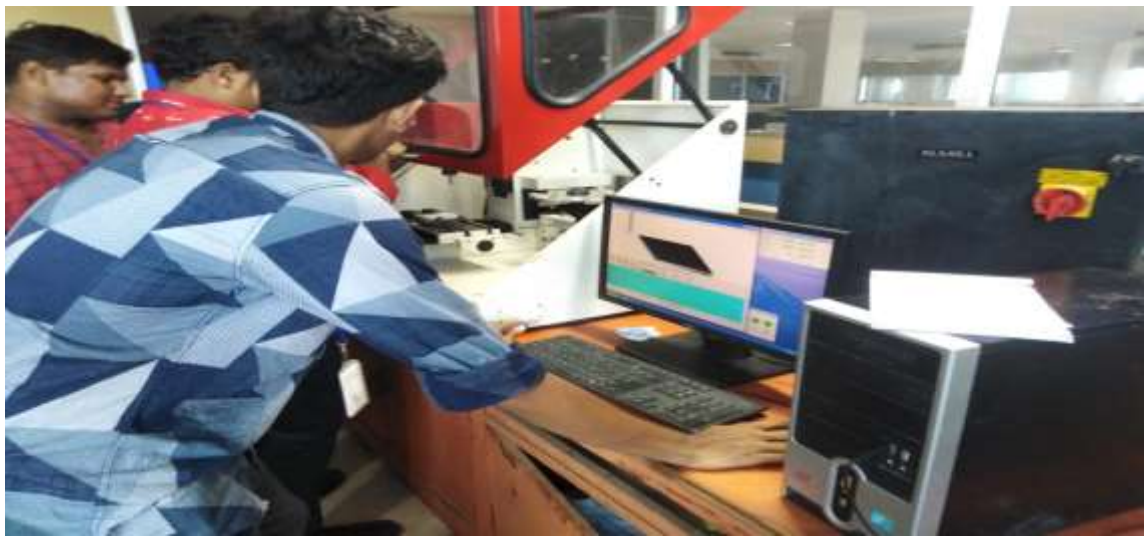
   As of now, the converted machine is able to machine ductile materials, Metal Matrix Composites (MMC's) and Polymer Matrix Composites (PMC's). Also,

this machine is able to measure cutting forces for different Machining Parameters (Speed. Feed and DoC) to determine the machinability and optimum machining parameters.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**







Project-18: PNEUFLOW

1. **Project Title** : PNEUFLOW
2. **Mentor Name** : Dr. M. Deepak Kumar
3. **Student Team Names:**
   1. Muthu Raja S.
   2. Srinivas R.
   3. Dheeraj Kumar Singh
   4. Gokul B.
   5. Kaviya S.
4. **Project Description:**
   The present invention relates to a novel pneumatic pump design for efficiently transferring various types of fluids, including high-temperature fluids, saline water, and normal water, with minimal moving parts and reduced cavitation. The pump utilizes compressed air, which enters the regulating section to control the direction of flow, rate of flow, and pressure. The regulated air is then sent to the pumping section, which has dual chambers that produce a continuous smooth flow. The working principle of this special type of pump is that the pressure energy of compressed air is converted into equivalent static head (potential energy) of the fluid to be pumped, resulting in an exchange of energy from air to liquid. This invention offers an energy-efficient and cost-effective solution for fluid transfer and pumping technology, making it suitable for a wide range of applications.
5. **Project status at the beginning of the Year:**
   - Design and theoretical calculations completed
6. **Interventions made:**
   - Financial support to purchase the components and carry out the fabrication work
7. **Current status:**
   - Project fabrication and initial testing completed

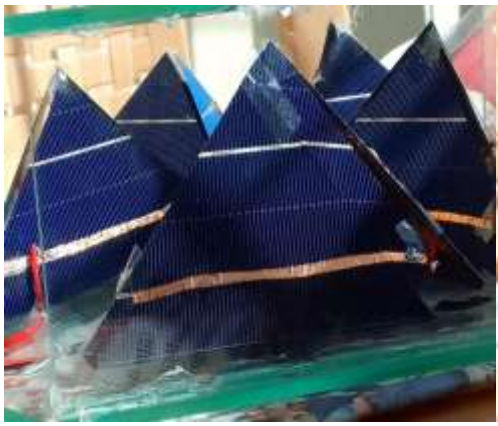
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-19: Nature Inspired Solar Panel

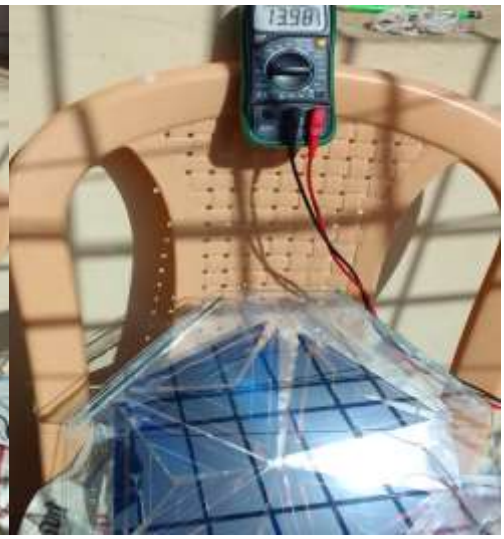
1. **Project Title** : Nature Inspired Solar Panel
2. **Mentor Name** : Dr. V. RameshKumar & Dr. J. Arumugam
3. **Student Team Names:**
   1. Joshua Samuel Susai
4. **Project Description**: Its about designing of solar panel such a that to improve its efficiency. This solar panel design has surface area with maximum sunlight illumination over the day.
5. **Project status at the beginning of the Year:**
   - Ideas are materialized by the way of purchasing materials.
   - Making the proptotype model
   - Testing it to verify the data to achieve our objectives
6. **Interventions made:**
   - We purchased solar cells-single crystal bifacial
   - We cut into triangles to make a conical shape
   - We end up with pyramid like forms

7. **Current status:**
   - We made a small prototype model of our solar panel and it is tested under normal sunlight conditions

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Side View **Top View**

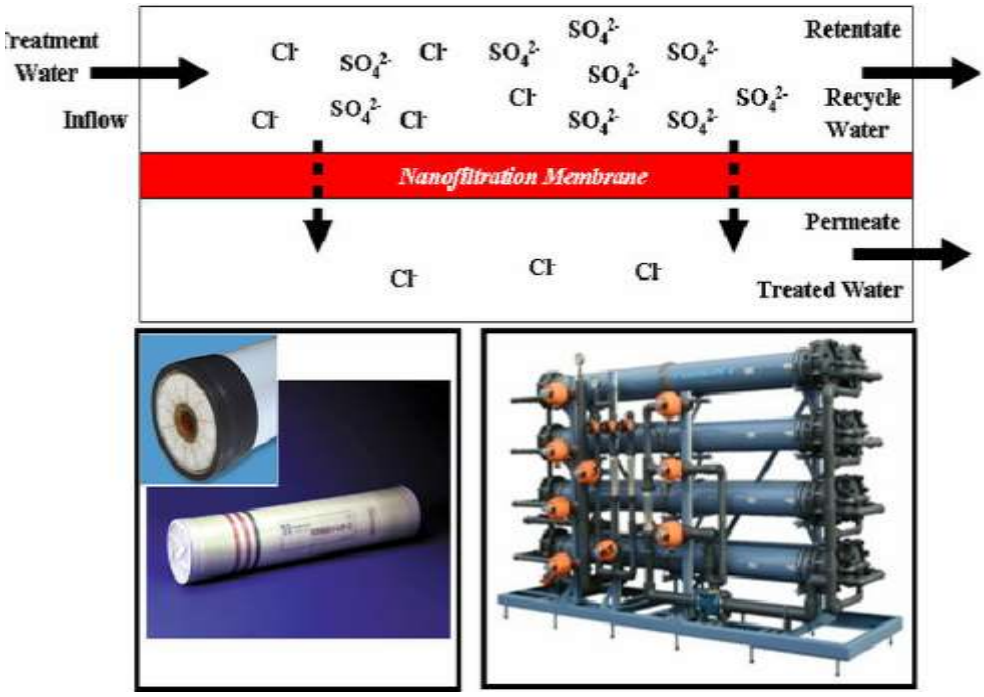


Project-20: Nano filters for pesticide effluent

1. **Project Title** : Nano filters for pesticide effluent
2. **Mentor Name** : Dr. A. Mohamed Sikkander
3. **Student Team Names:**
   1. Mr. Ajay D.
   2. Mr. A. Anas Mohamed
   3. Mr. Gokul B.
   4. Mr. Keshaavan
4. **Project Description:**

   This research investigates the potential removal of pesticides from its effluent waste water. Chemical and Physical and treatment approaches were investigated. Usage of combined techniques pretreatment, micro filtration, ultra filtration and Nanofiltration are the best approach to remove pesticides from its effluent. Wrong pesticides treatment might result in more toxic by-products. Environmental fates are the key to design the best wastewater treatment process.Membranes processes are among the best available techniques for water and wastewater treatment. Membrane technology represents a viable alternative for conventional separation technologies. NF systems operated at a higher recovery rate [83%] and had the advantages of lower cost operation and the least environmental impact. The total and operation costs of NF can be balanced to a minimum total cost at an optimum driving pressure and the driving pressure has a direct linear relation with environmental impact. The operating parameters reducing the NF cost appeared to reduce the environmental impact of NF as well. Studies are mostly conducted on lab scale. Pilot scale studies will play a better role in expecting the performance of industrial plants.Fouling, low flux, instability, and poor durability are technical barriers need to be overcome to ensure the viability of NF systems. Different raw materials can be employed to produce membranes for different application such as inorganic, organic and ceramic membranes. Formation of large membrane modules is a major step in improving economics and to incorporate the NF in different industrial applications. Reducing energy consumption of NF systems is an important step to commercialize NF systems.

5. **Project status at the beginning of the Year:**
   - Design
6. **Interventions made:**
   - Nanofiltration is a process in which pesticides; hardness and nitrates can be simultaneously removed or partly removed, so that purification can be realized in one step. However, the removal properties in the nanofiltration step have to be examined, to make a good control of the membrane unit possible.
7. **Current status:**
   - 80% of work completed and 20%work to be completed before December 2023
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



NewGen IEDC-Sphoorthy Engineering College

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: Fifth Year (2022-23)

Name of the Institution hosting NewGen IEDC	Sphoorthy Engineering College		
Year of starting NewGen IEDC	2017-2018		
Name of the Head of the Institution	Dr. V. Venkata Krishna Principal		
Name of NewGen IEDC Coordinator	Mr. Vedala Sharath		
Contact Details of NewGen IEDC Coordinator • Mobile Number • Email ID	8121642833 vsharath@sphoorthyengg.ac.in		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Sanction Order Details	1	EDII / DST-NewGen IEDC/17-18/RLS-1/12 & 31.07.2017	60,00,000
	2		47,50,000
	3		60,00,000
	4		60,00,000
	5		60,00,000

1. **Details of Activities Undertaken during the year.**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. **Name of the programme : 36Hrs - IDEATION**

2. E- Waste Collection and Awarness Program.

3. MSME Theme based Ideathon.

[B] To identify, develop & commercialize students' innovative ideas

1. 36 Hrs Hackathon.

2. Entrepreneurship and Development Program.

3. Cyber security and Ethical Hacking 3 days Workshop

4. Computing with one API AI tool Kit.

5. Robotics Training Program.

[C] P**To enhance Industry-Academia interaction**

1. T- Hub Orientation.

2. Industrial Visit to NRSC,ISRO:

3. Project specific Technical Training at VLR Innovation Technologies.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

No

3. Other important highlights (new initiatives), if any:

- One of the IEDC Student Project selected in MSME Champions scheme and received a Fund of rs: 15 Lakh for Proto type development.
- In-house Laser Cutting Facility has been created to support portotype development in the Incubation phase.
- One of our students teams won a Word for Techinical solution on Waste Management on World Environment day and received an award of rs: 10000 /- presented by Mr.Jayesh Ranjan , Principal Secretary for I&C and IT of Teangana State.

4. Student Projects

Refer to Annexure-A for Details of Student Projects with Prototype Photos

5. Provide a minimum two-page case let each on the <u>two best student projects</u> (either prototype developed or commercialized) from the above list. The case lets should include the following:

Best Student Project-01:

I. **Project Title** : Threatrecon Portable Antivirus for Home Network Security.

II. **Mentors Name** : Sharath vedala

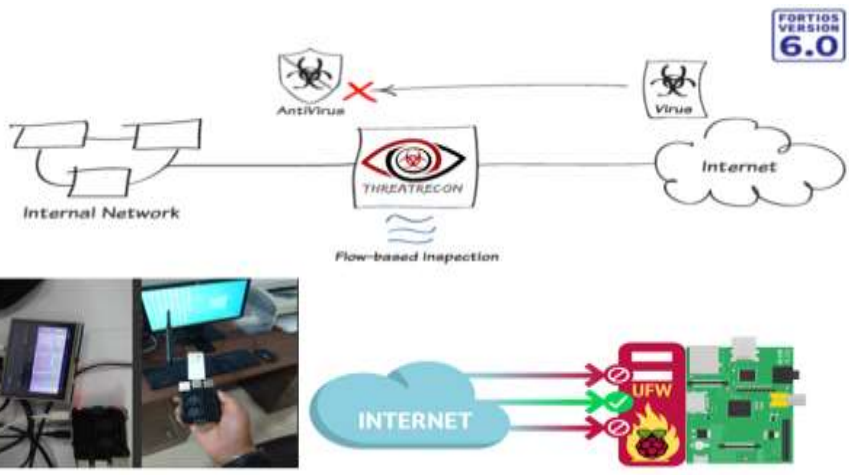
III. **Students Details**

Sushant Kumar Tiwari

IV. **Brief description of the student start-up**

- ThreatRecon is an emerging student-led start-up that shines as a beacon of innovation in the realm of cybersecurity. Created by a group of visionary students, ThreatRecon is dedicated to sculpting a digital landscape that thrives on security, regardless of an organization's size.
- ThreatRecon's core objective is to bridge the cybersecurity gap for small-scale businesses and educational institutions. Our pioneering solution, the "GuardNet," stands as a testament to this commitment. GuardNet, our ARM-based Intrusion Detection System (IDS) hardware, empowers real-time threat monitoring, detection, and rapid response. This potent tool acts as a vigilant guardian, ensuring that networks stay impervious to malicious activities.

V. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**



- The journey of ThreatRecon from ideation to the cusp of commercialization is a narrative of passion, innovation, and transformative impact. Through relentless dedication, our start-up has evolved from a mere concept to a tangible solution that stands at the forefront of cybersecurity.
- With the vision solidified, we delved into the realm of research. Hours turned into days as we pored over cybersecurity literature, market trends, and emerging technologies. This phase formed the bedrock upon which our solution would be built - the ARM-based Intrusion Detection System (IDS) hardware, GuardNet.

VI. Contribution of NewGen IEDC in the same

- NewGen IEDC has served as a guiding light throughout ThreatRecon's journey. Interactions with seasoned entrepreneurs, industry experts, and business mentors have been pivotal in shaping our direction. The insights garnered from these interactions have transformed theoretical concepts into actionable strategies, propelling our entrepreneurial journey forward.

VII. Future plan

- ThreatRecon's mission extends beyond technology. We're passionate about fostering a cybersecurity-conscious generation. Our future entails forging alliances with educational institutions to incorporate cybersecurity education into curricula. By nurturing a culture of digital vigilance, we're sowing the seeds for a world where cybersecurity is second nature.

VIII. Important highlights

Innovative Ideation: ThreatRecon's journey began with a spark of innovation, driven by a group of visionary students who recognized the need for accessible cybersecurity solutions.

Real-Time Threat Monitoring: GuardNet's revolutionary capabilities include real-time monitoring and advanced threat detection, safeguarding digital assets against evolving cyber threats.

Best Student Project-02: Autism Jacket

I. **Project Title** : Autism Jacket

II. **Mentors Name** : Dr. B. N. Kannan

III. **Student team details**

M. Umadevi

Sushant Kumar

B. Shashi varun

P V V S Murthy

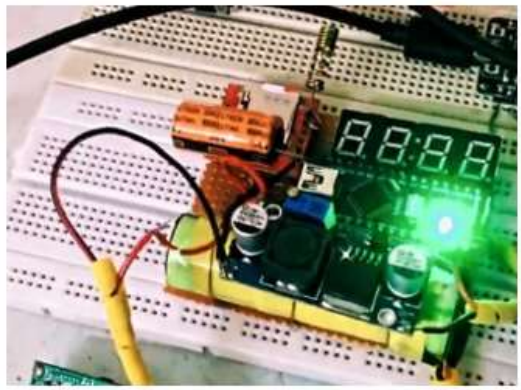
IV. **Brief description of the student start-up**

- Our student start-up, [Startup Name], has embarked on an innovative journey to create a groundbreaking solution that addresses the unique needs of children with autism. Through meticulous research, thoughtful design, and a deep understanding of the challenges faced by this community, we have developed a specialized jacket that combines technology and compassion to provide comfort and support.

- Our mission is to enhance the quality of life for children with autism and their families by offering a wearable solution that not only monitors vital signals but also predicts and responds to distressing moments. By harnessing the power of technology and sensory integration, our jacket aims to revolutionize the way we approach care and support for individuals with autism.

- With a dedicated team of passionate individuals, we have poured our hearts into every aspect of this project, ensuring that our solution is not only functional and effective but also respectful of individual differences and needs. Our commitment to ethical considerations, privacy, and safety drives every decision we make, placing the well-being of the children and their families at the forefront.

V. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.



- The journey began with a simple yet powerful idea – to create a jacket that would cater to the unique needs of children with autism. This idea was born out of a deep desire to make a positive impact on the lives of individuals and families affected by autism. Through extensive research, consultations with experts, and discussions with parents and caregivers, we honed in on the concept of a jacket that could monitor vital signals and provide comfort during distressing moments.

VI. Contribution of NewGen IEDC in the same

- The NewGen Innovation and Entrepreneurship Development Centre (IEDC) played a pivotal role in shaping the trajectory of our startup's journey from ideation to successful commercialization. The support and resources provided by NewGen IEDC were instrumental in turning our vision into a tangible reality. Here's how NewGen IEDC contributed to our project:

VII. Future plan

- Our startup's journey doesn't end with the successful launch of our innovative jacket for children with autism. Looking ahead, we have an exciting and ambitious set of future plans that are aimed at further enhancing our impact and expanding our reach:

VIII. Important highlights

1. Innovative Solution: Our project introduces a unique and innovative solution that combines technology and compassion to address the specific needs of children with autism. The integration of vital signal monitoring and a comforting sensory experience sets our project apart in the field of assistive technology.

2. Impactful Social Contribution: Our project's primary focus is on improving the lives of children with autism and their families. By providing a wearable solution that predicts and responds to distressing moments, we directly contribute to their emotional well-being and daily comfort.

3. Collaboration with Experts: Our project's success is attributed to the collaboration with experts in fields such as child psychology, autism, sensory integration, and wearable technology. This collaboration ensures that our product is grounded in sound research and insights from those with extensive experience in the field.

4. Validation from NewGen IEDC: The recognition and support from NewGen Innovation and Entrepreneurship Development Centre (IEDC) have played a significant role in shaping our project's journey. Their guidance, mentorship, and resources have enabled us to develop our idea into a tangible and impactful product.

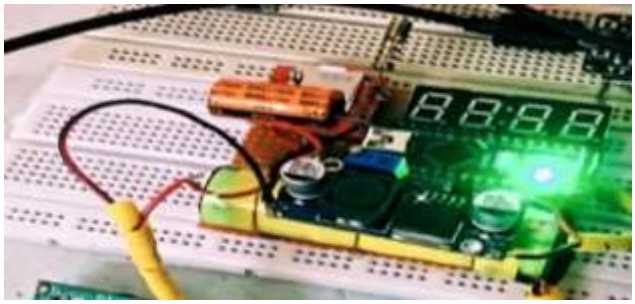
5. User-Centric Design: Our project's design is deeply rooted in user-centric principles. Through extensive testing and feedback from children, parents, and caregivers, we have crafted a product that caters to the unique sensory sensitivities and emotional needs of children with autism.

Annexure-A

Details of Student Projects (Fifth Year)

Project-01: Autism Jacket

1. **Project Title 1** : Autism Jacket
2. **Mentor Name** : Dr. B. N. Kannan
3. **Student Team Names:** M.Umadevi, Sushant Kumar, B.Shashi Varun, P v v s murthy
4. **Project Description:** Our project is a jacket designed specifically for children with autism. It constantly monitors their vital signals and predicts autistic attacks. When an attack is detected, the jacket activates a pump that inflates a balloon inside the jacket to give the child a comforting hug whch releases the hyper activity of Autism effected Children and make them become normal.
5. **Project status at the beginning of the Year:**
   - Idea
6. **Interventions made:**
   - Design
7. **Current status:**
   - Prototype Developed.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-02: Automatic harvested crop protection system

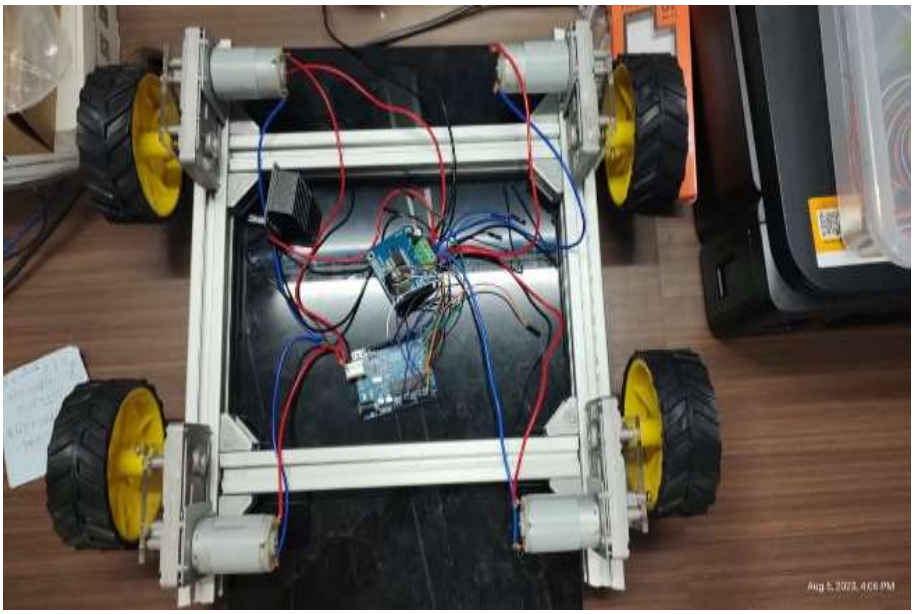
1. **Project Title** : Automatic harvested crop protection system.
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** Geetha Madhuri, Chandana, K.Eshvitha, B.Harshitha
4. **Project Description:**
   - This project is about to automatic protection of the harvested crop from the rain.
   - Due to the unseasonal rains the harvested crop gets effected. This system involves protection of the harvested crops by auto roof which covers the certain area.
   - The rain sensor is activated when there is rainfall and it will give intimation to the controller to close the roof as soon as the rain is detected and also send SMS to the farmer by using GSM.
   - Once rain is stopped, controller automatically opens the roof.
   - Additionally, the model includes a manual control mode via SMS, allows the owner or farmer to operate the roof manually.
   - It is portable storage unit where farmers can easily carry and place it where ever they want.
5. **Project status at the beginning of the Year:**
   - Idea
6. **Interventions made:**
   - Design
7. **Current status:**
   - Prototype Developed.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-03: Chilli Harvesting Machine

1. **Project Title** **:** Chilli Harvesting Machine
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** Geetha Madhuri, Chandana, K.Eshvitha, B.Harshitha
4. **Project Description:**

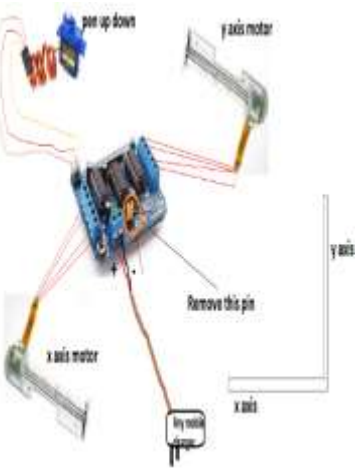
   Typically, chillies lie downward to chilli plant. so cutting the bunch of chillies one at a time will ease the process.

   - Therefore, we want to use a semi-automatic machine that moves to cut the chillies as quickly as human labour can.
   - The robot will be positioned in a field by a farmer. The robot will then use a HUSKY LENS to identify the red chillies.
   - ROCKER -BOGIE mechanism to approach the plant and cutting system to slice the red chillies.
   - After that, it will store the cut-up chillies in a container and dump them into a heap once it is full.
5. **Project status at the beginning of the Year:**
   - Idea
6. **Interventions made:**
   - Design
7. **Current status:**
   - Prototype Developed.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



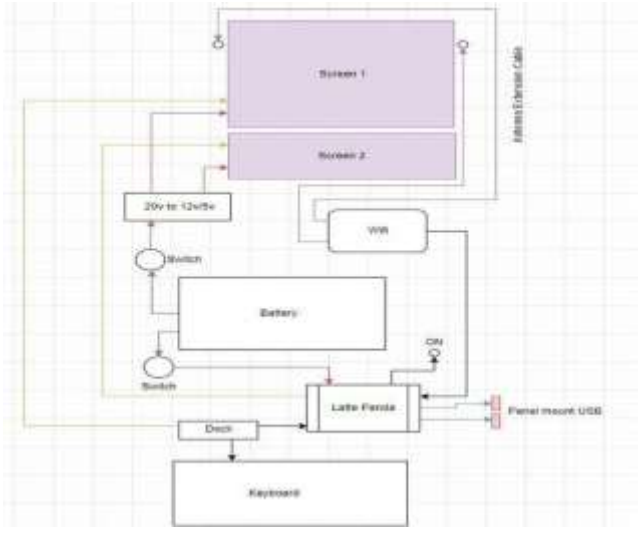
Project-04: CNC PCB Outline Machine

1. **Project Title** : CNC PCB Outline Machine
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** P. Uma Vignesh, M. Shiva Manideep
4. **Project Description:** This machine would be a CNC system with specialized hardware and software to plot or draw PCB routes using a marker directly onto a copper-clad board. The CNC system would accurately follow the design specifications provided by the user to create precise traces on the board.
5. **Project status at the beginning of the Year** **:** Idea
6. **Interventions made** **:** Design
7. **Current status** **:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



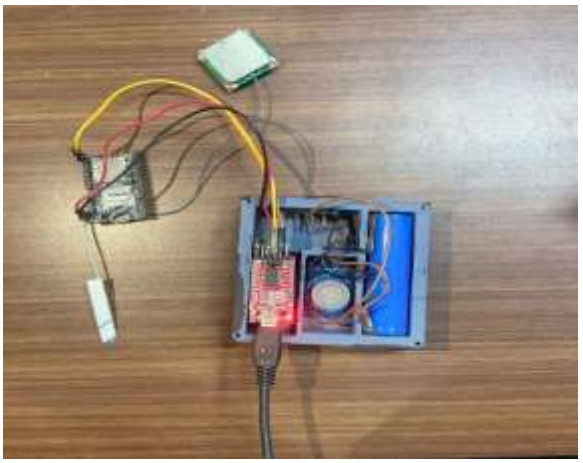
Project-05: RetroNex Cyberdeck Secure Portable Workstation

1. **Project Title** : RetroNex Cyberdeck Secure Portable Workstation
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** Mohammed Thaqib ul Rahman, Pasupunooti Nikitha
4. **Project Description:** The Cyberdeck can be set up as a dedicated, air-gapped, and physically secure workstation for handling sensitive cybersecurity tasks and investigations. Its hardware-based kill switches for the camera and microphone, along with the potential for hardware-based encryption, offer an added layer of security against potential threats.
5. **Project status at the beginning of the Year:** Idea
6. **Interventions made:** Design
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-06: Drone based industry pollution Monitory system

1. **Project Title** : Drone based industry pollution Monitory system.
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** Swapnil Shinde. Kkshitij Singh Thakur, Mohammed Naseruddin Ruman, Aqib Nazer Mohammed
4. **Project Description:** This drone provides a surveillance and real time monitoring platform for measuring gasses in atmosphere.It uses thermal signature analysis for measuring real time gas leakages of structural damages to high rise structures/factories.
5. **Project status at the beginning of the Year:** Idea
6. **Interventions made:** Design
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-07: IoT Based Electricity Monitoring System

1. **Project Title** : IoT Based Electricity Monitoring System
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** S. Shreyas, T.Sai Kumar Goud, Harshith, Nikhil .C
4. **Project Description:** Managing the usage of electricity has infinite number of benefits, which can be really simple but surveys show that a huge amount of electricity is wasted in domestic and industrial building due to lack of managing services.

   Major lacking aspects in our current systems are:

   a) Remote centralised management.

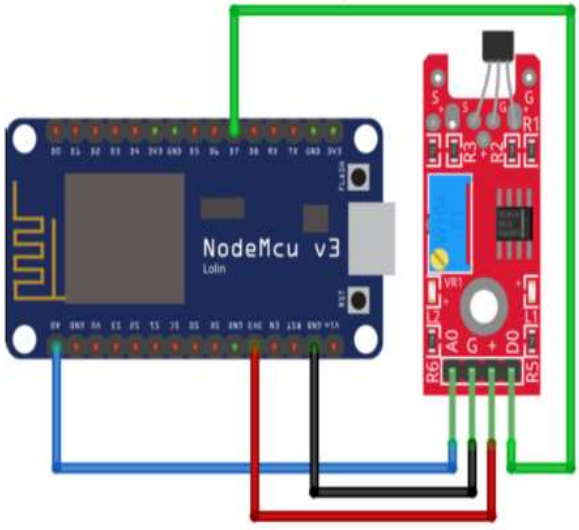
   b) Sustainability.

   c) Detecting efficiency of appliance.

   d) Consumption analysis and reports.

   - he solution is to provide a system, which analysis the data from the generation of energy with a renewable source and also from energy consumption point of view and provides the user with suitable suggestions and a feature to remotely adjust the usage accordingly.
   - Parameters from the user allows the system to suggest the adjustment of the usage accordingly based on energy generation rate and energy available.
   - Switching between renewable source and general power grid as required
   - Regular reports on consumptions, KPI parameters, predictions and suggestions to allow the user to optimise the usage
5. **Project status at the beginning of the Year:**
   - Idea
6. **Interventions made:**
   - Design
7. **Current status:**
   - Prototype Developed.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-08: Organic shiitake mushroom yield enhancement using sensor hub.

1. **Project Title** : Organic shiitake mushroom yield enhancement using sensor hub.
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** K.Tanusha, V.Poojitha, P.Shreya, T.Sravani
4. **Project Description:** This Project aims to provide a Control And Monitoring System for shiitake mushroom cultivation.
   *It involves in develpoing an IOT device with sensors to measure, monitor and control the paramenters like temperature, humidity, co2 level,oxygen level and light in the shiitake mushroom farms.We can able to adjust the Green House environment of the mushroom farms according to it's growth requirements.This helps to make shiitake mushroom as economical and efficienct as possible and helps to reduce the human error and labour cost.
5. **Project status at the beginning of the Year:** Idea
6. **Interventions made:** Design
7. **Current status:** Prototype Developed.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-09: Stuffed Bread Maker For Commercial Utility

1. **Project Title** : Stuffed Bread Maker For Commercial Utility
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:**

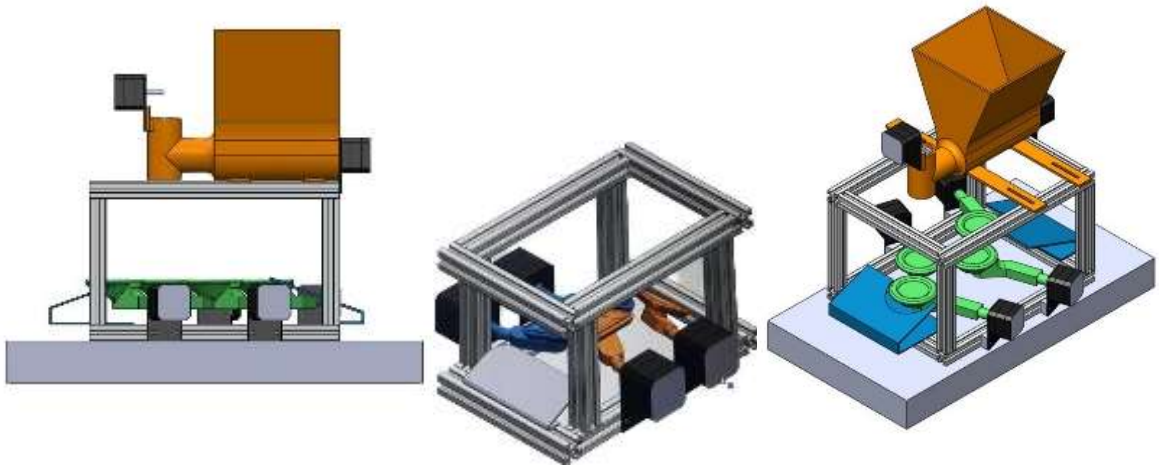
   G.Vighneshwar Reddy

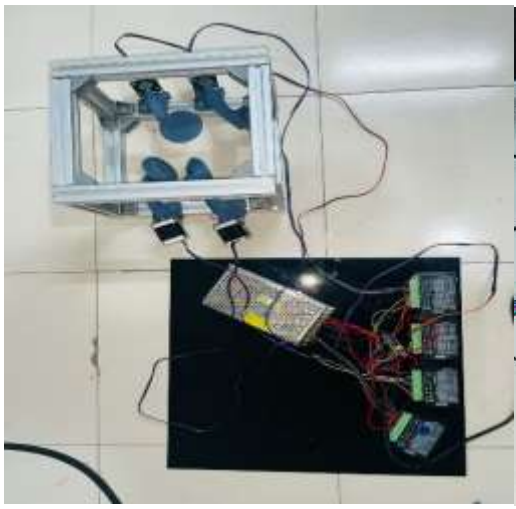
   G.Ajay

   E.Pavan Kumar

   Sarikonda Sumanth Raju
4. **Project Description:** The project is to make an Automated Stuffed Bread Maker.
   - One can make samosa's in large scale within less time using this machine.
   - In order to overcome the shortage of labour, the business owner may need to consider our machine.
   - It consists of a system that which can check the quality of oil and work accordingly, so that the owner can serve a healthy samosa.
   - In this machine, we can make samosa in 2 different ways
     A. Using Deep fryer system
     B. Using Air fryer system
   - The machine helps us to avoid decrease in quality & risk of contamination while making samosa's.
5. **Project status at the beginning of the Year:**
   - Idea
6. **Interventions made:**
   - Design
7. **Current status:**
   - Prototype Developed.

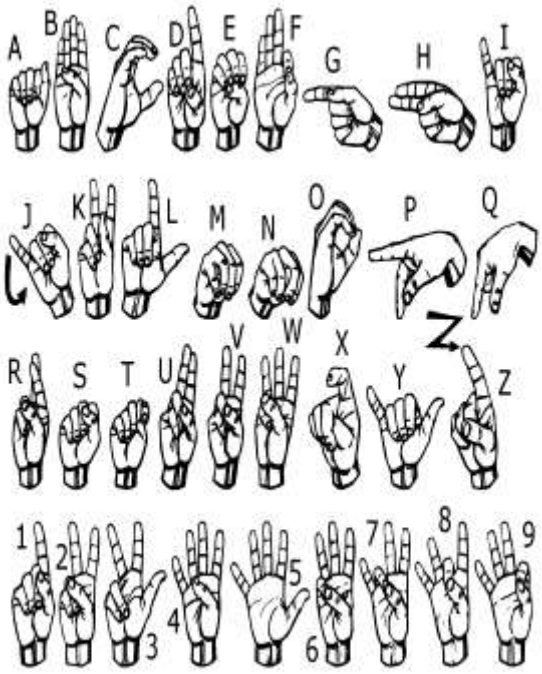
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

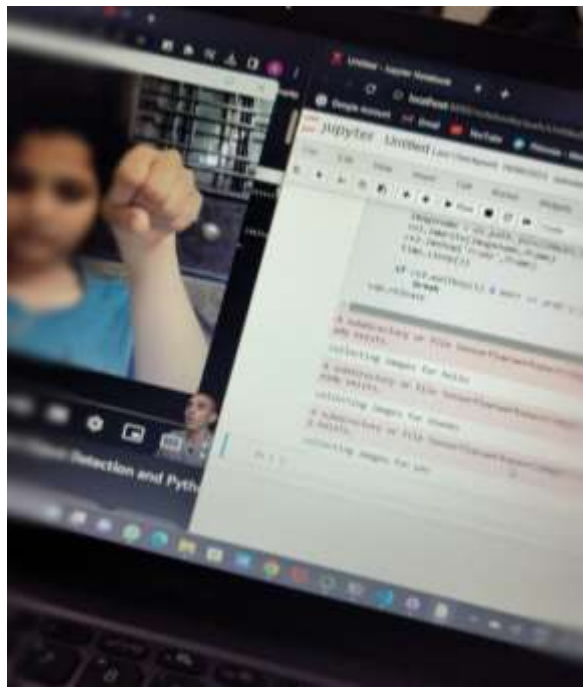




Project-10: Sign Language Translator Utility

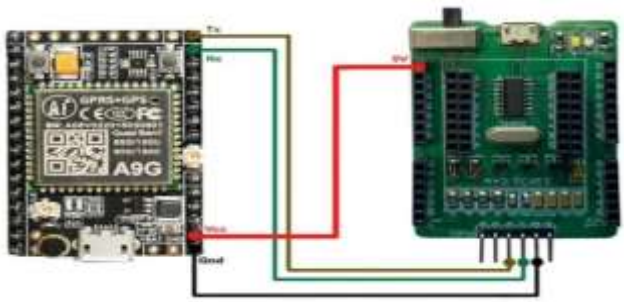
1. **Project Title** : Sign Language Translator Utility
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** Vemuri Sai Susritha, P. Siri Chandana, G.V.Sarath Chandra Prasad, S. Sai Tharun
4. **Project Description:** Our Project is about a Translator for deaf and dumb population so that they can communicate easily with the normal population. This project provides a platform for the deaf and dumb to interact easily with people who doesn't know the sign language
5. **Project status at the beginning of the Year:**
   - Idea
6. **Interventions made:**
   - Design
7. **Current status:**
   - Prototype Developed.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

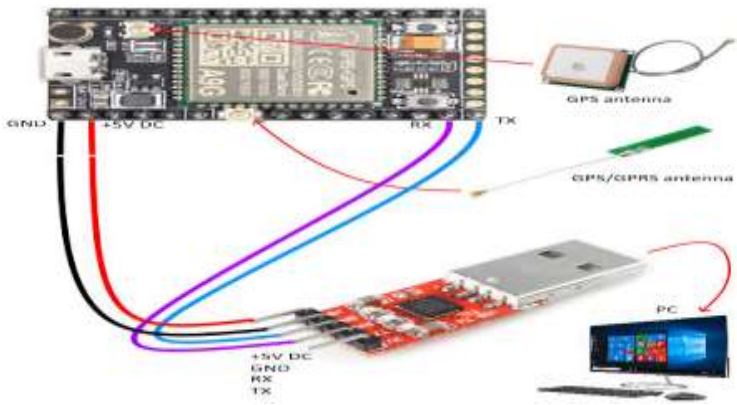




Project-11: Smart GPS, GSM and GPRS based Fire accident Alerting Systems for Shopping malls to GHMC

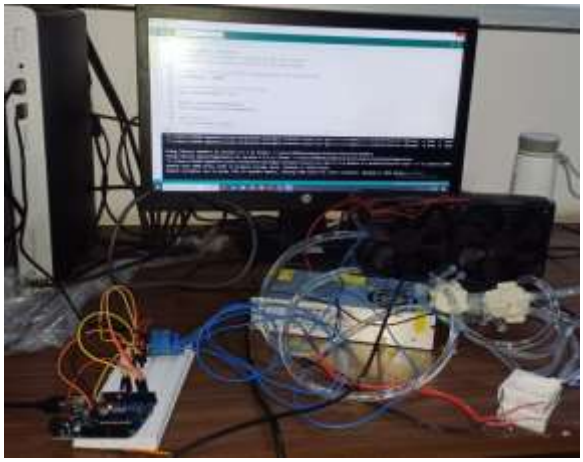
1. **Project Title** : Smart GPS, GSM and GPRS based Fire accident Alerting Systems for Shopping malls to GHMC.
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** G.Vighneshwar Reddy, G.Ajay, E.Pavan Kumar, Sarikonda Sumanth Raju
4. **Project Description:** The smart GPS, GSM and GPRS based fire accident alerting system for shopping malls aims to enhance fire safety in shopping malls. This setup involves installing fire detection sensors in shopping malls, integrating GPS, GSM and GPRS modules into a central control unit, developing a software program for alerting, establishing a secure database, collaborating with GHMC for monitoring, testing the system, and conducting regular maintenance and upgrades. The system will then provide real-time fire accident alerts to GHMC for swift responses and improved fire safety.
5. **Project status at the beginning of the Year:** Idea
6. **Interventions made:** Design
7. **Current status:** Prototype Developed.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

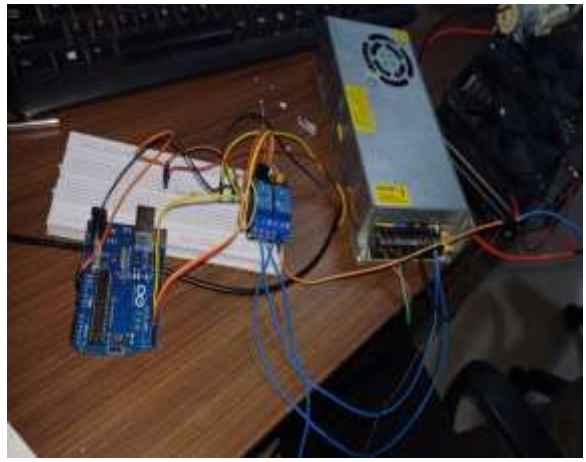




Project-12: Smart Portable Freezer

1. **Project Title** : Smart Portable Freezer
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** Shardul Pande, Raj Goel, Vishwas tiwari
4. **Project Description:** Introducing an innovative and eco-friendly liquid cooling solution that revolutionizes temperature regulation. This cutting-edge technology boats exceptional efficiency, minimal power consumption, and eliminates the need for toxic gases and coolants. With our system, you can enjoy superior cooling performance while prioritizing sustainability and environmental well-being. Our project will focus on utilizing the Peltier effect for liquid cooling applications, specifically in the context of milk and dairy products. By harnessing the Peltier effect, we aim to develop a system that can efficiently cool milk and other dairy products by creating a temperature gradient across a Peltier device. This innovative approach offers potential advantages such as compactness, simplicity, and precise temperature control for the dairy industry. With the ability to maintain optimal temperatures, the product will be capable of ensuring the freshness, quality, and extended shelf life of milk and dairy products, benefiting both producers and consumers.
5. **Project status at the beginning of the Year:** Idea
6. **Interventions made:** Design
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



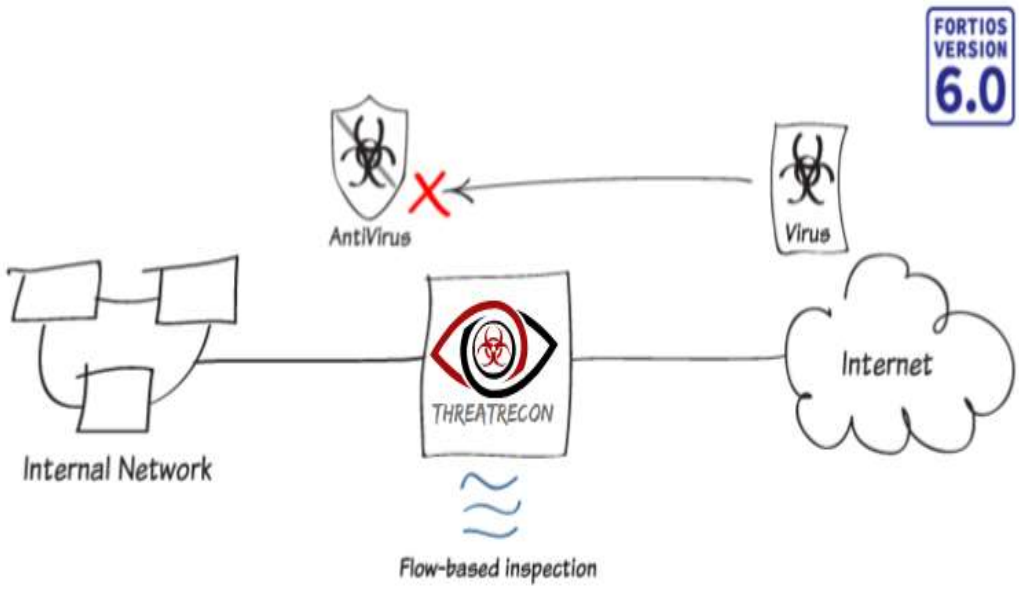


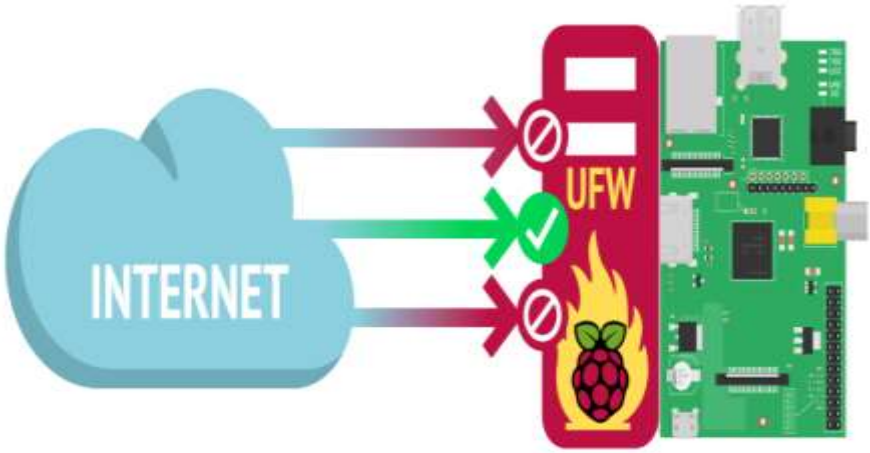
Project-13: Threatrecon Portable Antivirus for Home Network Security.

1. **Project Title** : Threatrecon Portable Antivirus for Home Network Security.
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** Sushant Kumar Tiwari
4. **Project Description:**

   Threatrecon is an innovative network security project aimed at revolutionizing the way small-scale businesses and institutions protect their valuable data and resources. It involves the development of an advanced, ARM-based Intrusion Detection System (IDS) hardware that connects to the organization's network to actively monitor and safeguard against unauthorized access, data breaches, and malicious activities.

   The project aims to deliver a cost-effective and powerful security solution that offers real-time network monitoring, advanced threat detection capabilities, and user-friendly incident management features.
5. **Project status at the beginning of the Year:** Idea
6. **Interventions made:** Design
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



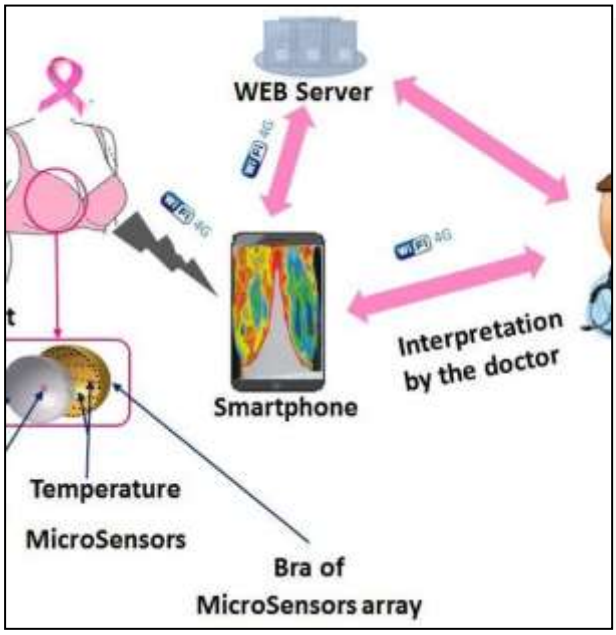


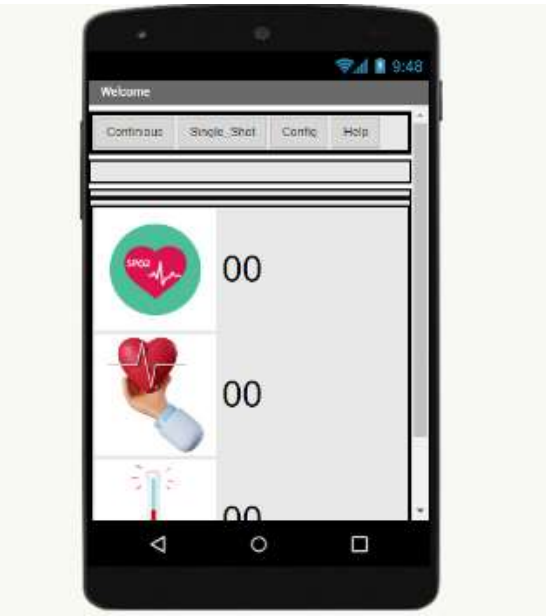
Project-14: Breast Health Monitor

1. **Project Title** : Breast Health Monitor
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** P.Jessica, G.Abhinav Charan, G.Bhuvana Sri, Md.Amer Khan
4. **Project Description:** This project introduces a breast health monitoring system that enables women to easily and regularly examine their breast health. By incorporating advanced sensors, the monitor captures and evaluates thermal information derived from the breast area, which is then presented through a user-friendly interface. This empowers users to track and identify any variations or irregularities in their breast health, facilitating early detection and preventive measures.
5. **Project status at the beginning of the Year**: Idea
6. **Interventions made:** Design

7. **Current status:** Prototype Developed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





Project-15: Talon Drone

1. **Project Title** : Talon Drone

2. **Mentor Name** **:** Sharath Vedala

3. **Student Team Names:**
   P. Jessica, G. Abhinav Charan,
   G. Bhuvana Sri,
   Md. Amer Khan

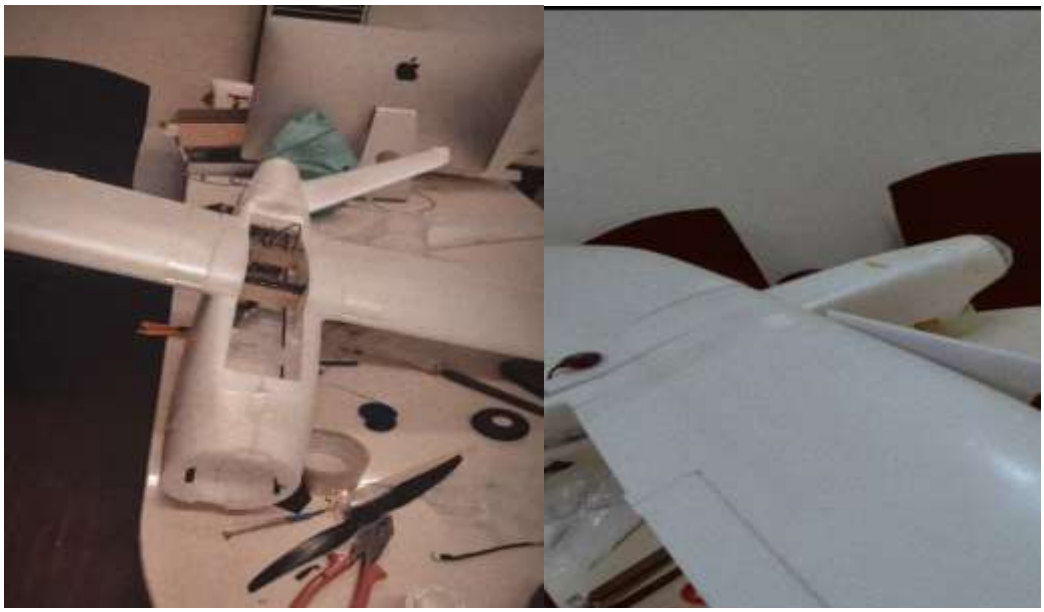
4. **Project Description:** Applicable for land surveying

5. **Project status at the beginning of the Year:**
   - Idea

6. **Interventions made:**
   - Design

7. **Current status:**
   - Prototype Developed.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

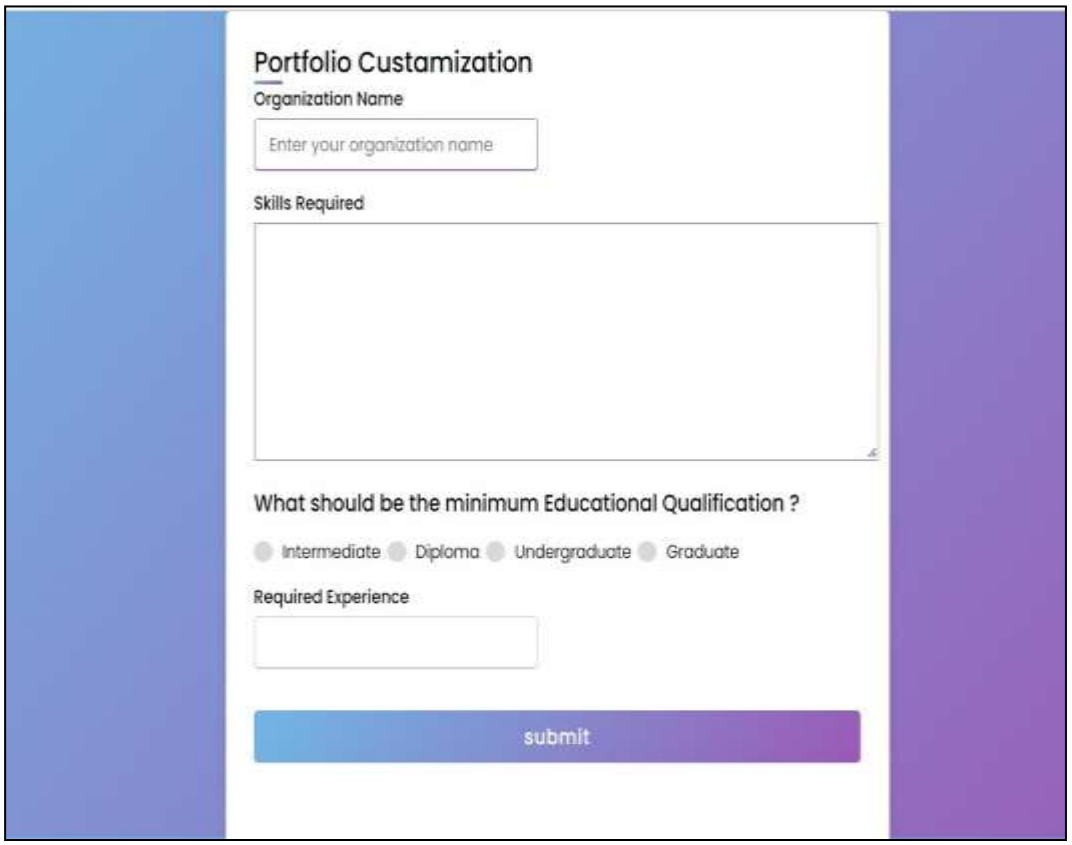


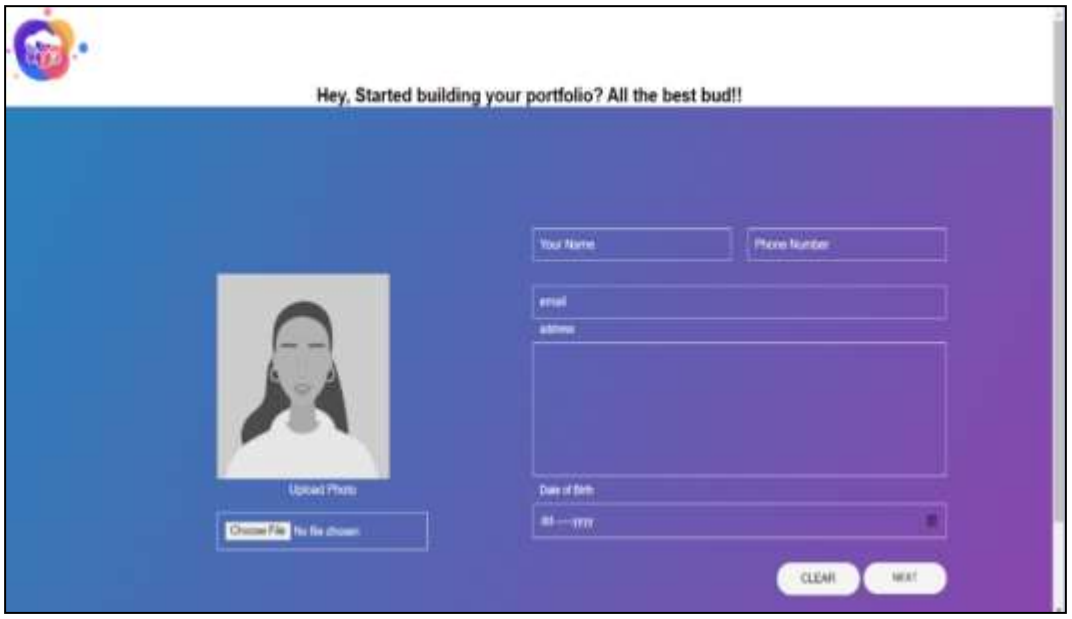
Project-16: Full-Scale Portfolios, A Web Application

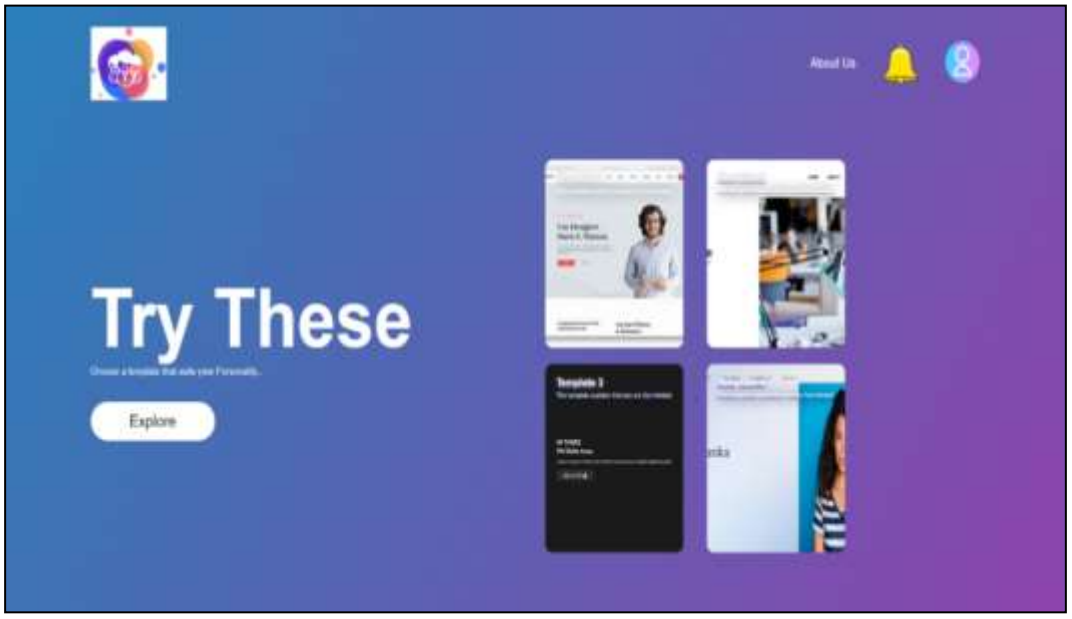
1. **Project Title** : Full-Scale Portfolios, A Web Application
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** Harshitha Sanaka, Akshaya Padala
4. **Project Description:** Our project is a web application that helps users to build their portfolio website and it is a platform where they can post their work. This is also a good platform for the recruiters to hire the users who are on our application providing their requirements.

   The work that users post can be viewed by their followers and the recruiters on the website. They are also provided with AI in our application while creating the portfolio for suggestions.
5. **Project status at the beginning of the Year:**
   - Idea
6. **Interventions made:**
   - Design
7. **Current status:**
   - Prototype Developed.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**




Hey, Started building your portfolio? All the best bud!!
Your Name
Phone Number
email
address
Upload Photo
Choose File
No file chosen
Date of Birth
CLEAR
NEXT


About Us
Try These
Explore

HOME
ABOUT
EDUCATION
EXPERIENCES
CONTACT ME
I'm Harshitha Sanaka
This is my official portfolio website to show all my
Details and work in web development
KNOW ME MORE

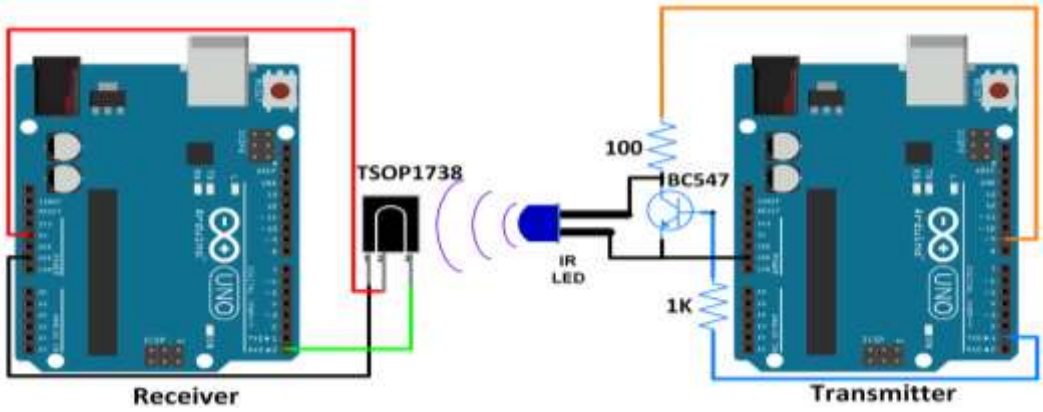
Project-17: IR Home Lock (Electronic Lock)

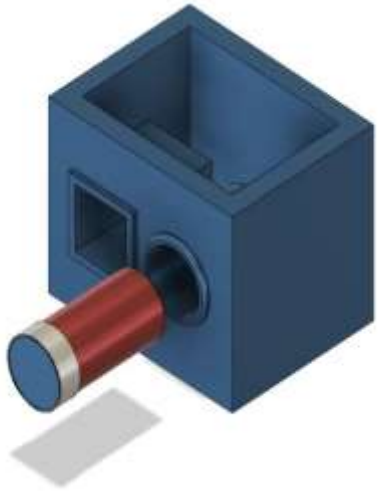
1. **Project Title** : IR Home Lock (Electronic Lock)
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** K.Pratyush
4. **Project Description:**

   The "IR Home Lock" represents an advanced electronic locking system designed for installation on main entry doors. This cutting-edge system employs a streamlined user experience, allowing door access through the input of a straightforward 6-digit passcode, coupled with an added layer of security requiring authentication via 4 registered fingerprints.

   Central to the functionality of this system is the utilization of an infrared (IR) transmitter, which facilitates the seamless transmission of fingerprint data. The designated key component is equipped with IR light-emitting diodes (LEDs) that receive and interpret the transmitted fingerprint data. Subsequently, the key undertakes a series of sophisticated operations on the fingerprint data, including conversion into diverse formats such as hexadecimal, binary, and grayscale representations.

   This system operates by transmitting encrypted data from the key to the TSOP receiver. Once the data transmission is completed, the key ensures its own protection by promptly erasing the received data from the transmitter's memory. This security measure is in place to safeguard against potential theft or unauthorized access.
5. **Project status at the beginning of the Year:** Idea
6. **Interventions made:** Design
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



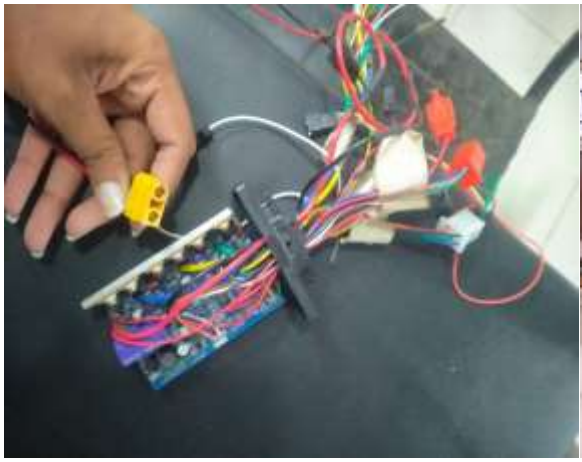


Project-18: Electric Tri-Cycle for Physically Handicapped

1. **Project Title** : Electric Tri-Cycle for Physically Handicapped
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** M.V.Achyuth Siva Rao, Malreddy Vijay Kumar Reddy, Bodramoni Balu, Chittimeni Mahesh Veera Ramana
4. **Project Description:** The “Electric Tri-Cycle for Physically Handicapped” is a project aimed at creating a specialized three-wheeled vehicle that is electrically powered and designed to cater to the mobility needs of physically handicapped individuals. The primary goal of this project is to provide an accessible and convenient mode of transportation for people

with physical disabilities, enabling them to move around more freely and independently.

5. **Project status at the beginning of the Year:** Idea
6. **Interventions made:** Design
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-19: Medihand for finding available beds of hospitals

1. **Project Title** : Medihand for finding available beds of hospitals
2. **Mentor Name** : Sharath Vedala
3. **Student Team Names:** S.Shiva Yadav, K.Sai kumar Reddy, V.Raghavendra
4. **Project Description:** In emergency time we need some facilities in hospital like beds, oxygen cylinder,etc.., directly we are providing that in our app to pre book a bed or oxygen cylinder , etc...
5. **Project status at the beginning of the Year:** Idea

6. **Interventions made:** Design
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

LOGIN PAGE

APP INTERFACE

Project-20: Transforming Commercial Mini Electric Car

1. **Project Title** : Transforming Commercial Mini Electric Car
2. **Mentor Name** : Sharath Vedala
3. **Student Team** : Poloju Lohithaksha, Gaddi Pavan Kalyan
4. **Project Description:** This project involves the transformation of a commercial mini electric car into a versatile vehicle that serves both as a compact electric car and a mobile small shop. This innovative concept aims to provide a unique solution for urban areas where space is limited, and the demand for convenient shopping experiences is high.
5. **Project status at the beginning of the Year:** Idea
6. **Interventions made:** Design
7. **Current status:** Prototype Developed

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-21: Self-Driving Electric Foldable Wheelchair

1. **Project Title** : Self-Driving Electric Foldable Wheelchair
2. **Mentor Name** : Sharath Vedala
3. **Student Team** : V. Vyshnavi, Bhavishya Reddy
4. **Project Description:**

   Senior citizen as well as working people face difficulty in walking long distance due to lack of physical fitness. Hence, they prefer not to travel This project is to develop a wheel chair which is travel friendly.

   We came up with an advance wheelchair which is not only selfdriving but also foldable. This wheel chair doesn't require a guardian instead can be driven using accelerator provided near legs. In order to make everyone travel around despite their weakness, we provide a light weighted foldable electric wheelchair with breaks.

5. **Project status at the beginning of the Year:** Idea
6. **Interventions made:** Design
7. **Current status:** Prototype Developed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

NewGen IEDC: GLA University, Mathura

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

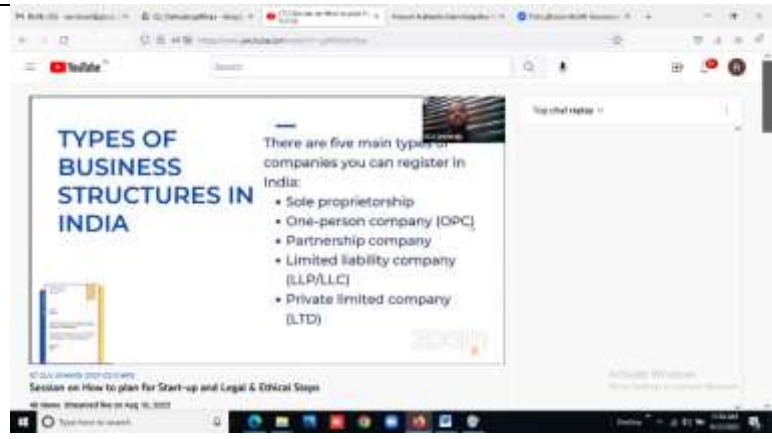
Progress Report: Fifth Year (2022-23)

Name of the College/Institution hosting NewGen IEDC	GLA University, Mathura		
Year of starting NewGen IEDC	2017-18		
Name of the Head/Principal of the Institution/College	Prof. D. S. Chauhan		
Name of NewGen IEDC Coordinator	Prof. Manoj Kumar		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	8171624769 manoj.kumar@gla.ac.in		
Financial Details	**Sr. No.**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC/17-18/13 Dated: 15/06/2017	Rs. 60,00,000
	2		Rs. 47,50,000
	3		Rs. 60,00,000
	4		Rs. 60,00,000
	5		Rs. 60,00,000

1. **Details of Activities Undertaken during the year:**

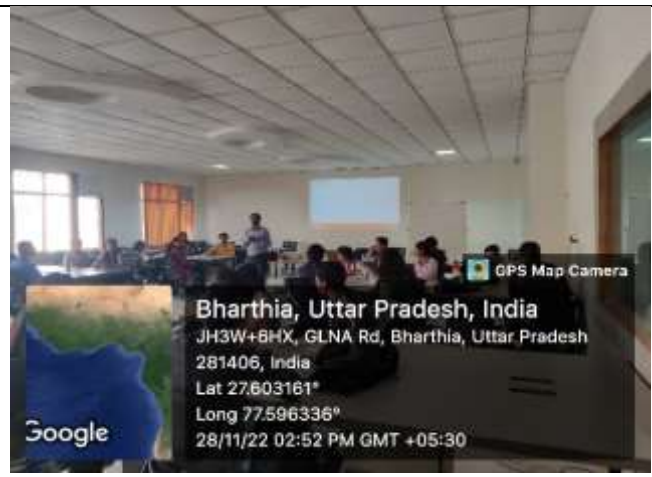
[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No	Date	Name of Event	Photo
1	29 & 30 April-2022	**E-Conclave'22** i. Freelancing Workshop ii. Townhall with Prafull Billore iii. 50 Rs. Venture iv. NFT Workshop v. UDYAMEE National Business Plan Competition	

Sr. No	Date	Name of Event	Photo
2	28/06/2022	Out of the Box Thinking for Problem Solving	
3	16/08/2022	Session on How to Plan for Start-up and Legal & Ethical Steps	
4	03/09/22	Startup Case Study Competition	

Sr. No	Date	Name of Event	Photo
5	19/09/2022	Startup Yourself: An orientation Session on Innovation & Entrepreneurship (B.Tech-Hons)	
6	22/09/22	Startup Yourself: An orientation Session on Innovation & Entrepreneurship (MBA)	
7	20/10/2022	E-Meetup Motivational Session by Successful Entrepreneur/Startup Founder	

Sr. No	Date	Name of Event	Photo
8	10/11/2022	**Creator Camp:** Entrepreneurship in Content Creation	
9	18/11/2022	**My Journey from Mathura to Shark Tank India**: Session by Malvica Saxena, Founder TheQuirkyNaari, GLA Alumni	
10	28/11/2022	Workshop on Problem Solving & Idea Design	

Sr. No	Date	Name of Event	Photo
11	28/11/2022	Workshop on Idea Test & Launch	
12	29/11/2022	Workshop on Design Thinking	
13	29/11/2022	Startup Health Check-1:1 Mentoring	

Sr. No	Date	Name of Event	Photo
14	03/12/2022	**TEDxGLAU:** Big Dream Simple Mindset	
15	18 & 19 March 2023	GLAThon-2023	

[B] To identify, develop & commercialize students' innovative ideas

1. **SAS Electronix stands for System and Support Electronics:**

Each unit of 'Smart Safety Device' will cost approx Rs. 820/-

They will design the easiest solution of a particular problem so that the user can get the best solution regarding their problem.

The goal is to create gadgets that seamlessly integrate into users' lives, enhancing their daily routines without overwhelming them with unnecessary complexity.

They will also provide the solution for a certain client's desired problem and will design a gadget to solve that problem for the client. They will focus on Less Profit and high Sales.

1. Shubham Yadav
2. Abhiraj Mishra
3. Shikhar Agarwal

2. **Anas Indigenous Private Limited**

- The startup has a team of experienced Allopathic and Ayurvedic practitioners and scientists who work together to create formulations that are effective and safe for consumers.

- ✓ The main objectives of our company are to create self-sufficiency in respect of essential lifesaving medicines, to free the country from dependence on imports and to provide medicines to the millions at affordable prices.
- ✓ The company also invests in research and development to continuously improve its products and stay ahead of the competition.
- ✓ The main concern is to earn profits but to encourage indigenous production of tuberculosis drugs and to support various health programs of the Central Government

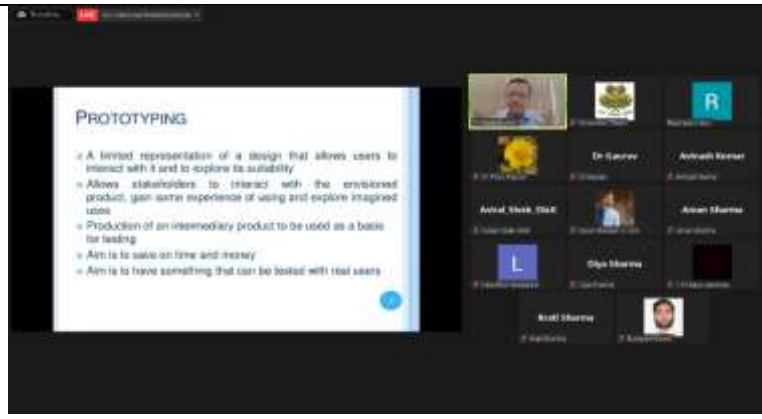
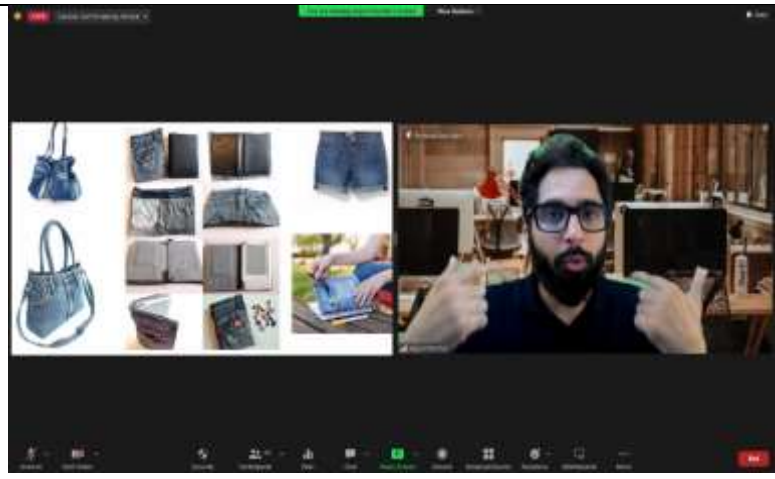
  1. Manthena Navabharath
  2. Ayushi Sharma

3. **Atirun Techs Private Limited**

- ➢ Introducing a revolutionary fitness and healthcare app that seamlessly integrates with your smartwatch to provide you with a complete picture of your health and wellness. With this app, you can easily track and record all of your body activities and receive a detailed report on your data analysis through advanced machine learning algorithms.
- ➢ Not only that, but you can also choose a doctor at the time of registration who will receive your data in real-time and contact you for further precautions or treatment if necessary. With this app, you can take control of your health and get personalized care like never before.

  1. Gaurav Singh
  2. Rishabh Saxena

[C] To enhance Industry-Academia interaction

Sr. No	Date	Name of Event	Photo
1	06/08/2022	Workshop on Prototype/Process Design & Delopvement Prototyping	
2	08/08/2022	Workshop on Business Model Canvas & PitchDeck	
3	22/08/23	Workshop on Lean Start-up & Minimum Viable Product/Business	

Sr. No	Date	Name of Event	Photo
4	10/09/22	Bharat Pitchathon in association with Headstart	
5	15 & 17 November 2022	Investment Management Training	

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

NA

3. Other important highlights (new initiatives), if any:

NA

4. Student Projects

Refer to Annexure-A for Details of Student Projects with Prototype Photos

5. Provide a minimum two-page case let each on the <u>two best student projects</u> (either prototype developed or commercialized) from the above list. The case lets should include the following:

1. <u>Best Student Project</u>

I. Best Student Project: Drive Protect: Vehicle Telematics Solution

II. Mentors Name : Mr. Ravikumar Tiwari

III. Student team details

1. Dushyant Singh Sisodia
2. Harsh Maheshwari
3. Aniket Agrawal
4. Harsh Jaiswal
5. Vaibhav Sharma

IV. Brief description of the student start-up

Telematics offers a win-win situation by promoting safer driving behavior through usage-based insurance plans and simultaneously reducing fraud in the insurance claims process. This benefit both insurance companies and customers, fostering a more transparent and fair insurance ecosystem.

V. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

VI. Contribution of NewGen IEDC in the same

- NewGen IEDC supports our startup project financially.
- They also provide mentorship with experienced guidance.
- This funding and mentorship help our project grow and succeed.

VII. Future plan

- Bussiness planning and strategy.
- Product / Service development.
- Legal and operational setup.
- Funding and Investment.
- Marketing and Launch.

VIII. Important highlights

- Scalable Bussiness model.
- Market Research.
- Unique Value Proposition.
- Clear Vision.

2. <u>Best Student Project</u>

I. Project Title : Smart Parking System

II. Mentors Name : Mr. Anuj Mangal

III. III. Student team details

1. Narender Choudhary
2. Monu
3. Rehan Singh Chauhan
4. Manoj Kumar

IV. Brief description of the student start-up

The project is based on the use of a hybrid (hardware + software) solution to solve the parking problems. In our solution people can easily find available parking slots on particular area, and also, they can book their parking slots online before they reach to the parking station. There is also automatic scanning of number plates of vehicles by hardware to ensure security.

V. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

VI. Contribution of NewGen IEDC in the same

NewGen IEDC which is (Innovation and Enterpreneurship Development Cell) has provided me their Unwavering support & Encouragement in our in our successful project journey.

- The IEDC team has consistency provided valuable insights, resources & mentorship which have help us to overcome the challenges we faced earlier.
- Their guidance has also contributed significantly to the growth of our project.

VII. Future plan

We seeing our project gaining new heights in near future by providing benefits to society-

1. By reducing the operational costs associated with traditional car park management such as Staff, maintenance etc.
2. Providing efficiency by finding vacant spaces, tracking vehicle entry/exit and processing online payment.
3. Provide access to the driver, who confirmed their booking in advance. This system here smoothening the managing system.

VIII. Important highlights:

This system reduces the no. of cars circling around the streets for finding a parking spot.

- Smoothens the traffic flow and minimize the search traffic on street as much as possible.
- System enables the municipalities to manage and reduce parking search traffic on the street.

Annexure-A

Details of Student Projects: Fifth Year

Project-01: Smart Crowd Monitoring Strategy

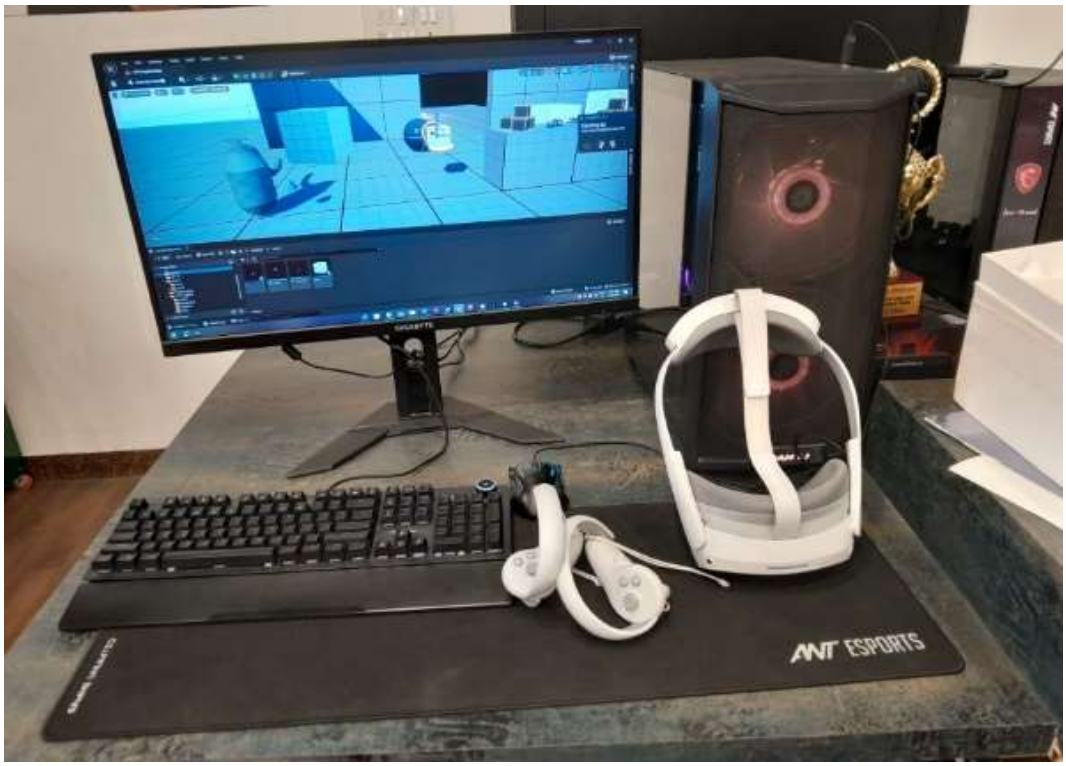
1. **Project Title** : Smart Crowd Monitoring Strategy
2. **Mentor Name** : Dr. Pooja Pathak
3. **Student Team Names:**
   Amit Upadhyay
   Komal Upadhyay
   Kamini Segar
   Komal Upadhyay
   Dhruv Shakti Singh Rawat
   Maulik Pandey
4. **Project Description:** Temples are sacred places of worship and cultural significance that attract devotees and tourists from all over the world. However, managing the crowds at temples can be challenging, especially during festivals and peak seasons. To address this issue, this project aims to propose and implement smart crowd management strategies for temples, leveraging technology and data-driven solutions. Implement sensors, cameras, and crowd analytics software to monitor visitor numbers and flow in real-time. This data can help temple authorities make informed decisions about crowd control measures.
5. **Project status at the beginning of the Year:** At the beginning of the year, the project is in the planning and preparation stage, with a clear vision and objectives. The next steps involve securing funding, finalizing the project plan, and moving into the implementation phase to bring the smart crowd management strategies for temples to life.
6. **Interventions made:** work is in progress.
7. **Current status:** The current status of the project is highly promising, with the successful implementation of Raspberry Pi technology, achieving nearly 80% completion of project milestones. The core components are operational, including crowd monitoring. Further fine-tuning and optimizations are underway to ensure a seamless and efficient crowd management system.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-02: Inexia

1. **Project Title** : Inexia
2. **Mentor Name** : Mr. Amir khan
3. **Student Team Names:**
   Mayank Pratap Singh
   Akash Gola
   Kushagra Garg
4. **Project Description:** We are developing a Metaverse Virtual World where people can interact, play and as well as do productive work. Our Virtual world will be based on Metaverse, Web 3.0. We will introduce NFTs, Intellectual properties. We are also developing support hardware like haptic wearables, Omnidirectional treadmills & in the future we'll also introduce our VR headset.
5. **Project status at the beginning of the Year:** At the beginning of the year this project was just an idea. We discussed and select the required sensor and material for our project.
6. **Interventions made:** work is in progress
7. **Current status: Ongoing**

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-03: Solar Water Desalination and filtration using various types of seeds

1. **Project Title** **:** Solar Water Desalination and filtration using various types of seeds
2. **Mentor Name** **:** Dr. Raghvendra Singh &
   Dr. Pradeep Kumar Chaudhary
3. **Student Team Names:**
   Akanksha Tripathi
   Manmohan Verma
4. **Project Description**: We are using solar energy to desalinate water and seeds to filter it no one is using these seeds to purify water and these seeds have unique properties to invoke minerals after filtration and also, they the unique properties to heal infections and develop resistance towards disease.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea. We discussed and select the required sensor and material for our project.
6. **Interventions made**: work is in progress

7. **Current status**: Ongoing

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-04: Herbal Grain Protectant Tablet

1. **Project Title** : Herbal Grain Protectant Tablet

2. **Mentor Name** : Dr. Anuj Garg

3. **Student Team Names:**
   Shipra Maheshwari
   Aanchal Raj
   Kritika Sharma
   Srashti Sharma

4. **Project Description**: The herbal tablets are formulated using very natural essential oils implying sustained release phenomenon that is these tablets will release their fumes in a controlled manner making them last longer than the traditional methods. The fumes will keep away the grains, pulses, etc. from infestation and if by any chance are ingested by humans will cause no side effect or toxicity to the human health.

5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea. We discussed and select the required sensor and material for our project

6. **Interventions made**: work is in progress

7. **Current status**: Ongoing

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-05: Plastic Pyrolysis

1. **Project Title** : Plastic Pyrolysis
2. **Mentor Name** : Mr. Abhishek Pratap Gautam
3. **Student Team Names:**
   Vivek Singh
   Devendra Pratap Singh
4. **Project Description**: Converting waste plastic product into useful fuel which can be used in vehicles, electricity generators, agriculture machinery and industrial purpose and get rid of plastic waste which left un treatable (non-recycled) and took 400 years to decompose still the whole process is very cost effective and it can make huge profit margins even by keeping MSP half of the price of current.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea. We discussed and select the required sensor and material for our project
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-06: NanoPlast

1. **Project Title** : NanoPlast

2. **Mentor Name** : Dr. Sarmistha Saha & Dr. Shoor Vir Singh
3. **Student Team Names:**
   Dhruv Varshney
   Adarsh Kumar
   Shivam Kumar
4. **Project Description**: We will use poly (vinyl) alcohol/starch/nanoclay nanocomposite films as biodegradable plastics since this nanocomposite film would greatly improve biodegradability, non-toxic, and relatively low cost due to poly (vinyl) alcohol and starch blending. Further reinforcing these blends with nanofillers will improve the final nanocomposites' mechanical and thermal properties. These films will have high mechanical and thermal properties, good transparency, and oxygen permeation resistance due to polyvinyl alcohol. Starch will provide biodegradable, non-toxic and relatively low-cost features.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea. We discussed and select the required sensor and material for our project
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-07: Battery Level Indicator Alarm

1. **Details of Student Projects: Fifth Year**
2. **Project Title** **:** Battery Level Indicator Alarm
3. **Mentor Name** : Mr. Jitendra Kumar
4. **Student Team Names:**
   Abhishek Saxena
   Hardik Kulshreshtha
5. **Project Description**: Our product (Battery Level Indicator Alarm) provides hassle-free Alarm system which can reduce the chances of battery damage,

reduces overheating and further increase the life of battery. The alarm can help to remind the refilling of the electrolyte to reduce the chances of any damage to the battery and it will also reduce the cost which is used to repair/replace the battery.

6. **Project status at the beginning of the Year**: at the beginning of the year this project was just an idea. We discussed and select the required sensor and material for our project.
7. **Interventions made**: work is in progress
8. **Current status**: we have completed this model using the market sensor, now we are trying to build our own sensor which will help us to reduce the cost of the prototype. 60% work is to be done.
9. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-08: Smart Parking System

1. **Project Title** **:** Smart Parking System
2. **Mentor Name** **:** Mr. Anuj Mangal
3. **Student Team Names:**
   Narender choudhary
   Monu
   Rehan Singh Chauhan
   Manoj Kumar
4. **Project Description**: The project is based on the use of a hybrid (hardware + software) solution to solve the parking problems. In our solution people can

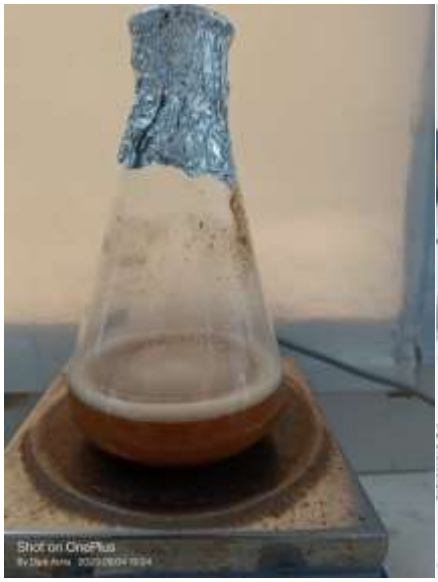
easily find available parking slots on particular area, and also, they can book their parking slots online before they reach to the parking station. There is also automatic scanning of number plates of vehicles by hardware to ensure security.

5. **Project status at the beginning of the Year**: In the beginning it was just an idea.
6. **Interventions made**: Work is in progress**.**
7. **Current status**: Approximately 70% work is done
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-09: Keshavamrat

1. **Project Title** **:** Keshavamrat
2. **Mentor Name** : Dr. Pradeep Kumar Chaudhary
3. **Student Team Names:**
   Dipti Acharya
   Ashish Gaur
4. **Project Description**: This invention is based on the use of medicinal mushrooms and plants in cosmetics. The present invention relates to a natural shampoo, and more particularly, to a natural shampoo made from a mushroom decoction that is simple to use and significantly reduces dandruff. It may also be combined with other natural herbs, such as shikakai and citrus limon, to prevent hair loss and promote hair growth and shine.

5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea. Required materials were purchased.
6. **Interventions made**: Work is in progress.
7. **Current status**: For preparing shampoo mushrooms were grown and extract is prepared from dried mushrooms by hot and cold extraction methods. Apart from that lemon essential oil is also prepared by using the Clevenger apparatus. 60% work is done.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-10: PRODIAET': A probiotic drink for pre-diabetic population

1. **Project Title** : PRODIAET': A probiotic drink for pre-diabetic population
2. **Mentor Name** : Dr. Saurabh Gupta & Dr. Rishikesh Shukla
3. **Student Team Names:**
   Samiksha Agrawal
   Diane Dawson
   Daksh Mishra
   Vidhi Mishra
4. **Project Description**: We are trying to make a cost-effective sugar-free probiotic drink using the yeast-based sweetener erythritol which can be consumed by diabetic to the non-diabetic population. Novel sugar-free

products can be consumed by both diabetic and non-diabetic patients and also by low immunotolerant patients.

5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea. We discussed and select the required sensor and material for our project
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-11: Hydrocolloid Herbal Pimple Patch

1. **Project Title** : Hydrocolloid Herbal Pimple Patch
2. **Mentor Name** : Dr. Vishal Khandelwal
3. **Student Team Names:**
   Vaishnavi Goyal
   Shruti Shakya
   Yukti Agrawal
4. **Project Description**: "Hydrocolloid Herbal Pimple Patch" is a polyherbal formulation which is completely plant-based (NO GELATIN) which will not only treat pimples furthermore, it also provides other benefits like brightening and improves texture of skin and decreases the further chances of infection also.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea. Required materials were purchased.
6. **Interventions made**: Work is in progress
7. **Current status**: For making bilayered-pimple patch, we are trying to prepare starch and pectin layer first. We are about to get what actually we need.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-12: Auto Power Shutdown LPG Detection Alarming System

1. **Project Title** : Auto Power Shutdown LPG Detection Alarming System
2. **Mentor Name** : Mr. Saurabh Singhal
3. **Student Team Names:**
   Abhiraj Mishra
   Shubham Yadav
   Shikhar Agarwal
4. **Project Description:**
   Safety is a major concern when we are away from our home or our personal space. There are higher chances for our things to be stolen. When we take hotel rooms, there is always a spare key in the hotel and what if someone used that key to enter into your room and stole things while you are away.

   Solution of this problem is a safety device which is placed on the door and alerts the owner via SMS if unauthorized access found. This is useful for an individual as well as for the colleges and private & government offices. Use of electronic components.

5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea. We discussed and select the required sensor and material for our project
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-13: Attendance Automation System

1. **Project Title** **:** Attendance Automation System
2. **Mentor Name** : Dr. Neeraj Gupta
3. **Student Team Names:**
   Vishal Sharma
   Rachit
   Palak Dhakrey
4. **Project Description**: In this project we take picture of all student and mark present every student. The teacher is free from Attendance. We only set camera to picture.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea. We discussed and select the required sensor and material for our project
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-14: Drive Protect: Vehicle Telematics Solution

1. **Project Title** **:** Drive Protect: Vehicle Telematics Solution
2. **Mentor Name** : Mr. Ravikumar Tiwari
3. **Student Team Names:**

Dushyant Singh Sisodia
Harsh Maheshwari
Aniket Agrawal
Harsh Jaiswal
Vaibhav Sharma

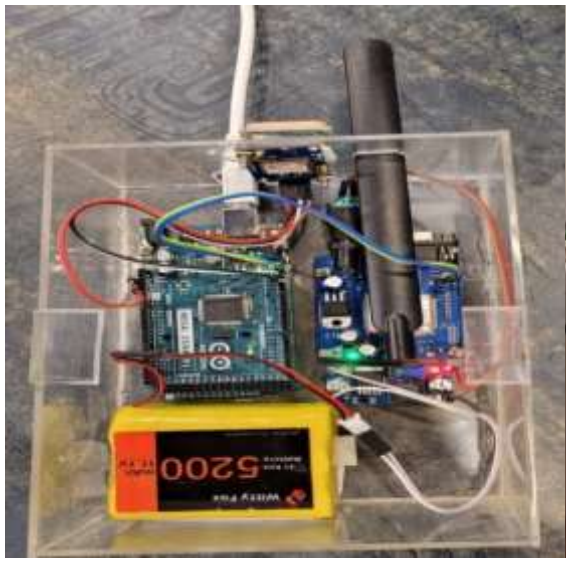
4. **Project Description**: Telematics offers a win-win situation by promoting safer driving behavior through usage-based insurance plans and simultaneously reducing fraud in the insurance claims process. This benefit both insurance companies and customers, fostering a more transparent and fair insurance ecosystem.

5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea. We discussed and select the required sensor and material for our project

6. **Interventions made**: work is in progress

7. **Current status: Ongoing 90% complete**

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-15: Pimpam

1. **Project Title** **:** Pimpam

2. **Mentor Name** **:** Dr. Manoj Kumar

3. **Student Team Names:**
   Garima Porwal

4. **Project Description**: Our diaper is different because it is biodegradable in nature and made up of biodegradable components. It is based on natural polymers like polybutylene compounds such as PBSC (polybutyl succinate), PBAT (Polybutylene adipate terephthalate) and Chitosan with common diaper material like cotton. To increase its biodegradability the main frame of the diapers will be of corn starch, pulp extracted by trees and cellulose.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea. We discussed and select the required sensor and material for our project
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-16: IoT Enhanced Energy Management Meter

1. **Project Title** **:** IoT Enhanced Energy Management Meter
2. **Mentor Name** **:** Dr. Arvind Kumar Verma
3. **Student Team Names:**
   Taryambak Nath Mishra
   Umesh Kumar
   Vansh Sharma
4. **Project Description**: The waste flowers can be utilized to produce our product which can lead to a healthier and waste free environment. By using those flowers, we are making “Gulabjal. We make better environment by utilizing the floral which are thrown by the temples. It generates employment for the locals of our area.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea. We discussed and select the required sensor and material for our project
6. **Interventions made**: work is in progress
7. **Current status**: Ongoning

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-17: AEROBEAD: An aroma-based alarming system for water-limiting conditions in plants**.**

1. **Project Title** : AEROBEAD: An aroma-based alarming system for water-limiting conditions in plants**.**
2. **Mentor Name** **:** Dr. Anukool Vaishnav & Dr. Saurabh Gupta
3. **Student Team Names:**
   Mridul Raghuvanshi
   Avantika Rajput
   Prerna Kanojia
   Shraddha Rajput
4. **Project Description:** We are making a solution for all of the abovementioned problems in the form of AEROBEAD. This innovation help plants through providing nutrients, antimicrobial activity and its aroma also alarm for water limiting condition in plant.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea.
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-18: Bio-degradable Floral air-freshener (Slime-Gel)

1. **Project Title** **:** Bio-degradable Floral air-freshener (Slime-Gel)
2. **Mentor Name** **:** Dr. Sanjeev Kumar
3. **Student Team Names:**
   Ridhima Pranav
   Rakesh Tiwari
   Rohit Attri

Rishabh Gautam
Sumit Kumar Kushwaha
Yash Agrawal

4. **Project Description:**
   We are here to provide a solution to that problem. we are utilizing the flower waste to prepare the air freshener. i.e. reduces toxicity and reduces pollution.

   Some of these chemicals could affect your health. We are preparing a chemical-free air freshener instead of chemicals. It’s a skin-friendly and eco-friendly air freshener.

5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea.
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-19: Herbal Soap's from agricultural waste

1. **Project Title** **:** Herbal Soap's from agricultural waste
2. **Mentor Name** : Dr. Alok Rai
3. **Student Team Names:**
   Tulsi Goswami
   Vishal Singh
   Harish Upadhyay
4. **Project Description**: Will make this soap with coconut and olive oils, along with glycerin, vitamin E. Also waste products like flowers and herbs to be used Essential oil. Those with sensitive skin or conditions such as psoriasis or eczema can take aid from natural handmade soaps. Glycerin soap also protects the skin which is sensitive and delicate, Effective waste management of flowers waste generated to be done.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea.

6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-20: Multi-purpose -Bio-Enzyme

1. **Project Title** **:** Multi-purpose -Bio-Enzyme
2. **Mentor Name** **:** Dr Kailash Sathi
3. **Student Team Names:**
   Shweta Kumari
   Sagar Varshney
   Tannu Shree
   Shubham Kumar
   Udit Tiwari
   Vandana Chaudhary
4. **Project Description**: Bio-Enzyme is a natural substance produced by good microbes during the fermentation process. It is made from fresh fruit and vegetable wastes in the presence of jaggery and water.

   Bio-enzyme is a eco-friendly, non-toxic, non-flammable, also preservative agent for lifespan and economically cheap.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea.
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-21: Aviail onself of Temple Waste into Compost

1. **Project Title** : Aviail onself of Temple Waste into Compost
2. **Mentor Name** : Dr. Amit Kumar

3. **Student Team Names:**
   Shashank Kumar
   Shaurya Singh
   Ravi Kumar
   Ram Kumar
   Vinay Singh
   Depanshi Sharma
4. **Project Description:** Collect flower waste, horticulture waste, and coco peat from the temple. Mix the flowers, dry and wet leaves, soil, and coco peat with jeevamrit. JEEVAMRIT: - Made up of jaggery, soil, pulses floor, cow urine, cow dunk. Jeevamrit increase microbial activity.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea.
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-22: Paustizza

1. **Project Title** : Paustizza
2. **Mentor Name** : Dr. Vikas Bajpai
3. **Student Team Names:**
   Vinay Kumar Patel
   Rajan
   Shubham Pandey
   Himanshu Dubey
   Vivek Kumar
4. **Project Description**: A super healthy Pizza are a solution of this problem because our pizza base is made by Sorghum flour (Great Millet). Great Millet have health benefits and high amounts of fiber and aids digestion. It also lowers your bad cholesterol in your system and is therefore very good for your cardiovascular health. Great Millet is reach in antioxidants and can

prevent the occurrence of cancer, particularly breast cancer. It can help prevent asthma.

5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea.
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-23: Bio-Nematicide

1. **Project Title** : Bio-Nematicide
2. **Mentor Name** **:** Dr. Shyam Kishor Patel
3. **Student Team Names:**
   Shivam Shrestha
   Naveen Kumar
4. **Project Description**: It is a Versatile, organic solution that use as a bio-nematicides and enhance soil status, enhance photosynthesis in plants and increase soil's organic matter by maintaining the C: N of soil.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea.
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-24: HT-PGPR Based formulation for Salt-affected Soil

1. **Project Title** **:** HT-PGPR Based formulation for Salt-affected Soil
2. **Mentor Name** : Dr. Vikash Kumar
3. **Student Team Names:**
   Komal Tiwari

Himank Singh Pundhir

4. **Project Description**: The HT-PGPR's intrinsic metabolic and genetic features play a direct role in reducing the detrimental effects of salt stress in plants. The most important aspect of salt stress tolerance in plants mediated by HT-PGPR is the creation of responsive machinery to pool toxins and produce an osmotic equilibrium condition to prevent desiccation as well as flaccidity in plant cells.
5. **Project status at the beginning of the Year**: At the beginning of the year this project was just an idea.
6. **Interventions made**: work is in progress
7. **Current status**: Ongoing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

NewGen IEDC-Indian Institute of Technology, Guwahati

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: (Fourth Year) 2022-2023

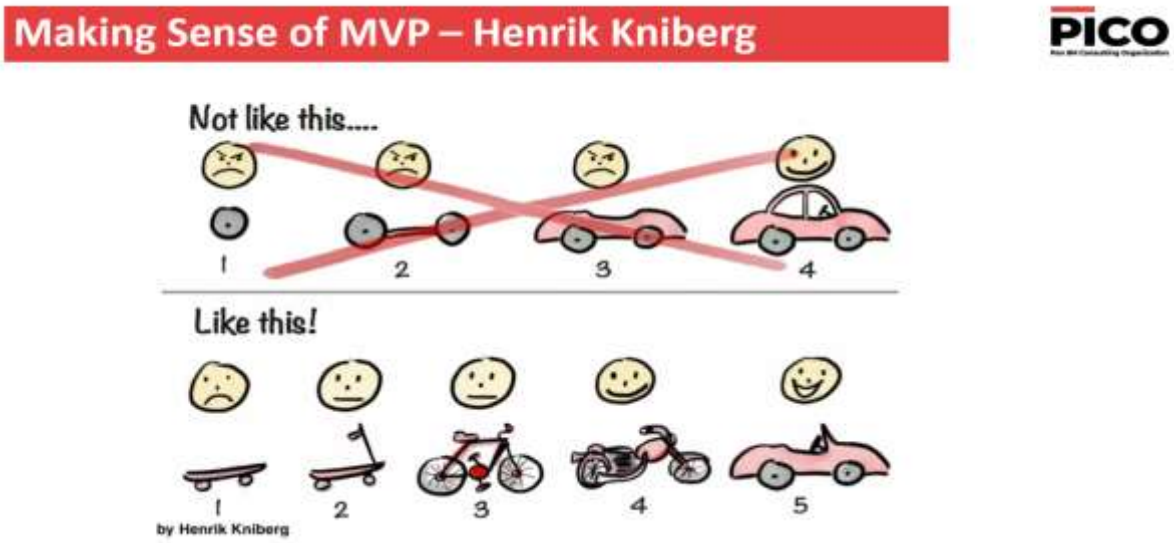
Name of the College/Institution hosting NewGen IEDC	Indian Institute of Technology Guwahati		
Year of starting NewGen IEDC	2018-2019		
Name of the Head/Principal of the Institution/College	Prof. G. Krishnaoorthy, Dean (II&SI)		
Name of NewGen IEDC Coordinator	Prof. R. Ganesh Narayanan Prof. S. K. Dwivedy		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	Prof. R. Ganesh Narayanan; email: ganu@iitg.ac.in; Phone: 99546 04304 Prof. S.K. Dwivedy; email: dwivedy@iitg.ac.in; Phone: 94353 02598		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC/18-19/01 Date: 13/11/2018	Rs. 60,00,000
	2		Rs. 47,50,000
	3		Rs. 60,00,000
	4		Rs. 60,00,000

1. Details of Activities Undertaken during the year:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. Entrepreneurship development program, March 6-14, 2023

   In this two weeks long program, students were taught basics and applied details on entrepreneurship. Several students participated and attended talks delivered from consultants, business experts, and entrepreneurs.



2. Demonstration and hands-on-training on 3D Printing, March 16-17, 2023
   Participants were provided two days hands-on training cum demonstration on 3D printing relevant to prototype development. Interested participants actively partipctaed on the activity.

[B] To identify, develop & commercialize students' innovative ideas

1. Startup pitching, As part of RIC 2023, May 14-16, 2023
   Startup pitching has been organized by NEWGEN IEDC as part of Research and Industry Conclave (RIC) in which startup companies were asked to pitch their ideas. Interaction between students and company entrepreneurs were established.

[C] To enhance Industry-Academia interaction

1. Startup pitching, As part of RIC 2023, May 14-16, 2023

   Startup pitching has been organized by NEWGEN IEDC as part of Research and Industry Conclave (RIC) in which startup companies were asked to pitch their ideas. Interaction between students and company entrepreneurs were established.

2. **Deviation (shortfall) from the proposed action plan (with reasons), if any:**

   Several workshops are planned during August to October 2023. Some of these are provided below.

   - Biodesign Hackathon for Innovation in Medical Device and Systems, September 13-16, 2023
   - Newgen IEDC workshop in Innovative develpments in science and engineering, October 2023
   - Interaction session with accelerators, October –November 2023

3. **Other important highlights (new initiatives), if any:**

   A new startup company "**Udot Braille Tech Private Limited**" with the following details is started relevant to NEWGEN IEDC project sanctioned in the 3rd year.

   Corporate Identification Number (CIN) of Udot Braille Tech Private Limited is U32909KA2023PTC172136. The registered office of Udot Braille Tech Private Limited is at No 8 And 9, 10th Cross, Celebrity Paradise, Doddatogur, Electronic City, Phase I Bangalore South, Karnataka.

The company is under Manufacturing (Machinery & Equipments) domain.

4. **Student Projects**

   Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos

5. **Provide a minimum two-page case let each on the two best student projects (either prototype developed or commercialized) from the above list. The case lets should include the following:**

Best Student Project: 1

I. **Mentors Name : Hanumant Shekhawat**

II. **Student team details**

   1. Hitesh Arjunbhai Ramrakhiyani
   2. Ritika Jaiswal

III. **Brief description of the student start-up**

   - AMALETIX **INFOTECH Private Limited, CIN/LLPIN/FCRN U72900UP2021PTC153516, Company No. 153516**

IV. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**

- **AMALETIX INFOTECH Private Limited, CIN/LLPIN/FCRN U72900UP2021PTC153516, Company No. 153516**

V. **Contribution of NewGen IEDC in the same**

NEWGEN IEDC has funded a prototype development fund for developing a Low-cost and Scalable Healthcare Solution for Antimicrobial Resistant (AMR). A machine learning (ML) tool for correctly identifying bacteria was not available at the start of the project. Through NEWGEN IEDC the prototype is developed and looking for high end demonstration.

VI. **Future plan:** The prototype is ready but must be tested on a high end machine

VII. **Important highlights**

- a low-cost technology that aids doctors to speed up eye screening.
- **Society** will benefit from the application as the correct identification of the bacteria helps stop the antimicrobial resistance before it is declared a pandemic.

Best Student Project: 2

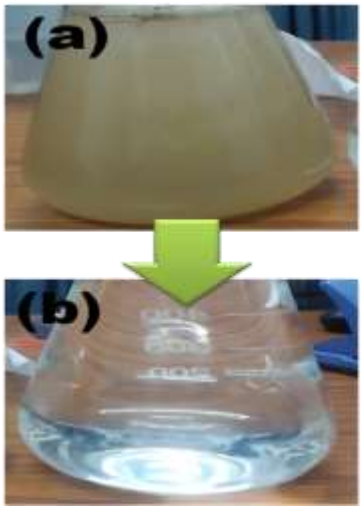
I. **Mentors Name**: Subhendu Sekhar Bag

II. **Student team details**

1. Sinchini Barman
2. Aniket Banerjee
3. Hemanshu Mediboyana

III. **Brief description of the student start-up:** Developent under progress

IV. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**



V. Contribution of NewGen IEDC in the same

- NEWGEN IEDC has funded a prototype development fund for cost Effective Strategy and Prototype Development for Community Wastewater Treatment & Reuse in Farmers Field.
- The construction of the integrated wastewater treatment prototype has been initiated. However, before carrying out operations at the field scale, we thought to execute our target objectives at the lab scale. Therefore, the efficiency of the prototype was tested through the development of two separate units which are (a) filtration system; (b) photocatalytic treatment system; at the laboratory scale. The components of the filtration system were similar to the proposed filtration compartments of the gabionic filtration system. The filtration system was further integrated as a household filtration device. The results obtained reflected the efficiency of our system in treating wastewater. Also, separately we have tested the performance of the photocatalytic disinfection and degradation of chemical and biological pollutants in wastewater. It is expected that within two to three months the integrated wastewater treatment reactor will be ready for operation in the field.

VI. Future plans

The prototype can be commercialized to industries, farmers, government agencies, hospitals. This would be a cost-effective on-site solution to treat the wastewater and then discharge into the surface water bodies.

VII. Important highlights

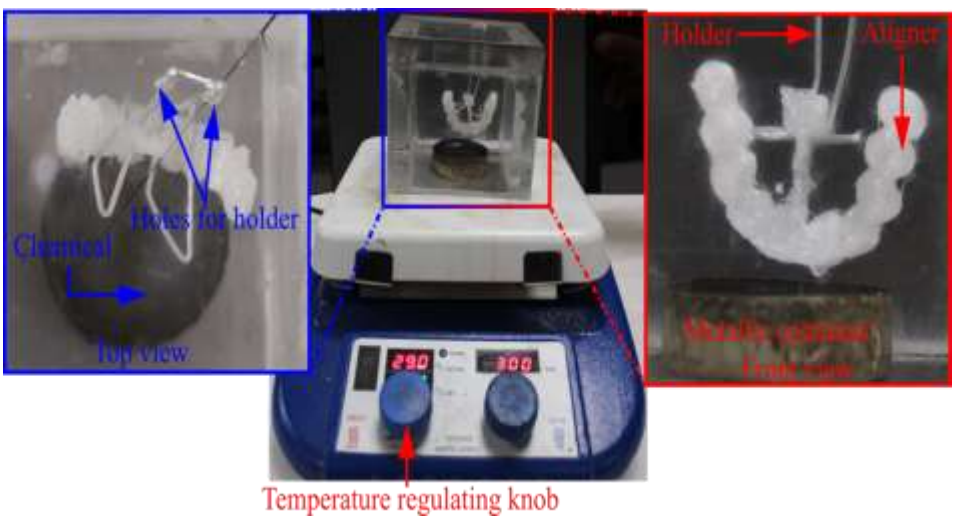
The ultimate goal is to develop a cost effective pilot plant that can be applied for cleaning and treating the wastewater of Bharalu Nala/River. The treatment plant can be installed onto the farmer's field in the adjacent villages around Guwahati city who rely on the wastewater of Bharalu for agriculture. With success of this project a revolutionary societal benefit can be extended both in terms of sustaining agriculture as well as from health care point of view.

Annexure-A

Details of Student Projects: Fourth Year

Project-01: Surface finish enhancement of additively manufactured invisible aligners

1. **Project Title** : Surface finish enhancement of additively manufactured invisible aligners
2. **Mentor Name** : Dr. Manas Das; Dr. Sajan Kapil
3. **Student Team Names:** Atul Singh Rajput; Ambrish Singh
4. **Project Description:**
   Fabrication of invisible aligners through fused deposition modeling and its surface enhancement through chemical vapor smoothing.
5. **Project status at the beginning of the Year:**
   The conceptual design is developed, and the fabrication of the experimental setup is started.
6. **Interventions made:**
   A novel experimental setup is designed and developed to enable Chemical Vapor Smoothing (CVS) to enhance the surface quality of the clear aligners. Glycol-modified Polyethylene Terephthalate (PETG) has been opted as the material to fabricate the clear aligners due to its biocompatibility and non-toxicity. Response Surface Methodology (RSM) is used to analyze the impact of different process parameters (i.e., the chemical volume, exposure time, and workpiece orientation) on the surface quality of the clear aligners.
7. **Current status:** It is in the developing stage.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



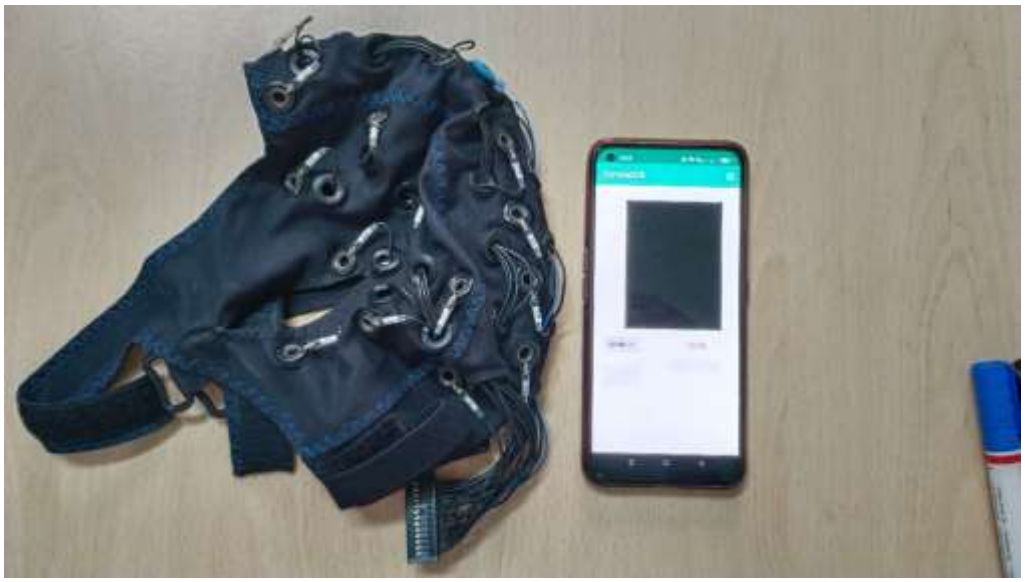
Project-02: Analysis of Synchronized Electroencephalogram and Camera data on an Android device application

1. **Project Title** : Analysis of Synchronized Electroencephalogram and Camera data on an Android device application
2. **Mentor Name** : Dr. Cota Navin Gupta
3. **Student Team Names:** Doli Hazarika; Vishnu KN
4. **Project Description:**
   The objective of this project is to explore the analysis of EEG data using the CameraEEG android app in natural environments. Incorporating a data analysis module and classifier will enhance the app's usefulness for mobile applications, allowing real-time classification of EEG signals.
5. **Project status at the beginning of the Year:**
   The CameraEEG app was specifically developed to acquire synchronized EEG data and video of the surrounding environment using the rear camera of an Android device. Additionally, it includes a convenient marker button for annotating noteworthy events. The captured video-EEG data is securely stored in the internal memory of the smartphone. To gain a better understanding of the app's functionality, you can watch a demonstration video by visiting the following link: https://www.youtube.com/watch?v=4XhtMlOFyyw&t=1s.
6. **Interventions made:**
   The data analysis module will allow us to visually examine EEG data obtained on an Android device, implemented using the Android Studio platform. Similar classification algorithms used in Android apps for voice activity detection and natural language processing, like random forest and MobileBERT, can potentially be applied to the CameraEEG app for real-time EEG signal classification. Two options for model training include MATLAB (using MATLAB Coder) and Python (using TensorFlow). After training, integration with the Android app has been done through the Android Studio platform. This combined analysis and classification module enhances the CameraEEG app, enabling robust signal analysis capabilities for different brain states recorded in natural environments.

7. **Current status:**

To incorporate a trained classification model into an Android Studio app, various options for model training exist. While MATLAB Coder and Simulink can be used, they don't integrate smoothly with Android Studio due to version incompatibility. It is advised to leverage alternative frameworks like TensorFlow and PyTorch for machine learning and deep learning tasks in Android Studio apps. Consequently, we switched to Python and TensorFlow for training. Initially, our plan was to integrate a random forest model, but the absence of the TensorFlow decision forests library hindered progress. Thus, we opted for a basic artificial neural network model instead. We trained the model using TensorFlow Lite in Python and integrated it into the EEG signal classifier app within Android Studio. Our training data consisted of three subjects in an office environment, each recorded for 5 minutes with eyes open and closed. This EEG signal classification pipeline will be integrated as a module into the existing CameraEEG android app. Currently, the classifier is yielding biased results, prompting us to focus on enhancing its accuracy.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-03: Development of Modular Multilevel dc-dc Converter for Electric Vehicles Charging

1. **Project Title** : Development of Modular Multilevel dc-dc Converter for Electric Vehicles Charging
2. **Mentor Name** : Dr. Chandan Kumar
3. **Student Team Names:** Shwet Prasoon; Sahil Gaurav
4. **Project Description:**

   The objectives of the project are as follows:

   - To design a reliable, fault-tolerant, and grid-friendly MMC-based dc-dc converter for battery charging of EVs.
   - To develop a new control strategy for the efficiency assessment of MMC-based EV charging fleets in the power distribution system.
   - To propose an efficient cell balancing control for equalizing the state of charge of the cells.
5. **Project status at the beginning of the Year:**

   At the start of the MMC Electric Vehicle Charging project, we have established the project scope, timeline, and resource requirements. The project team is ready to initiate the research and design phase, working towards developing an innovative and efficient charging infrastructure for MMC electric vehicles. Throughout the project, we will proactively address risks, engage stakeholders, and adhere to best practices to ensure a successful outcome.
6. **Interventions made:**

   To address difficulties in the MMC DC-DC converter for electric vehicle charging, the following interventions can be considered:

   1) Thermal Management: Address any heat dissipation issues by implementing effective thermal management techniques such as heat sinks, fans, or liquid cooling systems. This ensures the converter operates within acceptable temperature limits and enhances its overall reliability.
   2) Component Selection and Quality: Evaluate the suitability and quality of components used in the DC-DC converter. Consider using high-quality and reliable components that meet the required specifications, ensuring longevity and performance stability.

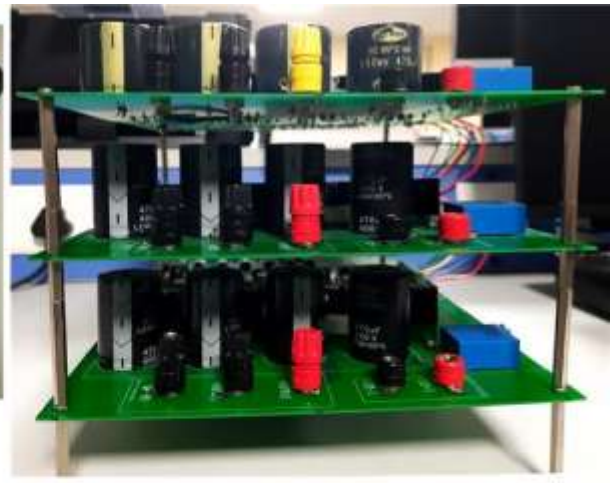
3) Electromagnetic Interference (EMI) Mitigation: Design the converter with adequate EMI filtering and shielding to minimize electromagnetic interference. This ensures compliance with regulatory standards and prevents interference with other vehicle systems.

7. **Current status:**

MMC dc-dc converter design and simulation are done. Hardware prototype is also started to develop.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Half Bridge SM



Two level MMC setup

Shwet Prasoon

Sahil gaurav

Chandan Kumar

Project-04: Low cost, energy efficient interlocking block confined masonry for seismic resistant structures in North East India

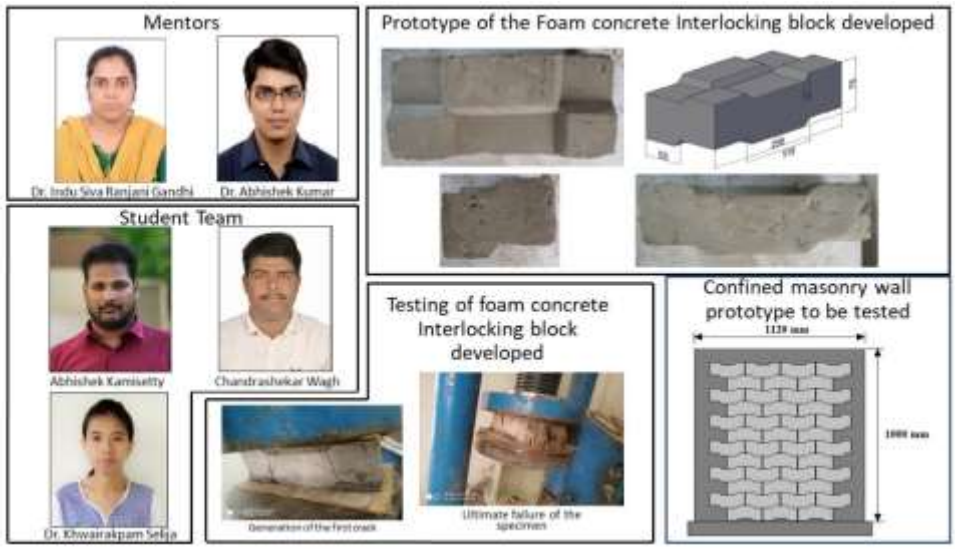
1. **Project Title** : Low cost, energy efficient interlocking block confined masonry for seismic resistant structures in North East India
2. **Mentor Name** : Dr. Indu Siva Ranjani Gandhi; Dr. Abhishek Kumar
3. **Student Team Names:** Abhishek Kamisetty; Chandrashekhar Wagh; Khwairakpam Selija
4. **Project Description:**
   Development of novel lightweight foam concrete interlocking blocks with special attributes such as affordable, eco-friendly, energy-efficient, lightweight, load-bearing, seismic resistance, and superior component integration. Agglomerating the developed interlocking blocks with confined masonry (similar to the Assam type housing) to develop enhanced seismic resistant, sustainable, and energy-efficient buildings in Northeast India.
5. **Project status at the beginning of the Year:**
   Foam concrete (FC), commonly utilized as lightweight infill material has great potential for use as lightweight interlocking blocks (IB) for seismic resistance of structures. Among the various types of IB available, Bamba IB with interlocking in 2 directions is recommended as the better option for seismic-resistant structures. However, as of now, the literature published on FC IB seismic resistant confined masonry is scanty.
6. **Interventions made:**
   To boost the tremendous capability of FC in seismic-resistant structures, the mechanical performance of FC has to be improved through the addition of various mineral and chemical admixtures. In this line, the present study attempts to evaluate the fresh state and mechanical properties of FC with sand replaced by Class F Fly ash at levels ranging from 25% to 100% by weight. The addition of fly ash to foam concrete has a significant influence on rheology and subsequently stability of foam concrete mixes. However, there are only limited studies available in this regard on the water demand for different levels of fly ash additions, and on the consistency and stability of FC mixes. Hence the present study aims to investigate the water demand of foam concrete with sand replaced by fly ash at different levels and the effect

of variation of SP dosage on the consistency and stability of FC. The optimum mix for production of foam concrete interlocking blocks has been derived.

7. **Current status:**

Optimization of mix to construct the prototype is completed. Experimental outcomes indicate that mixes with higher levels of fly ash (50 to 100% replacement) are compatible with a higher SP dosage of 0.7% while mixes with only sand as filler and mix with 25% of sand replaced with fly ash show signs of segregation and instability in terms of density when SP dosage of 0.7% by weight of cement is adopted. Further, the mechanical properties and water absorption of different FC mixes are studied and their potential for use in Bamba-type IB block is evaluated. The compressive strength of FC is found to be maximum for mixing with the right combination of water-to-solid ratio and superplasticizer which facilitates proper dispersion of fly ash particles and ensures uniform microstructure. For mix with 100% of sand replaced with fly ash, compressive strength is found to be maximum at the water-to-solid ratio of 0.25 and SP dosage of 1.4% by weight of cement. Further, this optimized mix is to be studied for masonry and confined masonry application through the proposed prototype of 1 m height.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-05: In vitro 3D skin model for high throughput drug screening applications

1. **Project Title** : In vitro 3D skin model for high throughput drug screening applications
2. **Mentor Name** : Prof. Biman B. Mandal
3. **Student Team Names:** Bibrita Bhar; Kodieswaran M; Souradeep Dey; Chitra Jaiswal
4. **Project Description:**
   A rational approach for developing skin formulations destined for either topical or transdermal drug actions requires a well-defined skin model platform. Therefore, we are developing an affordable multilayered bioprinted skin model to analyze the effect of chemicals, active ingredients, and drugs on tissue architecture and physiological properties.
5. **Project status at the beginning of the Year:**
   Our first milestone was to develop a novel skin bioink that supports the growth and proliferation of skin cells, essential for bioprinting. So, we were optimizing the bioink formulation using different concentrations of various biomaterials for printing of the proposed skin model.
6. **Interventions made:**
   The skin models available on the market today are made of collagen gels. Collagen, being the main component of the extracellular matrix, is employed for the development of all skin equivalents. Unfortunately, the long isolation and purification process of collagen makes it expensive, which further contributes to the high-cost of available skin models. We have developed a silk-based photocrosslinkable bioink that can support cellular growth and maturation and is comparatively effective as collagen gel. The biomaterial formulation possesses the required viscoelastic properties for bioprinting of the skin model.
7. **Current status:**
   We have performed pilot study for assessing the effect of skin-irritating chemicals on our developed skin model. We are analyzing the obtained data. Parallelly, we are also performing thorough screening of chemicals and drugs to ensure the predictive capacity of our model.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-06: Silk based oxygenating spray formulation for chronic wound healing

1. **Project Title** : Silk based oxygenating spray formulation for chronic wound healing
2. **Mentor Name** : Prof. Biman B. Mandal
3. **Student Team Names:** Kodieswaran M; Bibrita Bhar; Souradeep Dey; Rajat Dadheech
4. **Project Description:**
   This project aimed to make a complete spray formulation containing silk biomaterial, Aloe vera mucilage, and Hemoglobin, an oxygenating compound that aids oxygen delivery.
5. **Project status at the beginning of the Year:**
   We are currently optimizing the composition in response to the biocompatibility. Extensive in-vivo studies are also in progress.
6. **Interventions made:**
   We are optimizing the stability of the product with suitable formulations.
7. **Current status:**
   Biocompatibility analysis and functionality assessments have to be done. The stability of the product needs to be improved.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-07: Development of safe and cost-effective plant derived nucleic acid staining kit

1. **Project Title** : Development of safe and cost-effective plant derived nucleic acid staining kit
2. **Mentor Name** : Prof. Latha Rangan
3. **Student Team Names:** Gaurav Bhatt; Manish Kumar Gupta; Rashmi Singh; Nuzelu
4. **Project Description:**
   The product is being researched as a single kit that may be provided for nucleic acid detection and visualisation. It shall be offered as a non-toxic, environmentally friendly, and sustainable dye for nucleic acid detection.
5. **Project status at the beginning of the Year:**
   Employing spectroscopic methods, Karanjin, Mammeigin, and 3,5-dihydroxy-4',7-dimethoxyflavone (DHDM) were successfully isolated and characterised from the leaves of Pongamia pinnata, Mesua ferrea, and Alpinia nigra. It is also done to use in-silico modelling research to detect DNA/nucleic acid

binding. It was also finished to use spectroscopic and isothermal calorimetry titration (ITC) methods to confirm the binding of DNA and nucleic acids.

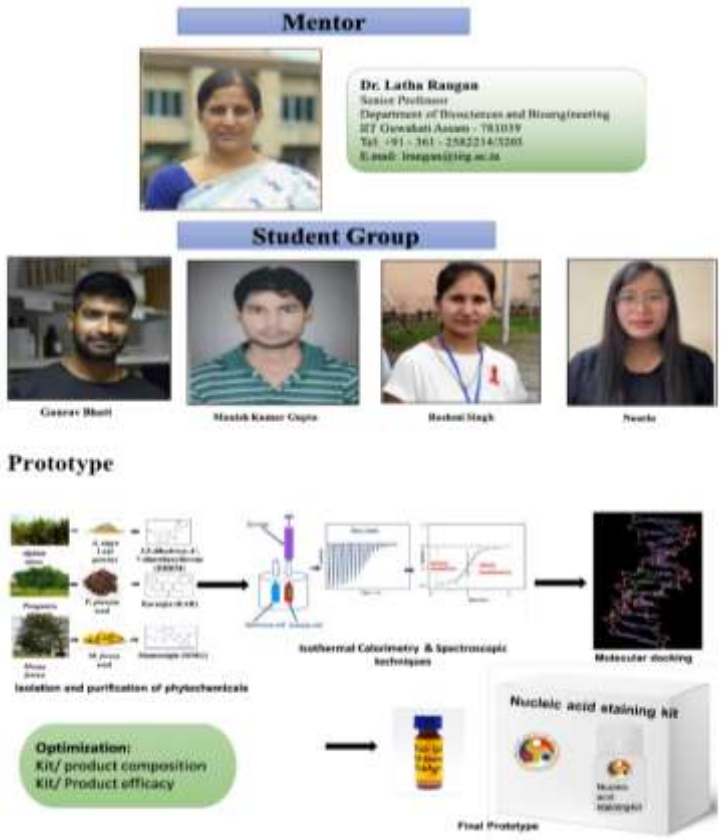
6. **Interventions made:**

   In biotechnological research, the detection and quantification of nucleic acids, particularly DNA, is a relatively frequent task. Differentiating between various nucleic acid types, such as single-stranded DNA, double-stranded DNA, and plasmid DNA, is necessary for specialised study. It has been widely noted that plant secondary metabolites, particularly flavonoids, are non-toxic and have DNA binding properties. The natural compounds under research, Karanjin, DHDM, and Mammeigin, are simple to isolate and reasonably cheap; as a result, they can be employed as a secure alternative dye for biofriendly nucleic acid staining.

7. **Current status:**

   For the optimum efficacy and efficiency of the plant-based dye, the buffer composition is being examined for optimisation and characterization.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-08: Production of Third generation Biodiesel in Modular Microfluidic Reactors

1. **Project Title** : Production of Third generation Biodiesel in Modular Microfluidic Reactors
2. **Mentor Name** : Prof. Raghvendra Gupta
3. **Student Team Names:** Mohammad Anzar Hussain
4. **Project Description:**
   The project aims to develop a portable facility to produce biodiesel in a continuous fashion.
5. **Project status at the beginning of the Year:**
   Biodiesel production primarily relies on batch mode, making it particularly challenging to achieve continuous production due to the immiscibility of the reactants. However, by leveraging the passive mixing capabilities offered by microreactors, it is possible to harness efficient reactant mixing for continuous biodiesel production. Hence, the project aims to develop a portable facility to produce biodiesel in a continuous fashion.
6. **Interventions made:**
   Adopting of the OpenFOAM software to test out different design configurations of curved microreactors modules by performing their CFD simulations.
7. **Current status:**
   The CFD simulations are currently in progress, and upon finalizing the configuration, the construction of the prototype will commence accordingly.

Project 9: Development of lab-scale Clean Coal Conversion Technology to convert Indian non-coking coal directly to liquid fuel

1. **Project Title** : Development of lab-scale Clean Coal Conversion Technology to convert Indian non-coking coal directly to liquid fuel
2. **Mentor Name** : Dr. Pankaj Tiwari; Dr. Prabu Vairakannu
3. **Student Team Names:** Govind Dubey; Bibari Boro
4. **Project Description:**
   Direct Liquefaction of coal is the process of conversion of coal to liquids which can be further processed to produce liquid fuel, to be used as a substitute for gasoline and diesel.

5. **Project status at the beginning of the Year:**

   The project was just an idea at the start. The setup for direct coal liquefaction was a problem. The furnace was available but the reactor for direct coal liquefaction was also not available. The project money was utilized to purchase a high-temperature and pressure reactor.

6. **Interventions made:**

   The main difficulty was with the setup mainly the reactor. The project money was utilized to purchase a high-temperature and pressure liquefaction reactor.

7. **Current status:**

   Currently, the setup to perform direct coal liquefaction is complete. The trial runs are going on the reactor. As soon as the trials are finished the coal liquefaction experiments will be started and results will be gathered.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-10: A Cost Effective Strategy and Prototype Development for Community Wastewater Treatment & Reuse in Farmers Field

1. **Project Title** : A Cost Effective Strategy and Prototype Development for Community Wastewater Treatment & Reuse in Farmers Field

2. **Mentor Name** : Prof. Dr. Subhendu Sekhar Bag

3. **Student Team Names:** Sinchini Barman; Aniket Banerjee; Hemanshu Mediboyana

4. **Project Description:**

To develop an integrated wastewater treatment prototype which will be efficient in removing pollutants from drain wastewater. The reclaimed water will be used for sustainable agricultural practices. The project focuses to develop an alternative strategy to leverage the burden of untreated wastewater in India.

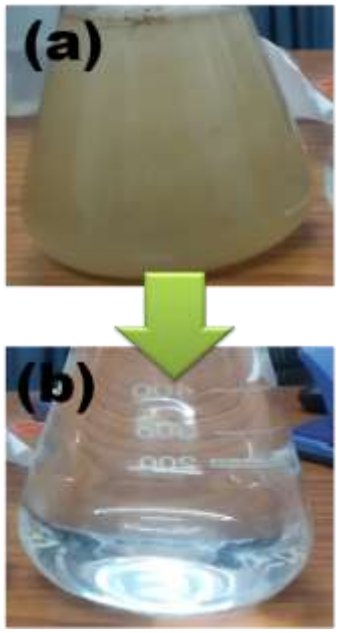
5. **Project status at the beginning of the Year:**
   a. Complete literature survey
   b. Identification of problem statement
   c. Complete optimization of the photocatalyst synthesis.
   d. Engineering drawing of the integrated wastewater treatment reactor/prototype.

6. **Interventions made:**
   a. Market Survey for procurement of the construction materials at cheap cost for developing the integrated wastewater reactor.
   b. Consultation with site and prototype plan was made with the assistant workshop superintendent of the Central Workshop facility of IITG.

7. **Current status:**

The construction of the integrated wastewater treatment prototype has been initiated. However, before carrying out operations at the field scale, we thought to execute our target objectives at the lab scale. Therefore, the efficiency of the prototype was tested through the development of two separate units which are (a) filtration system; (b) photocatalytic treatment system; at the laboratory scale. The components of the filtration system were similar to the proposed filtration compartments of the gabionic filtration system. The filtration system was further integrated as a household filtration device. The results obtained reflected the efficiency of our system in treating wastewater. Also, separately we have tested the performance of the photocatalytic disinfection and degradation of chemical and biological pollutants in wastewater. It is expected that within two to three months the integrated wastewater treatment reactor will be ready for operation in the field.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-11: Design and development of miniature loop heat pipe for passive cooling in space and terrestrial applications

1. **Project Title** : Design and development of miniature loop heat pipe for passive cooling in space and terrestrial applications
2. **Mentor Name** : Manmohan Pandey
3. **Student Team Names:** Toni Kumari; Chandan Nashine; Nadaf Arman Mohaddin; Sandip Kumar Sarma
4. **Project Description:**
   The current project aims to gain an overall understanding of MLHP technology and use this knowledge to design and fabricate several functional units for testing. The developed MLHP prototypes will be used to demonstrate the technology's reliability and flexibility for use in many terrestrial and space thermal control applications.
5. **Project status at the beginning of the Year:**
   The current project aims to gain an overall understanding of MLHP technology and use this knowledge to design and fabricate several functional units for testing. The developed MLHP prototypes will be used to demonstrate the technology's reliability and flexibility for use in many terrestrial and space thermal control applications.

6. **Interventions made:**
   1) Implementation of the suitable composition of material for fabrication of bi-porous wicks to optimize the strength, porosity, and permeability.
   2) Implementation of suitable pore former for the fabrication of bi-porous wicked evaporator for miniature loop heat pipe.
   3) Optimization of sintering temperature to improve the strength and porosity of capillary wick.
   4) Implementation of compression fitting and valves to make the device leakproof and re-useable.

7. **Current status:**
   1) Completed the fabrication and characterization of bi-porous Nickel, Aluminium, Copper, and Titanium wicks.
   2) Completed fabrication of bi-porous composite wicks (Nickel-Copper, Copper-Aluminium, Copper-Alumina, and Nickel-Alumina).
   3) Successful development of cylindrical and flat evaporator for MLHP.
   4) Successful development of cylindrical MLHP.
   5) Ongoing development of flat MLHP.
   6) Ongoing testing of MLHP devices.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project 12: Finflow

1. **Project Title** : Finflow
2. **Mentor Name** : C.V. Sastri
3. **Student Team Names:** Rohit Sagvekar, Dhruv Kumar, Krishna Khakholia, Sahil Nizam
4. **Project Description:**

   An IoT enabled smart pond monitoring system. Measures the level of water quality by sensors and volumetric titration. Data is stored in the cloud and the farmer is warned through notification whenever a parameter is at dangerous level.
5. **Project status at the beginning of the Year:**

   We have started it from scratch. Initially we had a rough plan of action. After so many trail and error we got to know the proper component to be applied.
6. **Interventions made:**

   1) We have used LM380 op-amp for operating our 6v pumps using Arduino. Only Arduino is not enough to supply enough power in 3pumps.
   2) We have used AS7265x spectrophotometer for detection of Blue colour and intensity we got as a result of colourimetric titration. Measuring the intensity of 650nm wavelength through the solution we got the concentration value of Ammonium ion.
7. **Current status:**

   We have worked on measurement of Ammonium ion concentration of water. We have used principle of Berthelot Reaction. We are able to show the concentration value of Ammonium ion in ppm on a screen..
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project 13: Fault Tolerant Control of Aerial Vehicles

1. **Project Title** : Fault Tolerant Control of Aerial Vehicles
2. **Mentor Name:** Basireddy Sandeep Reddy
3. **Student Team Names:** Arup Deka; Shivani Raj
4. **Project Description:**

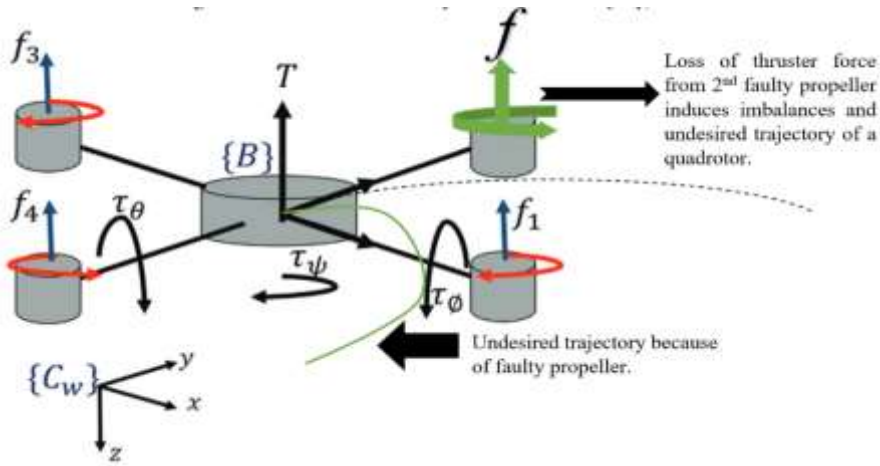
   In this project, we develop a controller for fault tolerance in aerial vehicles. Fault tolerance is the capacity of machines to complete their desired tasks in the presence of various faults. Faults in a device can be classified into three general types – actuator faults, sensor faults and system faults. Actuator faults include rotor failure and other reasons as to why motors dont work effectively or stop working. This project has two objectives, namely

   (i) To build a prototype of an aerial vehicle (quadrotor) carrying a payload

   (ii) To test the system by inducing faults and developing fault tolerant controllers for the case of developing anti-swing behavior. This would enable the development of fault tolerant controllers for such aerial vehicles.
5. **Project status at the beginning of the Year:**

   Simulations had been complete and the experimental tests had to begin.
6. **Interventions made:**

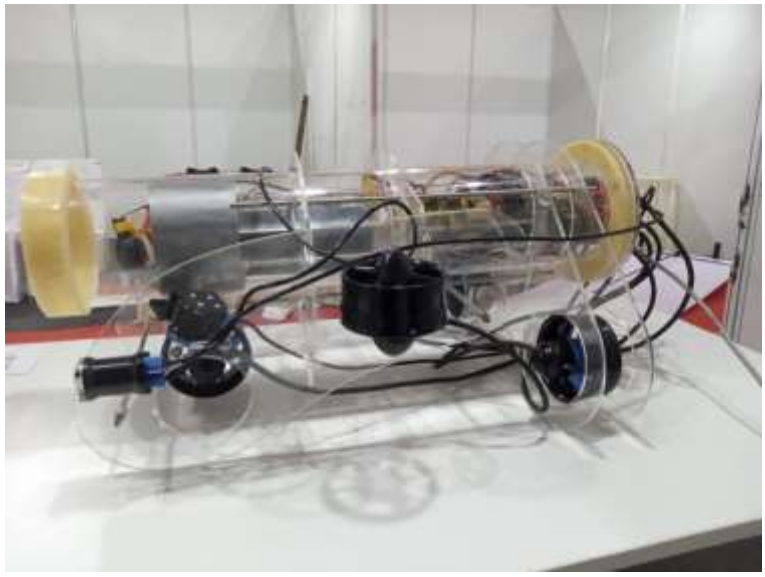
   Difficulties are assembly of drone as separate motor control is needed for testing and this involves the design of the drone from scratch. This has been done.
7. **Current status:** Prototype fabrication started.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project 14: Antahsagari

1. **Project Title** : Antahsagari
2. **Mentor Name:** Chivukula V. Sastri
3. **Student Team Names:**
   Shashank Kumar Ranjan
   Arpit Singaria
   Pankaj Yadav
   Rishant Pal
   Rohith Reddy
4. **Project Description:**
   Antahsagari is a Remotely Operated Underwater Vehicle that aims to explore & navigate the underwater world of the Mighty Brahmaputra River. Antahsagari is an ROV that can collect data that can be used for various research purposes and developments through image processing.
5. **Project status at the beginning of the Year:**
   The team was ready with a design model of the ROV for further prototype development and in the software domain, a complete overview was made for image processing (to study the data collected through underwater images) and controlling the ROV.
6. **Interventions made:**
   Real-time water rise monitoring in floods is one of the important tasks we decided to tackle. Hence, we have changed our idea of building an ROV with acrylic, now we will be using an aluminum alloy as material for the outer body. Similarly, we might face issues like wave currents, shrugs, etc. We are working on a mechanism to tackle it.
7. **Current status:**
   In the software domain, the team has trained some models on image denoising and colorization, and object detection. Soon we will be applying real-time applications using a camera (as soon as we get it). Similarly, we have worked on simulation on ROS Gazebo. For the hardware part, soon we will start with designing the outer body of the ROV.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project 15: Reaper : Surveillance Drone

1. **Project Title** : Reaper : Surveillance Drone
2. **Mentor Name:** Chivukula V. Sastri
3. **Student Team Names:** Rishikesh Das; Anurag Prashant Katkar; Hemant Pandey; Akshai M.
4. **Project Description:**
   Reaper is a cost-effective solution for a reliable and high-endurance UAV for various outdoor operations. This MALE UAV system is designed to meet the demands of industries that require surveillance, terrain mapping, small cargo delivery, and search operations during disasters. The proposed UAV has a flight time of around 40-50 minutes and can reach an altitude of 200 ft.
5. **Project status at the beginning of the Year:**
   Two prototypes were initially constructed using foam as the building material to evaluate the landing gear's flight capabilities, positioning, and functionality. However, it was determined that the foam material lacked the necessary strength to support the payload weight and withstand landing impact. Therefore, an alternative building material must be chosen to ensure the UAV's structural integrity and operational efficiency. Selecting a material that can adequately withstand the required loads and provide the necessary durability for successful operation is imperative.

Extensive research was conducted to identify an airfoil that would fulfill our requirements for a high lift coefficient while minimizing the drag coefficient. Additionally, certain modifications were made to the design, necessitating a reassessment using XFLR5 and Ansys software. Multiple iterations were performed, and after careful analysis of the results, the configuration of the wing, tail, and landing gear was finalized. Various graphs were also examined to determine the overall performance of the design.

6. **Interventions made:**

   In order to address the strength issue, two potential alternatives were considered: wood and various metals. However, it was determined that adopting either of these materials would significantly increase the overall weight of the project, subsequently impacting the aircraft's flying capabilities. To strike a balance between strength and weight, it was proposed to employ carbon fiber as the primary building material.

   Carbon fiber was chosen due to its unique combination of properties. It offers an exceptional strength-to-weight ratio, providing the required structural integrity while keeping the weight within acceptable limits. By utilizing carbon fiber, the aircraft can maintain its maneuverability and flight performance, meeting the operational demands of the intended applications.

7. **Current status:**

   Currently, we are in the process of developing a flying prototype, utilizing carbon fiber as the primary material. However, the prototype does not currently incorporate any surveillance electronics. Testing is underway to evaluate the flight capabilities and performance of the prototype. This includes assessments of the overall lift coefficient, drag coefficient, and time of flight using software such as XFLR5 and Ansys.

   The prototype will be equipped with a single electric brushless motor, powered by a lithium-ion polymer battery, to generate the necessary thrust for takeoff.

   Furthermore, significant focus is being placed on enhancing the design of the landing gear. Previous iterations demonstrated a lack of durability when subjected to landing impact, necessitating improvements in this critical area.

The primary objective is to develop a landing gear system capable of effectively absorbing and distributing landing forces, thereby ensuring the structural integrity of the prototype upon touchdown.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project 16: Innovative Hybrid Composite Metallic Foam as Energy Absorbing Materials-Design, Fabrication and Characterization

1. **Project Title** : Innovative Hybrid Composite Metallic Foam as Energy Absorbing Materials – Design, Fabrication and Characterization
2. **Mentor Name:** Prof. Niranjan Sahoo
3. **Student Team Names:** Divakar Bommana ; Amit Kumar
4. **Project Description:**

   The present project emphasises on the fabrication and development of a hybrid foam material that can sustain and attenuate high pressure shock waves incident on it with minimum material wear and degradation. For this purpose the metallic foam developed will be tested under different impact loading conditions with varying pressure and impact velocity so as to obtain the optimum concentration and composition of the reinforced and constituent materials that has been used for the fabrication of the proposed metallic foam material.

5. **Project status at the beginning of the Year:**

   The proposed project is in its early phase of initiation process where the essential materials required for the production and fabrication process is assessed and identified from various researches and studies. Further the project team is preparing on the detailed subsequent and process methodology required for conducting the manufacturing of the different foam samples with various range of composition of the base material along with respective percentage variation of the reinforced elements in the composition of the sample that can meet the required purpose.

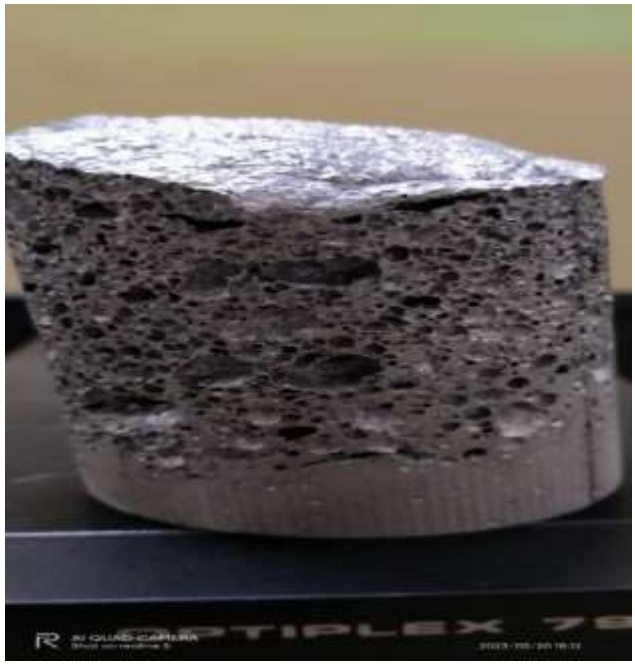
6. **Interventions made:**

   The main difficulty associated with the proposed project is to maintain the proper temperature gradient during the stir casting process for the production of the bulk of a raw foam sample lot and to add the respective constituent reinforced element at that desired temperature gradient so as to get the desired property of the foam sample. Intensive research analysis and modification of the stir casting process are being implemented to address the primary challenge of maintaining the appropriate temperature gradient. The objective is to achieve the desired properties of the foam sample by adding the respective constituent reinforced element at the specific temperature gradient.

7. **Current status:**

   The current status of the proposed prototype is in the initiation phase. A few lots of different percentage composition of reinforced elements in foam sample desired is manufactured from stir casting and is in the process of testing and experimentation to the high shock impact loading conditions to study the effects of the response of the manufactured samples to the loading conditions and further modification and enhancement will be made accordingly to manufacture the desired samples in terms of material constituents and reinforcing elements composition.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project**



Project 17: Large-scale propagation of a non-caloric commercial plant, Stevia rabaudiana – From lab to farm using in vitro and in vivo means and imparting knowledge on its cultivation among farmers, plant growers and entrepreneurs

1. **Project Title** : Large-scale propagation of a non-caloric commercial plant, Stevia rabaudiana – From lab to farm using in vitro and in vivo means and imparting knowledge on its cultivation among farmers, plant growers and entrepreneurs
2. **Mentor Name:** Prof. Rakhi Chaturvedi
3. **Student Team Names:** Mr. Krishna Kant Pachauri; Mr. Rajendra Adak; Ms. Imnanaro ;Mr. Arabindu Debbarma
4. **Project Description:**
   The main objectives of the project are devicing suitable methodology for obtaining higher multiplication rate of the stevia plant via tissue culture methods and their Nutritional assessment. Further conducting training programs for local farmers of North-East India for efficient Stevia cultivation and harvesting strategies.
5. **Project status at the beginning of the Year:**
   The project work is going on to complete the objectives proposed. The project work has been started from the tissue culture part and then move on to the

nutritional analysis and further training of local farmers. Currently the experiments related to the optimization of plant tissue culture methodologies are undergoing.

6. **Interventions made:**

   Plant tissue culture has emerged as a promising technique to obtain a genetically pure elite population under in vitro conditions nodal segments are considered an excellent explanation for micropropagation and their potent ability for high frequency shoot induction. Also, the use of ex vitro technique for rooting have been proven to not only enhance the rooting percentage in plants but also increase the post-transplant survival rate.

7. **Current status:**

   Currently the research is undergoing to optimize the process parameters of the technology involved in developing the project.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project**

Project 18: Low-cost and Scalable Healthcare Solution for Antimicrobial Resistant (AMR)

1. **Project Title** : Low-cost and Scalable Healthcare Solution for Antimicrobial Resistant (AMR)

2. **Mentor Name:** Hanumant Singh Shekhawat

3. **Student Team Names:** Hitesh Arjunbhai Ramrakhiyani, Ritika Jaiswal

4. **Project Description:**

   According to a report, antimicrobial resistance (AMR) causes 700,000 deaths annually, and it is estimated that 10 million will die by 2050. Scientists have yet to predict that India will become the AMR capital of the world unless

measures are taken in time considering the indiscriminate use of antibiotics. India is ranked first in total consumption of antibiotics for human use. Excess use or misuse of antibiotics leads to AMR.

Poor identification of microbial infection promotes the unjustified use of antibiotics, leading to antimicrobial resistance and treatment failure.

This project aims to develop a machine learning (ML) tool for correctly identifying bacteria. We also focus on developing software that will help in the identification process. Developing such software and machine learning tool will reduce the doctor's time for bacteria identification, which will be a small step in the battle against AMR. Also, using digital solutions and ML minimizes the cost with a broader reach.

5. **Project status at the beginning of the Year:**

   A machine learning (ML) tool for correctly identifying bacteria was not available at the start of the project. Also, the data collection was a significant challenge.

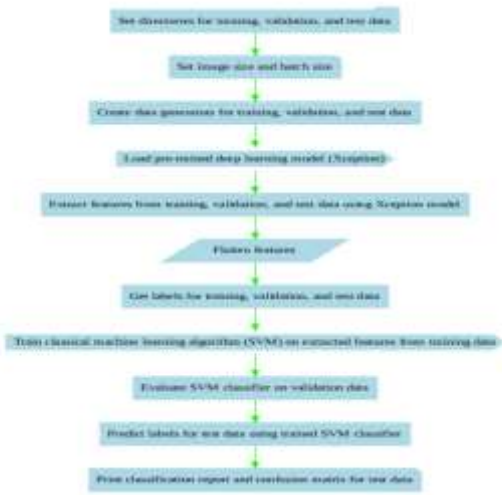
6. **Interventions made:**

   We have obtained around 300 images from a hospital, which needs to be improved for a machine-learning task. We have augmented the data by using the image splitting techniques and labelling the data again.

7. **Current status:**

   The prototype is ready but must be tested on a high end machine

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project**



Project 19: Di-Bi - A billing and finance management app

1. **Project Title** : Di-Bi - A billing and finance management app
2. **Mentor Name:** Amit Chintamani Awekar
3. **Student Team Names:** Krishna Khakholia; Shashwat Methi
4. **Project Description:**

   Dibi provides an ecosystem that connects businessmen and customers by digitalising printed bills and maintaining financial accounts using the bills. Storing and curating bills for keeping track of various expenses can be done by the user.
5. **Project status at the beginning of the Year:**

   Currently, the app is in the development stage. The second iteration of the prototype is ready and the market research for the initial product is done.
6. **Interventions made:**

   DiBi eliminates the use of printed bills and provides better management for storing bills for future use. It connects shops and customers digitally and provides a medium for managing all finances in a single platform.
7. **Current status:**

   The final features of the MVP are developed in the form of a prototype. We are working on integrating our app with other softwares for data transfer and utilisation.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project**

Project 20: Green synthesis of graphene quantum dots from (agro) industrial waste biomass for photocatalytic degradation of organochlorine pesticides in north-east region of India: a sustainable approach

1. **Project Title** : Green synthesis of graphene quantum dots from (agro) industrial waste biomass for photocatalytic degradation of organochlorine pesticides in north-east region of India: a sustainable approach
2. **Mentor Name:** Selavaraju Narayanasamy
3. **Student Team Names:** Jyoti Prakash Ray; C Ragavan; Ajit Kumar
4. **Project Description:**

   The proposed project focused on solving a major societal issue in India i.e. wastewater treatment. This particular project is based on pesticide removal from water sources or water bodies in rural and urban areas of the country. The proposed method is considered to be a sustainable method as it uses tea waste biomass to produce graphene quantum dots for photocatalytic degradation of the pollutants.
5. **Project status at the beginning of the Year:**

   The whole methodology and process flow were framed as per the proposed project after discussion with our teammates and mentor. Tea waste biomass was collected from nearby tea shops which was subjected to proper pre-treatment as per standard protocol. In the meantime, the process for procurement of the photocatalytic reactor was started.
6. **Interventions made:**

   The wastewater will be collected from various parts of North-East India. A number of standard protocols have to be followed during the collection, storage and characterization of the wastewater.

   We might need permission from the industries officials for the collection of wastewater from source of various industries.
7. **Current status:**

   The synthesis of graphene quantum dots from tea waste biomass has been 80% completed. The photocatalytic reactor has been procured and the whole setup has been installed in our lab.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project**

NewGen IEDC-Marwadi University

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: (Fourth Year) 2022-2023

Name of the College/Institution hosting NewGen IEDC	Marwadi University		
Year of starting NewGen IEDC	2018-2019		
Name of the Head/Principal of the Institution/College	Dr. Sandeep Sancheti, Provost, Marwadi University		
Name of NewGen IEDC Coordinator	Mr. Vivek G. Patel		
Contact Details of NewGen IEDC Coordinator • Mobile Number • Email ID	07573042213 vivekg.patel@marwadieducation.edu.in		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC/18-19/RLS-I/02 Dt. 20-02-2019	Rs. 60,00,000
	2		Rs. 47,50,000
	3		Rs. 60,00,000
	4		Rs. 60,00,000

1. Details of Activities Undertaken during the year:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. Practical Approaches to Intellectual Property Development for Engineers
   - Date: 17 June, 2022
   - Outcome: To apply and promote new technology/ knowledge/ innovation-based startups

2. Idea to Business Model
   - Date : 11 July, 2022
   - Outcome: To make participants able to present the idea pitch in most effective manner.

3. Preparing Saleable Pitch Deck

- Date : 15 July, 2022
- Outcome: To make participants able to present the idea pitch in most effective manner.

4. Presenting Elevator Pitches

- Date : 25 July, 2022
- Outcome: To make participants able to present the idea pitch in most effective manner.

5. Hands on – SLA 3D Printing

- Date : 06 August, 2022
- Outcome: To create awareness about application of 3D printer among the participants.

6. 3D Printing for Health Care

- Date : 13 September, 2022
- Outcome: To create awareness about application of 3D printer application among the participants.

7. Smart Engineering for a Better World

- Date : 15 September, 2022
- Outcome: To make participants aware about the entrepreneurship opportunities through implementation of various engg. Mechanisms.

8. Creativity & Innovation

- Date : 24 November, 2022
- Outcome: To make students aware about the vital role of creativity and innovation in our life.

9. Entrepreneurship Awareness Program

- Date: 18 October, 2022
- Outcome: To create entrepreneurship awareness about the MSME support for among the entrepreneur.

10. Sensitization on Innovation and Entrepreneurship

- Date: 11 November, 2022
- Outcome: Create awareness about activities of MUIIR Centre

11. Entrepreneurship Opportunities in the EV sector

- Date : 21 July 2022
- Outcome: To spread awareness about the vivid entrepreneurial opportunities in the field of EV.

12. AI & Data Science

- Date : 09/08/2022, 30/08/2022, 09/09/2022, 29/09/2022
- Outcome: To encourage the participants to explore in the domain of Artificial Intelligence & Data Science for entrepreneurial leadership.

13. Entrepreneurship as a Career

- Date: 14 March, 2023
- Outcome: To improve entrepreneurship skills among students and start ups.

14. Elevator Pitches

- Date:15 March, 2023
- Outcome: To Improve Pitching Skills in Entrepreneur.

15. Does your startup have story

- Date:16 March, 2023
- Outcome:To develop excellent pitching skills through the sharing of startup journey stories.

16. Entrepreneurship Awareness Programme: From Theory to Practice

- Session 1: Talk on: i^6 Philosophy: Milestones for Successful Entrepreneurship.
- Session 2: Entrepreneurship Need and Importance in Current S
- Session 3: Talk on: Bio-Entrepreneurship and Startup Ecosystem.
- Session 4: Panel Discussion Sharing of their experience as an entrepreneur

17. "Exploring Innovations and Entrepreneurship - A Technical Approach"

- Date: 24/03/2023
- Outcome: Sensitize the students about the start-ups along with business ideas.

18. Entrepreneurship Awareness Programme: Wake the Entrepreneur in You

- Date:March 25, 2023, Saturday
- Outcome:The objective of this session is to provide aspiring and existing entrepreneurs with the knowledge, skills, and resources necessary to start and grow successful businesses.These programs are designed to help individuals develop the mindset and capabilities necessary to identify business opportunities, create viable business plans, and navigate the challenges of launching and scaling a business.

[B] To identify, develop & commercialize students' innovative ideas

1. I2R Using Laser Cutting - Nirmala School
   - Date: 09 April 2022
   - Outcome: To spread awareness about Laser Cutting Machine to among the participants.

2. EFFECTUATION - Yes Entrepreneurship is possible
   - Date: 14 April 2022
   - Outcome: To enhance knowledge, skill, self-efficacy, changes in practice or policies, behavior change, application, and system-level capacity.

3. Intellectual Property Rights awareness programme
    - Date: 26 April 2022
    - Outcome: To get insight on copyrights, patents, design & trademarks and trade secret protection to shield an invention from being duplicated.

4. Idea to Reality (I2R)
    - Date : 07 May 2022
    - Outcome: To spread awareness about Laser Cutting Machine to among the participants.

5. Harnessing Technologies Through IPR
    - Date : 07 May 2022
    - Outcome: To get insight on copyrights, patents, design & trademarks and trade secret protection to shield an invention from being duplicated.

6. Laser Cutting (Hands-On)
    - Date : 25 June 2022
    - Outcome: To spread awareness about Laser Cutting Machine to among the participants.

7. Idea to Reality using Laser Cutting
    - Date : 02 July 2022
    - Outcome:To spread awareness about Laser Cutting Machine to among the participants.

8. Idea to Reality using 3D Printing
    - Date : 04 July 2022
    - Outcome: To create awareness about application of 3D printer among the participants.

9. ASSOCHAM IP Bootcamp

- Date : 14 July 2022
- Outcome: To get insight on copyrights, patents, design & trademarks and trade secret protection to shield an invention from being duplicated.

10. Opportunities of Innovations in Healthcare

- Date : 20 July 2022
- Outcome: To spread awareness about the entrepreneurial opportunities in the field of HealthCare.

11. Digital Tools for Developing Innovation & Entrepreneurial Skills for Startup

- Date : 20 July 2022
- Outcome: To create awareness about the Digital tools for innovation and entrepreneurial skills.

12. Opportunities of Innovations in the Food Sector

- Date : 21 July 2022
- Outcome: To create awareness about the entrepreneurial opportunities in the food sector.

13. Shaping Young Minds

- Date : 26 August 2022
- Outcome: To interact with the Industrial expert and learn various entrepreneurial and managerial skills from them.

14. Innovate India

- Date : 06 September 2022
- Outcome: To spread awareness about the vivid entrepreneurial opportunities with various innovations.

15. Translational Research

- Date : 10 September 2022
- Outcome: To get insight on copyrights, patents, design & trademarks and trade secret protection to shield an invention from being duplicated.

16. Creativity using Waste Paper

- Date : 15 September 2022
- Outcome: To enhance creativity of participants in dealing with waste papers & enable them to make usable outputs from the waste papers.

17. Harnessing Technologies Through IPR

- Date: 26 November, 2022
- Outcome: To get insight on copyrights, patents, design and,trademarks and trade secret protection to shield an invention from being duplicated.

18. Translational Research

- Date: 30 December, 2022
- Outcome: To get insight on copyrights, patents, design and, trademarks and trade secret protection to shield an invention from being duplicated.

19. Opportunities of Innovation in Healthcare

- Date: 12 January, 2023
- Outcome: To spread awareness about the entrepreneurial opportunities in the field of HealthCare.

20. Refreshing State of Mind

- Date: 16 January, 2023
- Outcome: Aim is to refreshment of innovators mind

21. Harnessing Technologies through IPR

- Date: 20 January, 2023
- Outcome: To get insight on copyrights, patents, design & trademarks and trade secret protection to shield an invention from being duplicated.

22. CII Startup Showcase

- Date: 24 January, 2023
- Outcome: To encourage innovators for future. Preparing & presenting the pitches and converting the potential ideas into Next level.

23. Funding for Innovation

- Date: 31 January, 2023
- Outcome: The program is part of our core activities. During this event, importance & necessity of funding in innovation was explained.

24. CII Western Gujarat Zonal Annual Day 2023

- Date: 18/02/2023
- Outcome: To understand opportunities of finance assistance and related procedures Govt. schemes for MSMEs

25. NewGen IEDC - Advisory Board Meeting

- Date: 26 February, 2023
- Outcome: To integrate innovators with the government delegation for the growth and experience of entrepreneurs.

26. Women-led Innovations & Startups

- Date: 03 March, 2023
- Outcome: To encourage and approach new female startups for leading entrepreneurship.

27. Sensitization of RKC School Students

- Date:14 March, 2023
- Outcome: Gaining Knowledge About Innovations and Startups.

28. Be an independent entrepreneur with skill on Vehicle Electrification, Testing, Fault diagnosis of ECU based System

- Date: 27/03/2023 to 28/03/2023
- The workshop aims to equip participants with the skills necessary to diagnose and repair faults in ECU-based systems and to develop an entrepreneurial mindset to start their own business in this field.

29. An Expert Talk on Intellectual Property Rights (IPR): Knowhow For Upcoming Researchers

- Date: 29th March 2023
- Outcome: To spread awareness of Intellectual Property Rights (IPR) Different forms of IPR, Regarding copyrights and Patents (mainly patentable criteria and application process) very clearly to the students.

[C] To enhance Industry-Academia interaction

1. Startup Exhibition
   - Date: 23 April 2022
   - Outcome: To apply and promote new technology/ knowledge/ innovation-based startups.

2. Startup Interaction - 2022
   - Date: 23 April 2022
   - Outcome: To apply and promote new technology/ knowledge/ innovation-based startups.

3. Techstars Startup Weekend UNI Rajkot
   - Date : 29 July – 31 July 2022
   - Outcome: To encourage participants for entrepreneurial leadership, preparing and Presenting the pitches and converting the potential ideas into business models.

4. Product Ideation
   - Date : 15 September 2022
   - Outcome: To apply and promote new technology / knowledge/innovation-based startups.

5. New India for Young India
   - Date : 04 October 2022
   - Outcome: To get insights from Shri Rajeev Chandrasekhar on Innovative India And interact with student entrepreneurs.

6. Felicitation Programs
   - Date : 06 October 2022
   - Outcome: To appreciate the volunteers for their active participation and efforts During the event New India for Young India.

7. Foodibition
    - Date : 19 October 2022 – 20 October 2022
    - Outcome: To provide the opportunity to the participants to exhibit their innovative food dishes to the visitors.

8. Meet the Mentors
    - Date : 24 November 2022
    - Outcome: To review the progress of the start-ups and to learn the requisite support required for the start-ups.

9. Industry Meet Innovators
    - 01 February, 2023
    - Outcome: To connect Startups with Industry for expanding business models in the future

10. Innovators Meet Industry

- Date: 21/02/2023
- Outcome: To Discuss the Possibilities of transferring the technologies developed by Innovators/Startups incubated at MUIIR.

11. Family business Symposium - “Shakti - Bringing Limitless Change in Family business”

- Date: 01/03/2023
- Outcome: Through the event We wish to invoke and invite the participants (Girl students/female faculty members/women professionals) to be "limitless", ' be the agents of change in their social and professional setups", "lead the growth story"., and pass on a central message that "it’s possible', "you can do it", for women entrepreneurship in general and women in family business in specific..

12. Interaction with Innovators

- Date: 10 March, 2023
- Outcome: To connect startups with professionals in the manufacturing sector for startup development.

13. Sensitization of Raj Kumar College Students

- Date:14 March, 2023
- Outcome: Gaining Knowledge about Innovations and Startups.

14. Innovators Meet Industry

- Date:17 March, 2023
- Outcome: Examining Industrial Processes and New Technology Industry.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Most of the Work carried out as planned.

3. Other important highlights (new initiatives), if any:

- Developed Extension centre for Metaverse and a Food Stall.

- Celebrated "World IP Day" by filing 10 IPRs – Designs *(Dated: 26.04.2022)*

- Organized "Startup Weekend" in collaboration with Techstars (Dated: 29 to 31.07.2022)

- 7 startups Participated in Business Expo 2022 organized by BNI Rajkot. *(Dated: 18.12.2022)*

- Felicitation of Startup by Shri Rajeev Chandrashekhar *(Dated: 04.10.2022)*

- Participation of startups in CII-YI annual meet. *(Dated: 24.12.2022)*

- Interaction of Startup – Santript Ahar with Mr Dev Choudhary, District Development Officer *(Dated: 29/12/202)*

- Transferred two technologies to National Institute of Advanced Manufacturing Technology *(Dated: 12/11/2022)*

- Felicitated Innovators, Mentors and Valunteers by Shri Navin Vasishta and Shri S B Sareen *(Dated: 26.02.2023)*

- Signed MoUs with following reputed institutions and organizations *(FY:2022-23)*
    - International Black Sea University, Georgia
    - Caucasus University, Georgia
    - Georgian Aviation University, Tbilisi
    - Central Manufacturing Technology Institute
    - Savli Technology and Business Incubator

4. Student Projects

Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos

5. Provide a minimum two-page case let each on the two best student projects (either prototype developed or commercialized) from the above list. The case lets should include the following:

Best Student Project:

Best Project -1 : Santript Aahar

I. Mentors Name: Dr. Gaurav Sanghavi

II. Student team details

1. Ruchita Rathod

III. Brief description of the student start-up

- "Santrip Aahar" aims at development of healthy food products made up using spirulina which is an ultimate superfood with many valuable medicinal properties and health benefits. It provides range of products that have unique combination of taste and health. The main aim of the startup

is to deliver customers a healthy and nutrition rich diet in a tasty consumable form.

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

- "Santrip Aahar" identified the issue of malnutrition and their consequesnces. It is then aimed to develipe the premix – energy dring which can be available in sachets ready to mix with water. Startup has received FSSAI and started developing several other products and presented during foodibition1.0 where they received more than 60 orders in a single day that ingnites their entrepreneurial journey. They have also participated during MakerFest Vadodara -2022 and received silver award with ₹ 10,000 cash price. Startup has communicated their patent and it is ready to commercialize.

Premix - Energy Drink

MakerFest 2022 at MSU Vadodara (Secured Silver Medal and a cash price of ₹. 10,000)

Foodibition1.0 at Marwadi University (Received more than 60 orders worth more than ₹. 12,000)

V. Contribution of NewGen IEDC in the same

- Financial Assistance

VI. Future plan

- We aim to deliver people affordable, nutritious and tasty food which can fulfil their daily nutrition needs made from spirulina. Also For Indian defence and Malnutrition sufferer in India and raise company's valuation upto 10 lacs in upcoming two year.

VII. Important highlights

- Startup has received FSSAI
- Startups has completed testing and trials and in communication for patent filing
- Startup also has incorporated company and received DIPP recognition.

Best Project -2 : PelviFit

I. Mentors Name : Dr. Ashish Kakkad

II. Student team details

Dr. Himani Dave

III. Brief description of the student start-up

- The pelvic floor muscles are under continuous strain throughout the life span of women. In addition, hormonal changes may influence the pelvic floor and pelvic organs, on top of that pelvic floor strength also decline with aging. Thus, the need for pelvic floor strengthening is lifelong. According to World Confederation for Physical Therapists pelvic floor rehabilitation should include the teaching of proper contraction, muscle and body awareness, coordination and motor control, muscle strength, endurance, and relaxation. Currently, methods of assessment for the function of pelvic floor muscles are costly and need some assistance for the patient. So, it is aimed to develop a cost-effective and easy-to-handle instrument that provides feedback to the patient that the contraction has occurred properly. It will help the patient by giving positive and negative feedback while exercising so that the patient can effectively perform pelvic floor exercises

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

- "PelviFitt" identified major issues of the pelvic floor muscles are under continuous strain throughout the life span of women. After consulting with numerous doctors an electrode has been developed to relive the strain in pelvic floor muscles.

MakerFest 2022 at MSU Vadodara (Secured Gold Medal and a cash price of ₹. 15,000)

Participated in Poster Presentaion at Physiotherapy Association, Ahmedabad (Secured First Rank)

V. Contribution of NewGen IEDC in the same

- Financial Assistance

VI. Future plan

- Three different size of electrodes are requied to design and the device may be in human trial.

VII. Important highlights

- Startup has received ethical clearance from the committee.
- Startups has developed the prototype.
- Startup is in process of company incorporation and will apply for recognition of DIPP.

Three women led food-tech startup

1. Candyleaf Treats - Ms. Diya
2. Khumb Poshit - Ms. Onezabanu
3. Santript Ahar - Ms. Ruchita

Exhibited nearly 20 innovative food products made out of mushroom, spirulina and stevia to the staff members and students during Foodibition1.0. Students have received overwhelming response from the attendees and managed to receive orders of more than Rs. 25,000.

Annexure-A

Details of Student Projects: Fourth Year

Project-01: Candyleaf Treats

1. **Project Title:** Candyleaf Treats
2. **Mentor Name**: Prof. Vivek Patel
3. **Student Team Names**: Ms. Diya Vekariya
4. **Project Description:** Our product is based on the concept of Sugar less Sweets. We have identified the growing rates of diabetic patients and hence had come up with the solution for the same. We are manufacturing the sweets that do not involve the sugar in its recipe/ manufacturing process. We are utilizing the Stevia as an alternative of the sugar. Also we identified the consequences of an artificial sugar that might results in various health issues and diseases.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Food)
7. **Current Status:** In market & Generating Revenue
8. **Future Plan:** To provide the best quality sugar-free products to the stakeholders in order to promote lifelong health. Collaborate with the retailers and e-commerce platforms to boost selling.
9. **Photos:**

Project-02: Safe Me

1. **Project Title:** Safe Me
2. **Mentor Name**: Mrs. Foram Rajev
3. **Student Team Names**:

   Ms. Lal Tlan Sang

   Mr. Thian Lian Ben

   Mr. Rian Arisandi
4. **Project Description:** The major safety threats faced by women, in public buses, streets or any other places are increasing and wrost part is womens do not even speak it out. In oder to solve this issues to major extent an application is developed through which women can share their live location, gain knowledge of their legal rights, self – defense, and first aid. Also this app would enable women to contact the authorities such as Lawyers, Police, Counselors and Doctors. Woman can even ask for financial aid such as donation, to fight case.
5. **Project status at beginning of t he Year:** Ideation
6. **Interventions Made:** Service (Application)
7. **Current Status:** POC Development
8. **Future Plan:** Development of SoS Application and Website.
9. **Photos:**

Project-03: Kaifits

1. **Project Title:** Kaifits
2. **Mentor Name**: Dr. Amit Sata
3. **Student Team Names**: Ms Shreya Ghunjariya
4. **Project Description:** Our startup is based on the outfits that are owned by an Individual. Actually there are various problems that are faced by an individual while buying the outfits such as desire to buy the designer outfit but not able to afford the same or desire to buy also having the purchasing power to buy but before that, they want to try it on themselves or sometimes they want to buy but don't have time to buy the same. So to provide an solution to all this issues we came up with cloud based platform for designer outfit at low cost along with customization preference and augmented reality based selection for the designer outfits. On this platform end user can select Fresher or Well Known Designer or even foreign designers.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Service (Application)
7. **Current Status:** Ideation
8. **Future Plan:** Development of Software that helps selection of clothings and accessories
9. **Photos:**

Project-04: Contactless solar panel cleaner

1. **Project Title:** Contactless solar panel cleaner
2. **Mentor Name**: Dr Amit Ved
3. **Student Team Names**:

   Mr. Udit Bhanvadiya

   Mr. Addisu Tarekegn

   Mr. Yashkumar Garasondiya

   Mr. Abhisheksinh Rever

   Mr. Wagaye Kussa
4. **Project Description:-** India is continuously stepping towards the solar power. According to the Department of Energy, it takes over three million solar panels to generate one Gigawatt of power, which can be stored and dispensed as needed. But the accumulation of dust on solar panels is a significant issue, it can reduce the output of photovoltaic panels by as much as 30% in just one month. Contactless solar panel Cleaning robot uses a slightly different technique to clean the solar panel. In this system, a guiding railing is attached over the solar panels as shown in Figure The guiding railing framework can move horizontally over the surface of the array of panel. For top to down movement, the robot moves on the railing framework.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Tech)
7. **Current Status:** Prototype Developed
8. **Future Plan:** Replace the conventional water based cleaning system and conserve water.
9. **Photos:**

Project-05: Virtual Reality (VR) in Stroke

1. **Project Title:** Virtual Reality (VR) in Stroke
2. **Mentor Name**: Dr. Rahul Chatlani
3. **Student Team Names**:

   Mr. Dharmik Gadher

   Ms. Vishwa Kumarbhai Bengali

   Ms. Yashvi Sandipbhai Gandhi

   Ms. Ayushi Narotambhai Makwana

   Ms. Khushi Harshadbhai Ahuja

   Ms. Dhruvi Rameshbhai Garachh

   Ms. Tejal Rajeshbhai Bharakhda

   Mr. Usman Jabbi Usman

   Ms. Mwasiti Mussa Mbwana
4. **Project Description:** Our product is based on the concept of Virtual Reality, where the advanced technology will help the patients who are suffering from paralysis. This technology will play an important role in the rehabilitation process of the patient by achieving the hurdles of daily living. It will have certain exercises in the form of games and activities in which the patient performs different movements of the affected side which will ultimately make them independent.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Technology)
7. **Current Status:** Prototype Development
8. **Future Plan:** Development of Software as well as hardware for rehabilitation of patents.
9. **Photos:**

Project-06: Santript

1. **Project Title:** Santript
2. **Mentor Name**: Dr Gaurav Sanghvi
3. **Student Team Names**:
   Ms. Ruchita Rathod
4. **Project Description: Our** start-up “Santrip Aahar” majorly aims to deliver its customers a healthy, tasty and nutritious diet. As we know that most of the nutrition rich food is animal based which cannot be consumed by many people. Targeting this, we at “Santrip Ahar” are here with a large-based product that is highly nutritious and vegan.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Food)
7. **Current Status:** In market & Generating Revenue
8. **Future Plan:** We aim to deliver people affordable, nutritious and tasty food which can fulfill their daily nutrition needs made from spirulina. Also For Indian defense and Malnutrition sufferer in India.
9. **Photos:**

Project-07: TROOIZ

1. **Project Title :** TROOIZ
2. **Mentor Name**: Prof. Vivek Patel
3. **Student Team Names**:
   Ms. Anjali Chauhan
4. **Project Description:** TROOIZ (three in one wireless headphones, wired headphones and Bluetooth ear buds) has a socket in the outer part where the ear buds will fit just like they would in ear with the help of strong magnets and the wire part of the headphone will come out like an extension cord whenever the user needs a wired headphone.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Technology).
7. **Current Status:** Product Market Fit
8. **Future Plan:** Develop a technology and transfer it to the manufacturer.
9. **Photos:**

Project No-08: Sweet Treat

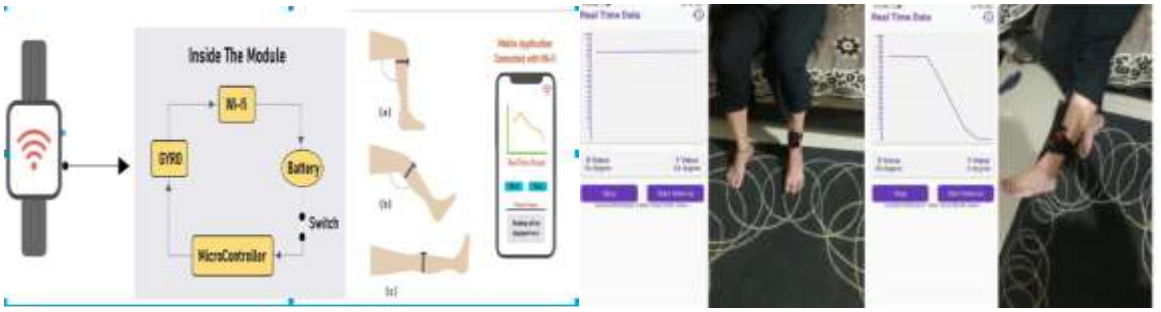
1. **Project Title:** Sweet Treat
2. **Mentor Name**: Prof. Vivek Patel
3. **Student Team Names**:
   Ms Mitali Jatakia
4. **Project Description:** The demand for baked items has witnessed a steady increase in the last couple of years. Baked goods offer customers convenience and affordability, and the growing demand has led to a lot of home-bakers and chefs venturing into the bakery business. As per a report, the Indian bakery market is estimated to grow at a CAGR of 8.5% between 2021 and 2026 and is set to reach a value of USD 12.39 billion by 2026, thus making bakeries a highly lucrative restaurant.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Food)
7. **Current Status:** In market & Generating Revenue
8. **Future Plan:** To prepare a pre-mix for home baker and protect the recipe by filing patent and transfer it to bakers on royalty basis. Collaborate with cafeteria.
9. **Photos:**

Project-09: Poshan

1. **Project Title:** Poshan
2. **Mentor Name**: Prof. Vivek Patel
3. **Student Team Names**:
   Ms. Ankita Das
   Mr. Dhruv Parmar
4. **Project Description:** We had observed that most of the cattle houses and gaushala is facing several issues at various levels for arranging healthy and quality food for their cattle. We are aiming at preparing a cumulative nutrient rich food for cattle which can boost their immunity and milking capacity. A huge amount of agro waste will get channelized into something productive. Also it will improve the health of cows in market which will have a positive impact on White Revolution.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Cattle Feed)
7. **Current Status:** Testing of Prototype
8. **Future Plan:** Establish supply chain for agricultural residue and finished Cattle Feed.
9. **Photos:**

Project-10: Biofeedback Device for Quadriceps Lag in Post Anterior

1. **Project Title:** Biofeedback Device for Quadriceps Lag in Post Anterior
2. **Mentor Name:** Dr. Ashish Kakkad
3. **Student Team Names:** Ms. Sapna Kumari
4. **Project Description:** The era of evidence-based practice and clinical reasoning is emerging in the health sector. So, it becomes very important that there should be some objective criteria to assist recovery after any musculoskeletal condition. It is also clear that to date, there is no gold standard tool available for providing real-time feedback regarding the measurement of the angle of the active range of motion in the knee joint. All available devices functioning for measurement of range of motion, are to be operated and assessed by trained professionals only. No device is available that can be operated and assessed by a patient himself/herself in real-time. This device may serve the purpose of filling the gap. The real-time biofeedback device will provide visual feedback whenever active knee extension is done, mainly it will record the end range extension of the knee achieved by the participant. This real-time biofeedback device will monitor and log every knee extension range performed by the participant. The recorded information can be easily downloaded into a computer or laptop. The device can be used by physiotherapists/clinicians to monitor the progress and improvement in knee range of motion and also used for providing feedback to the patients about their performance. It can be used by the patients at home while doing exercise and recorded information will be monitored by the physiotherapist.
5. **Project status at beginning of the Year:** Proof of concept
6. **Interventions Made:** Product (Health care)
7. **Current Status:** Prototype Development
8. **Future Plan:** To launch our healthcare products in the market,
9. **Photos:**



Project-11: To design and develop a biofeedback instrument for pelvic floor

1. **Project Title:** To design and develop a biofeedback instrument for pelvic floor muscle strengthening
2. **Mentor Name:** Dr. Ashish Kakkad & Dr. Rahul Chatlani
3. **Student Team Names:** Ms. Himani Dave
4. **Project Description:** The pelvic floor muscles are under continuous strain **throughout** the life span of women. In addition, hormonal changes may influence the pelvic floor and pelvic organs, on top of that pelvic floor strength also decline with aging. Thus, the need for pelvic floor strengthening is lifelong. According to World Confederation for Physical Therapists pelvic floor rehabilitation should include the teaching of proper contraction, muscle and body awareness, coordination and motor control, muscle strength, endurance, and relaxation. Currently, methods of assessment for the function of pelvic floor muscles are costly and need some assistance for the patient. So, we aim to develop a cost-effective and easy-to-handle instrument that provides feedback to the patient that the contraction has occurred properly. This instrument will help the patient by giving positive and negative feedback while exercising so that the patient can effectively perform pelvic floor exercises
5. **Project status at beginning of the Year:** Proof of Concept
6. **Interventions Made:** Product (Health care)
7. **Current Status:** Prototype Developed
8. **Future Plan:** To launch our healthcare products in the market,
9. **Photos:**

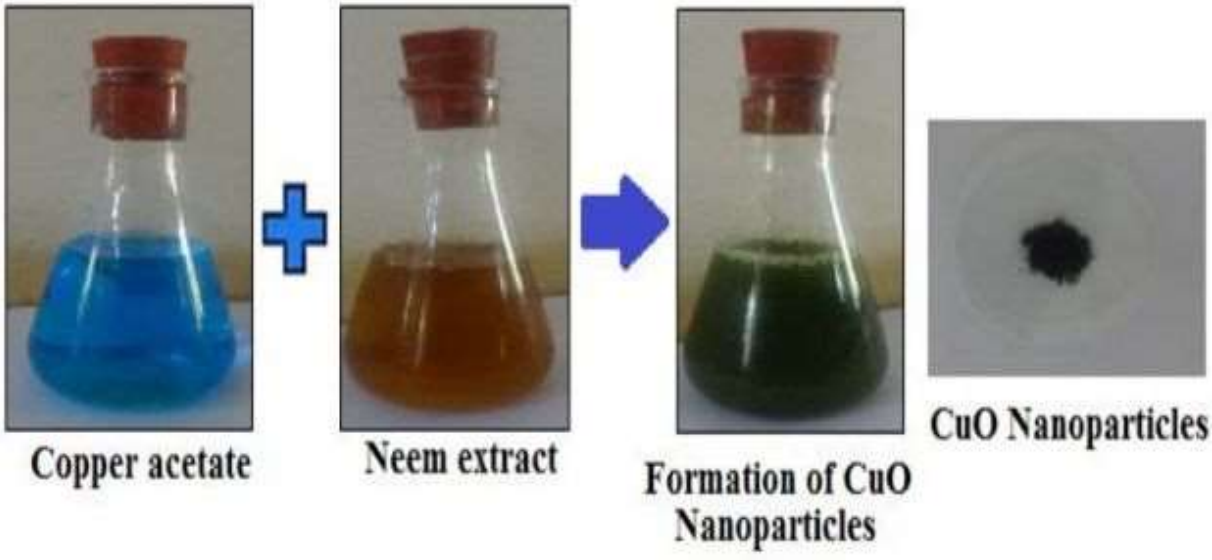
Project-12: Designing and Testing effect of Multipurpose wrist and hand device on Spasticity Motor Function

1. **Project Title:** Designing and Testing effect of Multipurpose wrist and hand device on Spasticity Motor Function
2. **Mentor Name**: Dr. Ashish Kakkad & Dr Rahul Chatlani
3. **Student Team Names**: Ms. Nidhi Dhanesha
4. **Project Description:** Stroke is a disease that affects humans, families, and society for the financial prospectus. Considering human costs, stroke is the main cause of death and disability. Upper limb dysfunction following stroke frequently affects Activities of Daily Living (ADL) and affects quality of life. Repetitive rehabilitation exercises are crucial for assisting stroke survivors in regaining normal hand function within the first six months after a stroke, but providing such exercises requires man power, which makes the rehabilitation process become labour intensive and costly. Wrist and hand device are used for repetitive task specific training. Limitations of previously existing device are they are expensive and they need continuous monitoring. Devices have Lack of work station for tasks specific training.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Health care)
7. **Current Status:** Prototype Developed
8. **Future Plan:** To launch our healthcare products in the market,
9. **Photos:**

Project-13: Antimicrobial Nano-Coated Cotton Mask

1. **Project Title:** Antimicrobial Nano-Coated Cotton Mask
2. **Mentor Name**: Dr. Sejal Shah
3. **Student Team Names**:
   Ms. Amisha Patel
4. **Project Description:** Antimicrobial Nano-coated Cotton Mask Elevator pitch We have identified that emerging infectious diseases caused by viruses have constituted the forefront of global health concerns in healthcare sector, and propose that antimicrobial mask through our unique approach of nanobiotechnology. Problem Statement Globally, the extraordinary outbreak of coronavirus pandemic (i.e., COVID-19) and other emerging viral expansions have drawn particular interest to the design and development of novel antiviral, and virucidal, agents, with a broad spectrum of antiviral activity. Emerging infectious diseases caused by viruses have constituted the forefront of global health concerns. To date, there are no effective drugs or vaccines that have been developed for COVID-19. The efficacy of conventional antiviral therapies is gradually fading due to accelerated adaptations by peripheral viral proteins, which have led to nanotechnology achievements in the engineering of versatile nanomaterials. The elemental metal, Copper (Cu) has a broad spectrum of antimicrobial action against various bacteria, fungi, and viruses. Due to their versatility, Copper oxide nanoparticles (CuONPs) have recently found their way as a microbicide for biological surfaces in various forms such as wound dressings, medical devices, deodorant sprays, and fabrics. Several studies have demonstrated the potent antiviral action of CuONPs against various human pathogenic viruses such as Respiratory syncytial virus (RSV), Influenza virus, Norovirus, and Hepatitis B virus (HBV) and Human immunodeficiency virus (HIV). In addition to these viruses, since CuONPs have demonstrated the ability to kill SA RS-CoV, we hypothesize the strong possibility of CuONPs inhibiting SARS-CoV-2 effectively. The proposed study aimed to synthesize CuONps from two different plant sources and checked their antimicrobial (antibacterial and antiviral) potential.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Health care)
7. **Current Status:** Prototype Developed

8. **Future Plan:** Development of Nano Coated masks and spray bottles.
9. **Photos:**

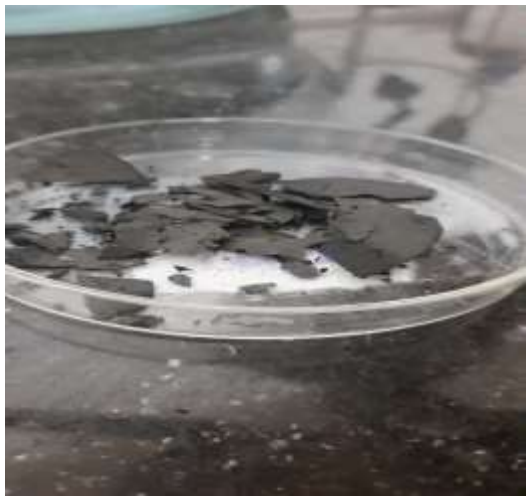


Project-14: Power Quality Distribution Detection and Classification

1. **Project Title:** Power Quality Distribution Detection and Classification
2. **Mentor Name**: Dr. R B Jadeja
3. **Student Team Names**:
   Mr. Uvesh Sipai
4. **Project Description:** Extensive work has been carried out on detection and classification of PQ issues and faults for conventional electric network. Identification of PQ issues and faults in synchronised and islanded operation of small power network is less explored. In modern power network, multiple PQ issues happening simultaneously Various signal processing algorithms are used to detect the PQ issues. Selection of feature extraction and feature selection is crucial for detection of various PQ issue. For classification different artificial algorithm like, SVM, CNN, deep learning are used. Parameter tuning of classifier plays an important role in classification accuracy. To develop more accurate process for feature extraction and optimal feature selection using the different processing techniques. To develop the classification algorithm using different machine learning and artificial inelegance technique Identification of simultaneously accruing multiple PQ issues
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Service (Energy)
7. **Current Status:** Prototype Development
8. **Future Plan:** Offer services related to Power Quality issue and their remedies
9. **Photos:**

Project-15: Nano structured silica titania hybrid catalysts for photo catalytic transformation under visible lig

1. **Project Title:** Nano structured silica titania hybrid catalysts for photo catalytic transformation under visible lig
2. **Mentor Name**: Dr. Suranjana Mayani
3. **Student Team Names**: Mr Revantkumar Gorfad
4. **Project Description:** Water pollution by organic and mineral pollutants has become a basic public concern in the last few years. Industrial dyes are found as hazardous and carcinogenic pollutants. They are used in many industrial fields, including dyeing textiles, paper, leather, pigments. The discharge of these colored chemical substances into aquatic environments can adversely affect all living organisms in waters. By the use of nano-structured silica titania hybrid catalyst we can decompose many types of hazardous chemicals that are affecting on human body and gives so many side effects. It is worthy to use in RO (Reverse Osmosis) plants because reverse osmosis is a particular filtration process which utilizes a semipermeable, porous membrane which only enables clear water to move through it, removing the impurities and large molecules. Our idea is similar to RO system using semipermeable porous membrane but from our side we are going to use semipermeable, porous membrane with nano-structured silica titania hybrid catalyst to remove dyes from water for wastewater.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Environment)
7. **Current Status:** Prototype Development
8. **Future Plan:** Development of titania hybrid catalysts
9. **Photos:**

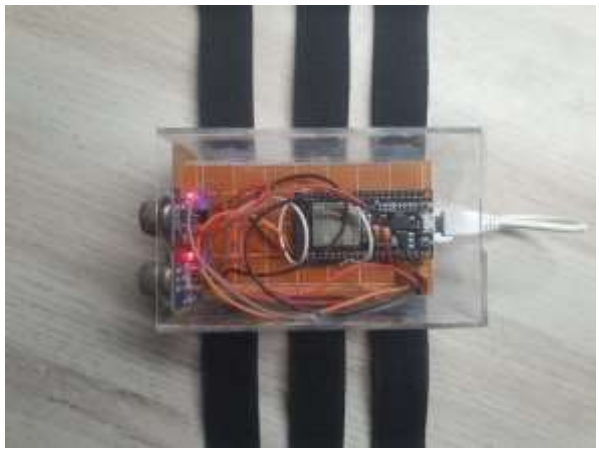


Project-16: Smart helmet for industrial workers

1. **Project Title:** Smart helmet for industrial workers
2. **Mentor Name**: Dr. Kalpesh Popat
3. **Student Team Names**:
   Mr. Sanket Chauhan
4. **Project Description:** An Internet of Things (IoT) based smart helmet for accident detection and notification, a prototype was proposed for detection of accidents on road. We provide an improved version of this by implementing more sensors and not making it exclusively for road accidents but also for industrial workers. The proposed system was not efficient in cloud storage and further analysis. In this project we are trying to make less expensive but best effective Smart Helmet based on IoT which will not only monitor the real time working conditions of workers but also alert the control center in case of accidents. Main features of the helmet include sensing workers body temperature, temperature of surroundings, detection of harmful gases, measuring of workers heartbeat, crash and fall detection, position of the worker in the plant. The helmet is capable of sending the measured data to the cloud platform for monitoring purpose and an alert buzzer is turned on in the industry for warning against any harmful conditions, also it will send an alert via email to the supervising team.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Safety)
7. **Current Status:** Prototype Development
8. **Future Plan:** Develop smart helmet and protect it by filing relevant IPRs. Transfer of Technoloy by collaborating with industry for implementation.
9. **Photos:**

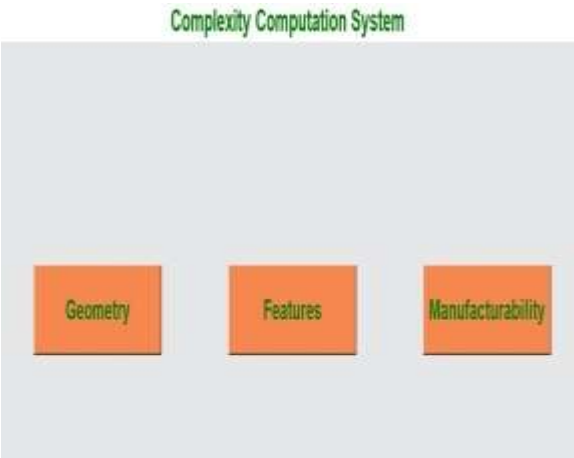
Project-17: IoT enabled gateway for welding processes

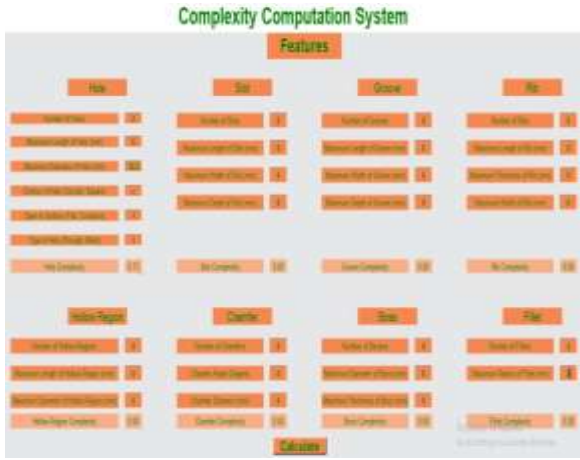
1. **Project Title:** IoT enabled gateway for welding processes
2. **Mentor Name**: Dr. Amit Sata
3. **Student Team Names**:
   Mr. Mukhtar Sama
4. **Project Description:** In the fabrication industry there is requirement of tool which can monitor process parameter in real time. To monitor the real time process parameter of welding process the IoT enabled gateway will be developed.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Technology)
7. **Current Status:** Prototype Development
8. **Future Plan:** Development of Technology and transfer it to the industry.
9. **Photos:**

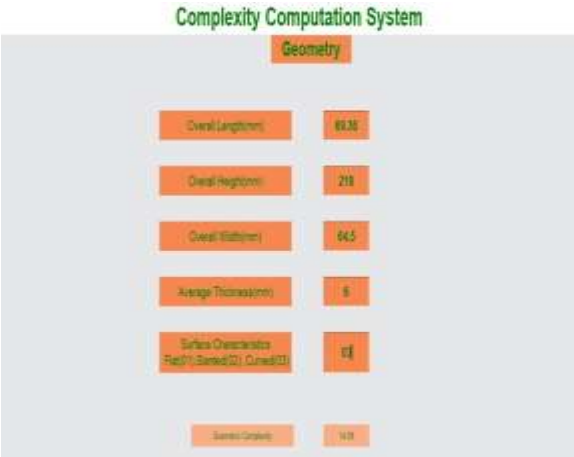


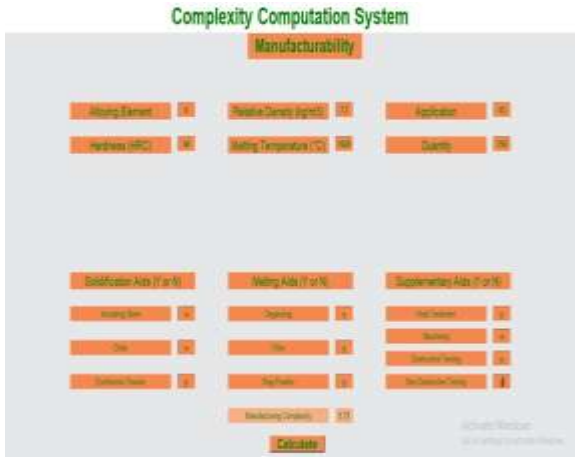
Project-18: Investing Casting Property Analyser

1. **Project Title:** Investing Casting Property Analyser
2. **Mentor Name**: Dr Amit Sata
3. **Student Team Names**:
   Nikunj Maheta
4. **Project Description:** Startup provides solution for Improvement of mechanical properties of ceramic shell, reinforcement of ceramic shell with different additives and effect of process parameter on ceramic shell Proposed.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Manufacturing)
7. **Current Status:** Prototype Development
8. **Future Plan:** Development of Technology and transfer it to the industry.
9. **Photos:**









Project-19: Fault Tolerant Operation of Dual Active Bridge Converter for Electric Vehicle Chargers

1. **Project Title:** Fault Tolerant Operation of Dual Active Bridge Converter for Electric Vehicle Chargers
2. **Mentor Name**: Dr. Tapan Trivedi
3. **Student Team Names**: Mr. Dhirajkumar Shrimali
4. **Project Description:** The proposed solution addresses the charging need of the EV post-fault of the semiconductor devices in the EV charger. • Fault tolerant operation without reducing the output power • Ability to detect device failures with reduced numbers of sensors • Fault tolerant operation with multiple device faults • Algorithm to operate the EV charger in a bidirectional mode which facilitates Grid to Vehicle (G2V) and Vehicle to Grid (V2G) Operation.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** System (EV sector)
7. **Current Status:** Prototype Development
8. **Future Plan:** Providing consultation and services to the EV manufacturers and charging station.
9. **Photos:**

Project-20: Development of Efficient Electro Hydraulic System

1. **Project Title:** Development of Efficient Electro Hydraulic System
2. **Mentor Name**: Dr. Pinank Patel
3. **Student Team Names**:
   Bhavin Bhimani
4. **Project Description:** We are modifying hydraulic system for it's efficiency improvement.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Technology)
7. **Current Status:** Prototype Development
8. **Future Plan:** Consultation of cost effective Electro Hydraulic System
9. **Photos:**

Project-21: RFID Based Payment System

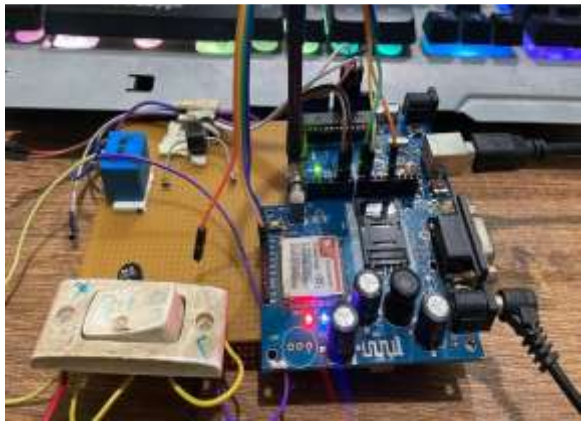
1. **Project Title:** RFID Based Payment System
2. **Mentor Name**: Prof. C. D. Parmar
3. **Student Team Names**:
   Mr. Kaushal Faldu
4. **Project Description:** An RFID (Radio Frequency Identification) based payment system allow customers to make payments by simply tapping an RFID-enabled card or device near a reader. The reader reads the information stored on the RFID chip, verifies the payment details, and deducts the amount from the customer's account. This system is widely used in funpark, transportation, retail, and hospitality industries for its speed and convenience.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** System (Software)
7. **Current Status:** Prototype Development
8. **Future Plan:** Apply it to the smart city project for testing.
9. **Photos:**

Project-22: "NFC Visiting Card Mobile Application"

1. **Project Title:** "NFC Visiting Card Mobile Application"
2. **Mentor Name**: Prof. C D Parmar & Dr. Amit Sata
3. **Student Team Names**:
   Ms. Dhruvi Kothari
   Mr. Harsh Jalopara
4. **Project Description:** The startup aims to transform how individuals communicate their business information by developing a mobile application that makes use of NFC technology. With the NFC Visiting Card Mobile Application, users can share their business information with just a tap on their mobile device. The app allows users to create a digital business card that can be easily shared through NFC, eliminating the need for paper business cards. The team is focused on providing a user-friendly interface and a seamless experience for customers. The objective is to enhance communication and facilitate the exchange of contact details in a practical and environmentally responsible manner.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** System (Software)
7. **Current Status:** Prototype Development
8. **Future Plan:** Development of Paperless Visiting Cards
9. **Photos:**

Project-23: Smart Kishan Mitra

1. **Project Title:** Smart Kishan Mitra
2. **Mentor Name**: Prof. C. D. Parmar
3. **Student Team Names**: Mr. Vrajkumar Pithwa
4. **Project Description:** Smart kishan mitra - we are aiming an agri-tech startup in the agriculture field that aims to improve the efficiency and productivity of farmers in India. A smart irrigation system consists of an automated watering system for plants that uses technology to optimize water usage and improve the health and growth of crops. These systems typically include sensors, pump controllers, and software that can measure factors such as soil moisture levels, weather conditions, and irrigation pump controller systems to determine when and how much water should be applied to plants automatically and manual with user inputs from field. An web-dashboard and user friendly language supported mobile application will be available at end user to control their respective agriculture field. We plan to offer a range of services that include soil moisture data, crop analysis, and crop management solutions. that provides AI-powered crop monitoring solutions to help farmers increase their yield and reduce losses. We uses sensors and machine learning algorithms to analyze real-time data on weather conditions, soil moisture, temperature, and other factors that affect crop growth.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** System (Software)
7. **Current Status:** Prototype Development
8. **Future Plan:** Providing consultation services to farmers to improve the efficiency and productivity
9. **Photos:**



Project-24: Utilization of Waste Foundry Sand in Conventional Concrete

1. **Project Title:** Utilization of Waste Foundry Sand in Conventional Concrete
2. **Mentor Name**: Dr. Ankur Bhogyata
3. **Student Team Names**:

   Mr. Pratik Somaiya

   Mr. Mihir Baldaniya
4. **Project Description:** The natural construction materials are in extensive usage by construction activities. One of the most common materials is a cement based concrete, which uses sand and aggregates as primary materials. Both of them are natural materials and heir over use has started adversely impacting the environmental ecosystem. On the other hand, the industrial wastes namely used foundry sand are generated in huge quantities but not effectively managed or reused and also generating pollution in the environment. Therefore, it may be worth checking the addition of the used foundry sand in concrete as the replacement of the conventional sand and evaluate the modified concrete for its response in various test conditions. However, there are few known issues with used foundry sand requires solution, namely the particle sizes, chemical composition, micro-structural details before the addition or use in concrete.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (civil)
7. **Current Status:** Prototype Development
8. **Future Plan:** Developing technology to utilize used casting sand.
9. **Photos:**

Project-25: Development of antibiotics for preventing micro organisms growth in slurry used in investment casting

1. **Project Title:** Development of antibiotics for preventing micro organisms growth in slurry used in investment casting
2. **Mentor Name**: Dr. Amit Sata
3. **Student Team Names**:
   Ms. Dhwani Vaitha
4. **Project Description:**
   Ceramic shell making in investment casting process starts with dipping the wax pattern assembly (generally by hand) into slurry, referred as primary coating, which governs the surface finish of the final casting. This is usually carried out in controlled environmental conditions, with temperature maintained at 18-25 0C, and relative humidity at 70-90 %.

   The slurry is usually prepared of a mixture of 300 to 400 mesh sized zircon flour (typically 75%) and hydrolyzed ethyl silicate or colloidal silica (typically 25%) as a binder. The shell-making process is one of the most critical sub-processes of investment castings, and has very high rejection level (nearly 35%) in shell making process.

   It is also known fact that nearly one third of total energy required to produce investment casting is consumed in shell making process. The rejection in shell making is mostly driven by quality of mixing sand with binder as well as additives.

   Also, the prepared slurry needs to be prepared by maintaining predefined levels of viscosity, pH as well as specific gravity. It was observed that deviation of these values results in increasing formation of microorganisms in ceramic slurry.

   This formation further affects the process of slurry making, quality of slurry, and in turn reducing life of slurry as well as cold strength of the mold.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Manufacturing)
7. **Current Status:** Prototype Development
8. **Future Plan:** Development of a chemical to increase the life of slurry in investment casting process.

9. **Photos:**

Project-26: IIoT gateway for CNC machine

1. **Project Title:** IIoT gateway for CNC machine
2. **Mentor Name**: Dr. Amit Sata
3. **Student Team Names**: Mr. Mayank Baldaniya
4. **Project Description:** There are 10000+ CNC machines are operating in Rajkot region which are based on Industry 2.0, it means machine data and working information is not accessible through mobile devices and IoT service provided by machine manufacturers is costlier. Our aim for this project is to provide IoT gateway for CNC machine on affordable price to industries.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** System (Software) Technology
7. **Current Status:** Prototype Development
8. **Future Plan:** Consultation to CNC Machine tool manufacturers to enable it with IIoT

Project-27: IoT Enabled Smart Viscometer

1. **Project Title:** IoT Enabled Smart Viscometer
2. **Mentor Name**: Dr. Tarak Vora
3. **Student Team Names**: Swaraj Singh
4. **Project Description:** Viscosity is a critical property of bituminous material that can greatly affect the performance and durability of road construction. Temperature has a huge impact on viscosity. Sample at higher temperature may have a totally different viscosity compared to the same at the lower temperature. So, it is important to maintain accurate temperature in laboratory during its test condition. Before determining the viscosity of

bitumen, it is compulsory to maintain sample at pre-environmental condition at 135 ‘C. Due to human interference, chances of error in reading will increase by not maintaining the temperature for the required condition. For fairness of result, an environment controller is developed along with the stir system through IoT based approach. Controlling all activities by installing various sensors and integrating them with central controlled system which would give notification when definite time is over for sample curing. All the required conditions and readings will be recorded and displayed on mobile application for testing of viscosity of bituminous materials.

5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made: Product:** Tech-Product (IoT Based)
7. **Current Status:** Prototype Development
8. **Future Plan:** Transformation of conventions viscosity measurement testing into smart Viscometer
9. **Photos:**

Project-28: ARICA - AI Powered assistant for your customised dataset

1. **Project Title:** ARICA - AI Powered assistant for your customised dataset
2. **Mentor Name**: Dr. Arjav Bavarva
3. **Student Team Names**:
   Aryavardhan Sharma
4. **Project Description:** Our novel idea is to create a machine learning-powered virtual assistant that will serve as a resource in a variety of fields, eliminate the need for human labor, and make it simple to get the pertinent information in any field.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (IT sector) AI based

7. **Current Status:** Prototype Development
8. **Future Plan:** Develop customized bot for introduction and demonstration.
9. **Photos:**

Project-29: Smart Soil Testing Lab

1. **Project Title:** Smart Soil Testing Lab
2. **Mentor Name**: Dr. Tarak Vora
3. **Student Team Names**: Kedar Bhuva
4. **Project Description:** Testing of soil is very important to assess the strength of soil Sub-grades and base courses, which are critical components of roadways and other civil engineering structures. With the emergence of IoT technology, it is now possible to conduct the soil tests using a network of interconnected sensors and devices. This approach offers several advantages over traditional testing methods. IoT-based test setup provides highly accurate and reliable data, with less human involvement and less potential for errors. With the potential to revolutionize the field of Geotechnical testing, conducting soil tests like CBR and Soil Penetration tests with IoT has the potential to significantly improve the accuracy which in turn will benefit in terms of safety and sustainability of the civil infrastructure.
5. **Project status at beginning of the Year:** Ideation
6. **Interventions Made:** Product (Agriculture) IoT based
7. **Current Status:** Prototype Development
8. **Future Plan:** Transforming conventional system into smart using IIoT

NewGen IEDC-J. N. N. College of Engineering, Shimoga

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: (Fourth Year) 2022-2023

Name of the College/Institution hosting NewGen IEDC	J. N. N. College of Engineering, Shimoga		
Year of starting NewGen IEDC	2018-2019		
Name of the Head/Principal of the Institution/College	Dr. P. Manjunatha		
Name of NewGen IEDC Coordinator	Dr. Basappaji K. M.		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	9886139971 bas_km@jnnce.ac.in		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST–NewGen IEDC/18-19/03 Dated 13.11.2018	Rs. 60,00,000
	2		Rs. 47,50,000
	3		Rs. 60,00,000
	4		Rs. 60,00,000

1. Details of Activities Undertaken during the year:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. As a part of curriculum interested students are offered with an elective subject on Entrepreneurship Development and Design Thinking. In the course students are exposed to aspects of entrepreneurship, types, challenges, and opportunities. As assignment, the students are encouraged to meet entrepreneurs and conducted interviews about their entrepreneurship journey. JNNCE NewGen IEDC was instrumental in encouraging and networking with local entrepreneurs.

[B] To identify, develop & commercialize students' innovative ideas.

To inculcate innovative ideas and for creative participation an intra-collegiate program on November 18th and 19th 2022, Aditya 2k22 was organized in association with Alpha -Club of the college. Following are the different events…

1. **KSP Gaming -** Kerbal is open-source NASA recognized space program simulation software, In this event students in groups will design the satellite launching parameters. In this apart from understanding space program, orbital mechanics, and time of satellite launching, they will learn of team spirit and importance of time dependent work culture.

2. **Socratic Debate:** In this event the students will be grouped into two teams and posed with an energy issue related scenario. A moderator will be collecting the perceptions of the participants and posing questions to them. The main objective was to get a collective opinion for possible solution for the given scenario. From this event students will acquire analytical and communication skills.

3. **Engineering a Way Out (EWO):** In this event, random students groups are created. Each group posed an engineering scenario with constraints. The group has to analyze the situation and suggest best possible solution. Here the students will get a glimpse of practical situation and learn how to find a solution while working in the group.

[C] To enhance Industry-Academia interaction: Nil

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

As the University curriculum is not scheduled simultaneously for all semester, different students groups will be in different stages of curriculum activities. Hence difficult to adhere to the proposed action plan is adhered to.

3. Other important highlights (new initiatives), if any: Nil

4. **Student Projects:** Details in Annexure A

5. Provide a minimum two-page case let each on the <u>two best student projects</u> (either prototype developed or commercialized) from the above list. The case lets should include the following:

Best Student Project : 01

I. Mentors Name: Dr Amith Kumar S J

II. Student team details

Rahul M P

Rahul N

Sumukh Raj

Preetham D

III. Brief description of the student start-up: NA

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

V. **Contribution of NewGen IEDC in the same:**

JNNCE NewGen IEDC helped the mentor and students in identifying the problem by arranging interaction with stakeholders (farmers). It also helped to find professional fabricators for commercial production.

VI. **Future plan:**

Optimize the operation through field testing and bring the improvements in design.

VII. **Important highlights:**

Patent application 202341046009 is filed in Indian Patent Office – Design Optimization of Areca Nut Dehusking Machine for Improved Efficiency and High Production Rate

Best Student Project : 02

I. **Mentors Name : Dr Ravi Kumar B N**

II. **Student team details :**

Shashanth Shetty

Mohammed Bilal K

III. **Brief description of the student start-up: NA**

IV. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**

V. **Contribution of NewGen IEDC in the same:**

JNNCE NewGen IEDC helped the mentor arranged the meeting with areca plate makers. A brainstorming session was held to bring a solution for the low rate production problem. Finally the swing mechanism was opted,

VI. **Future plan:**

Optimize the operation through field testing and bring the improvements in design.

Annexure-A

Details of Student Projects: Fourth Year

Project-01: Fabrication of Areca Plate Making Machine using Swing Mechanism

1. **Project Title** : Fabrication of Areca Plate Making Machine using Swing Mechanism
2. **Mentor Name**: Dr. Ravi Kumar B N
3. **Student Team Names:**
   Shashanth Shetty
   Mohammed Bilal
4. **Project Description:** Areca plates are eco-friendly and are excellent substitute for plastic and paper plates. The process of making these plates is time consuming and requires more labour. However with the swing mechanism the areca plate making has become faster and efficient that helps for commercial gain.
5. **Project status at the beginning of the Year:**
   Idea generation and industry survey
6. **Interventions made:**
   Applied for Patent and Commercial order received for sales.
7. **Current status:** Project is completed.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-02: Design Optimization of Areca Nut Dehusking Machine for Improved Efficiency and High Production Rate

1. **Project Title:** Design Optimization of Areca Nut Dehusking Machine for Improved Efficiency and High Production Rate
2. **Mentor Name:** Dr. Amith Kumar S.J.
3. **Student Team Names:** Rahul M P, Sumukh Raj, Rahul N, Preetham D
4. **Project Description:** The main objective of the proposed invention is to develop a novel areca nut dehusking machine that will give good results compare to dehusking by manual methods using knifes and other existing instruments and/or machines. An important aspect of the proposed invention is that the developed machine emphasizes its suitability for dehusking variety of sizes of Areca nut. Further the drive systems components and its timings are designed in such a way that the areca nut will be oriented in horizontal position at the instant of dehusking process and thus cutter blade will peel the husk without damaging the nut or breaking the nut. Thus rejection of nut will be minimized to the large extent and yield of the dehusked arecanut will increases.
5. **Project status at the beginning of the Year:** Identified problem
6. **Interventions made:**
   Applied for Patent and Commercial order received for sales
7. **Current status:** Project is completed
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-03- FPO Management App

1. **Project Title : FPO Management App**
2. **Mentor Name: Ms. Prema K N**
3. **Student Team Names: Varma H G, Shreya H C**
4. **Project Description:** Areca plates are eco-friendly and are excellent substitute for plastic and paper plates. The process of making these plates is time consuming and requires more labour. However, with the swing mechanism the areca plate making has become faster and efficient that helps for commercial gain. Master application Platform to connect service providers with FPOs along with farmers associated with the respective FPO, with the main motto to meet farmers end to end needs under one roof/ platform, from Farm inputs to market linkage, from the latest technology to crop advisory all in one app/ Platform. Farmer will have access to Mobile App + mobile view web page. This product can be promoted as SaaS platform for FPOs and Farmers.
5. **Project status at the beginning of the Year:**
   Farmers expressed a need for the above said service.
6. **Interventions made:**
   Commercial order received for sales.
7. **Current status:** Project is completed, its testing and business model has to be evolved in consultation with stake holders.

Project-04: Pre-Tempering Areca Sheath in Controlled Environment

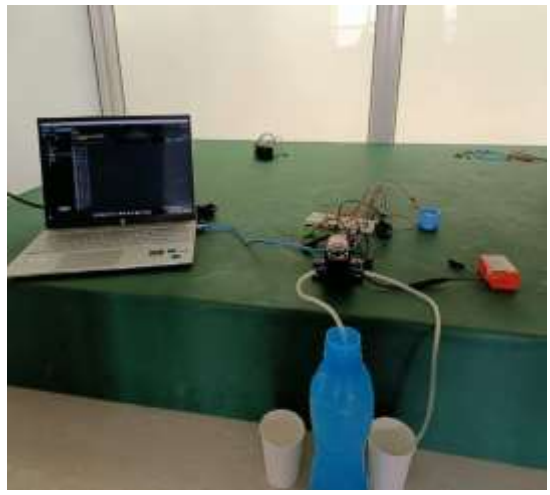
1. **Project Title** : Pre-Tempering Areca Sheath in Controlled Environment
2. **Mentor Name**: Dr. Ravi Kumar B N
3. **Student Team Names:** Anup Hegde, Areeb Ahmed
4. **Project Description:** The storage of areca sheath requires a controlled environment to maintain the quality of the areca sheath. High humidity and moisture level cause spoilage and fungal growth on the sheath. Hence a controlled environment contains automatic cooling and fogging system to control the humidity and moisture levels.
5. **Project status at the beginning of the Year:**
   Realization of problem in consultation with areca plate making units. Idea generation and industry survey

6. **Interventions made:**
   Applied for Patent and Commercialization efforts are underway in association with professional fabricators.
7. **Current status:** Project is completed.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-05: AGrowW – An intelligent Precision Farming toolkit for farmers

1. **Project Title** : AGrowW – An intelligent Precision Farming toolkit for farmers
2. **Mentor Name**: Dr. Chetan K R
3. **Student Team Names:** Varsha A S, Shastika T Hegde, Tanusha G Hosur, Sofiya Saraff Asif
4. **Project Description:** To develop an IoT based solution that uses facial recognition technology and behavioral analysis to monitor the area specified for security purposes. The system/product is able to identify individual students and recognize and alert them to the existence of the strangers in the specified area. It uses the AIML algorithms to provide real-time threat indications through the app to the authorities.
5. **Project status at the beginning of the Year:** Conceptual idea
6. **Interventions made:** Applied for patent.
7. **Current status:** Product is ready. Validation and commercial adoption are pending.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-06: Automated Smart farming using Solar Panel

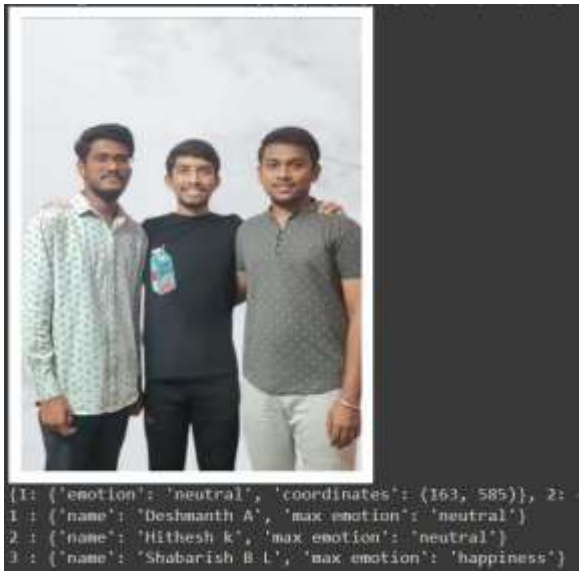
1. **Project Title:** Automated Smart farming using Solar Panel
2. **Mentor Name:** Dr. Samara Mubeen
3. **Student Team Names:** Ruchitha R Sarji, Nandan Telkar K, Satwik Pai, Shaziya Nikhath Khanum
4. **Project Description:** The idea of IoT has become successful due to the invention of recent technologies like sensors, RFID and WSN.It has helped in gaining more productivity and yield in crops. The temperature sensor, Humidity sensor and soil moisture sensor can be interfaced to the microcontroller to assess any further data. A reliable and continuous vital sign monitoring system targeted towards each farmer land has been successfully built. The resulting system was also low in power and cost, non-invasive and provisional real time monitoring on agriculture. It is also easy to use and provide accurate measurements. Gather data from pH, humidity and temperature sensors at regular intervals with a microcontroller and forward that data via Wi-Fi connection to the MongoDB database residing on the cloud. On the cloud, a server-side application will then crunch the stored values to provide customized feedback tailored to each user via a web.
5. **Project Status at the beginning of the year:** Conceptual idea with an intention for commercialization.
6. **Interventions made:** Applied for patent.
7. **Current Status:** Prototype is ready. The concept has to be utilized for commercial adoption.

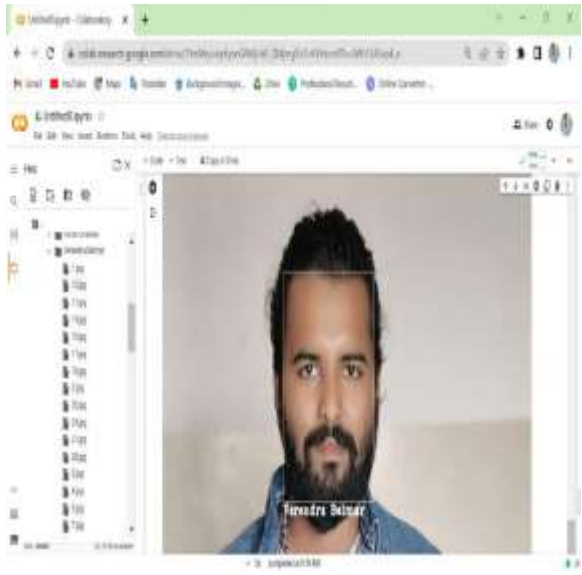
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-07: AIEmosense -Depression Detection and Face Recognition Using Emotional Artificial Intelligence and Machine Learning

1. **Project Title** : AIEmosense -Depression Detection and Face Recognition Using Emotional Artificial Intelligence and Machine Learning
2. **Mentor Name**: Dr. Chetan K R
3. **Student Team Names:** Deshmanth A, Srujan Y B, Hitesh K, Shabarish B L, Sathwik P
4. **Project Description:** Emotional AI is used to detect depression by analyzing a person's speech, text, or image data to identify patterns that are indicative of the condition. Image analysis is used to detect depression by recognizing facial expression and body language analysis is used to identify changes in a person's posture, gait, and other physical cues that may indicate the presence of depression. Capturing images with camera and deep learning-based face detection is done. Experiments have been done on free version of Google colab. Testing on exclusive server has to be carried out. Emotional AI recognition and deployment into cloud needs to be done. Schools, Colleges and Industries and any other place where camera-based attendance monitoring can be deployed.
5. **Project status at the beginning of the Year:** Conceptual idea.
6. **Interventions made:** Applied for patent.

7. **Current status:** Product is ready. Validation is done and commercial adoption is pending.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



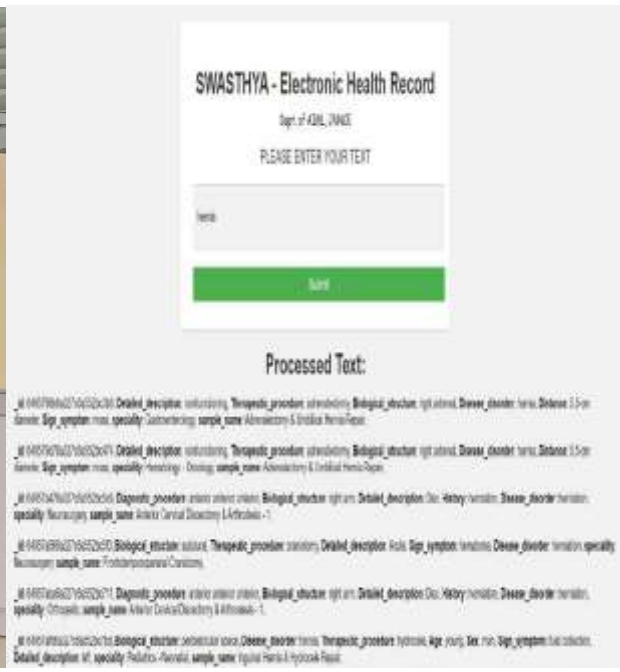


Project-08: IoT based Farm Level, Farm Specific, Micro-Weather Station for Small farmers.

1. **Project Title** : IoT based Farm Level, Farm Specific, Micro-Weather Station for Small farmers.
2. **Mentor Name**: Dr. Sheela S
3. **Student Team Names:** Yuvaraj C S, Purushottam N, Ananya S Nayak, Anushree M G
4. **Project Description:** IoT and AI powered Farm Level, Farm Specific, Micro-Weather Station for Small and medium farmers. Absence of real time micro weather, soil and water data from the farms and analytics leads to disease risks, poor production quality and poor resource usage especially for small and medium holder farmers. Next generation IoT platform combining hardware, software, and cloud to bring real-time visibility, analytics and AI to agriculture and fix the problem of poor resource utilization, wastage, production quality and disease prediction. A digital Assistance for farmers, that reduces the uncontrolled irrigation system and water management, Prevents Over or under watering the crops with real time micro weather details in the finger tips
5. **Project status at the beginning of the Year:** Ideation and started planning to carry out the POC (proof of concept).

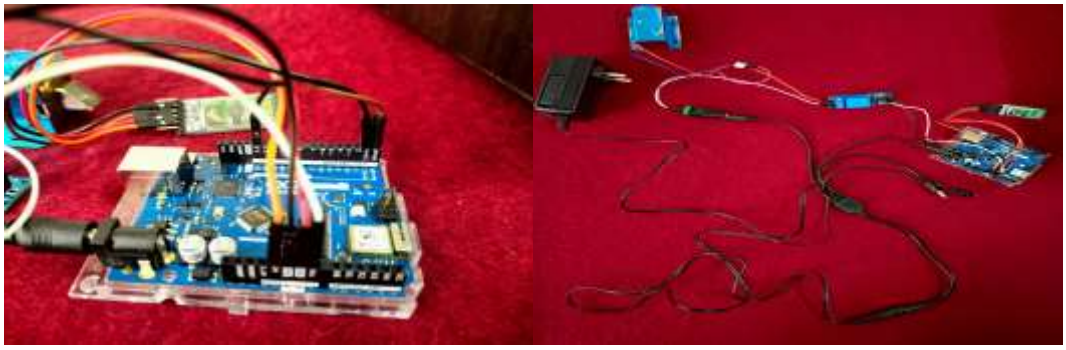
Project-09: Swasthya – A cognitive AI application for querying and analyzing Electronic Health Record to provide effective patient engagement

1. **Project Title** : Swasthya – A cognitive AI application for querying and analyzing Electronic Health Record to provide effective patient engagement
2. **Mentor Name**: Dr. Chetan K R
3. **Student Team Names:** Pratham K Gujjar, H M Satvik, Nithin Kumar S N, Saishri B L
4. **Project Description:** Neural Natural Language Processing for unstructured data in Electronic Health Records (EHR) can uncover disease that may not have been previously coded, a key feature for making HCC disease discoveries.Development of an EHR repository using clinical tests, diagnostic reports and prescriptions. NLP programming in Python for unstructured data is preprocessed to create embeddings from which features are extracted to reveal the hidden disease information. As the size of data increases, cloud-based GPU/TPU servers are required for faster response to queries.
5. **Project status at the beginning of the Year:** Conceptual Idea
6. **Interventions made:** Applied for Patent
7. **Current status:** Project Completed. Customization and aesthetics need to be improved.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-10: Cato Smart Locks Enabled by AIoT

1. **Project Title**: Cato Smart Locks Enabled by AIoT
2. **Mentor Name**: Dr. Chetan K R
3. **Student Team Names:** J K Kruthi, Brinda P, Ayesha Siddique, Yogeshwari M, Syeda Hussain Fathima
4. **Project Description:** IoT-enabled smart locks provide sensors to operate keyless entry devices that allow users to access doors remotely, through a smartphone or other Internet connection compatible devices. Smart locks provide users the ability for locking and unlocking their door without a key, without geographical restrictions, as well as distribute virtual keys to visitors.Locking and unlocking with solenoid locks has been done with Arduino IoT. Mobile App also has been developed to interact with locks. More interfacing like camera, biometrics, display need to be put and data to be stored in a proprietary database than public cloud as security is paramount.
5. **Project status at the beginning of the Year:** Conceptual design
6. **Interventions made:** Applied for Patent.
7. **Current status:** Project Completed. Customization and aesthetics need to be improved.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-11: Farm Bot App

1. **Project Title**: Farm Bot App
2. **Mentor Name**: Mr. Chakrapani
3. **Student Team Names:**
4. **Project Description:** Mobile app which communicates with IoT hardware: The android app is part of Robot which connects with IoT Hardware through BLE and internet. The app takes commands from the hardware for moment, to sense the parameters and other farm level information. Also, it sends the farm level, crop related pictures to AWS cloud for further analysis
5. **Project status at the beginning of the Year:** Need analysis in consultation with agricultural experts and farmers.
6. **Interventions made:**
7. **Current status:** Project completed. Commercialization efforts started.

Project-12: AI Based Multifunctional Robot

1. **Project Title**: AI Based Multifunctional Robot
2. **Mentor Name**: Dr. Amithkumar S J
3. **Student Team Names:**
   Abhisheka M
   Johnson Babu Y
   Anish G Prakash
   Syed Adnan Kashif
4. **Project Description:** This endeavour is focused on the development of a multifunctional robot. It is always necessary to coordinate multiple robots or multiple works of a single multifunctional robot. This coordination is always a challenging job and proper operation of an integrated robotic system depends mostly on this part. Because a multifunctional robot includes various sensing and working modules that can work simultaneously and synchronously, it saves time and cost and at the same time works are done more efficiently. Objective of this work is to design and construct prototype of a multifunctional tactical robot which can do dedicated as well as general purpose works. This 4-axis robotic arm capable of doing multiple tasks such as pick & place, writing and drawing.
5. **Project status at the beginning of the Year:** Need identification with the design of various links.
6. **Interventions made:** Applied for patent

7. **Current status:** Prototype ready. Customization for various application is underway for Commercialization.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

NewGen IEDC-Datta Meghe Institute of Medical Sciences

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: (Fourth Year) 2022-2023

Name of the College/Institution hosting NewGen IEDC	Datta Meghe Institute of Medical Sciences		
Year of starting NewGen IEDC	2018-19		
Name of the Head/Principal of the Institution/College	Dr. S. Z. Quazi, Director, R&D, DMIMS(DU)		
Name of NewGen IEDC Coordinator	Dr Abhay Gaidhane, Director, SEPH, DMIMS(DU)		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	9765404075 abhaygaidhane@gmail.com		
Financial Details	**Sr. No.**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST–NewGen IEDC/18-19/03 Dated 13.11.2018	Rs. 60,00,000
	2		Rs. 47,50,000
	3		Rs. 60,00,000
	4		Rs. 60,00,000

1. Details of Activities Undertaken during the year:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. Sets of Workshop

a. Introduction & Basics of Entrepreneurship

b. Stages of technology development and commercialisation

c. Cognitive Skills, Design and Critical Thinking Funding schemes / opportunities for start ups

- Six workshops were held on Entrepreneurship, technology development and commercialisation, Design and Critical Thinking. Total 256 beneficiaries

2. Workshop on rapid prototyping

- One workshop held total of 46 beneficiaries

3. Set of workshops: 'Startup: Launching and Sustaining' programme - Five workshops held total 65 beneficiaries

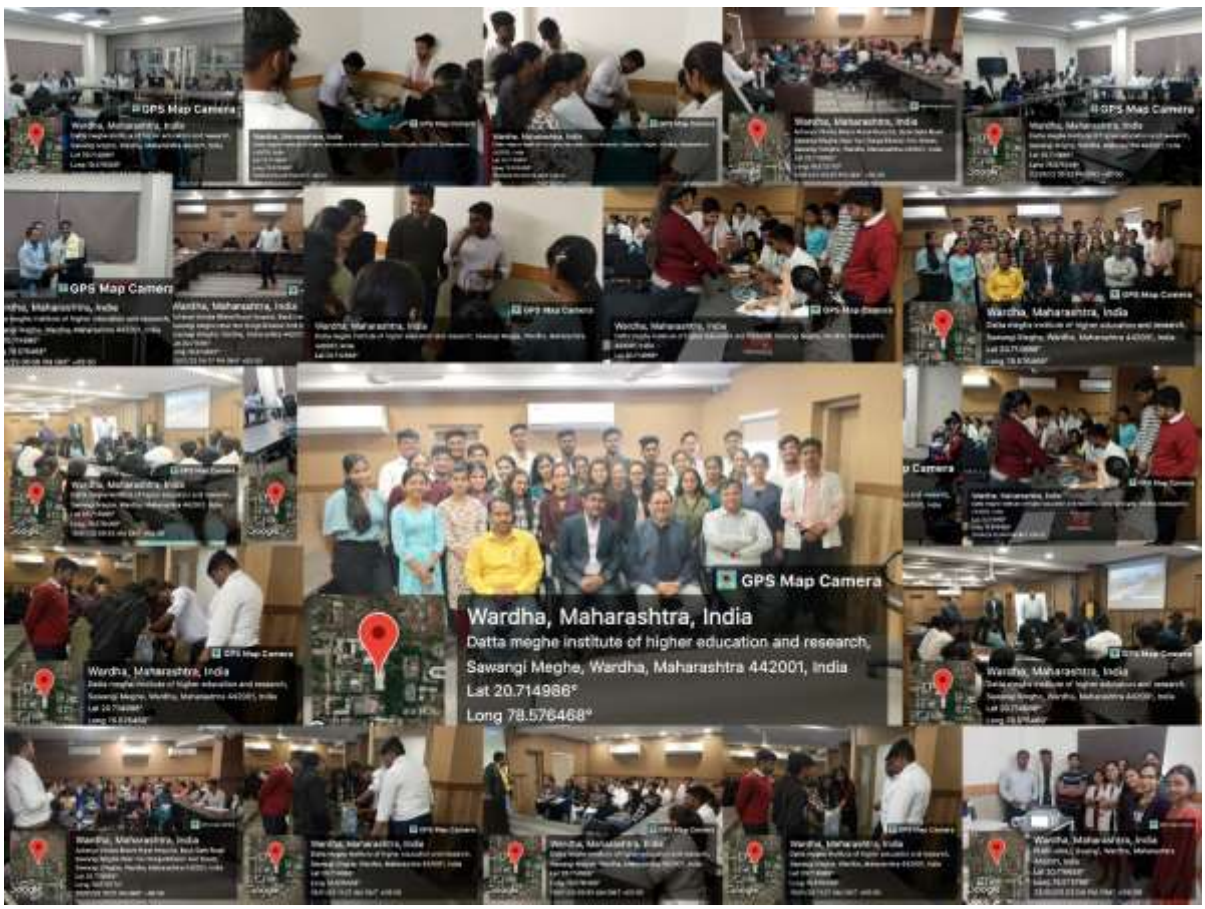
- Pre-Incubation Planning
- Registration of Start-up
- Seed Fund for Student Start-up Elevator-Pitch

4. Field trips to Incubation center

- YCCE TBI, CIVN VNIT

[B] To identify, develop & commercialize students' innovative ideas

1. Online Workshop on IPR, Innovation for Students and Faculty Members
   - Health science colleges – Six events
   - Engineering colleges – Five events
   - Eight events and 1235 participants/ delegates
2. Seminar for Social entrepreneurship and Innovation
   - One event and 116 beneficiaries
3. Dissemination event for NEWGEN IEDC and entrepreneurship
   - In seven events nearly 1178 participants/ delegates
   - Health science colleges – Six events
   - Engineering colleges – Three events
4. Idea Competition
   - 78 ideas received and screened
   - 28 ideas were shortlisted
5. Workshop on Business plan Development – Scale-up and commercialisation
   - One workshop held 160 innovators participated
6. Business Plan Competitions
   - In one Competition, 36 beneficiaries



[C] To enhance Industry-Academia interaction

1. Industry & academic linkage

   Memorandum of Understanding for industrial linkage signed with Industry:

   - Anatomiz3D Medtech Private Limited, Mumbai
   - Alfatek Systems
   - Venture center Pune
   - GNG - GENEXT GENOMICS PVT LTD, Nagpur
   - Atmen Technovention Private Limited Pune
   - Ceinsys Tech Ltd, Nagpur

   Academic:

   - iHealTH-AID Consortium (AIIMS Jodhpur- IIPH Gandhinagar- DMIMS)
   - Indian Institute of Technology Kharagpur
   - Indian Institute of Science, Bangalore

2. Interactive sessions with entrepreneurs/bankers/ investors/ potential customers. Interaction with Angels investors and Venture Capitalists

   - Sumant Bhutoria, CEO at Alfatek Systems
   - Dr Rizwan Ahmed, Chief Technology Officer(CTO), delaPlex ltd

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Nil. No significant deviation from the proposed action plan

3. Other important highlights (new initiatives), if any:

- Received grant for DST- IMPRINT project in collaboration with IIT Kharagpur
- Established Center of Excellence for Indian Biomedical Skill Consortium (IBSC),
- Jointly Organised Conclave on Techno health programs
- 7 UG students received E-Yuva fellowship by BIRAC consecutively for 2 years
- Received funding from Nidhi Prayas Grant, DST & N.R.D.C. - Device for Mandibular reconstruction- Precisurg Pvt Ltd
- Received Membership of Society for Biomaterial & Artificial Organs India
- Faculty contributed as an expert panel and Jury for various events organised by TIFR Mumbai, IIT Kanpur, etc.

4. **Student Projects**

Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos

- Total 20 Projects supported in the current year resulting in Six Patents filed, Three Patents granted & Two start-ups incorporated
- Total 65 Projects supported to date resulting in 24 Patents filed, 16 Patents granted & Six start-ups incorporated

5. **Provide a minimum two-page case let each on the two best student projects (either prototype developed or commercialized) from the above list. The case lets should include the following:**

Project-01:

I. **Project :** To develop & study scaffold architecture for bone regeneration

II. **Mentors Name:** Dr. Abhaykumar Kuthe

III. **Student team details:** Bhupesh Sarode

IV. **Brief description of the student start-up**

a) The proposed project give critical idea in regeneration bone tissue in tissue engineering. The regeneration of bone tissue is depend on architecture of scaffold on which cell will be attached for regeneration of bone. This project can contributes in regeneration of bone tissue in scaffold.

b) The scaffold architecture plays a crucial role in bone tissue regeneration as it provides a three-dimensional (3D) framework for cell attachment, proliferation, and differentiation. The specific characteristics of the scaffold architecture can influence cell behavior, nutrient and oxygen diffusion, and the formation of new bone tissue. Here are some key effects of scaffold architecture on bone regeneration: Porosity: The porosity of a scaffold refers to the presence of interconnected pores within its structure. Porosity is important for facilitating nutrient and oxygen exchange, allowing cells to migrate into the scaffold, and promoting the formation of new blood vessels (angiogenesis). An optimal pore size and distribution are required to support cell infiltration, nutrient transport, and vascularization. Too high or too low porosity can negatively affect cell attachment, proliferation, and tissue ingrowth.

c) Interconnectivity: Interconnectivity refers to the degree of connectivity between pores within a scaffold. High interconnectivity enables cell migration, nutrient diffusion, and vascularization throughout the scaffold.

It ensures a continuous network that allows cells to populate the entire scaffold and facilitates the exchange of growth factors and waste removal. Adequate interconnectivity is essential for uniform distribution of cells and promotion of tissue regeneration.

d) Surface topography: The surface topography of the scaffold can influence cell adhesion, migration, and differentiation. Certain surface features, such as roughness, microgrooves, or nanotopography, can enhance cell attachment and proliferation by providing more surface area and better mechanical interlocking. Additionally, surface roughness can influence the orientation and alignment of cells, which is crucial for proper bone formation.

e) Mechanical properties: The mechanical properties of the scaffold, such as stiffness, elasticity, and strength, can affect cell behavior and tissue formation. The scaffold should have mechanical properties similar to native bone to provide structural support during regeneration. If the scaffold is too rigid, it may impede cellular activities and natural bone remodeling. On the other hand, if the scaffold is too weak, it may collapse or fail to provide sufficient support for bone formation.

f) Degradation rate: The degradation rate of the scaffold should be carefully controlled to match the rate of new bone formation. Ideally, the scaffold should degrade gradually over time as new bone tissue develops. This allows the load-bearing function to transition from the scaffold to the newly formed bone. The degradation products should also be biocompatible and non-toxic to avoid adverse reactions.

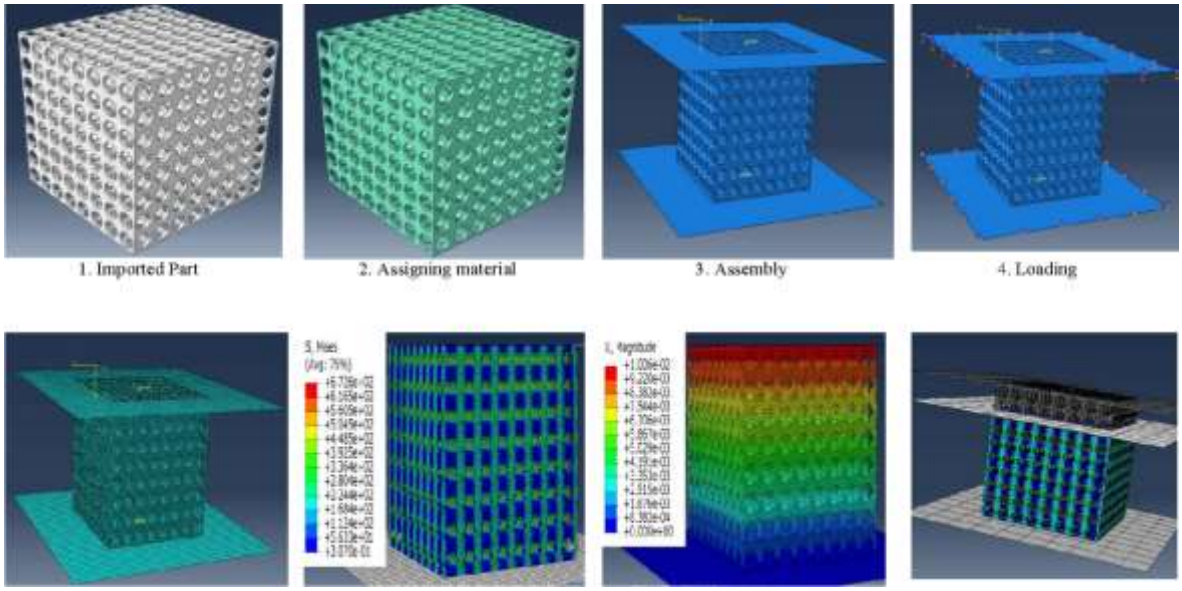
g) Overall, the scaffold architecture influences cell behavior, nutrient supply, vascularization, and mechanical support, all of which are critical for successful bone tissue regeneration. Optimizing these factors in scaffold design can enhance the regenerative potential and improve outcomes in bone regeneration therapies.

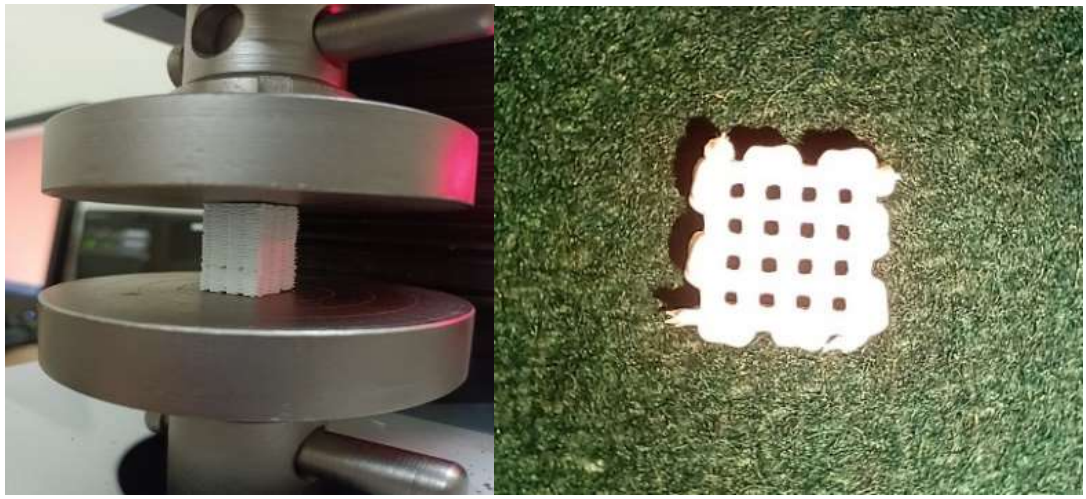
V. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

The aim of the project is to create porous scaffold and do the FEA analysis of the scaffolds.

- Finite Element Analysis of scaffold architecture provides valuable insights into the mechanical behavior and performance of scaffolds, aiding in the

optimization of their design for bone regeneration applications. It helps researchers and engineers understand how different scaffold parameters and loading conditions affect the structural integrity and functionality of the scaffold.





VI. Contribution of NewGen IEDC in the same

Newgen has supported the project by providing the financial and **technical experts for the project completion.**

VII. Future plan

- Animal studies & clinical validation

VIII. Important highlights

It is important to note that the optimal porosity range for bone tissue regeneration can vary depending on various factors, including the specific application, target tissue, and scaffold material. The porosity should be carefully designed to balance cell infiltration, nutrient transport, mechanical properties, and tissue integration for successful bone regeneration outcomes.

Project-02:

I. **Project Title**: Lodine crosslinked carbon nanodot coated antibacterial polymer surface for reducing biomedical catheter mediated HAIs

II. **Mentors Name**: Dr. Santanu Dhara

III. **Student team details:** Sayan Mukherjee

IV. **Brief description of the student start-up**

- In this study CND will be synthesised from natural whey protein by microwaving. The protein precursor of CND is enriched with amino acids so we will get more -NH2 groups in the surface of the carbon dot helping in crosslinking iodine. 2,5-dimethoxy-2,5-dihydrofuran (DHF) having bifunctional dialdehyde, butenedial formed by proteolytic cleavage could be iodinated to act as a cross-linker entity for the amine groups. The crosslinking will be confirmed through FTIR, XRD, XPS and Raman spectroscopy. The plasma-treated oxygenated surface of the polymer easily can be coated with the free amine groups of the iodine crosslinked CNDs. The surface topology and carbondot binding will be measured and characterized by AFM. The surface physiochemical properties i.e., hydrophobicity and charges will be measured elaborately. The antibacterial properties of the surface will be evaluated through disc diffusion and broth dilution methods for measuring MIC of the coating material. The biofilm formation will be measured through SEM and bacterial live-dead staining. In vitro and in vivo cytotoxicity will be evaluated respectively. The antimicrobial activity of drug-resistant pathogens will also be examined.

V. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**

- Method and materials:
- Whey protein derived CND (WCND) synthesis:
- A 1% (wt./vol) whey protein solution was prepared in deionized (DI) water and kept in continuous stirring using a mechanical stirrer (REMI, India) at increased pH until it dissolved properly (Fig- 1a). It was immediately transferred to a domestic microwave (1000 W, 2.45 GHz) (26). The irradiation time for WCND synthesis was optimized via microwaving for different time intervals (3 min, 5 min, and 7 min) (Fig- 1c).

- Crosslinking of WCND with Iodine functionalized DHF and ninhydrin assay
- As prepared WCND with amine group was crosslinked with iodine functionalized 2,5-dimethoxy-2,5-dihydrofuran (DHFI). Firstly, iodine functionalized DHF solution was prepared by mixing 19.2 mM iodine solution (dissolved in 50 ml of 30% ethanol) with 38 mM DHF in a 1:1 ratio under constant stirring at 25 °C. DHFI solution and WCND were mixed and heated at 65°C for cross-linking. Before mixing WCND with DHFI, a ninhydrin (2, 2-Dihydroxyindane-1, 3-dione) assay was performed to determine WCND's crosslinking density with DHFI. In this assay, crosslinked and uncrosslinked WCND samples with different concentrations of DHFI (10%, 25% & 50%) solution were heated in acidic pH with 0.1% ninhydrin solution at 75°C, and optical absorbance of the solution was recorded at 575 nm with a spectrophotometer. At various known concentrations, glycine was used as the standard. Crosslinking density was calculated as per the following equation.
- % Crosslinking density =[((C_b-C_a))/C_b]×100
- Cb and Ca are the optical absorbances at 575 nm for CND before and after cross-linking.
- Material Characterization
- The WCND and WCND-DHFI were characterized using UV-Visible spectroscopy (Shimadzu), transmission electron microscopy (TEM, TECHNAI G2), X-ray diffraction (XRD, Bruker India), EDAX analysis (Oxford Instruments), Raman spectroscopy (Jobin Yvon Horiba), Fourier transforms infrared spectroscopy (FTIR, Perkin Elmer). A Malvern Zetasizer machine performed dynamic light scattering (DLS) analysis.
- Results and discussion:

WCND synthesis:

- Whey protein is a milk bi-product rich in globular proteins such as lactoglobulins and calcium caseinate. The precursor amino acid chains can be carbonized into ultra-small WCNDs by the stress induced by microwave irradiation. Gelation tendency also can be observed at increasing irradiation time. Therefore, a time optimization was needed to find a balance gel-free WCND suspension. The perfect irradiation time was optimized for WCND synthesis by heating the samples at different

time intervals. The optimization was validated via visual inspection of CND solutions under UV. The sample after 7 mins of microwaving has shown some gelation (Fig- 1c); therefore, up to 5 min of microwaving would be ideal for CND preparation from whey protein. Then we got a 40 mg/mL stock solution of CND prepared after 5 min of microwaving.

DHFI Crosslinking and ninhydrin assay:

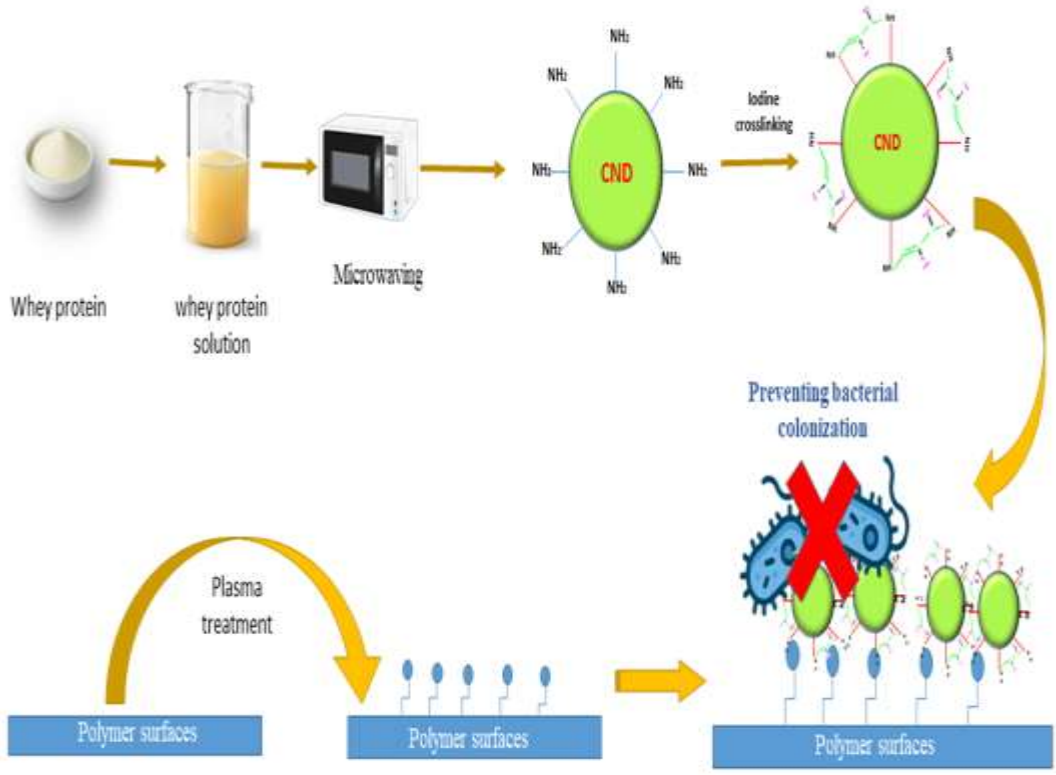
- The furan ring of DHF breaks in an acidic solution by protolytic cleavage to form a difunctional butenedial, as shown in Figure 1 b. The electrophilic attachment of molecular iodine on butenedial developed 2,3-diiodo butenedial through the formation of an intermediate iodonium ion in acidic conditions. Iodine is represented as an electrophilic agent (I+) in the occurrence of alkene-like Lewis bases. The alkene (butenedial) possesses the π bonding electrons, approachable to electrophilic Iodine (I2), and removes free iodide ion (I−). Gradually iodine is added to the butenedial by forming a bridged iodonium ion intermediate. Finally, the vicinal di-iodide was created via an opening of the iodonium ring through nucleophilicgegenion (I−), breaking the C−I bond. Through a Schiff base reaction, the carbonyl moiety of iodinated difunctional butenedial could react with free amine groups available at the surface of WCND and might crosslink through C=N bond formation via nucleophilic attack.
- The Ninhydrin assay was performed to measure the crosslinking density between WCND and DHF-I. Samples were prepared for 10% and 25%, and 50% (v/v) DHF-I solution in CND and kept for heating to induce cross-linking. 30 µL of CND (without crosslinking) and all three crosslinked CND-DHFI samples were taken in triplicates. Then the assay result was measured by spectrophotometric method and plotted in a graph after calculating the average and standard deviation by one-way ANOVA. A significant difference was observed between 10, 25, and 50 % of DHFI (P value <0.0001), and the data showed an increasing trend of crosslinking density from a lower to a higher percentage of DHFI. Depending on this assay result, we have chosen the sample having 50% DHFI crosslinked with CND for further characterization, as more than that may cause iodine-related cytotoxicity.

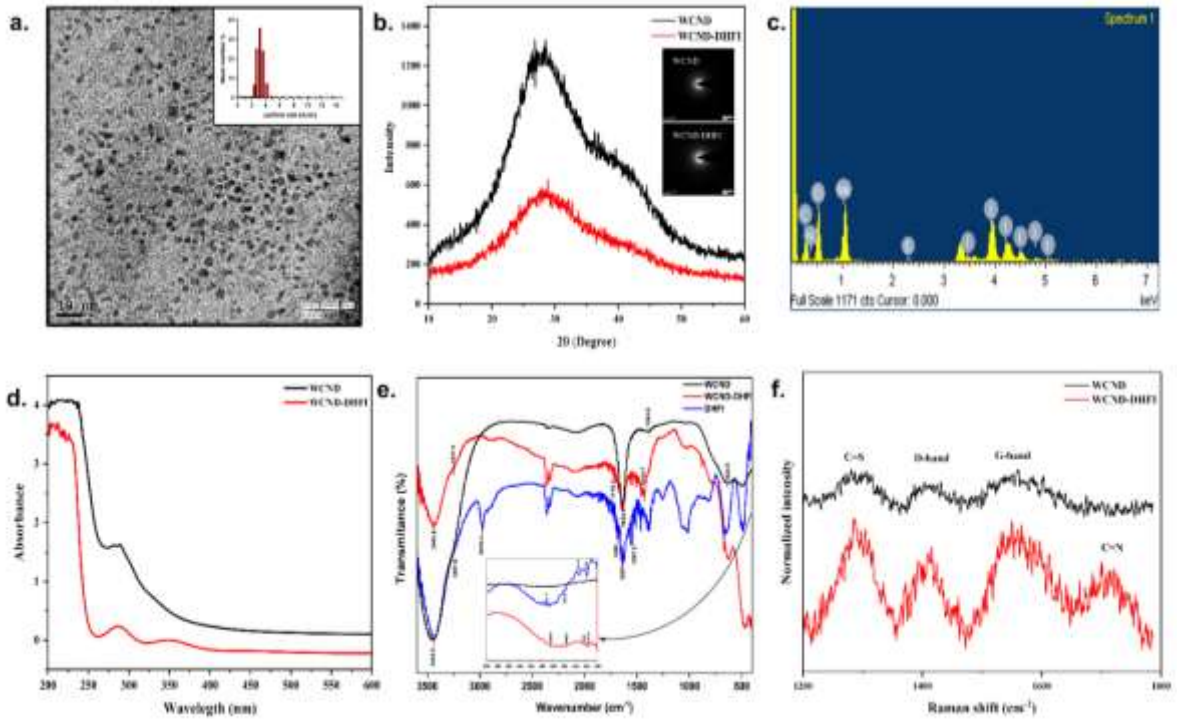
Material characterization

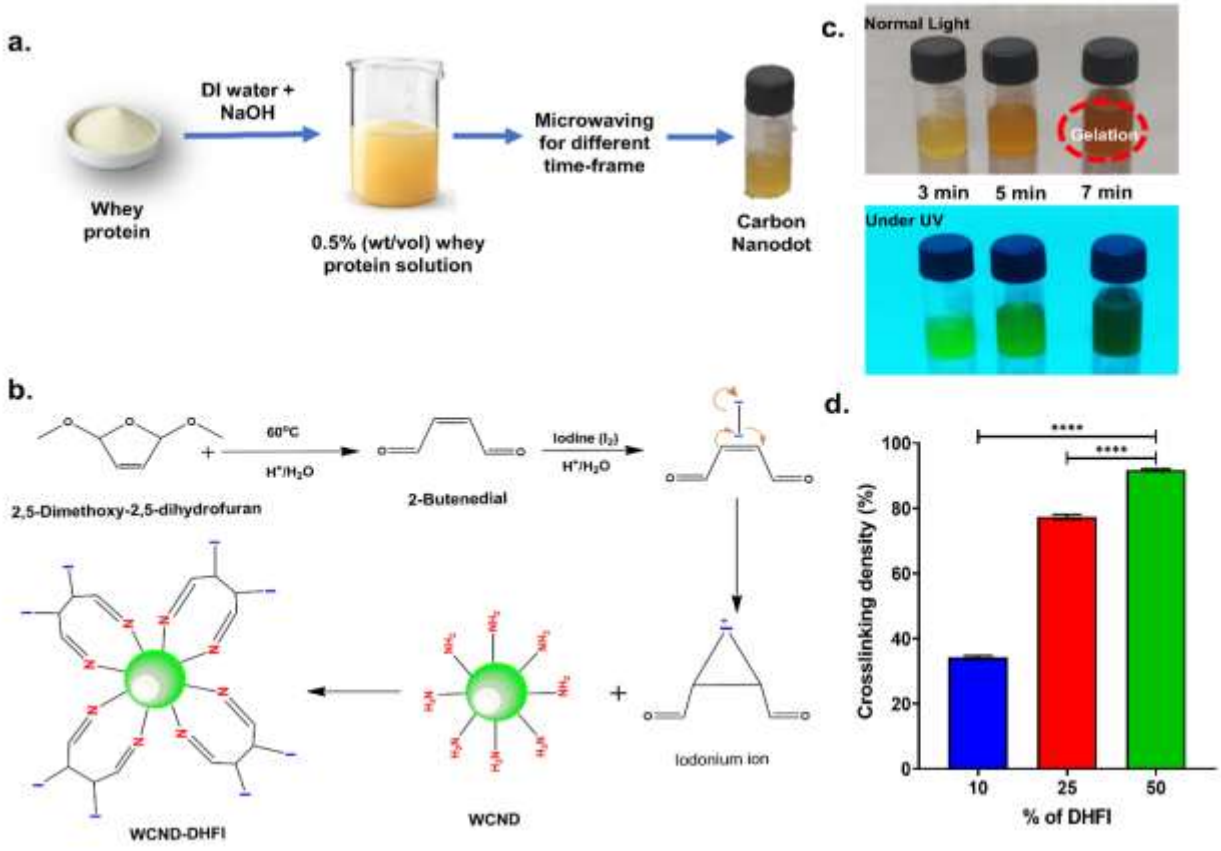
- WCND and WCND-DHFI both have shown a broad X-ray diffraction (XRD) peak (Fig. 2b) around 2θ = 28˚, which represents the (002) plane of graphite and another small hump around 2θ = 42˚, corresponding to the (101) plane originated due to the in-plane diffraction of graphene-like structured C-dots. But no clear evidence was there for the crystalline nature neither in XRD data nor in the SAED pattern, thus indicating that WCND and WCND-DHFI are of amorphous nature.
- The UV-Vis spectra of WCNDs-DHF-I is shown in Fig. 2d. Both WCND and WCND-DHFI display an ultraviolet absorption band with a tail extending into the visible region, comparable to previously reported literature. The absorption spectra of WCND have shown two absorption peaks, attributing to the π - π* transition of carbon-carbon interaction near about 280 nm and conjugated n - π* transition of free amine groups (-NH2) near about 275 nm. The n - π* transition of the C=O bond, was shown near 335 nm in the WCND spectrum. UV-vis spectrum of WCND-DHFI has represented a redshift of n - π* (~350 nm) transition after iodine crosslinking due to the existence of C=N groups along with C=O. The formation of the C=N bond in the surface group can shift absorption peaks to longer wavelengths and change their absorption intensity.
- The vibrational modes of the functional groups were analyzed through FTIR spectroscopy (Figure 2e). The FTIR spectrum of WCND has appeared with major peaks for C-H ethylenic stretch (633.9 cm-1), -CH3 bending vibration (1392.9 cm-1), N-H stretch for primary amines (3261.6 cm-1) -OH stretching (3443.5 cm-1), and a broad peak representing superimposition of C=C stretch and amine specific N-H bending (1634.9 cm-1). The spectrum of DHFI has confirmed the 2-butenedial formation by the appearance of aldehydic =CH stretch (2978.4 cm-1) and a range of peaks (1720-1640 cm-1) representing conjugated and unconjugated -C=O groups of aldehydes. A significant decrease of intensity in this aldehydic -C=O region was observed for WCND-DHFI along with a new peak at 1716.3 cm-1 representing imine (-C=N) stretch, further validated by Raman analysis.

Crosslinking of the aldehydic -C=O group of DHFI with NH2 groups of WCND will form an imine group (C=N) via Schiff base reaction. This phenomenon has also been supported by the reduction in the intensity of the N-H stretch peak of primary amines (3251.6 cm-1) after DHFI crosslinking. The presence of iodine was observed in both DHFI and WCND-DHFI. In the spectrum of WCND-DHFI, iodine crosslinking has been established by the occurrence of C-I stretch (in the range 400-500 cm-1).

- The data outcomes from Raman spectroscopy were also helpful in corroborating the CNDs synthesis and appearance of their surface functional groups (Fig. 2f). Two significant peaks for the D and G bands of graphite-like carbon structures were observed in both of the samples at around 1410 cm-1 and 1550 cm-1, respectively. Laterally, a broad peak was observed around 1290 cm-1 for C=S proving the presence of sulfur in whey protein. The appearance of a new intensified peak around 1710 cm-1 proves the formation of the C=N linkage. This can be considered evidence for the incorporation of DHFI crosslinking with the carbon backbone.







VI. Contribution of NewGen IEDC in the same

- Newgen has supported the project by providing the financial and technical experts for the project completion.

VII. Future plan

- In this current phase of our work, we have successfully synthesized iodine crosslinked carbon nanodot and for the further experiments. In the next phase of this project we will coat the nanodot on the polymer tube using the plasma oxygenation technique. Afterwards, we will evaluate the cytotoxicity and detailed antimicrobial activity.

VIII. Important highlights

- The physicochemical properties of the synthesized WCND-DHFI were characterized to further explore their multiple-dimensional biomedical applications. The TEM micrograph of WCND-DHFI (Fig. 2a) evidences the occurrence of spherical nanoparticles of average diameter between 1.5 to 3 nm (measured by Image-J software), and the hydrodynamic radius of approx. 3.2 nm for WCND-DHFI was determined by DLS. The EDAX analysis has confirmed the presence of carbon, nitrogen, oxygen, sulfur, sodium and iodine in WCND-DHFI

Annexure-A

Details of Student Projects: Fourth Year

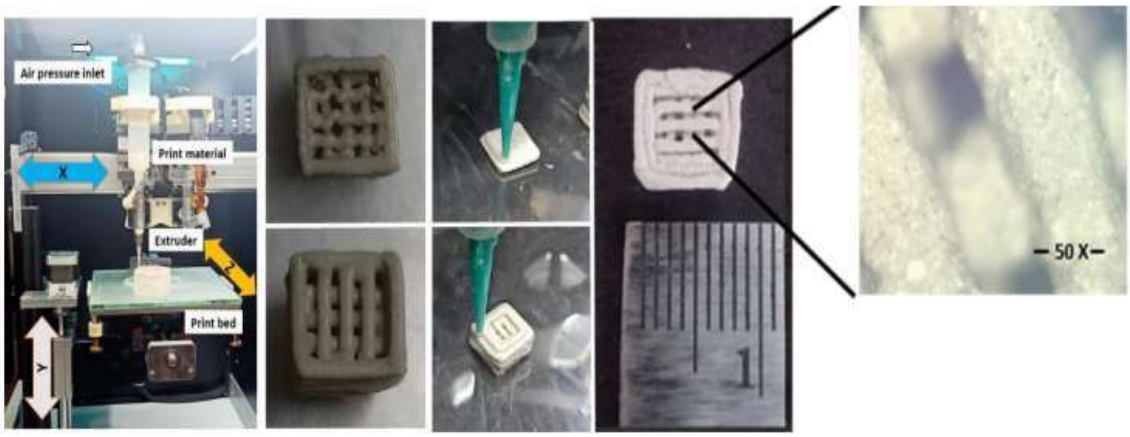
1. **Project Title** : 3D Printed cost effective Bentonite-Hydroxyapatite scaffold with enhanced bone regeneration using Silk-fibroin and Flavonoids.
2. **Mentor Name** : Dr. Sunita Nayak
3. **Student Team Names:**

   Mr. Logeshwaran A

   Mr. Debarchan Panda
4. **Project Description:** 3D printed ceramic scaffolds are used for hard tissue regeneration, especially in replacing damaged bone tissues. The aim of this project is to develop cost-effective scaffolds based on nano- clay composites using Bentonite-Hydroxyapatite (BEN-HAP) scaffold using the robocasting technique with carboxymethyl-cellulose as the binder to improve the extrudability of the material. The printed scaffolds are sintered to improve the strength and freeze drying with silk fibroin to improve the cell adhesion in the scaffold. In this proposed study, we attempt to 3D print Bentonite for bone scaffold, followed by mixing 25 wt%, 50 wt% of Hydroxyapatite with Bentonite. The composite slurry is prepared by mixing with water and 2% carboxymethyl cellulose, as a binder to improve the viscosity of the prepared slurry for printing by robocasting technique. The viscosity and rheology of the slurry is studied using RSTCPS Rheometer. The print model of 10×10×10mm is designed using Autodesk Fusion 360 and sliced using simplify3D. The 3D printed structures are then sintered at different temperatures from 2000C, 4000C, 6000C and 800 0C. The sintered samples are subjected to mechanical studies, bio compability, FTIR and XRD analysis. The compression strength is expected higher in the scaffolds which are sintered at high temperature (20MPa – 50MPa). Degradation of the sintered scaffolds studied for 21 days' time period and observed to have structural stability in scaffold sintered at high temperature. 2% silk fibroin is prepared and incorporated to the sintered scaffold in addition with different concentration of quercetin and hesperidin (0.1, 1, 10, 100 µmol/l). Cell compatibility studies are performed with the infilled scaffolds and expected to have cell adhesion, proliferation and ALP activity which indicate the biocompatibility of the scaffold.

5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Validation of the PoC and development and validation.
7. **Current status:**

   Optimization for 3D printing and sintering of Bentonite composite slurry Work has been carried out to optimise the printing properties of the scaffold by optimising the pressure, temperature, extrusion force and more. The stability and degradation properties of the scaffold have also been studied. The fabrication process is yet to be completely optimised followed by analysis of in-vitro and in-vivo behaviour of the Bentonite scaffold. Contribution of NewGen IEDC in the same: Newgen has supported the project by providing the financial provision of availing consumables for in-vitro studies and technical experts for the project completion.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



(a) (b) (c) (d)

Mr. Logeshwaran A (Student) | Mr. Debarchan Panda (Student) | Dr. Sunita Nayak (Mentor)

Project-02: Development of advanced polymers for biomedical applications like tubes, catheters, and prosthesis by utilising dynamic covalent bonds

1. **Project Title** : Development of advanced polymers for biomedical applications like tubes, catheters, and prosthesis by utilising dynamic covalent bonds
2. **Mentor Name** : Dr Chayan Das, VNIT Nagpur
3. **Student Team Names:** Suraj Wajge
4. **Project Description:** Our project proposes a novel approach to addressing a critical issue in healthcare and environmental sustainability. The development of a recyclable thumb prosthesis based on dynamic covalent bonds. This project can significantly contribute to solid waste management by combining technological advancement with eco-conscious design principles, paving the way for a sustainable future.Our project's guiding principle is game-changing. The incorporation of dynamic covalent bonds, a concept previously unexplored in the realm of prosthetics, is the primary component of this project. Dynamic covalent bonds are a type of chemical bond that can be broken and reformed under certain conditions without requiring a significant amount of energy. We enable a simple yet revolutionary feature by incorporating these bonds into the prosthesis structure. Traditionally, prostheses are made up of a variety of materials that are difficult to separate and recycle individually. However, by utilising dynamic covalent bonds, we are able to separate the components of the thumb prosthesis without requiring significant energy input, thereby streamlining the recycling process and significantly reducing non-biodegradable waste.

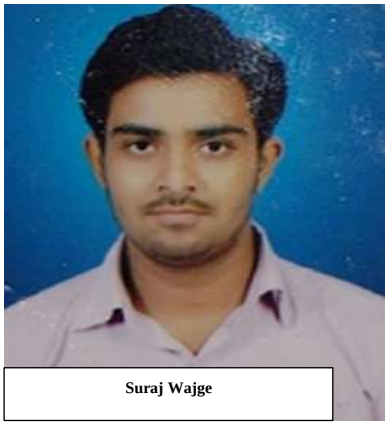
   Our project's environmental impact cannot be overstated. According to current estimates, thousands of tonnes of prosthetic waste are dumped into landfills each year, a significant portion of which is non-biodegradable. The environmental impact of such waste is concerning and requires immediate attention. We are not only addressing a healthcare issue by developing a recyclable thumb prosthesis, but we are also making significant strides towards responsible consumption and solid waste management. This innovative project has the potential to change the face of prosthetics forever. We hope to introduce a product that caters to individual needs while addressing larger environmental concerns by fusing cutting-edge technology, individual customization, and eco-friendly design principles. Our approach's

practicality assures that this is not just a theoretical solution, but a viable strategy that can be easily integrated into existing processes. We want to make a difference not just in how we think about prosthetics, but also in how we approach environmental issues in healthcare. The application of dynamic covalent bonds in a recyclable thumb prosthesis is just the start. We believe this project can serve as a springboard for more extensive research into recyclable prosthetics, leading to a more sustainable future in which healthcare and environmental responsibility coexist.

5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Validation of the PoC and development and validation
7. **Current status:**
   - The project aims to create a recyclable thumb prosthesis by utilizing the potential of dynamic covalent bonds and is currently being executed successfully. We are currently developing an innovative approach to address significant issues in both healthcare and environmental sustainability. The project accomplishes its goal of creating a prosthesis that combines customizability, user comfort, and efficient recycling, thereby reducing non-biodegradable waste.
   - The incorporation of dynamic covalent bonds into the prosthetic design is currently being successfully implemented based on the theoretical framework. These bonds allow for straightforward disassembly and reassembly, revolutionize the recycling process, and expand customization options.
   - During the testing phase, they demonstrate promising results in terms of durability, functionality, and ease of recycling. Currently, we are creating the final version of the thumb prosthesis after successful testing.
   - The dynamic covalent bond approach in this project opens up new research opportunities. There are plans to expand this research to include other types of prostheses. The ongoing work on this project places us on the edge of a new era of sustainable and user-centered prosthetic development.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Dr. Chayan Das



Suraj Wajge

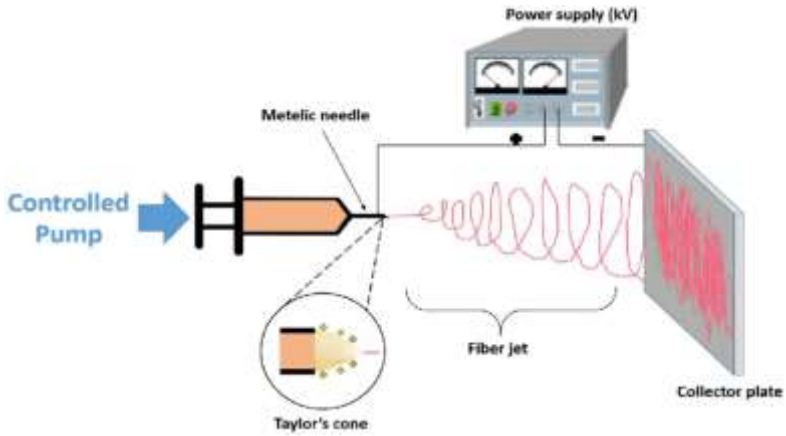
Project-03: Project tile: Synthesis of Curcumin-PLGA Nanofiber using Electrospinning techniques and to evaluate the efficacy of CU-PLGA nanofiber mat in GAgP patients

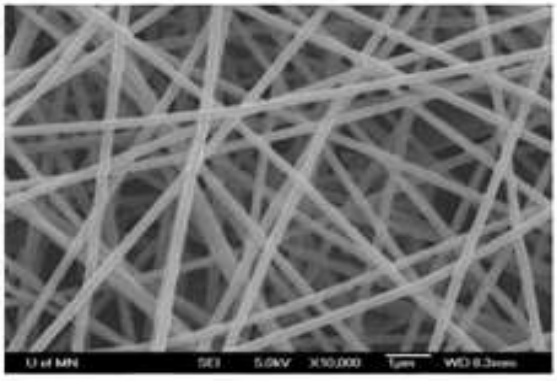
1. **Project Title** : Project tile: Synthesis of Curcumin-PLGA Nanofiber using Electrospinning techniques and to evaluate the efficacy of CU-PLGA nanofiber mat in GAgP patients
2. **Mentor Name** : Dr. Aatish Daryapurkar
3. **Student Team Names:** Aditi Bharadwaj
4. **Project Description:**

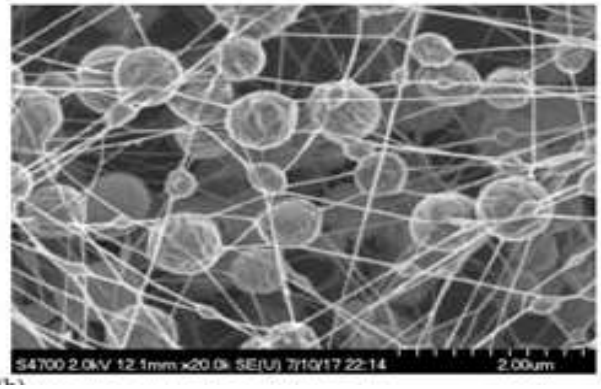
   Periodontal disease is a widespread chronic condition associated with degradation of periodontal tissues that requires more effective approaches for its treatment. There is a growing evidence of antimicrobial and hostmodulatory effect of phytochemical compounds in medicine and a

number of clinical trials has unravelled a plethora of pharmacological properties of few herbal compounds like Curcumin (CU). CU, an ingredient of turmeric possesses a multi-mechanistic behaviour has been observed to be effective in many diseases chronic periodontitis , CVD , neurological diseases, other inflammatory diseases etc. Curcumin's anti-inflammatory has been studies in a wide-spectrum of in-vitro studies assessing variety of cell including T cells, macrophages, dendritic cells etc. There is substantial proof in the literature indicating that the capability of curcumin attenuating the hyperactive immune response to periodontal disease associated bacterial antigens and inhibit periodontal tissue destruction. Thus, the aim of this study is to synthesis of CU-PLGA nanofiber mat using electrospinning techniques and to evaluate the efficacy of CU-PLGA nanofiber mat in GAgP patients.

5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Development of technology and its validation
7. **Current status:**
   - This will be the first time that CU loaded PLGA nanofiber mat will be used as an adjunct treatment modality in GAgP patients. Therefore, the aim of the proposed study is to assess the safety and efficacy of
   - CU-nanofiber mat in GAgP patients.
   - To synthesis of Curcumin-PLGA Nanofiber/ mat using Electrospinning techniques.
   - To evaluate the efficacy of CU-PLGA nanofiber mat in in GAgP patients
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**







Dr. Aatish Daryapurkar Aditi Bharadwaj

Project-04: Fabrication of Ti6Al4V-beta-tricalcium phosphate scaffolds using Conventional manufacturing

1. **Project Title** : Fabrication of Ti6Al4V-beta-tricalcium phosphate scaffolds using Conventional manufacturing
2. **Mentor Name** : Dr Ashutosh Bagde
3. **Student Team Names:** Aniket Pathade
4. **Project Description:**

   3D Ti6Al4V-beta-tricalcium phosphate (TCP) hybrid scaffolds with interconnected porous network and controllable porosity and pore size using 3D fiber deposition (3DF). Ti6Al4V-TCP slurry is developed for 3DF by optimizing the TCP powder size. In this study nanocomposite of Ti-6Al-4V and nano-Hydroxyapatite is anodized which resultantly produced self-assembled titania nanotubes on the substrates surface, for the better adhesion strength of the cells on the surface. These results into the enhanced cell proliferation, migration and differentiation activity, which results into the better or enhanced bone growth and integration. The mechanical properties such as compression, microhardness and fracture toughness is evaluated and the structural characterization is confirmed by XRD, FTIR, SEM, etc. The biochemical degradation studies will define the degradation and stability of the composite, whereas MG-63 cell line will be used to determine the cell differentiation, migration and proliferation assay. The

osteogenic differentiation define the expression level of HIF-1α and VEGF by western blotting and ELISA. This study proposed that anodized composite will have enhanced mechanical, physical, biochemical and biological property of the composite and will also enhance the osteoconductivity of the bioceramic materials.

Method and Materials:

Samples: Commercially available Ti6Al4V powder and nano-hydroxyapatite (nHA) powder with PVA as Binder, will be used for the study to form a composite scaffold.

Preparation of Ti6Al4V/nHA composites: For fabricating the different composites, the nHA particles was added in 3 different concentrations (10wt%, 20wt% and 30wt%) with Ti6Al4V. The resultant 3 different samples will be having increasing amount/wt% of nHA. Both the powders in desired mentioned ratio were mixed together, by manual grinding within the agate mortar for 30 minutes, with extra addition of PVA (binder). The resultant composites was further incubated for 2 hours at room temperature. The sintering was done at different temperatures ranging between 600°C to 1200°C, at a heating rate of 5°/min & 30 min holding rate. The sample was furnace cooled at room temperature. All the 3 different sample composites further be evaluated for mechanical, morphological, degradation, and in-vitro biological characterizations/assessment.

Mechanical Property Characterization/Tests: The different parameters such as compressive strength, microhardness, and Fracture toughness and Vickers hardness are used.

a. **Compressive strength**: Compressive strength is desirable property for consideration in application of bone tissue engineering possess by scaffolds, as bone being structural tissue plays major role in bearing weight of the body. It was performed at displacement rate of 1mm/min, using Universal testing machine and the resultant load determined the compressive strength of the composite, followed by evaluation of compressive elastic modulus by using standard formula on the basis on compressive strength evaluation was done.

$S = F/A$

Where, F=Maximum applied force

A= Area of scaffold

b. **Microhardness**: The Vickers microhardness technique was used to measure surface hardness at particular load in N, with specific time, using micro-hardness tester.

c. **Fracture toughness**: Simple indentation method at specific load (N) with a holding time in seconds, is used to evaluate by using the following equation.

KIC =0.026 (E.F) 1/2. (a/C3/2),

where, E= Young's modulus (GPa),

F= Indentation load (N),

a= Half of the average indent diagonal

C= Half of the radial crack length.

Surface/Morphological characterization:

a. **X-ray Diffraction (XRD)**: To evaluate the phase composition & crystallinities with a Cu-Kα radiation of wavelength (λ = 1.5418 Å) source at 40 kV and 40 mA, between 10° to 80°.

b. **Crystallinity Measurements**: The collected data from the previously mentioned range of degrees will be further calculated for Crystallinity (CrI) by using the following equation mentioned below:

CrI = I110 - Iam/I110 X 100

Where, I110 & Iam, exhibits maximum intensities at two different Degrees.

c. **Fourier transform infrared spectroscopy (FTIR)**: The identification and characterization of chemical groups of the composite scaffold evaluated by using FTIR spectrometer from 500 to 4000 cm−1 with a step size of 5 cm−1.

d. **Morphological and elemental characterization using SEM/TEM/EDS**: The surface morphological features, such as the examination of micro-structures, powder compositions and analysis of elements of the sintered samples is done by using Scanning electron microscopy (SEM) and further evaluated by ImageJ software using the SEM images or Transmission-electron microscopy (TEM) and Energy dispersive spectroscopy (EDS), respectively.

The Archimedes' principle is used to determine the bulk density and porosity of the synthesized composites.

e. **Swelling test and retention abilities**: To determine the swelling behavior of the sample, initially the dry weight was measured, and the

weight of scaffold immersed in SBF/PBS for 24 hours at room temperature is taken using the electronic weighing balance, to estimate the uptake quantity of the scaffold, the following experiment is repeated 3 times and the percentage swelling is calculated using the following equation:

EA= Ww-Wd/Wd X 100, where, EA= Uptake of fluid

Further the retention ability will be measured by weighing the sample again by centrifuging the wet sample along with filter paper in a falcon tube at specific speed for desirable time, and calculated using the formula:

ER= W'w – Wd/Wd X 100, where, ER= Fluid Retention.

f. **Water Contact Angle**: To evaluate the surface wettability, sessile drop method is used to measure contact angle measurement, where the drop of water is applied over the sample surface and further evaluate by using digital camera for shape detection and software for the contact angle measurements.

To evaluate the chemical stability and in vitro bioactivity of the composites, Biochemical studies in simulated body fluid (SBF) is meant to be performed:

a. **In vitro static and dynamic Degradation study**: The standard SBF is obtained by dissolving reagents includes NaCl, NaHCO3, KCl, K2HPO4·3H2O, MgCl2·6H2O, CaCl2, and Na2SO4 in deionized water.

The static degradation study is evaluated by incubating the composite scaffold in SBF solution at 37± 0.5 °C, in water bath for 28 days and the SBF will be refreshed every 48hrs, further concentrations of Ca2+ and PO43− ions and SBF pH, was measured at different time intervals every 7 days. The sample was rinsed with distilled water, and dried at room temperature. The weight of the sample before, after and each time interval was calculated by using the following equation:

% weight loss= Wi-Ws/Wi

Where, Wi = Initial known weight; Ws = Wet weights at regular time intervals

Followed by dynamic degradation study, in which the circulatory flow was created using peristatic pump and incubated at constant temperature, for further ion release estimation by following the whole procedure above .Microstructure and chemical analysis after degradation study was done by subsequent XRD and SEM analysis.

b. **Released ion concentration quantification assessment**: The total released ion concentration in the solution denoted by (Ctotal) was measured through atomic absorption spectrophotometer. And the specific ion concentration of Ca2+ and other was determined by using following formula (Ctotal - CSBF). UV visible spectrophotometer measured the phosphorous amount in the form of phosphomolybdate.

c. **Bone-like apatite formation to determine in vitro bioactivity studies**: The SBF soaked samples in both static and dynamic condition was evaluated for microstructure examination of the sample surface by FE-SEM, after gold coating after 21 days.

d. **Chemical stability and HPLC-MS measurements**: The chemical stability of the material was analyzed by measuring the pH of SBF. After the incubation period of the scaffold into the SBF up to several month the residual fluid was used for the qualitative determination of the degraded products by the HPLC-MS analysis. Main degradation compounds will be monitor in multiple reaction monitoring mode (MRM). Samples was developed on column at particular temperature at specific flow rate followed by gradient elution of different solvents.

e. **Dissolution Kinetics**: Under both the static and the dynamic model the dissolution rate of the porous bioceramic scaffold was determined by using calibration curve approach for ionic diffusion model stated according to Avrami equation.

5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Development of technology and its validation
7. **Current status:**
   - **Biological Characterization**:
   - In vitro studies, by seeding MG-63 cells over the scaffolds:

     a. **Cell culture**: Human osteoblast cell line MG63, is meant to be obtained from NCCS, pune and cultured in DMEM supplemented medium having 10% Fetal Bovine Serum (FBS), along with 1% non-essential amino acids, 1% sodium pyruvate, 1% L-glutamine, and 1% of antibiotic/antimycotic, in a humified atmosphere at 5% CO2 supply at 37 °C, and the medium is to be changed every second day. Once

the cells will reach the confluency and will cover 80% of surface, it will be harvested by trypsinization with 0.1% trypsin and will further re-suspended in the media. To visualize the cell density Trypan Blue dye exclusion method will be used before seeding of the cells on sample.

b. **Cell seeding**: The scaffold along with complete media will be incubated in 96 well culture plate for 12 hrs for adhesion, after being sterilized with 70% ethanol, UV light treatment for 30 mins and further PBS washing. The scaffold seeded with cells at density of 5000/cm2 per wells, in sterile conditions. The cell seeded scaffolds will be incubated at 37°C, in CO2 incubator having 5% CO2 supply. The cells will be observed under optical microscope followed by media change on each alternate day[12].

c. **Cell scaffold morphology**: Environmental scanning electron microscope will be used for the morphological analysis after 7 days of cell culturing. Briefly, the scaffold seeded with cells will be washed with PBS and fixation will be done using glutaraldehyde, followed by dehydration with increasing concentration of ethanol (50%,70%,90% and 100%) each for 3-4 minutes. The sample will be air-dried overnight followed by observation under ESEM[6].

d. **Cell adhesion**: Cells at density of 5000 cells/well will be seeded in scaffolds and tissue culture plate (TCP), and will be trypsinized to remove attached cells after 2, 5 and 8 hours of seeding the cells on scaffold. Haemo-cytometer will be used to count the number of attached cells, with respect to control TCP[6].

e. **Cell viability**: Concentration of viable cells will be determined using Alamar Blue assay for the cellular metabolic activity evaluation after time period of 1,3 and 7 days of culture. The cell seeded scaffolds will be incubated for 2 hours at 37°C in culture medium having 300 µl/ well of 10% Resazurin reagent in humified atmosphere with 5% CO2. Microplate reader will measure the fluorescence signal of 100ul of solution from each well, with 535nm as excitation wavelength and 590nm as emission wavelength. The experiment will be done in three to five replicates for each sample[13].

f. **Cell proliferation**: MTT [3-(4,5-di- methylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide, will be used to evaluate the cell proliferation

activity at day 3 or different time intervals 1, 3, and 7 days. Scaffolds will be PBS washed, followed by incubation with MTT dye solution for 2-4 hrs in CO2 incubator. The solution buffer will be added and pipetted repeatedly to dissolve the formazan crystals. The resulting supernatant will be measured using spectrophotometer at 595nm[4].

g. **Cell Differentiation Assay**: Alkaline phosphatase (ALP) will be determine using ALP assay kit of MG-63 cell line, at days 4,7, and 10. The lysate will be extracted by digesting MG-63 cells using lysis buffer, followed by centrifugation to obtain the resultant supernatant, which will further react with 1mg/ml p-nitrophenyl phosphate (p-NPP), and finally the O.D will be observed at 405 nm using microplate reader, to determine the ALP quantity [4].

h. **Osteogenic Differentiation analysis**: qRT-PCR will be used to evaluate the MG-63 cells osteogenic differentiation after culturing on the sample surface for about 4, 7 and 10 days. The extracted RNA will be reverse-transcribed to cDNA using kit according to manufacturer instructions, and will be detected using Real-time PCR system for the quantitative expression of osteogenic markers, namely Type I collagen (Col I), bone morphogenetic protein 2 (BMP-2), osteocalcin (OCN), osteopontin (OPN), runt-related transcription factor 2 (Runx2) and bone sialoprotein (BSP) [4].

i. **Angiogenic property determination**: Estimation of HIF-1α and VEGF expression levels will determine the angiogenic property of the sample, whereas western blot analysis will used for estimating the expression of HIF-1α and ELISA for the VEGF.

   1. **HIF-1α expression analysis by western blotting**: The sterilized 10 mg sample suspended in 1ml of DMEM media will be incubated for 7 days at 37℃, and the MG-63 cells will be seeded in six well plate, prior to 12 hours of sample loading at a concentration of 1.3 X 105 cells per well, followed by addition of the sample releasate, whereas 200 μM CoCl2 will be act as positive control. The cells will be incubated for 24 hrs, followed by protein estimation assay by Bradford assay kit, using cell lysate prepared by cell lysis buffer after trypsinization. 7% SDS-PAGE will used to fractioned the 20 μg of protein from each sample, and using electro-transfer

apparatus will transferred onto a PVDF membrane. 5% BSA solution will block the membrane and it further incubated overnight at 4℃ with gentle shaking after immunoblotting with a primary antibody against HIF-1α (dilution: 1:200, mouse anti-human), the membrane will be washed with PBST buffer thrice, after removing the antibody solution, and secondary antibody (anti- mouse HRP conjugated, dilutions: 1: 1000) with gentle shaking for 1 hr at room temperature. The immune-stained samples will be detected using chemiluminescence ECL kit. The bands will be seen after exposing the membrane to X-ray film, where β-Actin will be used as control.

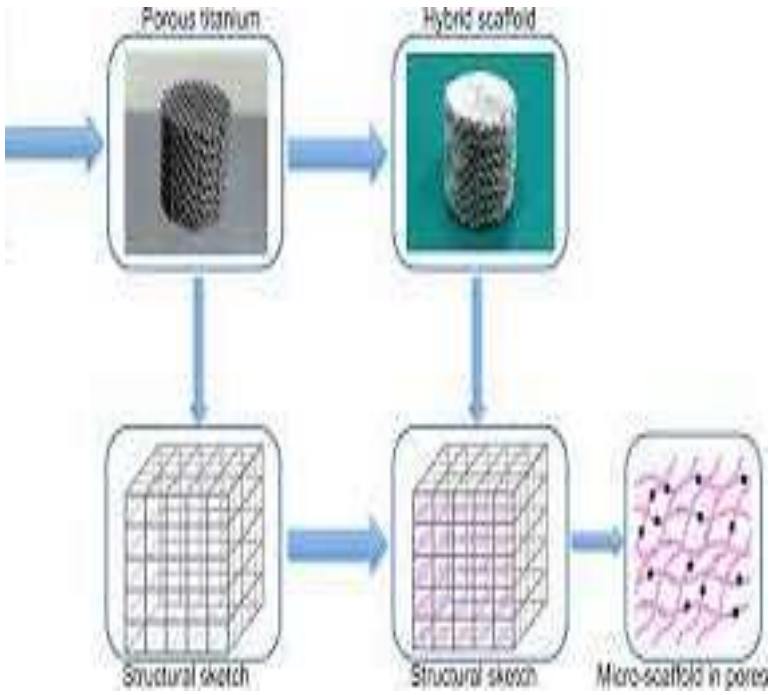
2. **VEGF expression by ELISA**: Human VEGF ELISA kit will be used to estimate the VEGF expression level of MG-63 cells. Briefly the cells will be seeded in density of 1.5 X 105 per well for 12 hrs at 37℃, at 5%CO2. The cells will further be treated with 100ug/ml concentration of 7 days sample releasate for 24 hrs. The ELISA will be performed on the collected supernatant after the incubation period by following manufacturer's protocol, and the absorbance will be measured immediately after adding stop solution after the TMB addition for color development at 450nm [12].

- **Statistical analysis:** Results of the biological assays will be analyzed statistically by using two-way ANOVA and t-test, where all the results will be expressed as mean and standard deviation, and the probability $p<0.05$, will be considered as a statistical difference. All the experiments will be performed in three replicates[6] .
- **Anodization Parameters**: The resultant sample will produce self-assembled nanotubes as an intermediate layer on the surface after anodization. Briefly, the sample will act as anode and the platinum foil as cathode will be suspended in electrolyte solution, composing 90% ethylene glycol, 9% distilled water, 1% hydrofluoric acid and 0.25wt% ammonium fluoride, applying 50V potential for 1 hr, after which the anode will be removed and washed for the excess removal of electrolytes by rinsing thrice with distilled water[5].
- The anodized sample having nanotubes arrays on the surface will further be evaluated for all the morphological, physio-chemical, biological and cell culture in vitro studies, followed by statistical analysis. Both non-anodized

and anodized evaluated experimental samples will be analyzed comparatively on the basis of all the results of tests conducted.

- **Discussion**: Ti6Al4V and nHA composite found to be the preferable and suitable combination for clinical applications. This study proposed the novel combination of the suitable concentrations of both the materials with anodization technique. The surface structural modifications by using anodization will form the nanotubes on the surface, responsible for the enhanced adhesion strength of the surface with host tissue present in the surrounding, which will result into enhanced bone growth, healing, cell proliferation, migration and differentiation along with excellent mechanical property. The expression of osteogenic differentiation will may also get affected positively, and expressed highly for the bone growth parameters along with enhanced angiogenic property.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-05: To study scaffold architecture for bone regeneration

1. **Project Title** : To study scaffold architecture for bone regeneration
2. **Mentor Name** : Dr. Abhaykumar Kuthe
3. **Student Team Names:** Bhupesh Sarode
4. **Project Description:**

The proposed project give critical idea in regeneration bone tissue in tissue engineering. The regeneration of bone tissue is depend on architecture of scaffold on which cell will be attached for regeneration of bone. This project can contributes in regeneration of bone tissue in scaffold.

The scaffold architecture plays a crucial role in bone tissue regeneration as it provides a three-dimensional (3D) framework for cell attachment, proliferation, and differentiation. The specific characteristics of the scaffold architecture can influence cell behavior, nutrient and oxygen diffusion, and the formation of new bone tissue. Here are some key effects of scaffold architecture on bone regeneration: Porosity: The porosity of a scaffold refers to the presence of interconnected pores within its structure. Porosity is important for facilitating nutrient and oxygen exchange, allowing cells to migrate into the scaffold, and promoting the formation of new blood vessels (angiogenesis). An optimal pore size and distribution are required to support cell infiltration, nutrient transport, and vascularization. Too high or too low porosity can negatively affect cell attachment, proliferation, and tissue ingrowth.

Interconnectivity: Interconnectivity refers to the degree of connectivity between pores within a scaffold. High interconnectivity enables cell migration, nutrient diffusion, and vascularization throughout the scaffold. It ensures a continuous network that allows cells to populate the entire scaffold and facilitates the exchange of growth factors and waste removal. Adequate interconnectivity is essential for uniform distribution of cells and promotion of tissue regeneration.

Surface topography: The surface topography of the scaffold can influence cell adhesion, migration, and differentiation. Certain surface features, such as roughness, microgrooves, or nanotopography, can enhance cell attachment and proliferation by providing more surface area and better mechanical

interlocking. Additionally, surface roughness can influence the orientation and alignment of cells, which is crucial for proper bone formation.

Mechanical properties: The mechanical properties of the scaffold, such as stiffness, elasticity, and strength, can affect cell behavior and tissue formation. The scaffold should have mechanical properties similar to native bone to provide structural support during regeneration. If the scaffold is too rigid, it may impede cellular activities and natural bone remodeling. On the other hand, if the scaffold is too weak, it may collapse or fail to provide sufficient support for bone formation.

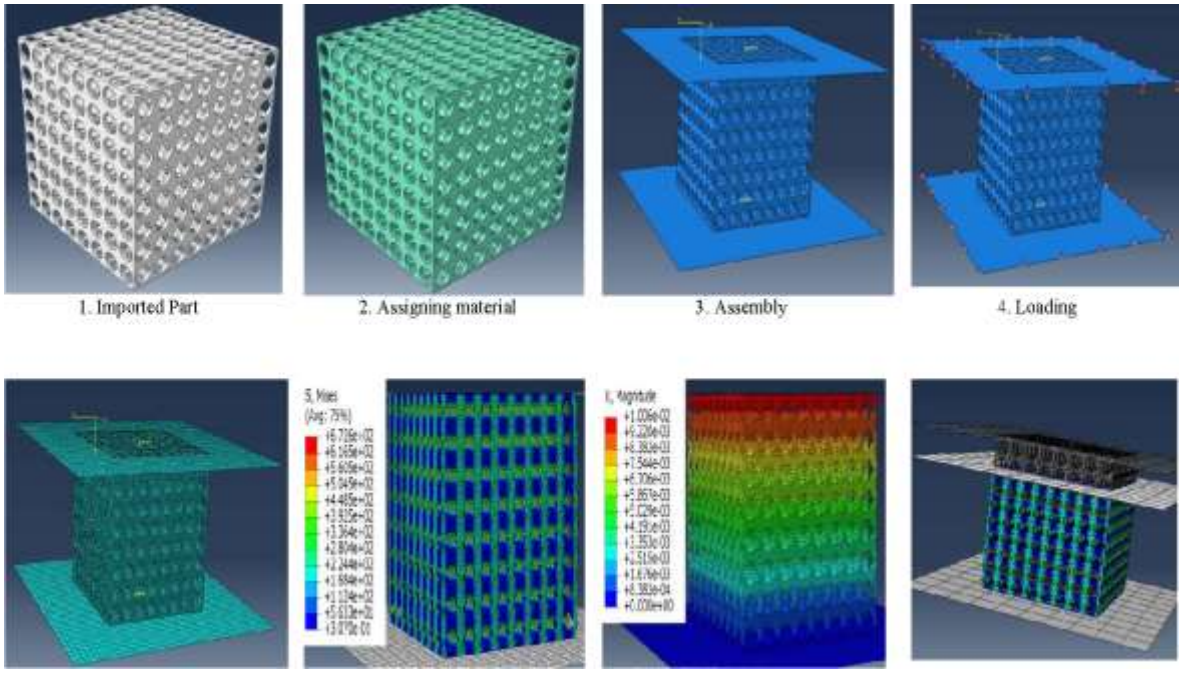
Degradation rate: The degradation rate of the scaffold should be carefully controlled to match the rate of new bone formation. Ideally, the scaffold should degrade gradually over time as new bone tissue develops. This allows the load-bearing function to transition from the scaffold to the newly formed bone. The degradation products should also be biocompatible and non-toxic to avoid adverse reactions.

Overall, the scaffold architecture influences cell behavior, nutrient supply, vascularization, and mechanical support, all of which are critical for successful bone tissue regeneration. Optimizing these factors in scaffold design can enhance the regenerative potential and improve outcomes in bone regeneration therapies.

5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Proof of concept developed. Characterization in process
7. **Current status:**
   - The aim of the project is to create porous scaffold and do the FEA analysis of the scaffolds.
   - Finite Element Analysis of scaffold architecture provides valuable insights into the mechanical behavior and performance of scaffolds, aiding in the optimization of their design for bone regeneration applications. It helps researchers and engineers understand how different scaffold parameters and loading conditions affect the structural integrity and functionality of the scaffold.

- It is important to note that the optimal porosity range for bone tissue regeneration can vary depending on various factors, including the specific application, target tissue, and scaffold material. The porosity should be carefully designed to balance cell infiltration, nutrient transport, mechanical properties, and tissue integration for successful bone regeneration outcomes.

8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:



Dr. Abhaykumar Kuthe Bhupesh Sarode

Project-06: Air Quality infomarion system for hospital and homes

1. **Project Title** : Air Quality infomarion system for hospital and homes
2. **Mentor Name** : Dr Gaurav Mishra
3. **Student Team Names:** Prachi Dabhade
4. **Project Description:**

   An air quality information system for hospitals and homes can be a valuable tool to monitor and ensure the well-being of occupants. Such a system would provide real-time information about the air quality parameters, enabling timely actions to maintain a healthy environment. Here are some key components and features to consider:

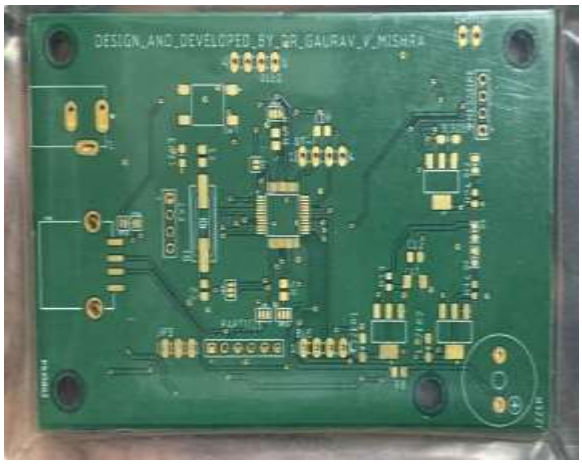
   Sensors: Deploy sensors capable of measuring various air quality parameters. Common sensors include those for monitoring particulate matter (PM2.5 and PM10), volatile organic compounds (VOCs), carbon dioxide (CO2), carbon monoxide (CO), temperature, humidity, and possibly other relevant pollutants. Ensure the sensors are accurate, reliable, and calibrated regularly.

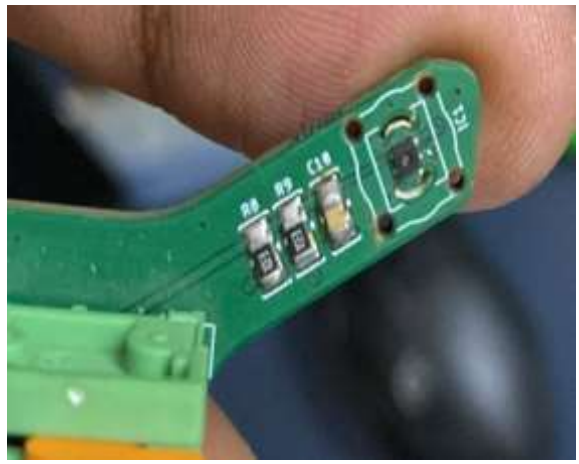
   Data collection and analysis: Establish a data collection mechanism to gather information from the sensors in real-time. This can be achieved through a network of connected sensors, wireless communication protocols, and a centralized data storage system. Analyze the collected data to generate meaningful insights and identify potential air quality issues or trends.

5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Development of technology and its validation
7. **Current status:**
   - User interface: Develop a user-friendly interface to display the air quality information to users. This can be in the form of a web-based dashboard, a mobile application, or dedicated display units within hospital rooms or homes. The interface should present the data in a clear and understandable manner, including visualizations, historical trends, and alerts for abnormal conditions.

- Alerts and notifications: Implement a notification system to alert users when air quality parameters exceed acceptable levels. This can be in the form of SMS, email, push notifications, or audible alarms. Users should be able to set customizable thresholds for different parameters based on their specific requirements.
- Historical data and analytics: Store historical air quality data to allow for long-term analysis and comparison. This can help identify patterns, understand seasonal variations, and evaluate the effectiveness of interventions or mitigation strategies. Provide analytics tools or reports that enable users to gain insights from the accumulated data.
- Integration with ventilation systems: If applicable, integrate the air quality information system with existing ventilation systems in hospitals and homes. This integration can facilitate automatic adjustments to airflow, filtration, or purification based on real-time air quality measurements.
- Recommendations and guidance: Offer recommendations and guidance to users based on the air quality data and specific health considerations. This can include suggestions for actions to improve air quality, such as adjusting ventilation, using air purifiers, or taking precautions during specific periods of high pollution.
- Maintenance and calibration: Regularly maintain and calibrate the sensors to ensure accurate and reliable measurements. Implement protocols to replace or service sensors as needed to maintain the system's performance.
- It is important to note that developing and implementing an air quality information system requires expertise in sensor technology, data analysis, software development, and domain-specific knowledge of air quality monitoring. Consulting with professionals or companies specializing in indoor air quality solutions can help ensure the system meets the specific needs of hospitals and homes while adhering to relevant regulations and standards Current status of the project: At present no technology is using microwave energy for the production of micro-holes required for lab on-chips. The basic prototype was fabricated with the help of the NewgenIEDC project and experimentation is in-progress.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





Dr. Gaurav Mishra Prachi Dabhade

Project-07: Design and development of nanoparticle coated contact lenses for prevention of microbial keratitis

1. **Project Title** : Design and development of nanoparticle coated contact lenses for prevention of microbial keratitis
2. **Mentor Name** : Dr. Vidya S. Tale
3. **Student Team Names:** Shraddha Jaiswal
4. **Project Description:**

   The Contact lens use can result in adverse events like bacterial cornea infection and inflammation. The bacteria adhering to contact lenses initiate infection of the cornea resulting inflammation of the cornea as well as conjunctiva. The prevention of biofilms and adherent organisms on lens surfaces potentially decrease the incidence of microbial adverse events.

   There are several reports of developing the antimicrobial surfaces of biomedical devices, and their application to CLs is also studied. There are studies suggested that antimicrobial treated CLs will decrease the risk of inflammatory complications such as Contact lens Acute Red Eyes (CLARE) and Contact Lens Peripheral Ulcer (CLPU). The influence of antimicrobial

surfaces on the reduction of microbial keratitis is not only biologically plausible but quite promising as well. In order to reduce the incidence of these events antimicrobial contact lenses are being developed.

In this proposed plan antimicrobial and anti-biofilm potential of chemically synthesized different metal oxides nanoparticles will be investigated against the biofilm producing isolates. We will explore the strategies to design and develop antimicrobial contact lens using this synthesized metal oxides nanoparticle. Infection and inflammation during wearing contact lenses are often associated with the microbial contamination of lenses. Contact lenses provide a surface to microbial pathogens to adhere and form biofilms. The microorganisms colonize contact lenses and lead to Microbial keratitis (MK), a sight threatening infectious disease of the cornea. The annual incidence of MK is 4-21 per 10,000 contact lens wearers- approximately 38% get affected by keratitis in India. In MK, there exists resistance to commonly prescribed monotherapeutics. Topical therapy have their own limitations such as rapid loss caused by drainage and high tear turnover and ocular toxicity. To address this problem we have come up with an idea of antimicrobial lenses.

About 90% of contact lens users with unhygienic practices develop eye infection or inflammation. Development of active contact lenses coated with biocompatible nanomaterials at the edges of lenses will prevent the entry of microorganisms into eye. The innovation in biocompatible nanomaterial and development of active contact lens would be sufficient for preventing and reducing the onset of ocular infections. Our product and strategy would encourage people to use active contact lenses for prevention of eye infections in future.

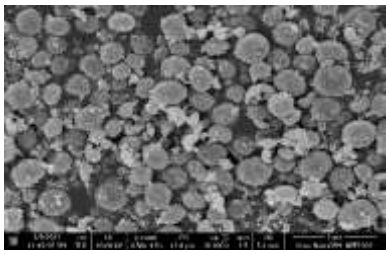
5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Proof of concept developed. Characterization in process
7. **Current status:**
   - We have completed the synthesis and characterisation of four metal oxide nanoparticles (MONs): Zinc oxide nanoparticles (ZnONPs), Copper oxide nanoparticles (CuONPs), Titanium Oxide nanoparticles (TiONPs)

and Iron oxide nanoparticles (Fe2O3NPs). The following methods were used for the synthesis.

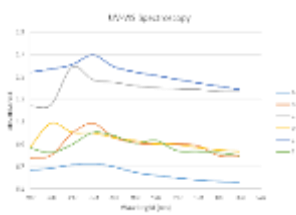
- Solgel,
- Co-precipitation,
- Polyol
- Hydrothermal synthesis.
- The Nanoparticles were characterised by UV visible spectroscopy, DLS (Dynamic light scattering), Zeta potential, Fourier Transform IR spectroscopy, Scanning Electron Microscopy in order to study their size, shape and other physical properties. Antimicrobial efficacy of MONs was performed by Agar well plate method and broth dilution assay method. The Minimum Inhibitory concentration was also calculated.
- The results suggest that polyol method of ZnONPs synthesis have shown the uniform monodispered nanoparticles size less than 20nm with highest antimicrobial efficacy. CuONPs with 40 nm was observed using solgel method. For TiONPs hydrothermal was more effective to get desired particle size compared to precipitation method which was found efficient to synthesize Fe2O3NPs.
- The results also confer antimicrobial activity of synthesized NPs are size and dose dependent. The dose plays a crucial role in ocular toxicity thus we will be gearing up for our next level to compare the dose dependent efficacy and toxicity of MONs to cast active contact lenses which will be followed by casting of contact lenses loaded with metal oxide nanoparticles and its biological and toxicological tests.

8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

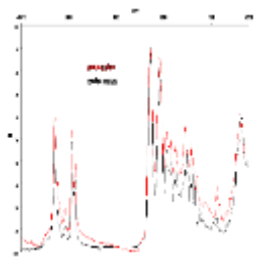
Synthesis of Metal oxide Nanoparticles



SEM images of synthesized ZnO Nanoparticle



UV visible spectroscopy graph



FTIR analysis of Nanoparticles

Project-08: Development of the Device to Screen Diabetic Patient Using Pupillometry

1. **Project Title** : Development of the Device to Screen Diabetic Patient Using Pupillometry
2. **Mentor Name** : Dr Mayur Parate
3. **Student Team Names:** Om V. Barapatre
4. **Project Description:**

   Pupillometry is the measurement of the size and response of the pupil of the eye. It has been utilized in various medical applications, including the screening and monitoring of diabetic patients.

   Diabetes is a metabolic disorder that affects the body's ability to regulate blood glucose levels. Chronic hyperglycemia (high blood sugar) can lead to numerous complications, including diabetic retinopathy, a condition that affects the blood vessels in the retina of the eye. Pupillary changes have been observed in individuals with diabetic retinopathy, making pupillometry a potential tool for screening and monitoring the disease.
5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Validation of the PoC and development and validation
7. **Current status:**

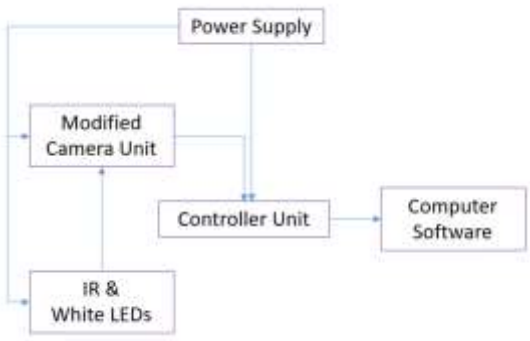
   The development of a device to screen diabetic patients using pupillometry would involve several key components:

   1. Pupil Measurement: The device would incorporate a camera or sensor to capture images or measurements of the pupil. Pupillometry can involve various techniques, such as infrared imaging or video tracking, to accurately measure changes in pupil size and response.
   2. Data Analysis: The captured pupil data would be processed and analyzed using algorithms to extract relevant information. Machine learning and computer vision techniques could be employed to detect abnormalities or patterns indicative of diabetic retinopathy or other diabetic complications.

3. Diagnostic Criteria: The device would utilize established diagnostic criteria or reference data to compare the measured pupillary parameters against normal or abnormal ranges. This would help determine whether a patient's pupil response is within expected limits or indicative of diabetic-related changes.
4. User Interface: The device should have a user-friendly interface, allowing healthcare professionals or even patients themselves to interpret the results easily. The interface might provide real-time feedback, generate reports, or integrate with medical records for long-term monitoring and analysis.

- Advancements in technology could lead to improvements in accuracy, portability, and accessibility of such devices. For example, miniaturization of sensors and advances in mobile computing could enable the development of handheld or smartphone-based pupillometry devices. These portable solutions could be used in primary care settings, remote healthcare, or even by patients themselves for regular monitoring.
- It's important to note that while pupillometry shows promise as a screening tool, it should not replace comprehensive eye examinations performed by qualified eye care professionals. A thorough assessment of diabetic retinopathy often involves dilating the pupil and examining the retina directly.
- To stay updated on the latest developments in this field, I recommend consulting scientific literature, medical journals, or reaching out to medical professionals specializing in ophthalmology and diabetic care.

8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

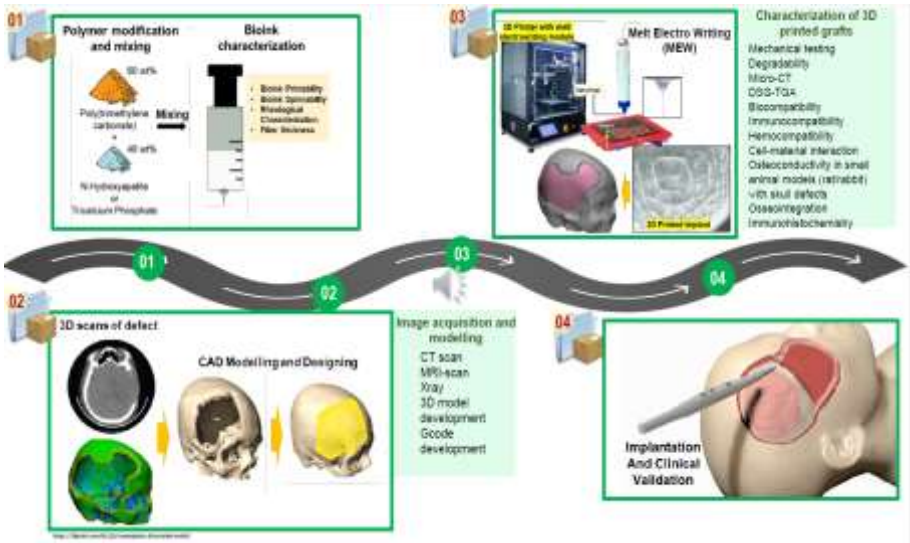


Project-09: Development of customized cranial prosthesis using automated melt electro-writing and 3D printing platform

1. **Project Title** : Development of customized cranial prosthesis using automated melt electro-writing and 3D printing platform
2. **Mentor Name** : Prof. Ashok Kumar
3. **Student Team Names:** Dr Shreya Mehrotra
4. **Project Description:**

   To protect cerebral structures and control alterations in the cerebrospinal fluid (CSF), blood flow, and the metabolic demands of the brain. To cosmetically reshape the cranial defects thus providing relief to psychological drawbacks and increasing social performances. Facilitate cranial growth in children
5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Validation of the PoC and development and validation
7. **Current status:**

   Development of PTMC/TCP and PTMC/HAP based electro-writable biomaterial inks which can be used for developing cranial bone prosthesis. Use of melt-electro writing technique in conjunction with 3D bioprinting/3D jetting technique to develop customized patient specific grafts that can be used develop anatomical brain structures with high precision without compromising on the material properties. Development of low-cost, customized and patient-specific off-the-shelf cranial prosthesis
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-10: Gift of Vision (application for eye donation)

1. **Project Title** : Gift of Vision (application for eye donation)
2. **Mentor Name** : Dr. Deepika Singhal
3. **Student Team Names:** Dr. Poonam Trivedi & Dr. Dhruvi Shah
4. **Project Description:**

   In India, there is a high demand for cornea transplants. Still, there is a lack of linkages between critical care/ trauma care hospitals/deceased eye donors and eye banks. Digital technology can provide an excellent platform to develop a link between potential donors and the eye banks. However, various mobile applications in India focus on awareness and organ donation pledges. There is a lack of mobile technologies specifically focused on corneal transplants, easily accessible to the donors, which can develop the linkages between potential donors and eye banks. We are developing a mobile-based application to create a system for identifying potential donors from the critical care unit of a hospital or home and their linkages to the eye banks for further counselling and the eye donation process. The application will also provide the nearest location of eye banks to the donors or donor's relatives, making the coordination between eye banks and donors easy and timely. Through such a system, more and more people can be identified and counselled for the corneal transplant, which may improve the corneal transplant in India and save the vision of many people.
5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Development of technology and its validation
7. **Current status:**
   - The application development is under process. A meeting of the various stakeholders involved in the eye donation process has been completed.

Project-11: Iodine crosslinked carbon nanodot coated antibacterial polymer surface for reducing biomedical catheter mediated HAIs

1. **Project Title** : Iodine crosslinked carbon nanodot coated antibacterial polymer surface for reducing biomedical catheter mediated HAIs
2. **Mentor Name** : Dr. Santanu Dhara
3. **Student Team Names:** Sayan Mukherjee
4. **Project Description:**

   In this study CND will be synthesised from natural whey protein by microwaving. The protein precursor of CND is enriched with amino acids so we will get more -NH2 groups in the surface of the carbon dot helping in crosslinking iodine. 2,5-dimethoxy-2,5-dihydrofuran (DHF) having bifunctional dialdehyde, butenedial formed by proteolytic cleavage could be iodinated to act as a cross-linker entity for the amine groups. The crosslinking will be confirmed through FTIR, XRD, XPS and Raman spectroscopy. The plasma-treated oxygenated surface of the polymer easily can be coated with the free amine groups of the iodine crosslinked CNDs. The surface topology and carbondot binding will be measured and characterized by AFM. The surface physiochemical properties i.e., hydrophobicity and charges will be measured elaborately. The antibacterial properties of the surface will be evaluated through disc diffusion and broth dilution methods for measuring MIC of the coating material. The biofilm formation will be measured through SEM and bacterial live-dead staining. In vitro and in vivo cytotoxicity will be evaluated respectively. The antimicrobial activity of drug-resistant pathogens will also be examined.
5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Proof of concept developed. Characterization in process
7. **Current status:**

   Method and materials:

   Whey protein derived CND (WCND) synthesis:

   A 1% (wt./vol) whey protein solution was prepared in deionized (DI) water and kept in continuous stirring using a mechanical stirrer (REMI, India) at

increased pH until it dissolved properly (Fig- 1a). It was immediately transferred to a domestic microwave (1000 W, 2.45 GHz) (26). The irradiation time for WCND synthesis was optimized via microwaving for different time intervals (3 min, 5 min, and 7 min) (Fig- 1c).

Crosslinking of WCND with Iodine functionalized DHF and ninhydrin assay

As prepared WCND with amine group was crosslinked with iodine functionalized 2,5-dimethoxy-2,5-dihydrofuran (DHFI). Firstly, iodine functionalized DHF solution was prepared by mixing 19.2 mM iodine solution (dissolved in 50 ml of 30% ethanol) with 38 mM DHF in a 1:1 ratio under constant stirring at 25 °C. DHFI solution and WCND were mixed and heated at 65°C for cross-linking. Before mixing WCND with DHFI, a ninhydrin (2, 2-Dihydroxyindane-1, 3-dione) assay was performed to determine WCND's crosslinking density with DHFI. In this assay, crosslinked and uncrosslinked WCND samples with different concentrations of DHFI (10%, 25% & 50%) solution were heated in acidic pH with 0.1% ninhydrin solution at 75°C, and optical absorbance of the solution was recorded at 575 nm with a spectrophotometer. At various known concentrations, glycine was used as the standard. Crosslinking density was calculated as per the following equation.

% Crosslinking density =[((C_b-C_a))⁄C_b]×100

Cb and Ca are the optical absorbances at 575 nm for CND before and after cross-linking.

Material Characterization

The WCND and WCND-DHFI were characterized using UV-Visible spectroscopy (Shimadzu), transmission electron microscopy (TEM, TECHNAI G2), X-ray diffraction (XRD, Bruker India), EDAX analysis (Oxford Instruments), Raman spectroscopy (Jobin Yvon Horiba), Fourier transforms infrared spectroscopy (FTIR, Perkin Elmer). A Malvern Zetasizer machine performed dynamic light scattering (DLS) analysis.

Results and discussion:

WCND synthesis:

Whey protein is a milk bi-product rich in globular proteins such as lactoglobulins and calcium caseinate. The precursor amino acid chains can be carbonized into ultra-small WCNDs by the stress induced by microwave

irradiation. Gelation tendency also can be observed at increasing irradiation time. Therefore, a time optimization was needed to find a balance gel-free WCND suspension. The perfect irradiation time was optimized for WCND synthesis by heating the samples at different time intervals. The optimization was validated via visual inspection of CND solutions under UV. The sample after 7 mins of microwaving has shown some gelation (Fig- 1c); therefore, up to 5 min of microwaving would be ideal for CND preparation from whey protein. Then we got a 40 mg/mL stock solution of CND prepared after 5 min of microwaving.

DHFI Crosslinking and ninhydrin assay:

The furan ring of DHF breaks in an acidic solution by protolytic cleavage to form a difunctional butenedial, as shown in Figure 1 b. The electrophilic attachment of molecular iodine on butenedial developed 2,3-diiodo butenedial through the formation of an intermediate iodonium ion in acidic conditions. Iodine is represented as an electrophilic agent (I+) in the occurrence of alkene-like Lewis bases. The alkene (butenedial) possesses the π bonding electrons, approachable to electrophilic Iodine (I2), and removes free iodide ion (I−). Gradually iodine is added to the butenedial by forming a bridged iodonium ion intermediate. Finally, the vicinal di-iodide was created via an opening of the iodonium ring through nucleophilicgegenion (I−), breaking the C−I bond. Through a Schiff base reaction, the carbonyl moiety of iodinated difunctional butenedial could react with free amine groups available at the surface of WCND and might crosslink through C=N bond formation via nucleophilic attack.

The Ninhydrin assay was performed to measure the crosslinking density between WCND and DHF-I. Samples were prepared for 10% and 25%, and 50% (v/v) DHF-I solution in CND and kept for heating to induce cross-linking. 30 µL of CND (without crosslinking) and all three crosslinked CND-DHFI samples were taken in triplicates. Then the assay result was measured by spectrophotometric method and plotted in a graph after calculating the average and standard deviation by one-way ANOVA. A significant difference was observed between 10, 25, and 50 % of DHFI (P value <0.0001), and the data showed an increasing trend of crosslinking density from a lower to a higher percentage of DHFI. Depending on this assay result, we have chosen

the sample having 50% DHFI crosslinked with CND for further characterization, as more than that may cause iodine-related cytotoxicity.

Material characterization

The physicochemical properties of the synthesized WCND-DHFI were characterized to further explore their multiple-dimensional biomedical applications. The TEM micrograph of WCND-DHFI (Fig. 2a) evidences the occurrence of spherical nanoparticles of average diameter between 1.5 to 3 nm (measured by Image-J software), and the hydrodynamic radius of approx. 3.2 nm for WCND-DHFI was determined by DLS. The EDAX analysis has confirmed the presence of carbon, nitrogen, oxygen, sulfur, sodium and iodine in WCND-DHFI (Fig. 2c).

WCND and WCND-DHFI both have shown a broad X-ray diffraction (XRD) peak (Fig. 2b) around $2\theta = 28^{\circ}$, which represents the (002) plane of graphite and another small hump around $2\theta = 42^{\circ}$, corresponding to the (101) plane originated due to the in-plane diffraction of graphene-like structured C-dots. But no clear evidence was there for the crystalline nature neither in XRD data nor in the SAED pattern, thus indicating that WCND and WCND-DHFI are of amorphous nature.

The UV-Vis spectra of WCNDs-DHF-I is shown in Fig. 2d. Both WCND and WCND-DHFI display an ultraviolet absorption band with a tail extending into the visible region, comparable to previously reported literature. The absorption spectra of WCND have shown two absorption peaks, attributing to the π - π^* transition of carbon-carbon interaction near about 280 nm and conjugated n - π^* transition of free amine groups (-NH2) near about 275 nm. The n - π^* transition of the C=O bond, was shown near 335 nm in the WCND spectrum. UV-vis spectrum of WCND-DHFI has represented a redshift of n - π^* (~350 nm) transition after iodine crosslinking due to the existence of C=N groups along with C=O. The formation of the C=N bond in the surface group can shift absorption peaks to longer wavelengths and change their absorption intensity.

The vibrational modes of the functional groups were analyzed through FTIR spectroscopy (Figure 2e). The FTIR spectrum of WCND has appeared with major peaks for C-H ethylenic stretch (633.9 cm-1), -CH3 bending vibration (1392.9 cm-1), N-H stretch for primary amines (3261.6 cm-1) -OH stretching

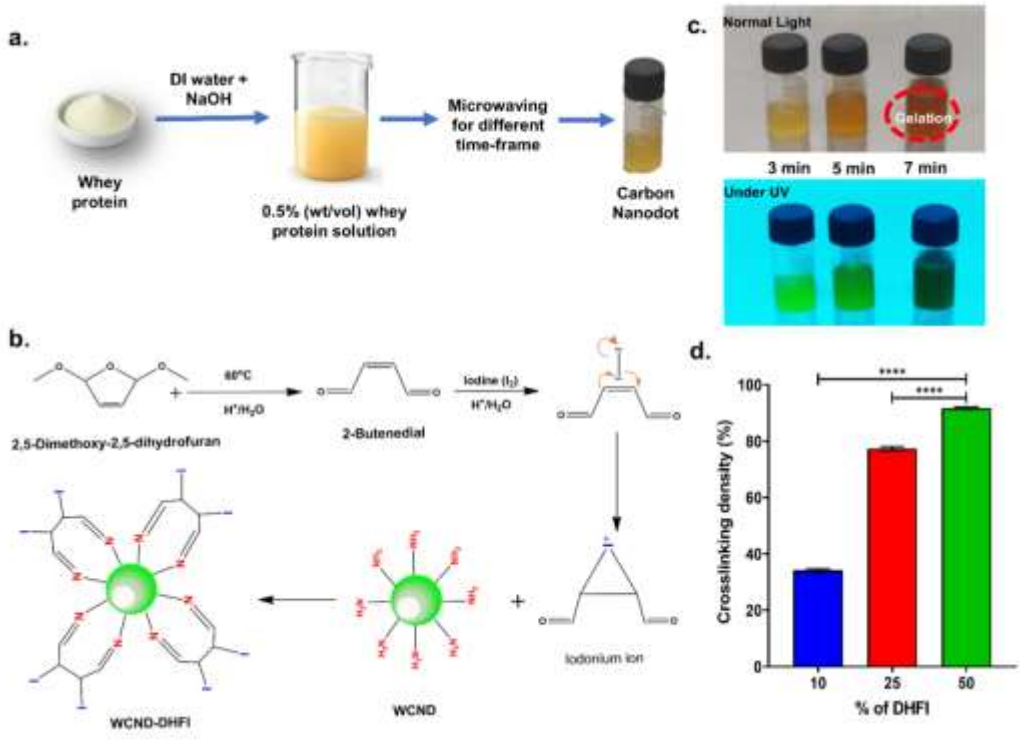
(3443.5 cm-1), and a broad peak representing superimposition of C=C stretch and amine specific N-H bending (1634.9 cm-1).

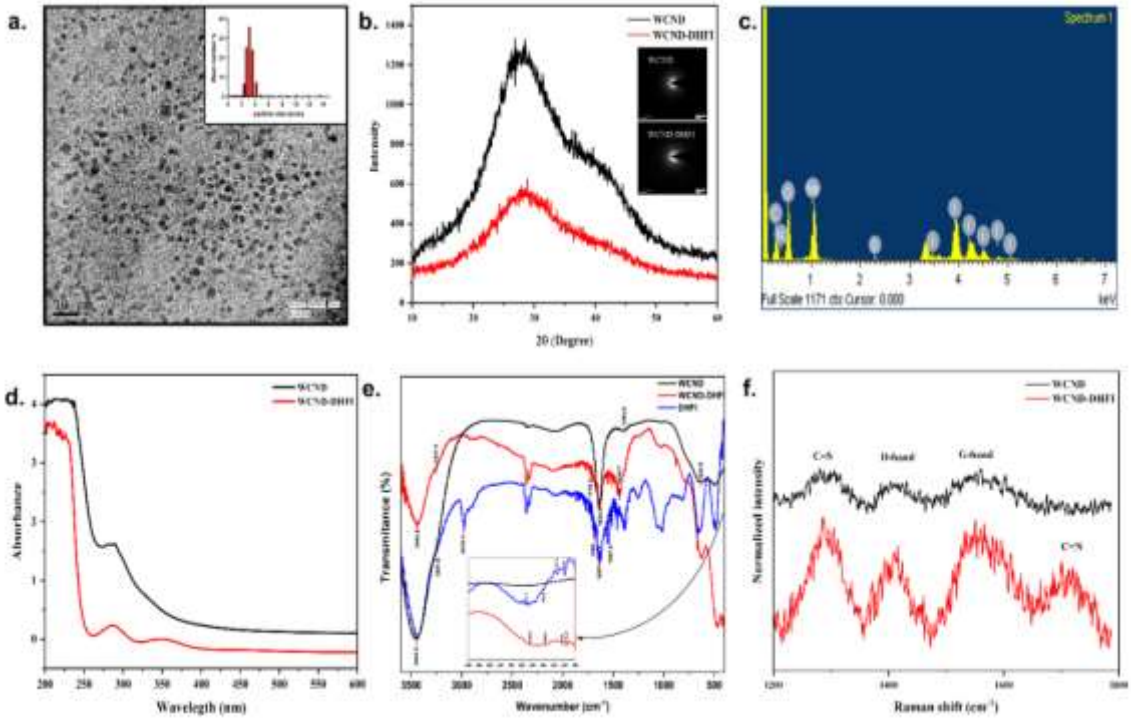
The spectrum of DHFI has confirmed the 2-butenedial formation by the appearance of aldehydic =CH stretch (2978.4 cm-1) and a range of peaks (1720-1640 cm-1) representing conjugated and unconjugated -C=O groups of aldehydes. A significant decrease of intensity in this aldehydic -C=O region was observed for WCND-DHFI along with a new peak at 1716.3 cm-1 representing imine (-C=N) stretch, further validated by Raman analysis. Crosslinking of the aldehydic -C=O group of DHFI with NH2 groups of WCND will form an imine group (C=N) via Schiff base reaction. This phenomenon has also been supported by the reduction in the intensity of the N-H stretch peak of primary amines (3251.6 cm-1) after DHFI crosslinking. The presence of iodine was observed in both DHFI and WCND-DHFI. In the spectrum of WCND-DHFI, iodine crosslinking has been established by the occurrence of C-I stretch (in the range 400-500 cm-1).

The data outcomes from Raman spectroscopy were also helpful in corroborating the CNDs synthesis and appearance of their surface functional groups (Fig. 2f). Two significant peaks for the D and G bands of graphite-like carbon structures were observed in both of the samples at around 1410 cm-1 and 1550 cm-1, respectively.

Laterally, a broad peak was observed around 1290 cm-1 for C=S proving the presence of sulfur in whey protein. The appearance of a new intensified peak around 1710 cm-1 proves the formation of the C=N linkage. This can be considered evidence for the incorporation of DHFI crosslinking with the carbon backbone.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





Project-12: Development of Lab on chip micro-well on Perspex through microwave drilling

1. **Project Title** : Development of Lab on chip micro-well on Perspex through microwave drilling
2. **Mentor Name** : Dr Nitin Lautre
3. **Student Team Names:** Mr. Ankush Bhisnukar
4. **Project Description:**

   Developing a lab-on-a-chip micro-well on Perspex (also known as acrylic) through microwave drilling is an interesting concept. While I can provide you with a general overview, it's important to note that detailed instructions and specifications would typically require specialized knowledge in microfabrication and microwave drilling techniques.

   Here's a general outline of the process:
   Design: Begin by designing the micro-well structure using computer-aided design (CAD) software. Consider the desired dimensions, shape, and any additional features required for your application.

   Material selection: Perspex (acrylic) is commonly used for lab-on-a-chip applications due to its transparency, ease of fabrication, and biocompatibility. Ensure you have a suitable Perspex sheet with the desired thickness.

   Preparation: Clean the Perspex sheet thoroughly to remove any dust, oils, or contaminants. This step is crucial to ensure proper bonding and adhesion during the drilling process.

   Microwave drilling: Microwave drilling is a technique that utilizes microwave energy to generate heat and melt the material, creating precise holes. It is important to note that this process requires specialized microwave drilling equipment capable of generating the necessary energy and controlling the drilling parameters.

   a. Setup: Position the Perspex sheet securely on a stable platform within the microwave drilling apparatus. Ensure that it is aligned properly to achieve accurate hole placement.
   b. Drilling parameters: Set the desired drilling parameters, such as power level, duration, and drilling pattern, based on the specific requirements

of your micro-well design. These parameters will depend on factors such as Perspex thickness, hole size, and drilling speed.

c. Drilling process: Activate the microwave drilling process according to the equipment's instructions. The microwave energy heats the Perspex locally, causing it to soften and melt. As the microwave drilling progresses, the melted material is removed to create the micro-well structure.

Cooling and cleaning: After the drilling process, allow the Perspex sheet to cool down. Clean the drilled micro-wells carefully to remove any debris or residues that may have accumulated during the drilling process. This step is important to ensure the micro-wells are free from contaminants that could interfere with subsequent applications.

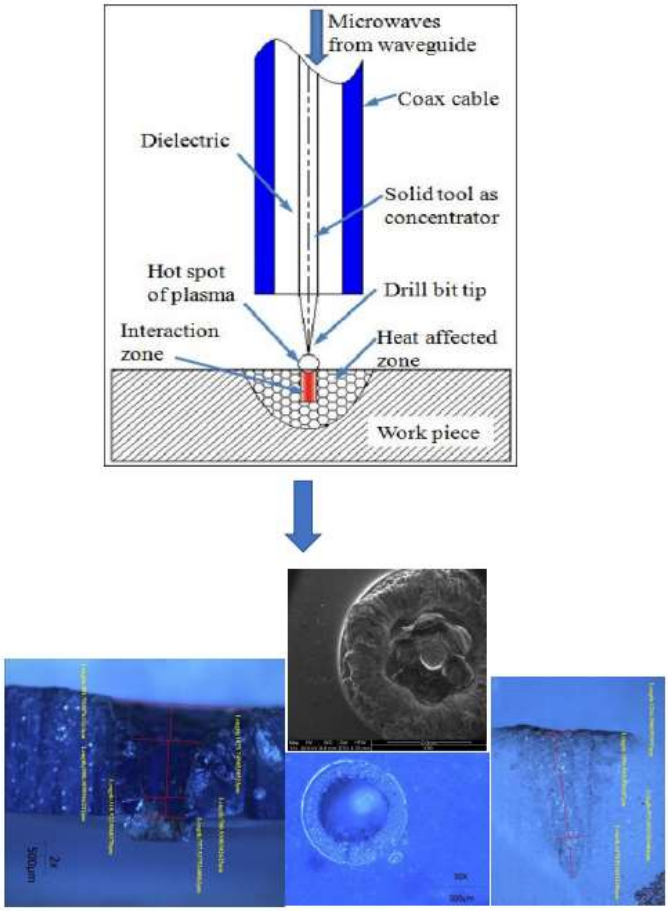
Quality control: Inspect the drilled micro-wells under a microscope or using appropriate imaging techniques to assess their quality, accuracy, and uniformity. This step helps identify any defects or inconsistencies that may require rework or adjustments.

Remember, this is a simplified overview of the process, and developing a functional lab-on-a-chip micro-well requires expertise in microfabrication techniques, material properties, and precise control over drilling parameters. It is recommended to consult with experts in microfabrication or seek guidance from professionals experienced in the field to achieve the best results.

5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Development of technology and its validation
7. **Current status:**

   At present no technology is using microwave energy for the production of micro-holes required for lab on-chips. The basic prototype was fabricated with the help of the NewgenIEDC project and experimentation is in-progress.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



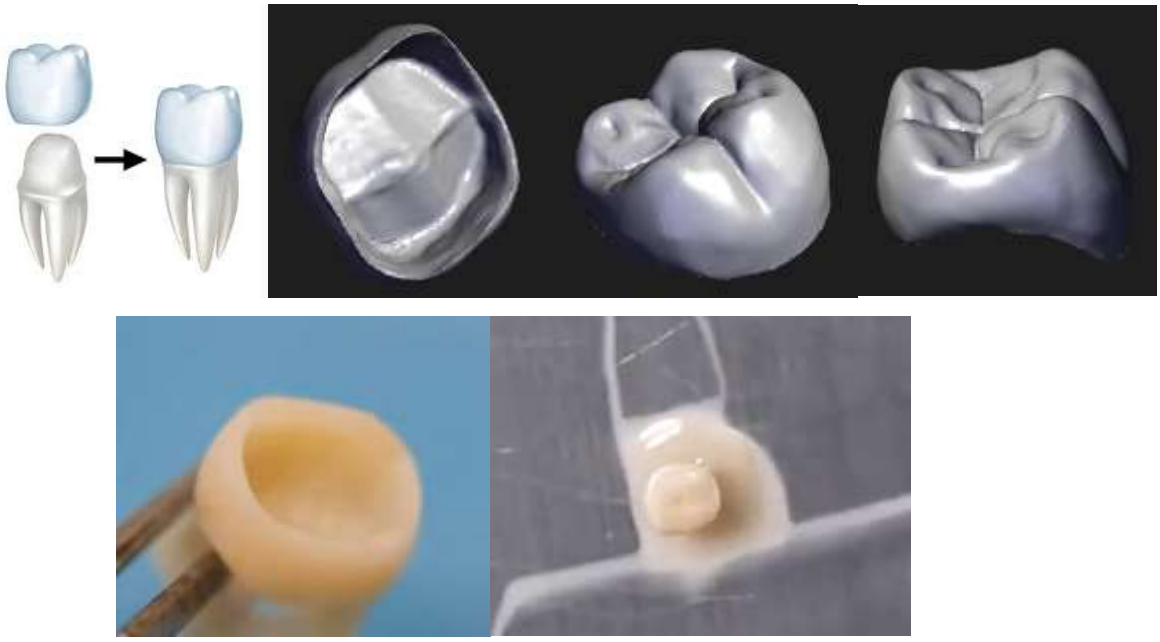
Project-13: Instant Esthetic crowns

1. **Project Title** : Instant Esthetic crowns
2. **Mentor Name** : Dr Punit Fulzele
3. **Student Team Names:** Ishani Rahate
4. **Project Description:**

   Aesthetic concern plays a vital role in modern dental practice. Understanding the child's and parental aesthetic perception is necessary for good clinical practice. An optimal restoration should have better durability, ease of handling, be aesthetically acceptable, and be cost-effective. There have been many options for full coverage restoration of teeth, each with technical, functional, or aesthetic limitations. The demand for beautiful smiles is increasing among children and adults. A child's looks can affect their achievement in social acceptance, quality of life, and physical and

psychological health. A variety of aesthetic solutions are available, including full-coverage crowns for deciduous anterior teeth, prefabricated primary zirconia crowns, and pre-veneered stainless-steel crowns. There has been a concerted effort to bring various approaches for full coverage restorations in pediatric dental practice. Every technique and material has its merits and demerits. It is noted that there are numerous possibilities for treating carious teeth in young children, ranging from stainless steel crowns and their modifications to other aesthetic crowns like Bioflex and zirconium crowns, which are becoming more and more popular. The current project provied a means to bridge this gap with a instant 3d printed crowns for full coverage restoration.

5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Proof of concept developed. Characterization in process
7. **Current status:**
   - Developed various prototypes and currently the project is under validation stage
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-14: Water Sanitation & Hygiene Quick Check (WASH Q-Check): A Rapid Assessment Tool

1. **Project Title** : Water Sanitation & Hygiene Quick Check (WASH Q-Check): A Rapid Assessment Tool
2. **Mentor Name** : Dr. Deepak Saxena
3. **Student Team Names:** Priya Bhavsar
4. **Project Description:**

   Water sanitation and hygiene facilities fall short of national standards in most facilities, which needs to be addressed to provide quality services and reduce healthcare-associated infection. In many of the facilities, healthcare workers are not aware of the WASH status of their facilities and not aware of how to monitor and ultimately pause a difficulty in maintaining optimal WASH services. Hence, it is very important to do periodic assessments of facilities to improve the WASH status in healthcare facilities.

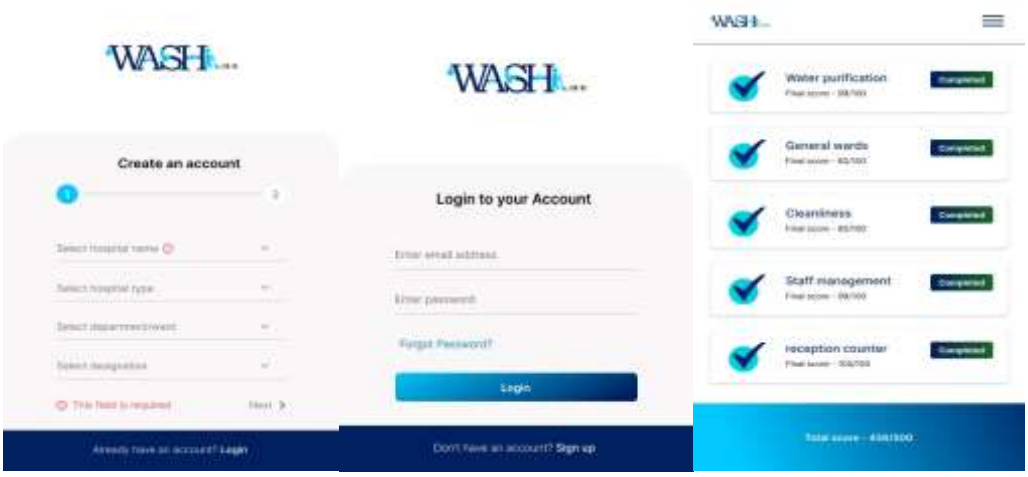
   WASH Q-Check, a mobile-based application, is being developed for the rapid assessment of the HCFs to improve the overall WASH status of the HCFs. The proposed mobile application has potential in the following aspects:

   1. Rapid assessment of the WASH status of the HCFs
   2. Periodic monitoring and validation of the cleaning procedures

   A WASH Q-Check assessment tool is digitized in such a way that a healthcare manager/provider can use it with minimal or no guidance and technical hassle. A WASH Q-Check developed with simple scoring strategies. This tool provides both aggregated numeric scores of HCFs and department-wise scores on different WASH indicators. This entails an extension of the tool to provide a comprehensive assessment of WASH services in hospitals providing both outpatient and inpatient care. It also provides a mechanism to meet both local, national and regional needs for tracking WASH improvements, especially in the Indian scenario.

5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Validation of the PoC and development and validation

7. **Current status:**
   - Currently, the application is in the development phase. Different interfaces have been developed. Few are yet to get it completed.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-15: Injectable immunomodulatory hydrogel composite for cartilage tissue repair and regeneration

1. **Project Title** : Injectable immunomodulatory hydrogel composite for cartilage tissue repair and regeneration
2. **Mentor Name** : Dr. Kaushik Chatterjee
3. **Student Team Names:** Akhilesh Agrawal
4. **Project Description:**

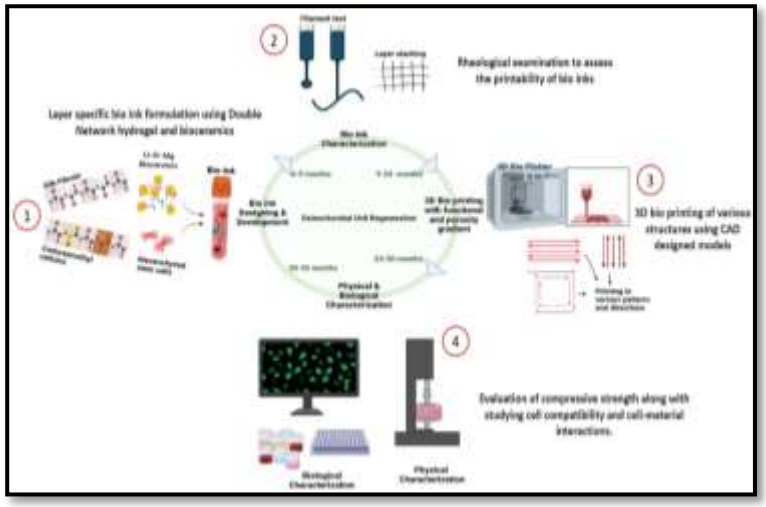
   To address this clinical need for the treatment of osteoarthritis, restoration of the native OC construct with an extrusion-based 3-D bio-printed multiphasic scaffold loaded with mesenchymal stem cells (MSCs) is a prerequisite. Silk fibroin (SF) is a high-quality natural polymer with adequate biocompatibility, mechanical strength, and minimal immunogenicity, which makes it appealing for tissue engineering applications. SF can be physically crosslinked via ultra-sonication to form β-sheets. A significant disadvantage of this method is that β-sheets formed during the crosslinking process induce brittleness in the hydrogel . Carboxymethyl-cellulose (CMC) is a derivative of cellulose formed after replacing the hydroxyl group on glucopyranose chains with carboxymethyl groups. CMC has excellent biocompatibility and can be ionically bonded with inorganic materials. It is also beneficial for cell attachment and migration . Zinc (Zn) has been reported to possess cartilage regenerating ability and immunomodulatory effects at low concentrations.

Thus SF/CMC-Zn will form a double network hydrogel with enhanced structural and mechanical properties for 3-D printing of multiphasic osteochondral structures. Pure SF/CMC-Zn may be ineffective in regenerating subchondral bone due to minimal or no inorganic content. Incorporating metallic ions has always proved to be a promising strategy for ontogenesis and developing a mechanically sound structure mimicking native bone. Inorganic ions like Strontium (Sr2+), Lithium (Li), and Magnesium (Mg2+) have been shown to have a multifunction effect in bone tissue engineering; osteoinductive, inhibitory effect on the osteoclast, osteoblast proliferation, adhesion, and migration, imparting mechanical resiliency to the scaffold respectively. Therefore, developing a unique ceramic containing Li-Sr-Mg ions for generating subchondral bone would be interesting. In the proposed project, a multiphasic scaffold resembling each layer of an osteochondral unit will be fabricated using a 3D bioprinter comprising gradient biomaterials and porosity in each phase of the scaffold.

5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Proof of concept developed. Characterization in process
7. **Current status:**
   - Here we aimed to evaluate the printability of hydrogel ink, which is the ability of a biomaterial to extrude precisely with an appropriate extent of spatial and temporal control. We blended varying concentrations of Alginate (Alg) (3% and 4.5%) with 7% Gelatin (Gel) to prepare hydrogel ink for 3D printing. We added 10µl of orange dye for better visuality of the scaffolds. The composite hydrogel was loaded in the cartridge which was then inserted in the temperature control printhead set at 24 oC. The print design here was a square 20 x 20 mm grid pattern with 15% of infill density. The ink was extruded with a 25-gauge (inner diameter 0.25 mm) nozzle under 70 kPa and a speed of 6 mm/s. We then imaged the scaffolds and analyzed them in ImageJ to measure the area (A) of the scaffolds. The area measured using Image J was compared with the theoretical area AT (400 mm2) of the scaffold and the printing accuracy of both hydrogel composite was measured using the following equation (Figure 2) (20) -

- Printing Accuracy = (1-(|A-A_T |)/A_T) X 100 (1)
- The area of 3%Alg-7%Gel and 4.5%Alg-7%Gel scaffolds were 343.37 mm2 and 344 mm2 respectively. The printing accuracy of the former blend was 86% and the later ink was 85.9%. This shows that there is no significant difference in the printing accuracy when the Alg concentration was increased by 1.5%. Using these hydrogel inks, we learned the process of developing biomaterial inks for 3D printing. I also studies and understood extrusion-based 3D printing and the optimization of printing parameters. Now, we explore the design and development parameters for SF-CMC inks for osteochondral tissue engineering. Biomaterial alterations for producing bioinks will be made as per the mechanical and biological requirements of the specified tissues.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



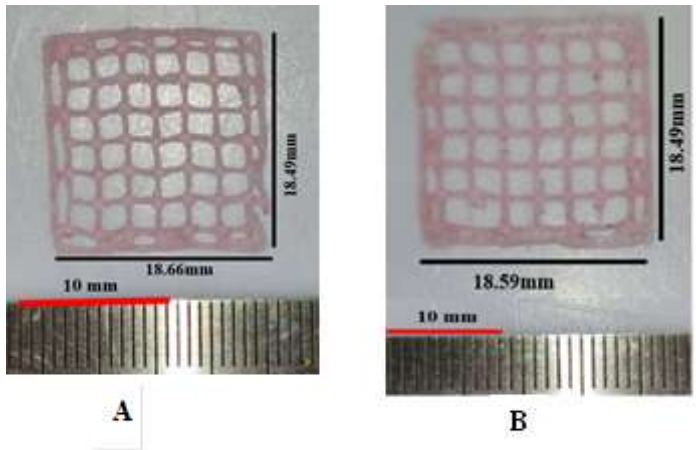


Figure 2: A- 3%Alg-7%Gel scaffold, B- 4.5%Alg-7%Gel scaffold

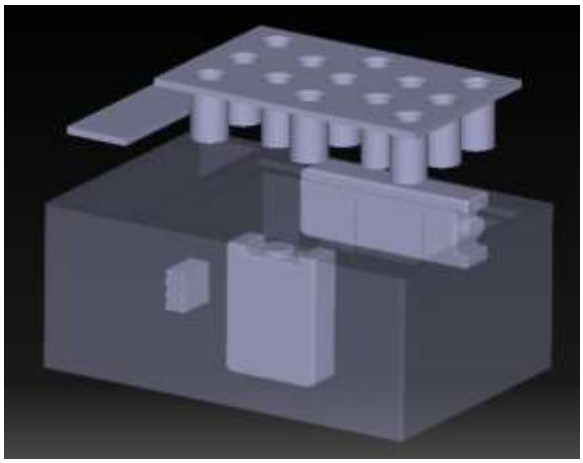
Project-16: Portable Cold Box Carrier

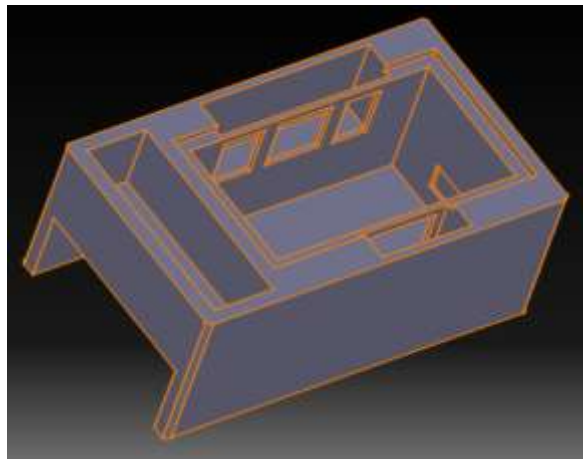
1. **Project Title** : Portable Cold Box Carrier
2. **Mentor Name** : Shilpa Gaidhane
3. **Student Team Names:** Shivendra Singh
4. **Project Description:**

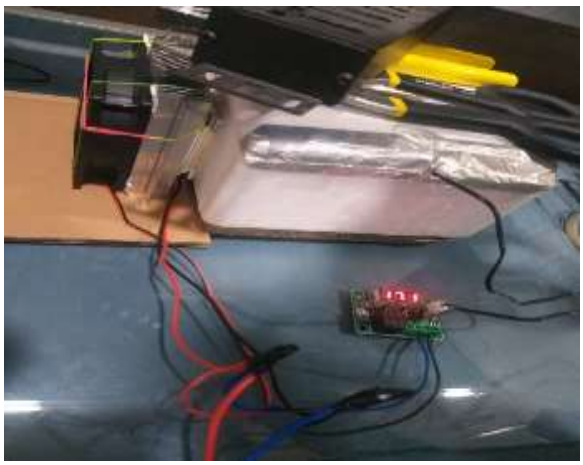
   Cold Boxes are insulated containers that are lined with coolant packs to keep vaccines and diluents cold during transportation. If vaccines are exposed to heat or sunlight, they lose their potency. Some vaccines lose potency when exposed to freezing temperature. This damage is irreversible. The health workers carry vaccines in a portable box with some cold packs during vaccine campaigns. But as the cold packs are cooled at below 0˚ C, the temperature inside the box may vary. There are many causes for the low penetration rate of vaccines. The problem with currently used vaccine cold boxes is they use conventional cold packs or gel packs to cool the box. No proper maintenance of supply chain is available. The Lack of awareness about vaccination is high in developing nations. With the help of a thermoelectric module and a DC battery supply Boxes can easily get cooled at vaccination site. The size of the box is reduced which makes it portable to carry and store.
5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Validation of the PoC and development and validation
7. **Current status:**
   - CAD model is used for designing a conceptual design and layout of the device, through strength and dynamic analysis of assemblies of components. Various software are available for designing and analysis of device which can actually help us to understand actually while designing of the project. Some of the common software are CATIA, Solidworks, AutoCAD, etc. In this project we use CATIA as a platform to design our CAD model and analyze it with actual calculations. For designing of every prototype we have developed a CAD model which is shown in the figures. The prototype was made up of Thermocol which was the cheapest material used, dimensions of the box were (19 X 17 X 11) cm and

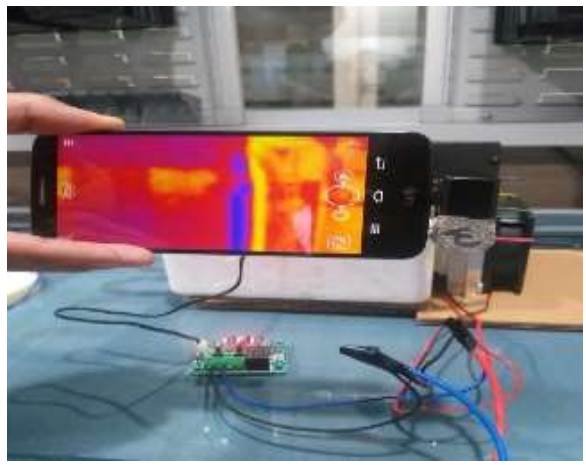
reached a minimum temperature of 17.8∘C which was above our required range. The outer thickness of the box was 1cm. Additional layer of 2cm thickness made up of polystyrene foam was done inside the box. The capacity of the box was to carry 12 vials with a thermoelectric module (peltier) connected to one of the side of the box, two heat sinks (1 bigger, 1 smaller) and a 12V DC battery. Figures below shows the observations found after experimenting the prototype. Figure 1 shows the minimum temperature (17.1˚C) reached after giving 12 V DC supply for one hour. Figure 2 and 3 shows the variation of temperatures using a thermal camera, the red part depicts hot surface and purple part shows the cold surface. As seen from the fig, region inside the box is colder than the surrounding temperature.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**









Project-17: System for automated measurement of oral structures

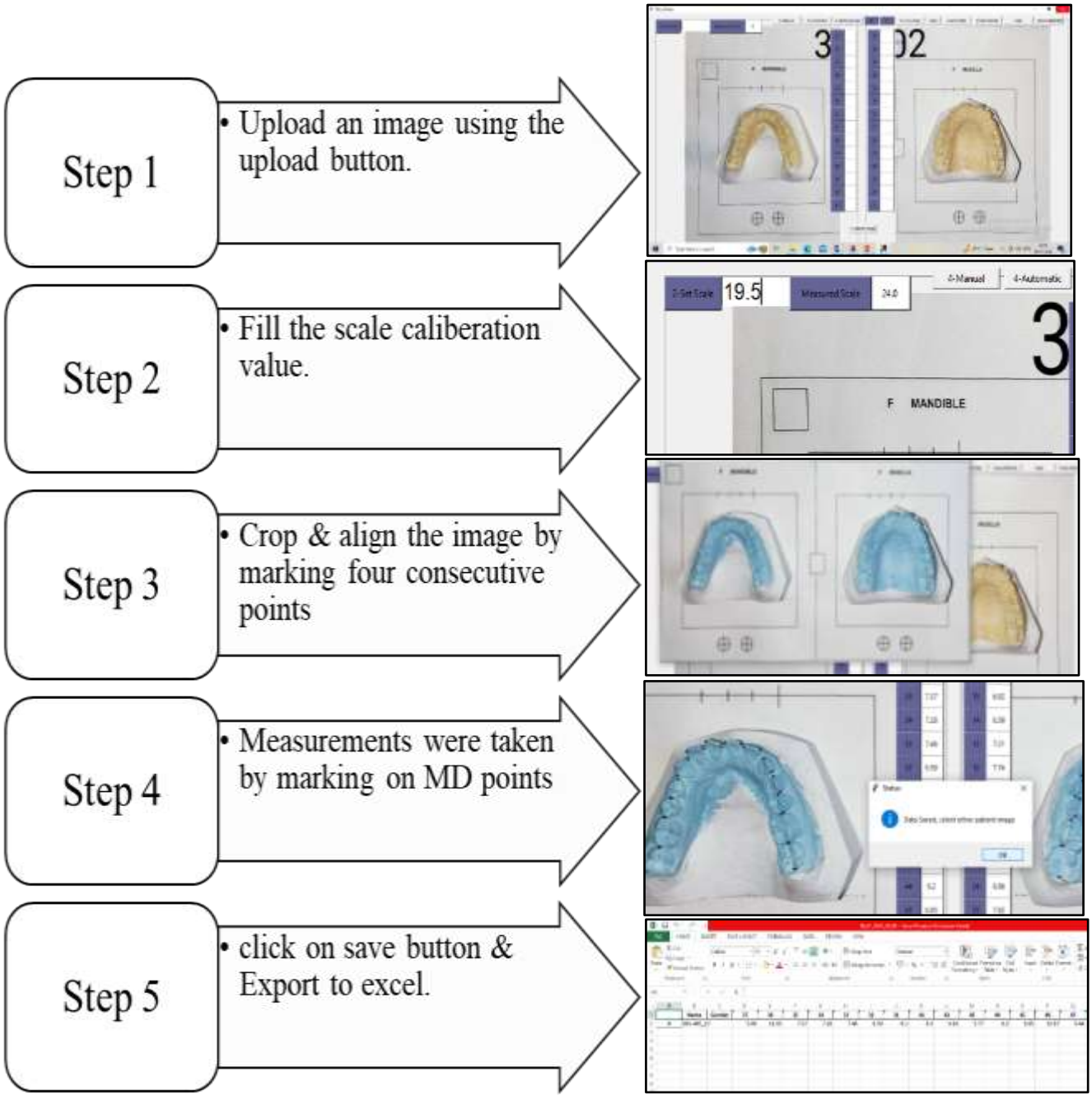
1. **Project Title** : System for automated measurement of oral structures
2. **Mentor Name** : Dr Punit Fulzele
3. **Student Team Names:** Ashutosh Vichore
4. **Project Description:**

   Recent advances in digital technology have resulted in success in various aspects. However, the dental cast photographic method can be an option for excluding model storage while providing consistent dental cast analysis and reducing analysis time. This photogrammetric method is a new approach to measure the tooth size and dental arch dimensions. The present study has utilized this photographic method and indigenously developed software to measure dimension of teeth of dental casts. The assessment of the proposed method's accuracy, reliability, and validity in comparison with the conventional technique was also done
5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Proof of concept developed. Characterization in process
7. **Current status:**

   The tooth's dimensions were measured using a photogrammetric method. The proposed method's accuracy, reliability, and validity were then examined in relation to the conventional method (casts measured by DVC).

   The templates were made for males and females and modified to permit dental cast images to be measured by the automatic detection technique with the help of digital software. The occlusal photographs (n = 400) of the casts were taken. The obtained photographs were exported to indigenously developed software (SS0V1). Using this software, it was possible to get linear measurement in pixels. The software is designed using the python programming language.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



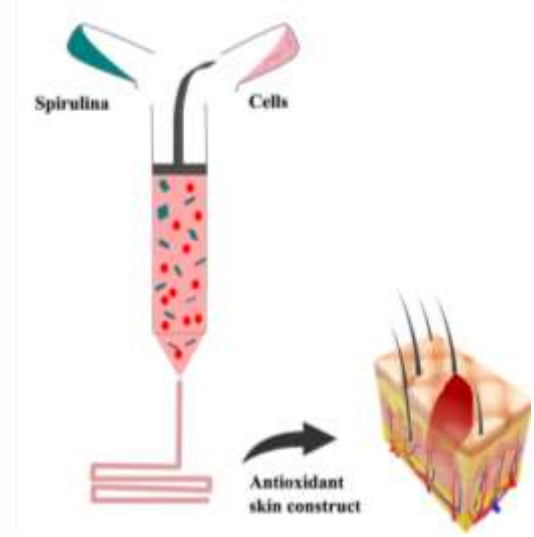
Project-18: Algae-based 3D printed composite scaffolds for skin tissue regeneration

1. **Project Title** : Algae-based 3D printed composite scaffolds for skin tissue regeneration
2. **Mentor Name** : Dr Kaushik Chatterjee
3. **Student Team Names:** Sagar Nilawar
4. **Project Description:**

   Healing defective skin injuries is one of the major challenges in the biomedical field because of improper healing, a large number of incidents, and economic stress on the healthcare system. Oxidative stress is the major obstacle in the healing of chronic wounds. So, in the current study, we propose using the natural antioxidant "Spirulina," widely used in traditional medicines/ayurveda, to overcome this problem. Spirulina, blue-green algae, possesses various properties, due to which it is considered a superfood. Apart from healthy immunity boosting potential, spirulina also has radicle scavenging ability. 3D printing can generate complex, porous, bioactive, patient-specific skin tissue constructs over conventional methods. Various natural polymers from algae and proteins have been used as dressing materials. Hence, we propose fabricating personalized 3D-printed composite skin constructs with spirulina embedded in another algae-based matrix. The current constructs are not patient-specific and thus do not fit properly to the wound area. This causes improper healing along with discomfort to the patient. The single-component system lacks antioxidant potential causing longer healing time for wounds. The antioxidant drugs used in composite systems were sometimes liable to processing conditions and thus loses activity. Also, the drugs used have limited half-life, limiting their application for a long duration.
5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Development of technology and its validation
7. **Current status:**
   - Currently, porous sponges fabricated through lyophilization, particulate leaching and cryo-gelation are mainly reported to be used. Apart from

this, nanofibrous constructs are also reported. These systems are composites mainly containing antioxidant drug molecules. In process of fabricating the personalized skin tissue constructs from algae-based polysaccharides by 3D bioprinting having antioxidant potential.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-19: Device for visualization retraction and isolation of oral structures

1. **Project Title** : Device for visualization retraction and isolation of oral structures
2. **Mentor Name** : Dr Punit Fulzele
3. **Student Team Names:** Ashwini Kalinkar
4. **Project Description:**

   The device introduces a unique way for visualization, retraction and isolation of oral structures. The integrated mirror has a unique design for visualization, retraction of oral structures and includes an integrated inbuilt apparatus for suction of body fluids for the operative field. The said devices will improve the ability of the operator to visualization, maintain the operative filed and remove the body fluids using a single device, thus improving the quality of the procedure, saving valuable operative time and reducing the number of instruments required for the procedure.
5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Validation of the PoC and development and validation

7. **Current status:**
   - The device combines the mouth mirror and suction, which can be used simultaneously. The mechanism for a suction tip is integrated inside the body of the mouth mirror / handle of the mouth mirror, removing the need for any structure to be handled by the operator. The device attaches to a standard high or low volume, vacuum or motored suction apparatus.
   - The suction tip at the working end of the apparatus is held in position by a unique mechanism that maintains the suction capacity at the working end, and the mechanism at the working end helps in visualization & tissue retraction with simultaneous suction by the same apparatus. This enables the operator to visualize or retract the tissue and suction simultaneously with a single apparatus, maintaining a clean and clear work area and enabling the other hand to be used for other tasks.
   - It consists of a handle to hold the apparatus; the handle and the mirror are connected with a member. The handle is a hollow tube that connects to a standard high or low volume, vacuum or motored suction apparatus at the nonworking end. The working end of the handle is attached with the member that connects mirror holder and a hollow areas for connect the special suction apparatus, the special suction apparatus is held in place at the back side of the retractor with a contraption which helps stabilize the suction tip and position it for maximum evacuation of the body fluids from that area, resulting in better visualization, and isolation.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-20: Point of care tool for Screening and Early Detection of Amblyopia: LAZY-EYE-SCOPE

1. **Project Title** : Point of care tool for Screening and Early Detection of Amblyopia: LAZY-EYE-SCOPE
2. **Mentor Name** : Dr. Deepak Saxena
3. **Student Team Names:** Tanmay Saxena
4. **Project Description:**

   Amblyopia is a neurodevelopmental disorder resulting from inadequate visual experience during the first years of life. Very often termed Lazy eye Syndrome (Amblyopia) is reduced vision in one eye caused by abnormal visual development early in life. The most common age group during which Amblyopia occurs is between 3-6 years. The usual gold standard is Visual Acuity; however, the conventional screening under various national programs has poor coverage of Ophthalmic screening and very high false Negative results. It leads to a missed opportunity for providing early treatment in the form of vision correction and patching therapy that might reverse and prevent the progression. If treatment is not initiated early amblyopic can result in lifelong morbidity. The present proposal focuses on developing binocular Lazy Eye scope based on simple laws of photonics and physics using light for retinal birefringence scanning.

   Human Retina has a light-sensitive point termed the human fovea, which has the radial organization of fibers known as the Henle fibers. Because the Henle fibre layer is a birefringent tissue, a spot of polarized light scanned in an annulus during central, steady foveal fixation will result in frequency doubling and will be the dominant signal frequency in the returning light. If fixation is unsteady or eccentric because of Amblyopia, there will be little or no birefringence and, as a result, little or no light signal in the returning light; hence the scope will assist in screening and early detection of Amblyopia.
5. **Project status at the beginning of the Year:**
   - Research to proof feasibility (TRL3)
6. **Interventions made:**
   - Validation of the PoC and development and validation

7. **Current status:**

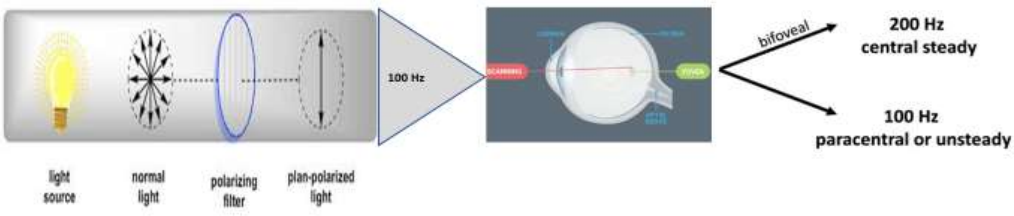
Amblyopia generally develops from birth up to age seven years. It is the most common cause of monocular visual acuity impairment in children; available evidence suggests that the prevelance can range from affecting 2 to 10 of every 100 children. It is the leading cause of decreased vision among children. With a very poor coverage of ophthalmic screening in an age group between 3-6 years, Amblyopia remains a major threat to ophthalmic morbidity. As the treatment of Amblyopia is very simple and very cost-effective, there is an urgent need for a technology-enabled screening test. We proposed to develop a technology-enabled LAZY-EYE-SCOPE for field-level screening and early detection of Amblyopia. LAZY EYE SCOPE will prove to be very cost-effective with a very high sensitivity compared to the standard visual acuity test. This will be handy and portable and will not require less time and effort. It will be instrumental in the age group between 3-6 years to an extent as this age is a vulnerable group, and any early intervention can assist in reducing the morbidity to a considerable extent.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Equipment for converting normal light into polarized light by use of polarized filters for optimal polarization eg. 200 Hz

The polarized light will be focused on fovea

In a normal eye the polarized light will be reflected as 200Hz but in amblyopic eye it will be less or will not be reflected



NewGen IEDC-Chitkara University, Punjab

NewGenIEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

PROGRESS REPORT: Fourth Year (FY 2022-2023)

Name of the College/Institution hosting NewGen IEDC	**Chitkara University, Punjab** Chandigarh-Patiala National Highway (NH- 64), Village- Jansla, Rajpura, Punjab 140401		
Year of starting NewGen IEDC	2018-2019		
Name of the Head/Principal of the Institution/College	**Dr. Archana Mantri** Vice Chancellor, Chitkara University, Punjab		
Name of NewGenIEDC Coordinator	**Mr. Sagar Juneja**		
Contact Details of NewGenIEDC Coordinator • Mobile Number • E-Mail ID	9625441043 sagar.juneja@chitkara.edu.in		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NewGen-IEDC/18-19/05 Dated 13/11/2018	Rs. 60,00,000
	2		Rs. 47,50,000
	3		Rs. 60,00,000
	4		Rs. 60,00,000

1. **<u>Initiatives/Activities Undertaken as per the Action Plan Submitted:</u>**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Activities	Outcome/Achievements
Workshop on Prototyping Techniques	• On April 11, Chitkara University NewGen IEDC and Chitkara University Fabrication Facility conducted a workshop on Laser Cutting and 3D Printing for the students of Chitkara Design School and Chitkara School of Planning and Architecture (CSPA). • More than 25 students attended workshop and learnt the operations of 3D printer, laser cutting machine as well as designing of products on CAD & CURA software. • The session was delivered by Mr. Chanpreet Singh – Project Manager, CURIN.
Workshop on Textile and Print Technology	• On April 12, another workshop titled Textile and Print Technology for Interior Spaces was conducted for CSPA wherein Mr. Chanpreet Singh taught how to convert the virtual design models in the form of stencils and dies for textile printing. • The workshop was attended by more than 20 students.

Session on Prototype Building for School Students	• Chitkara University NewGen IEDC conducted a session on prototype building for students of Chitkara International School on April 25, 2022. • The session was held on two consecutive days where students came to know how NewGen IEDC supports the new ideas and convert them into a commercialized product. • Mr. Sagar Juneja - Assistant Dean, CURIN and Co-Coordinator (NewGen IEDC and TEC) gave a brief overview about NewGen IEDC and the fabrication facilities available at the centre and Mr. Chanpreet Singh conducted the hands-on session on laser cutting and 3D printing. The session was attended by close to 20 students.
SciSkY Program by CUCIF	• Chitkara University Central Instrumentation Facility (CUCIF) conducted a hands-on workshop on High Performance Computing using GPU Server on April 25 under their flagship program titled SciSkY 2.0. • The aim of SciSkY is to deliver professional skills to the students, research scholars, and faculty members. Till date more than 500 students, scholars and faculty members have been benefitted from SciSkY.

Workshop on Technology Entrepreneur-ship Development	• This workshop was organized during June 1-3, 2022. • Around 32 students and faculty members from the Chitkara International School participated in the event. • Brainstorming session on ideas building was organized and teams pitched their ideas and received inputs from experts.
Workshop on Design Techniques	• A two-day workshop on Design Techniques and Laser Cutting Operations was conducted during September 19-20 to train the students on building good quality project prototypes. • 39 students participated and learned about CAD designing software and designing techniques, laser cutting operations, and technicalities of laser cutting machine. • Student participants made the designs themselves in this hands-on workshop and realized them using laser cutting machine.

PCB Designing Workshop	• On 8th September, Dr. Amit Pandey – Assistant Professor, ECE conducted a workshop on PCB designing and fabrication using Etching Technique for the students of electronics and allied branches.
Technovanza on Startup and Innovation	• Led by the CSI Student Chapter, this two day event featured technical quizzes based on software programs, followed by deployment of those programs, etc. • The event also featured a talk by one of the student entrepreneurs of the university - Divyansh Chauhan.

Expert Talk on Distributed Power Generation	• On October 19, Dr. Sandeep Kaur from Punjab Engineering College, Chandigarh was invited to deliver an expert talk on Distributed Generation Planning, Modern Trends and its Operational Issues to the Electrical Engineering students. • She talked about concepts of distributed generation, load forecasting, daily and monthly analysis of grids and load areas across the country through frequency management by national and state load dispatch centers.
Session on Funding Opportunities for the Development of Innovative Ideas & Products	• On December 15, Mr. Sagar Juneja - Assistant Dean, CURIN, Chitkara University and the Coordinator, NewGen IEDC delivered this talk on Funding Opportunities Available for Development of Innovative Ideas & Products for the students of Computer Applications department.

How To Win Prototype Funding For Your Innovative Project Ideas	• This session was delivered by Mr. Sagar Juneja - Assistant Dean, CURIN, Chitkara University and the Coordinator, NewGen IEDC on December 17 for the students and faculty members of Department of Applied Sciences.

[B] To identify, develop & commercialize students' innovative ideas

Activities	**Outcome/Achievements**
NOVATE+ 2022	• CURIN, Chitkara University organized the 4th edition of NOVATE+ 2022 on the theme Biggest Confluence of Academia and Industry for Working on Joint Projects. • During March – May 2022 more than 50 industry-academia joint projects were received, out of which 29 entries were shortlisted to compete in the finals to win prototype funding from NewGen IEDC and Technology Enabling Centre (TEC). • NOVATE+ 2022 was convened by Mr. Sagar Juneja – Assistant Dean, CURIN and Co-Coordinator (NewGen IEDC and TEC). • The jury comprised of following experts – Mr. Shivansh Sethi (CEO & Founder- Aiotize Pvt. Ltd.), Dr. Jagreet Kaur (Director – Xenonstack Pvt. Ltd.), Mr. Deepak Nair (Research & Design, Consultant), Dr. Sachin Ahuja (Director, Research, Chitkara University), Mr. Sanjay Bhatnagar (Visiting Faculty, Chitkara University), Dr. Varsha Singh and Dr. Neha Tuli (Assistant Professors, CURIN and Entrepreneurs).

<table>
<tr>
<td></td>
<td>

S.No.	Team Lead	Project Title
1	Sachitanand Singh	Blind Mobilizer
2	Priti Panwar	Designing of Microbial Fuel Cell Coupled Constructed Wetland for the Remediation of Dyes
3	Yogesh Duggar	Developing Silicon Molds for Plastic Casting
4	Ajay Goyal	Development of Indigenous Inline-Optical Density (OD) Meter and Turbidity Sensor
5	Kamal Gulati	FoRo (Fog on Road)
6	Vikas Khullar	IoT and AI based Portable/Fixed Venue Entry System for Visitors with Vehicles
7	Mansi	IoT based Device to Secure the Rolling Shutters
8	R R Guru	Low-cost Tram Line Track with Convertible Wheel Chair and Stretcher for Inter Hospital Building Patient Transportation
9	Jasmeet Singh	Mystery Boxes for Children
10	Sushant Jaishwara	Portable Heat Treatment and Muffle Furnace
11	Gaytri	Quantum Dot Dispersed Polymer Dispersed Liquid Crystal (QD-PDLC) for Smart Window Applications
12	Bhaumik Sethi	Racks & Jars
13	Rajat Takkar	To Develop an Energy Efficient Liquid Crystal Display Device and Its Study on Electro-Optical and Dielectric Behaviour
</td>
</tr>
<tr>
<td>The Journey of Creating Products for the Real World</td>
<td>

On April 1, 2022, Mr. Vyasteja Rao - Founder & Creative Director, Analogy Design, Bengaluru was invited to train the students as well as faculty on how to convert the project prototypes into real world products.
The objective of the talk was to understand the challenges and complications encountered while converting prototypes into market ready products.
He also gave suggestions on how to make the products sustainable and eco-friendly.

</td>
</tr>
</table>

Expert Talk on Funding Opportunities for Developing Innovative Projects	• An expert talk on Funding Opportunities for Developing Innovative Projects was delivered by Mr. Sagar Juneja in a session that was organized by the Matrix club (student club) of Chitkara University on April 27, 2022. • Mr. Sagar discussed about how students can win prototyping grant from NewGen IEDC, what is a meaning of prototyping grant and pre-incubation funding. • The main objective of the talk was to make the students aware about how they can convert their ideas into minimum viable products (MVPs) after obtaining prototyping grant from NewGen IEDC and later think about converting their MVPs into start-ups or commercialized products. The session was attended by about 100 students.
Three-day Event on 'Ideation to Commercialization'	• A three-day event titled "Ideation to Commercialization" (I2C) was organized on 25th, 26th and 29th April, 2022. • It aimed at inculcating entrepreneurship skills among the students. Around 80 students participated in the event. • It featured activities like information sharing on prerequisites for start-up ideation by E-Cell executives, invited talks on topics like 'digital marketing and technology in the start-ups', 'idea building and scaling of start-ups' etc. • 15 student teams pitched their ideas to the jury members and top ideas were awarded.

Ideation to Execution: Know All About Entrepreneur-ship	• On October 20, Mr. Anuj Sharma, Founder of the Himalayan Company was invited to train young entrepreneurs to help them in building successful companies. • The session provided in-depth knowledge about how start-ups can escalate from their ideation stage to launching their product in the market and how they can get good returns for the same.
Build Up Your Startup Idea and Work on	• Ms. Drashti Shah (Global Facilitator and Startup Mentor), and Ms. Nisha Kotecha (Founder & CEO, Inkdivo and Glocal Coworking) were invited to interact with the student start-ups on October 31. • Key points of discussions were the importance of thorough research

Your Model	about the ideas and the best practices to improve the business models to build successful businesses out of them.
Design Tech Expo 2022	• Design Tech Expo 2022 was organized on December 16 to inculcate design thinking principles for prototype development among students. • The events featured showcasing of prototypes that were developed by students to provide solutions to problems pertaining to areas like healthcare, management, transport, agriculture, and education.
Innovation to IPR	• An expert talk on Innovation to IPR was delivered by Dr. S. N. Panda - Professor & Executive Director (Research) on December 20, 2022.

	• The talk was meant for the students to empower them with the knowledge and importance of IPR in order to safeguard their innovative project ideas.
Two days FDP on 'Increase Your innovation Quotient and Initiate a Start-Up Venture'	• This two-day FDP was conducted for the faculty members of the Department of CSE on December 22 and 23. • The FDP was oriented towards imparting knowledge to faculty members on adopting innovative practices that can help them in understanding procedures and mechanisms to set up a start-up venture and transferring this knowledge to the students.

Idea-Thon 2.0	• CURIN organized the final round of the 2nd Edition Idea-Thon 2.0 Hackathon on January 20-21, 2023 and it featured 35 project pitches. • Based on the comments of the jury, funding has been awarded to 17 projects for building proof of concepts! • Total funding of INR 25 Lacs+ has been awarded from NewGen IEDC.

[C] To enhance Industry-Academia interaction

Activities	**Outcome/Achievements**
Expert Talk on Building a Start-up in Space Technology	• On April 1, Jainul Abedin, Founder, Abyom Spacetech and Defence Pvt. Ltd. was invited to deliver an expert talk on the topic on “Building a Start-up in Space technology” wherein 100+ students and budding entrepreneurs participated and learnt the technical aspects of building start-ups in space technology. • He explained that most space tech start-ups are working into CANSATs, sounding rockets, high altitude balloons, satellite components manufacturing etc.

Session on Entrepreneurial Mindset for a Start-up	• On April 7, Ms. Aashna Narula - Founder Director, Psychopedia was invited to interact with close to 100 budding entrepreneurs & students on the topic of entrepreneurial mindset. • She explained entrepreneurial mindset is a specific set of beliefs, knowledge, and thought process that drive the entrepreneurial behaviour.
Invited Talk on Scaling Up Start-up	• Mr. Anuj Mittal - Founder, Flocus Technologies was invited to deliver this talk on May 23. • It was attended by close to 200 participants who were guided about strategies for scaling of startups with real-life examples followed by an exciting concept of the staircase to heaven. • Mr Anuj Mittal was Co-Founder, Healthians.com and is alumnus of IIT Delhi & IIM Lucknow.
Demo Day for Start-ups	• This event was organized on May 26, wherein Start-ups from both Chitkara University, Punjab and Chitkara University, Himachal Pradesh

	pitched their start-ups ideas in front of the jury and inputs were provided by the jury to them. • The jury of the event was team Voyager X and Ms. Soniya, Advisor to Nipah. Voyager X team has developed a product Vflat which is being used worldwide for scanning the documents.
Invited Talk on Edge Computing and Its Applications	• On June 8, CURIN organized an invited talk on edge computing to understand this technology and its various applications. • The invited speaker of the session was Dr. Satish Kumar who is a Chief Scientist at the Centre of Excellence for Intelligent Sensors and Systems (ISenS) in CSIR – Central Scientific Instruments Organisation (CSIO), Chandigarh. • Participants were made familiar with the open opportunity of working on a series of next generation applications such as – artificial organoleptic systems, drone based scene understanding, drone based fault diagnosis, smart clothing for future patient monitoring, multi-sensing analysis for pilot cognition state, advanced photonic nose for diagnosis of diseases, IoT based elderly care, smart building automation, smart surveillance system, activity detection and recognition, multi-sensing based human body detection under debris, etc.

MoU with CSIO for Joint Projects	• Dr. S. Anantha Ramakrishna - Director, CSIR-Central Scientific Instruments Organisation (CSIO), Chandigarh and Dr. Archana Mantri – Vice Chancellor, Chitkara University, Punjab signed an MoU for carrying out collaborative work by the two organizations. • The scope of the MoU encompasses usage of common research facility, incubation/development of the existing technologies available with CSIR-CSIO by the companies incubated at Chitkara Innovation Incubator Foundation, internship opportunities for students of Chitkara University at CSIR-CSIO, and running joint academic programs.
Invited Talk on Cyber Security	• On September 17, an invited talk on the topic 'Cyber Evolution: Knowing the Advance Cyber Crime Techniques and its Counter Defense Mechanisms' was organized that was delivered by Mr. Smith Gonsalves - Director & Principal Consultant, CyberSmithSECURE. • He explained about various opportunities for potential industry-academia collaborations for cyber preparedness.

Invited Talk on Food Processing Machinery	• Mr. Gulshan Chouhan from Chouhan Engineering Company (Manufacturers & Suppliers of Confectionery Machines), Rajpura was invited on August 11, 2022 to talk about some of these machinery where he believes faculty from Chitkara University can collaborate with his industry. • The session was attended by close to 30 faculty members for Mechanical Engineering and Mechatronics departments.
Invited Talk on Talent Analytics	• On Sep 3, we invited Mr. Pushpinder Singh - Chief Technology Officer, Ambiente Technologies Pvt. Ltd. (ATPL), Punjab to discuss some of his specific problems related to analytics, especially talent analytics, wherein he sought collaboration with the academia. • ATPL was interested in building data based decision making solutions (including software) for Talent Management, Performance Appraisals, Defining & Maintaining Company Culture, etc. • Close to 25 faculty members from the departments of Business Management, Computer Science and Engineering and CURIN attended this session.

Trends and Future of Automation Industry in India	• On Sep 7, Mr. Shivaji Waghmare, CEO Fuji Electric India Pvt. Ltd. was invited to deliver a talk on the topic Trends and Future of Automation Industry in India. • He talked about how automation is shaping landscape in India and what all skill sets are required to have a successful career in this field.
Invited Talk on Compact Fortified Rice Making Machine	• Mr. Rajeev Kumar & Mr. Gurdeep Singh from Vishavkarma Agro Industries, Rajpura were invited on September 23 to discuss the idea of building a Compact Fortified Rice Making Machine. • They discussed about the need for this machine, technical details as well as the challenges assocaited with the machines currently available in the Indian market. • The session was attended by close to 20 faculty members from Mechanical Engineering department.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any: None

3. Other important highlights (new initiatives), if any:

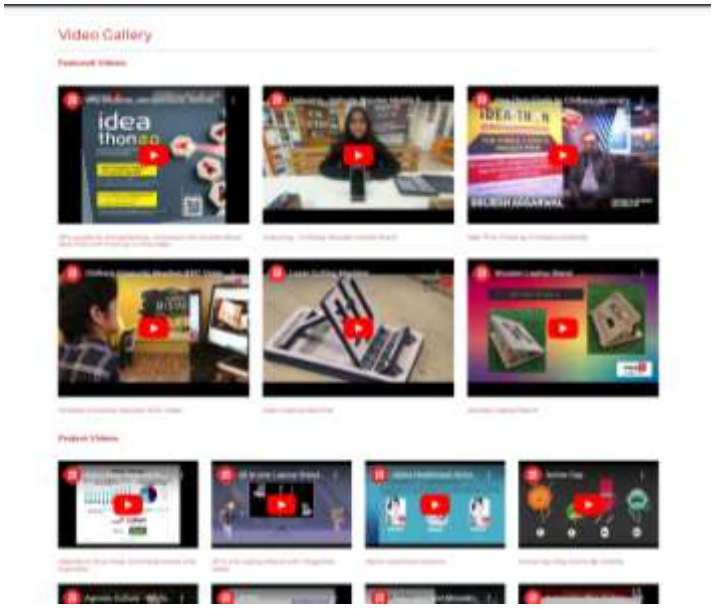
- **Commercialization of a NewGen IEDC supported Projects – 1) PregAura and 2) Fully Automatic Bottle Labeling Machine for Pharma Industries**

  1. A patent licensing agreement dated 28th September 2022 has been signed by and between Chitkara Innovation Incubation Foundation (CIIF) and M/S. Cutting Edge Medical Devices Private Limited, Indore (CEMD) for the patent titled 'A Device for Monitoring Health Parameters' having an application number 201911007068, which was filed on 22-02-2019. Additionally, a related patent dated 16-07-2020 having an application number 202011030405 and is titled 'Health Monitoring System for Pregnant Women and Fetus' has also been licensed to CEMD.

  2. Converted a semi-automatic bottle labelling machine into a fully automatic one to improve the speed and accuracy of labelling using servo motors, servo drives and high speed PLC. Multi-type bottle labelling using recipe function in HMI is possible. Technology has been deployed at SA Automation Pvt. Ltd., Mohali

- **NewGen IEDC YouTube Channel**

  NewGen IEDC YouTube Channel features close to 100 informative videos on innovations, including the videos of each of the supported projects. Please visit this link to access the videos - https://newgeniedc.chitkara.edu.in/video-gallery/



- **Focused Collaborations Industries/Start-ups**

  In order to speed-up the project development, deployment and commercialization, the focus of NewGen IEDC has been to build collaborations with industries as well as start-ups. A large number of NewGen IEDC supported projects have industry tie-ups. See Annexure A for project details.

- **Diversity and Interdisciplinary Participation**

  In addition to engineering, we have supported projects from Pharmacy, Applied Sciences, Health Sciences, Business Management, etc. Most of these projects are interdisciplinary in nature. See Annexure A for project details.

4. Student Projects (Please provide the following details for each student project)

20 projects were supported by Chitkara University NewGen IEDC in the thirdyear. The list of projects is given below. Detailed information about each project in the prescribed format along with photographs is given in **Annexure A** toward the end of this document.

5. Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:

1) Virtual Reality-Based Home Eye Testing Device for Measuring Spectacle Power of the Eye

Team details

Maheswari Srinivasan (Student)

Arshdeep Kaur(Student)

Dr. Keerti Bhusan Pradhan (Mentor)

- **Brief description about the student start-up**

  Our device solves a problem in eye care. India has only 12000 ophthalmologists for a 136 crores population. In some rural places of India, there are no eye care centers. Hence we need a device for tele-eye testing.

  Our innovation is the virtual reality-based device that can connect doctors and patients through cloud systems. It tests the spectacle power of the eye and sends the prescription remotely.

  We use artificial intelligence and automate some of the steps in refraction. Along with remote eye testing, it saves much time for the doctor. (From 40 minutes to 5 minutes)

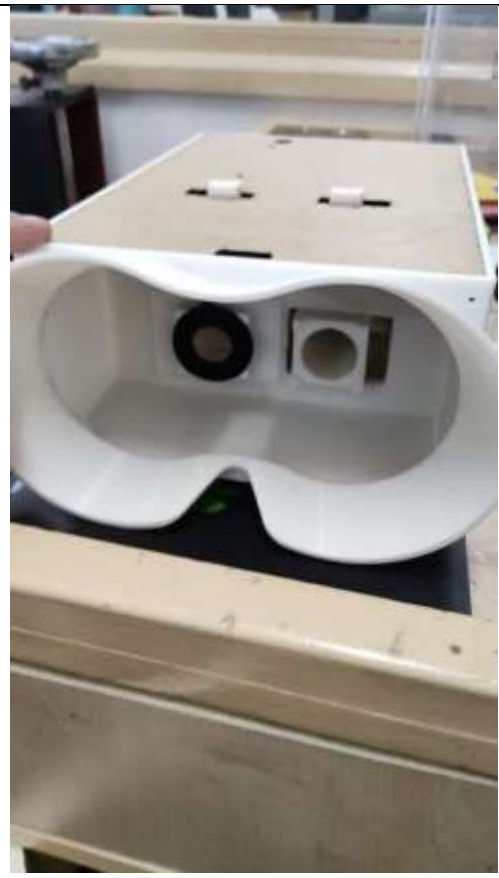
  Salient Features of Our Product Include –

  1. *The spectacle refraction test can be done from a remote location.*
  2. *The eye care practitioner from one country can do the spectacle refraction test to anybody in any other part of the world.*
  3. *The spectacle refraction test takes nearly 30 to 40 minutes of the chair time for the eye care practitioner. The test time can be reduced to 4 to 5 minutes using artificial intelligence so that the practitioner can see more patients.*
  4. *The patient need not physically come to the hospital. The patients can order homebased eye testing but still, they can get it tested by an expert eye care practitioner.*
  5. *Rural India where there are no eye care facilities can get connected with the top ophthalmologists in metropolitan cities for their opinion.*

- **Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs**

  Following is the description of journey of the team members in their own words –

1. The acrylic prototype is submitted in the ethics committee and ethical approval obtained for clinical trials going on.
2. Selected for NIDHI EIR fellowship grant award and receiving Rs. 30000 as stipend per month.
3. We are working on the current liquid lens. We have to test on it. If it works out well, we want to buy one more liquid lens.
4. Collaborated with M.N eye hospitals in Chennai for clinical trial.
5. A patent has been submitted for examination, having an application number - 202141028827



- **Contribution of NewGen IEDC in the same**

  NewGen IEDC not only provided us funds, but also helped in timely procurement of the components. We also received a lot of help from the NewGen IEDC mentor during Idea-Thon 1.0 Hackathon. Additionally, NewGen IEDC supported us in 3D designing and 3D printing in a very professional manner.
- **Future plan**
  - Clinical trial
  - Scientific publication of clinical trial results.
  - OLA like business model- Connecting doctors and patients with mobile app. Mobile application development.

2) Rodent Surgical Table

Team details (with contact information)

Mr. Nikhil Garg (Applicant)

Dr. Thakur Gurjeet Singh (Mentor)

Dr. Onkar Bedi (Team Member)

Mr. Chanpreet Singh (Team Member)

Mr. Debarshi Ghosh (Team Member)

- **Brief description about the student start-up**

Rodent surgical tables are used for animals' examinations or surgery by a veterinary surgeon or preclinical researcher. It is important to provide an accurate position and height of the working table for surgery with proper temperature regulation, which enables the veterinarian to be in a precise position rather than kneeling or crouching to treat the animal on the floor.

The present invention is an improved surgical table, particularly for use in veterinary medicine. There are a lot of surgical tables available on the market, but the facilities available are not advanced. The proposed current design is efficient with facilities as it is made up of stainless-steel surface with heating pads, LED lamp, tool tray, waste drainage pipe, beaker space (250 ML and 100 ML), animal tissue holder, with an automated temperature regulator as per physiological demand and an automated position setter for the ease of the surgery. The design's significant commercial value is that it will provide preclinical researchers with a better option for starting rodent surgeries, with close to 100 percent efficiency, and reduce the complications. The present need is to work with better equipped facilities to provide excellent options in

the preclinical research lab. The proposed design will entice various companies and researchers to invest in the rodent surgical table design.

- **Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs**

The important commercial value of the design is that it will give a better option to the preclinical researchers for the commencement of rodent surgeries with 100 percent efficiency to reduce rodent surgery related complications. The present need is to work with better equipped facilities to provide an excellent option in the preclinical research lab, so our design will attract various companies and researchers for the investment in the rodent design of surgical tables.

- Dedicated surgery area for the rodents
- Heat bed with temperature controller unit will be installed underneath the dedicated surgery area to control the rodent temp at the time of surgery
- Adjustable height and the rotation of surgery table makes a reflex angle means greater than 180° but less than 360° to reach specific angle during surgery.
- Beaker to hold the physiological fluid and other tools and equipments are provide at one side of the table to reach these at single point and to utilise the maximum space of the table.
- After surgery and during surgery the waste produced is cleaned easily and drained though the provide drainage point at the dedicated surgery area.

- **Contribution of NewGen IEDC in the same**

  In addition to funding support, we received following contributions from NewGen IEDC

  1. Strategies for Concept Design
  2. Rapid Prototyping to Functional Prototypes
  3. We got help to improve our product's aesthetics and meet customers' standards.
  4. Opportunity to demonstrate to investors during fundraising in order to gain their support

- **Future plan**

This project gives an insight into the preclinical studies based upon surgical procedures. Preclinical researchers should be able to interact with situations during surgery and other aspects of medical terms. This product is planned to be commercialised in the medical sector to train trainees for the surgery of rodents.

3. IR Imaging for Medical Applications

Team details (with contact information)

Neha (Student)

Raj Rani (Student)

Dr. Varsha Singh (Mentor)

- **Brief description about the student start-up**

  Our product is a high-resolution infrared imaging employing infrared sensor technology and Real-Time Image Processing techniques. The innovation is focused specifically on imaging for medical purposes.

  One of the challenges with infrared sensors is the amount of electromagnetic interference that occurs when they are used to drive a normal display, such as a laptop display. Lines across the screen, like what one may see on analogue television in a bad reception area, are a common result.

  As a result, an infrared camera system that is not susceptible to electromagnetic interference is required, so that EMI interference does not appear on the display screen when coupled to a CPU, such as in a laptop.

  In addition, infrared equipment used in medical laboratories is usually bulky and hefty, making transportation difficult. As a result, there is a desire for a medical infrared system that can be carried in a bag, opened, and used in an off-campus treatment facility.

  Additionally, the output of a single channel infrared sensor must be processed to sharpen the image displayed on-screen and achieve high image resolution.

  As a result, the sector has an unmet requirement to solve the shortcomings and inadequacies, especially or surface sensing medical applications such as:

  - *Pressed median nerves*
  - *The temporomandibular joint disorder*
  - *Imaging of subsurface anatomical structures for dermal applications*
  - *Topological fungal and bacterial infections on the body*
  - *Hydration detection system*
  - *Types of burns etc.*
  - *Plastic surgery*

- **Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs.**
  - Component aspects of the device are in the process of procurement and the final aspect of the project design for fabrication and assembly of the prototype is undergoing. The following technology was used to complete the design engineering.
  - The carrier board (PCB) will be controlling the camera module, LED illumination source, input/output units of the device. The following describes

the overstep wise process flow of designing the electro-mechanical design of the controller unit.

- Components finalized as per the block diagram created and sourced it early for long leaded components as per the standards.
- Patent filed - 202111030344

- **Contribution of NewGen IEDC in the same**

  NewGen IEDC helped us in sourcing different components of the projects, some of the components had to be imported from outside India and NewGen IEDC provided a hassle free support in this regard. The operational support we are receiving from NewGen IEDC is unparalleled.

- **Future plan**

  It is proposed to use this imaging system in building a complete medical application for eye care that we don't intend to disclose at this stage.

4. Schottky Junction Printable Solar Cell

Team details (with contact information)

Nikhil Shrivastav (Student)

Dr. Rahul Pandey (Mentor)

Dr. Jaya Madan (Mentor)

- **Brief description about the student start-up**

There is a massive demand for non-conventional sources of energy owing to a limited supply of currently prevalent sources like fossil fuels. However, a rise in demand for affordable solar power components, including solar panels, is expected to fuel the printable solar cells market in the near future. The photovoltaic cell

provides better performance at a good cost, but they are not flexible in nature. Also, conventional crystalline silicon-based PV devices have several problems such as High usage of raw materials, High thermal budget, Recycling of silicon, High manufacturing cost, Several complicated productions, and Less efficient Solar Cells.

Therefore, we thought to fabricate semiconductor nanocrystals-based screen-printed flexible solar cells. The first semiconductor nanocrystals or powder layer mixed with polymer binder or the active layer is screen printed on an FTO coated glass. The First active layer will create a Schottky Junction with the FTO coated glass. Then the Second semiconductor nanocrystals or powder layer mixed with polymer binder is screen printed that would collect the electrons. The second layer would create an ohmic contact for the first layer. Lastly, the back electrode would be screen printed, which would act as a back electrode for electron extraction.

- **Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs.**
  - We have completed the first part of the project, that's generating the materials to be used.
  - We have currently initiated the fabrication process of the Schottky Junction Printable Solar Cell.
  - We are yet to decide the next expenditure of our project cause we are still under the fabrication process of the first mini prototype.
  - There has been minimal amount of challenges being faced as we have a dedicated and motivated team that is working towards the project together.
  - The expected time to complete our fabrication for the Mini prototype for the Schottky Junction Printable Solar Cell would be 20th September 2022.
  - Our project is a collaborative project with POWERED ELECTRON PRIVATE LIMITED.
  - Once we have our mini prototype ready for the Schottky Junction Printable Solar Cell it would require testing to know about its effectiveness and technical data.
  - Patent filed - 202211009134

- **Contribution of NewGen IEDC in the same**

NewGen IEDC has provided us funding support, helped us in procuring all the components in timely manner and most importantly, it helped us in providing professional help in building this prototype.

- **Future plan**

As of now, our focus is to build a mini prototype and test it. Once it is done, we shall make some application (like wearable electronics) using our flexible solar cells.

ANNEXURE A

Details of Student Projects: Fourth Year (2022-2023)

1. Team / Project Description

Title – All in One Laptop Stand with Integrated Table

Student Members – Pranav Garg, Pranav Kumar

Mentors – Dr. Gulshan Dhillon

Description– We proposed the idea of a "All in One Laptop Stand with Integrated Table" to solve the problems faced by the users with the existing laptop stand. The following features will be provided in a single product:

- Mesh base to avoid overheating along with sliding USB powered fans for additional cooling.
- A hinge protection feature is uniquely designed to provide support to the laptop screen.
- It is compatible with various sizes of laptops.
- The table will be adjustable to height, includes features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study lamp.
- Adjustable angle that can reduce screen effects and help to create a more natural typing position.

Project status at beginning of the Year:

It was a well prepared concept and students were looking for funds to build their idea.

Interventions made:

- Funds from NewGen IEDC
- Prototyping Support
- 3D designing and printing support.

Current status:

- First prototype is ready. Work is going on to improve upon the current design
- Three patents have been filed - 332371-001, 332372-001, 358132-001
- The team has almost completed with the table and currently finalizing the fit of the armrest.
- For laptop stand, they are working on 3D prints for the hinge protection assembly.

Video and Photographs: https://youtu.be/6XkDXzIfGgI

2. Team / Project Description

Title – Alpha Healthcare Solution

Student Member – Lalrempuii, Parivesh and Namandeep

Mentors – Dr. Rajesh Kaushal

Description –When a patient goes to the hospital for a checkup, he/she has to wait for 1-2 hours to meet the doctor. So, we came up with the solution of ZoCare app which allows one to get instant access to healthcare system with one touch. This app will connect nurses, physiotherapists, and dieticians as per the need of the patient/client and also provides home service for people who need medical attention but can't go to hospitals due to their medical conditions.

The app also allows patients to book online appointments with various general physicians and specialties such as cardiologists, endocrinologists, ENT, cosmetologists, dermatologists, rheumatologists, neonatologists, etc. This app will help patients save time in an efficient manner.

Project status at beginning of the Year: It was a well thought idea, but student (who is not from engineering background) lacked expertise in implementing the project

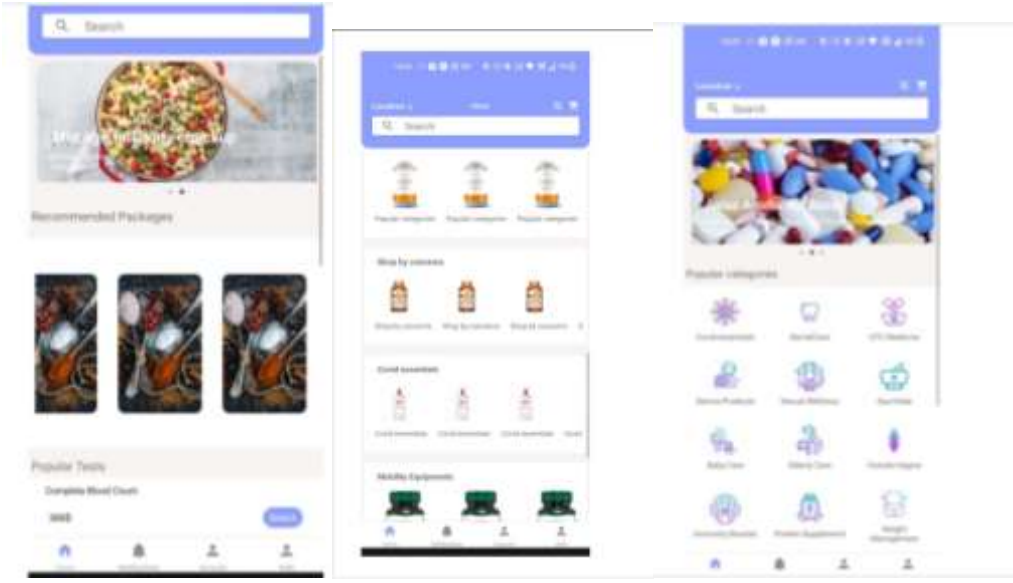
Interventions made:

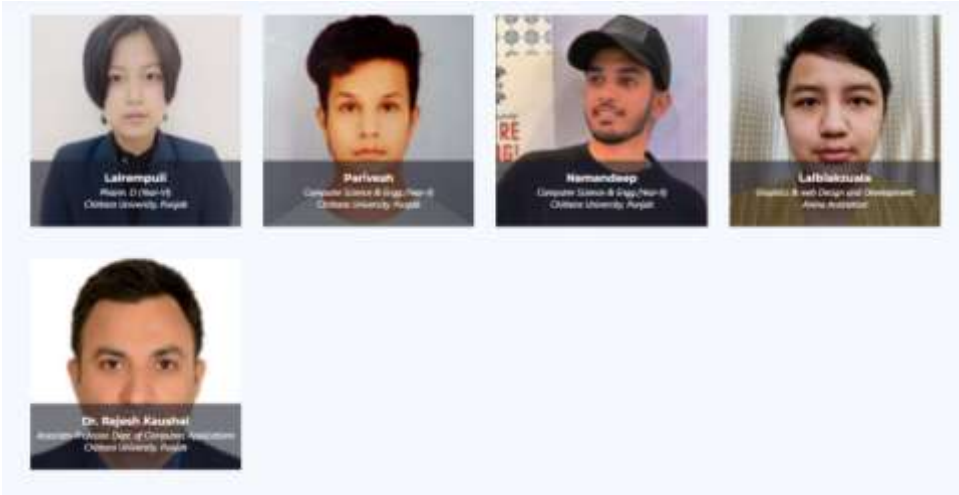
- Funding from NewGen IEDC
- Mentoring in executing the project and identifying vendors for procurement
- Support in building an interdisciplinary team.

Current status:

- Front end design for Android OS is done, iOS implementation is going on.

Video and Photographs: https://youtu.be/QTzoy0s5LaM





3. Team / Project Description

Title- Automatic and Moveable Vertical Garden Barricades

Student Member – Appurav Gupta and Jayti Garg

Mentors. – Dr. Pooja Mahajan, Mr. Hamid Raza and Mr. Atul Dutta

Description- Barricades are used to check, control and regulate traffic movements. It is often found that these barricades are very stark and not visible in low-light areas. Moreover, we are all aware of the present environmental issues and the shortage of green-covered areas.

The Automatic and Moveable Vertical Garden Barricades will consist of a vertical garden and an automated irrigation system to nurture plants It will not only look impressive but will also give comfort to people's minds, with nature's calming powers.

It will also comprise LED lights with solar panels to make the system energy-efficient and increase visibility at night. It has space for advertisements to generate revenue from it. This will be one set to provide a complete integrated design and environment-friendly solution for many issues.

Project status at beginning of the Year: It was just an idea

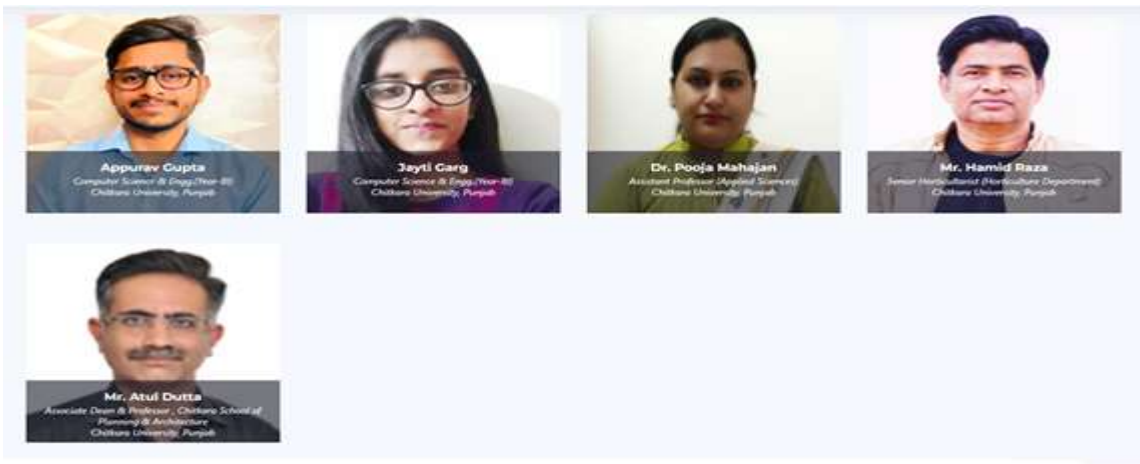
Interventions made:

- Funding support
- Mentoring support
- Identification of components and vendors
- Prototyping support in sheet metal work

Current status:

- Prototype is ready
- Working on the Automation part
- Design patent has been filed - 357439-001

Video and Photographs: https://youtu.be/iSvf5ioIgLs



4. Team / Project Description

Title – Designing of Microbial Fuel Cell Coupled Constructed Wetland for the Remediation of Dyes

Student Member – Priti Panwar

Mentors. – Dr. Pooja Mahajan and Dr. Jyotsna Kaushal

Description - Use of synthetic dyes in textile industry all over the world which is resulting in enhancing toxicity levels of water bodies by the direct discharge of dye effluent without adequate treatment. Dyes are also carcinogenic and mutagenic. Additionally, there is a need to explore methods of generating energy from alternate sources to reduce the dependence on non-renewable sources.

There is a need to develop such technologies which could not only treat wastewater in an economic way but also generates electrical energy simultaneously. As per present Sustainable Development Goals, the adoption of more sustainable energy generation and wastewater treatment strategies is required for economic and environmental goals to be harmonious. CW-MFCs in combination is the new type of energy provider along with treatment of hazardous synthetic dye effluent in eco-friendly and cost-effective manner.

A microbial fuel cell coupled with constructed wetland reactor will be designed and constructed for the degradation of synthetic dyes. Electrogenic bacteria and plants will be used to improve the degradation efficiency of dyes and to increase the bioelectricity generation

Project status at beginning of the Year:

It was a well-researched project idea

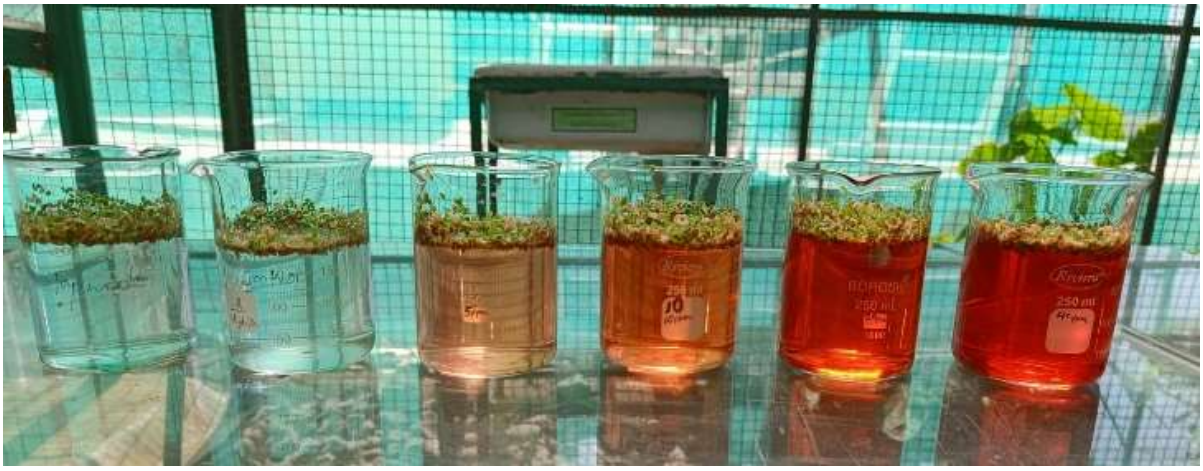
Interventions made:

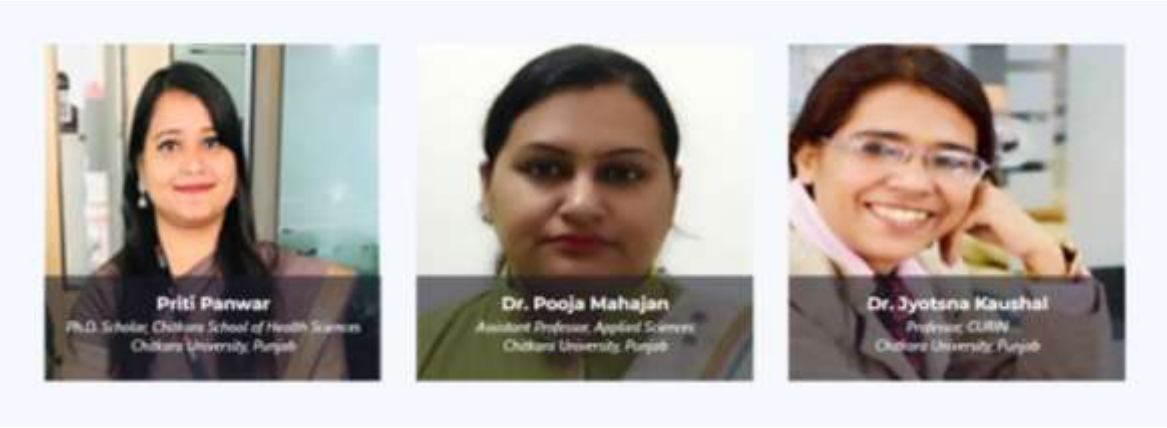
Funding support and support in sourcing the components.

Current status:

- We are conducting preliminary experiments for the construction of CW-MFC in order to optimise certain parameters which will play a significant role in the performance of the system. Here are the pictures of preliminary experiments conducted for the degradation of dyes.
- We are going to purchase the material for the construction of fuel cell such as electrodes, substrate, wires, resistors, rectangular boxes and peristaltic pump. The list has been prepared and will be sent for quotations soon and the purchase will be done by the end of January.

Video and Photographs: https://youtu.be/hOb4Ihq-_Kk





5. Team / Project Description

Title – Development of safe AR-LEAD and VR-LEAD for Autism

Student Member – Anjali and Shubham Kumar

Mentors. – Dr. Thakur Gurjeet Singh, Dr. Nitin Saluja, Dr. Gurjinder Singh and Dr. Debarshi Ghosh

Description - It is estimated that more than 2 million people in India are affected by autism spectrum disorder (ASD). The intervention of ASD in India is more geared towards traditional methods involving parents, physicians, and educators. The traditional interventions can be grouped into 4 different approaches: developmental, behavioral, cognitive, and therapeutic. In Autism Disorder, children face difficulties in social interaction, developing behavior and communication. We identified these problems in some kids in our surroundings. To discuss the problem, we visited the Head of the Department, Psychiatry Department from Rajindra Government Medical College and Hospital Patiala, Punjab, and found that it is not easy to implement AR directly on the Autism Kids.

This project aims to create an AR-based application (AR-LEAD) for treating autism in rodents. A pre-clinical study would be conducted to analyze rodents' oxidative stress parameters, neurotransmitter levels, apoptotic markers, and neuroinflammatory biomarkers. The outcomes of this project would aid in the development of similar AR/VR applications that can be used for autism patients in the future for clinical trials.

Project status at beginning of the Year:

It was a well-researched idea

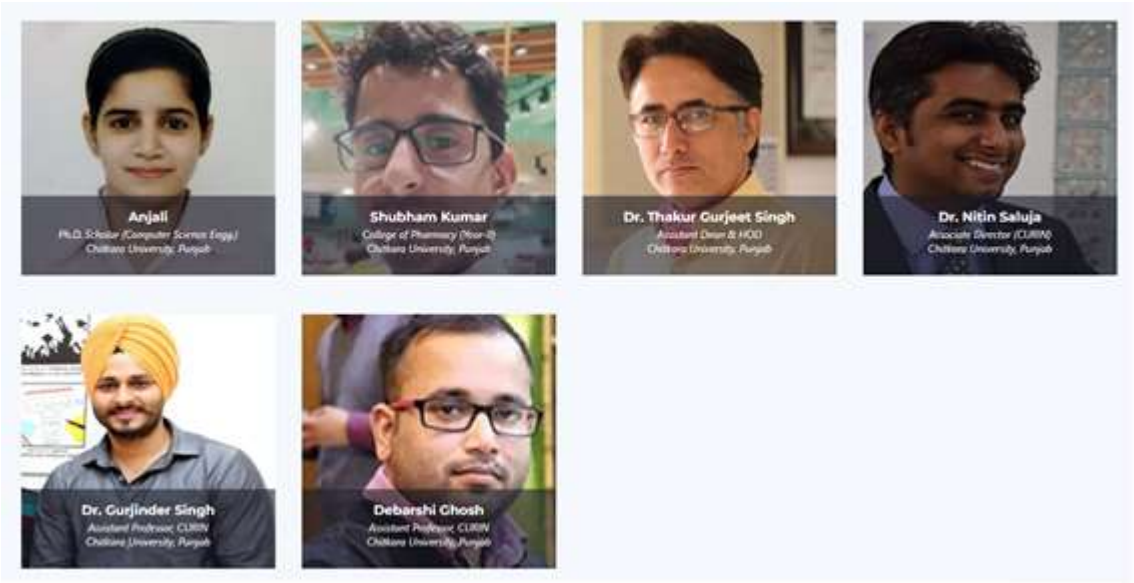
Interventions made:

- Funding support and components sourcing support
- 3D designing and printing support.

Current status:

- Successfully interfaced the Raspberry Pi with the capacitive touchscreen LCD to display the virtual content to the subject. Four capacitive touchscreens were connected successfully with the Raspberry Pi to form the panoramic display for the rodents.
- Next, team is going to design and 3D print the case for the panoramic display in which 5 screens can be attached at one time.
- Patent filed - 202211046851

Video and Photographs: https://youtu.be/tPTm3bM2MgE



6. Team / Project Description

Title – Developing Silicon Moulds for Casting Purposes

Student Member – Yogesh Duggar

Mentors. – Mr. Chanpreet Singh

Description– The casting mould built using silicon rubber will help MSMEs (Micro, Small and Medium Enterprises) to reduce the cost of products developed using casting moulds. The biggest leverage will be achieved by plastic products manufacturing and rubber products manufacturing industries. The combination of high thermal resistivity of silicon rubber with the strength and thermal conductivity will be used to build the casting mould. These casting moulds are divided into a silicon rubber mould and a metal casing covering its outer part. The silicon rubber

mould will be used as the inner part to shape the casting material. The use of silicon rubber mould will reduce both the complexity of manufacturing the mould as well as reduce the cost of manufacturing. The outer metal casing will be used in strengthening and pressure handling of the silicon rubber mould. This outer casing will also help in evenly cooling the silicone mould. We intend to replace metal dyes in MSME's by silicon dyes (silicon rubber mould) in the process of plastic and rubber casting.

Project status at beginning of the Year:

It was interesting idea that we decided to support from NewGen IEDC.

Interventions made:

- Funding support
- Support in identification and sourcing of components
- Technical mentorship in project execution

Current status:

- Conducted a flame test to determine the degree of burn and oxidation.
- Investigated the effects of varying tension forces on the elasticity of silicon rubber at different temperatures.
- Examined the changes in silicon rubber subjected to constant heat (non-flame).
- Determined the range of heat transfer for different thicknesses over different time frames.
- Evaluated the compatibility of various tools for modelling silicon rubber.
- Collaborated with the shoe industry to design new plastic shoe outsoles and initiated the development of new models.

Video and Photographs: https://youtu.be/qnwwxArciEQ

7. Team / Project Description

Title – Enhancement of Working Life of Agricultural Equipment and Tools with the Development of Wear Resistant Alloy Powder Coatings

Student Member –Hemender Yadav, Hitesh Singla and Himakshi Gupta

Mentors –Dr. Rakesh Goyal,

Description– Agricultural tools and components like plows, hole diggers, and harvester blades are facing a critical problem of wear and erosion due to the erosive nature of sand and stones. This results in less efficiency of the equipment in a particular time increased maintenance and thus the higher overall cost of work.

We propose a solution that will develop the well-defined composition of Wear Resistant Coating Powders. Such solutions are used for coating of Agricultural tools and components by Thermal spray coating technique and shall provide protection against the high rate of wear which increased the working life of the tool.

The coating technologies are very effective and economical to achieve the desired results. This has been already proven in different journals/literature reviews that coating is probably the only effective solution to provide protection from wear and add extra life to the agricultural equipment.

Project status at beginning of the Year –

- It was a theoretical idea, strongly backed by literature

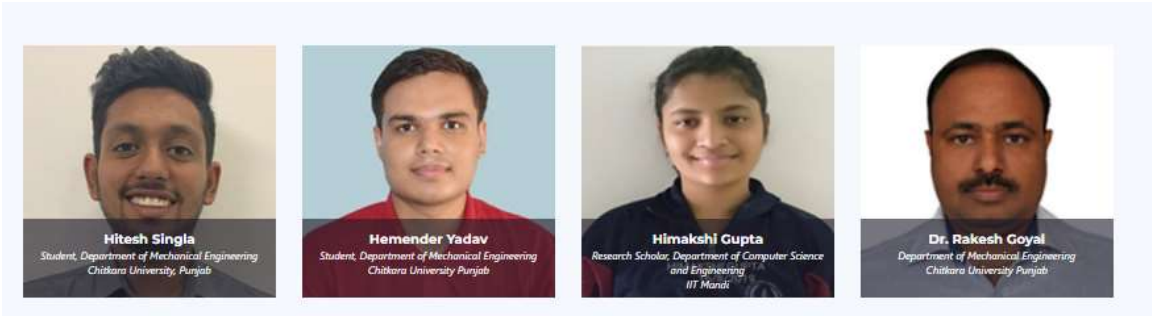
Interventions made:

- Funds were provided from NewGen IEDC for building a prototype and testing the efficiency of the proposed coating.

Current status:

- The prototype has been made and currently under testing.
- Results are being obtained.

Video and Photographs: https://youtu.be/R0X9e83ygLI



8. Team / Project Description

Title – FORO (Fog on Roads)

Student Member – Kamal Gulati, Jyoti Gupta and Sakhshra Monga

Mentor – Dr. Nitin K. Saluja

Description - FORO is a fog detection device which gives hyper local prediction of fog in real time. The devices presently available in the market are ADAS (Advanced Driver Assistance Systems) integrated with LIDAR (Light Detection And Ranging), Image processing, Radar, optical power measurement etc. These techniques produce reliable results but with more complexity. Also, the cost of these techniques is very high. So to overcome this problem we have found that the FM radio signals vary with the fog. We started automating the process of noting down the signals

while moving on the roads with an instrument named FoRo (Fog on Roads). We are in process of prototyping FoRo for precise recording of the signals, converting it into digital signals and transferring the data to the mobile phones with the linked application. It records the signal and send it to the servers. The server has an Artificial Intelligence algorithm which can predict the fog at hyper-local level in real time. Now, we can predict the time of your arrival better than Google Maps in the winter seasons of India

Project status at beginning of the Year: It was a well-researched idea

Interventions made:

Funding Support and Components Sourcing Support

Current status:

- Team is analyzing the FM signals coming from FM radio at different intervals of time so that we can find distortions in the FM radio signal.
- Working on the PCB design, and programming the microcontroller with a ML based code.
- Patent filing is in process.

Video and Photographs: https://youtu.be/ctSjWR4aHEA

9. Team / Project Description

Title – IR imaging for medical applications

Student Member – Neha and Raj Rani

Mentors. – Dr. Varsha Singh

Description – The project is about high-resolution infrared imaging employing infrared sensor technology and real-time image processing techniques. The innovation is focused specifically on imaging for medical purposes.

One of the challenges with infrared sensors is the amount of electromagnetic interference that occurs when they are used to drive a normal display, such as a laptop display. Lines across the screen, like what one may see on analogue television in a bad reception area, are a common result.

As a result, an infrared camera system that is not susceptible to electromagnetic interference is required, so that EMI interference does not appear on the display screen when coupled to a CPU, such as in a laptop.

In addition, infrared equipment used in medical laboratories is usually bulky and hefty, making transportation difficult. As a result, there is a desire for a medical infrared system that can be carried in a bag, opened, and used in an off-campus treatment facility.

Additionally, the output of a single channel infrared sensor must be processed to sharpen the image displayed on-screen and achieve high image resolution.

Project status at beginning of the Year: A basic prototype with off the shelf camera was available.

Interventions made:

- Funding from NewGen IEDC
- Support in identification of right components and vendors
- 3D designing and printing support.

Current status:

- Component aspects of the device are in the process of procurement and the final aspect of the project design for fabrication and assembly of the prototype is undergoing.
- Patent has been filed having an Application Number 202111030344.

Video and Photographs: https://youtu.be/fnzxxxZtiLs

10. Team / Project Description

Title – Low-cost patient transportation track with convertible wheelchair and stretcher for inter building patient transfer in tertiary care hospital: Prioritizing the Patient safety.

Student Member – Shelly Kaushik

Mentors – Prof. Keerti Bhusan Pradhan

PGI Doctor's - Dr. R R Guru, Prof Vipin Koushal, Dr Navin Pandey, Dr Karan Singla, Dr Girija and Er Dharmendra

Description - During the intra-hospital and inter-building transfer of the patients for admissions or other diagnostic procedures, issues like Fall of the patient from the stretcher, exertion of patient attendants, lack of signages on the way, the danger of vehicular road traffic accidents, the helplessness of attendants during transport of the patient leading anxiety and delay in the treatment.

As a solution to finding out the most comfortable, safe, and effortless mode of patient transfer, the proposed solution is to design a convertible wheelchair with a stretcher and smooth designated metallic tracks for effortless movement of the Convertible wheelchair. This project may be adopted in apex care Hospitals for patient safety.

Project status at beginning of the Year:

It was an excellent idea with full theoretical understanding on how to implement it.

Interventions made:

- Funding support and components sourcing support.

Current status:

- The design of first the wheel chair is finalised. The wheel chair also been made in the workshop after necessary modifications.
- The second wheel chair is in tendering process. The hardware for the tramline is also in tendering process.
- The signages, resuscitation trolley work is under process.
- The location and permission for the tramline in the hospital area is in process of getting approval from the concern authority.
- The permission for the tram line making in side hospital premises is in process

Video and Photographs: https://youtu.be/IzaaajqdPvk

11. Team / Project Description

Title- Metal Spray Gun for Industrial Applications

Student Member – Ayush Sharma and Sushant Jashwara

Mentors. – Dr. Rakesh Goyal, Dr. Kashi Das Chattopadhyay and Ms. Punam

Description - The idea is to develop and manufacture a Thermal (Wire Flame) Spray gun for thermal spray coatings. This gun will be helpful in depositing the coating on the components which are subjected to the application of wear and corrosion. This gun will be helpful in the repair and reclamation of worn-out components. This gun can be used by researchers and the industry. This gun has many applications in many verticals. Global Thermal Spray Coatings Market size was worth over $8 billion in 2016 and is expected to be increased over $13 billion by 2024. Growth in aerospace and automotive sectors particularly in North America will propel thermal spray coatings market share. As per industry estimates, U.S. civil aviation spending was over USD 79 billion in 2015 and is set to register a growth of over 6.5% through 2024. The other lucrative industries using thermal spray coatings are automotive and healthcare.

Project status at beginning of the Year:

It was a well-researched idea

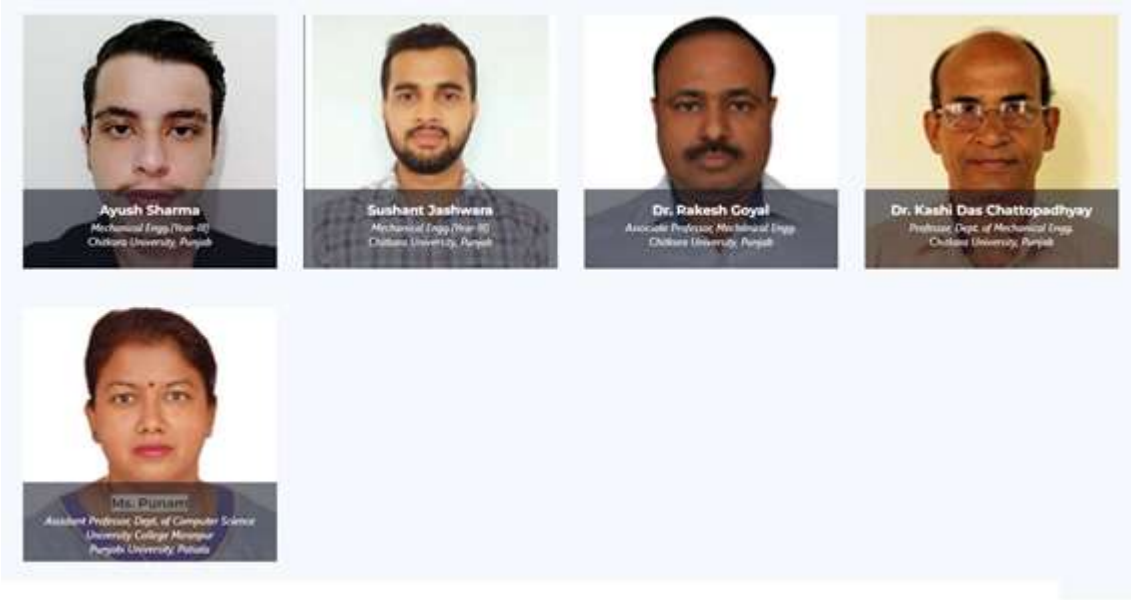
Interventions made:

Funding Support and Components Procurement Support

Current status:

- Components have been ordered and received. Prototype is being made
- Tying up with SYNCO industries
- Patent application is in process.

Video and Photographs: https://youtu.be/8ODwYaZPfn4



12. Team / Project Description

Title – Perineal Retractor for safe and accurate Episiotomy during Vaginal Delivery

Student Member – Dr. Vanya Sharma, Cheshta Ahuja, Jyotsana Chaudhary, Km Beena Patel, Harsh and Mukul Goyal

Mentors – Dr. Keerti Bhusan Pradhan

Description– This is a surgical instrument that helps to guide the incision made during an episiotomy at a specific angle, in turn reducing the risk of vaginal tears. Injuries related to vaginal childbirth is something that is not talked about openly in the Indian society. Up to 9 in every 10 first time mothers who have a vaginal birth will experience some sort of tear, graze or episiotomy. These tears range from mild to severe and in some cases lead to pelvic floor incontinence. With this in our mind, our team set out to help make the quality of life, for first time mothers, better.

Project status at beginning of the Year: It was a well-researched idea

Interventions made:

- Funding Support
- 3D designing and fabrication support

Current status:

- One 3D printed prototype was made and tested.
- Now, a few samples of prototypes with medical grade material are being made.

Video and Photographs: https://youtu.be/69qsz_67lFA

13. Team / Project Description

Title- Portable Heat Treatment and Muffle Furnace

Student Member – Jaskaran Singh

Mentors. – Dr. Rakesh Goyal and Ms. Punam

Industry Partner - Mr. Harish Kumar Sharma, Termico Engineers

Description -

Heat treatment muffle furnace can work both vertical and horizontal and shall provide uniform heat treatment properties. It is provided a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of furnace will be in the range of 800°C-1000°C. This furnace has increasing demand in the Industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries and etc.

Project status at beginning of the Year:

It was a well-researched idea

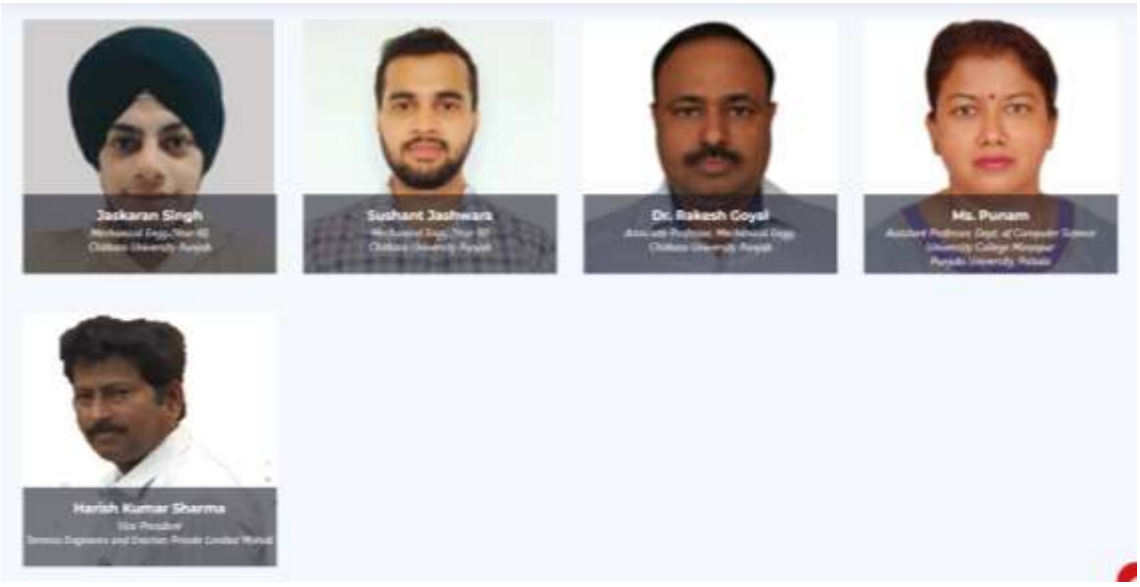
Interventions made:

Funding support and components procurement support.

Current status:

- Team has been able to select all the components needed for building the furnace. Components have been ordered.
- Material is being received.
- Patents filed - 202211045767, 360479-001, 364097-001, 364098-001, 364099-001

Video and Photographs: https://youtu.be/x9Y2NBJgiBo



14. Team / Project Description

Title – Quantum Dot Dispersed Polymer Dispersed Liquid Crystal (QD-PDLC) for Smart Window Applications.

Student Member – Gaytri and Shubam Sudan

Mentors – Dr. Vandana Sharma and Dr. Pankaj Kumar

Description - The purpose of this project is to develop energy efficient quantum dot (QD) dispersed PDLCs using varied concentrations of synthesized QDs. QDs are widely used in many applications such as optoelectronics, photovoltaics, solar cells and lasers. Unlike bulk material, these semiconductor nanoparticles exhibit unique optical and electrical properties dictated by their size, shape, and quantum physics at the nanoscale. The dispersion of such QDs in PDLC mixtures may provide an efficient way to control the placement of QDs inside the polymer matrix and LC droplets. Metal-doped carbon quantum dots will be synthesized by a single step hydrothermal route using different carbon sources, surface modifiers and metal precursors. The resultant QDs will be filtered with the help of a suitable membrane, followed by freeze-drying of the samples at -80 °C. The dried carbon-based QDs will be characterized for their basic properties and dispersed in the polymer-LC mixture for the fabrication of PDLC cells. The surface anchoring energy of the polymer to the LC molecules will be controlled using different concentrations of QDs. Thus, the performance characteristics such as threshold & operating voltages, maximum and minimum transmittances, and contrast ratio of the QD dispersed PDLCs will be improved. Once the prototype QD dispersed PDLC cell is developed for smart windows and display applications, we will look for licensing collaborations with industries.

Project status at beginning of the Year:

Detailed literature review and clarity of the project implementation was there with the team

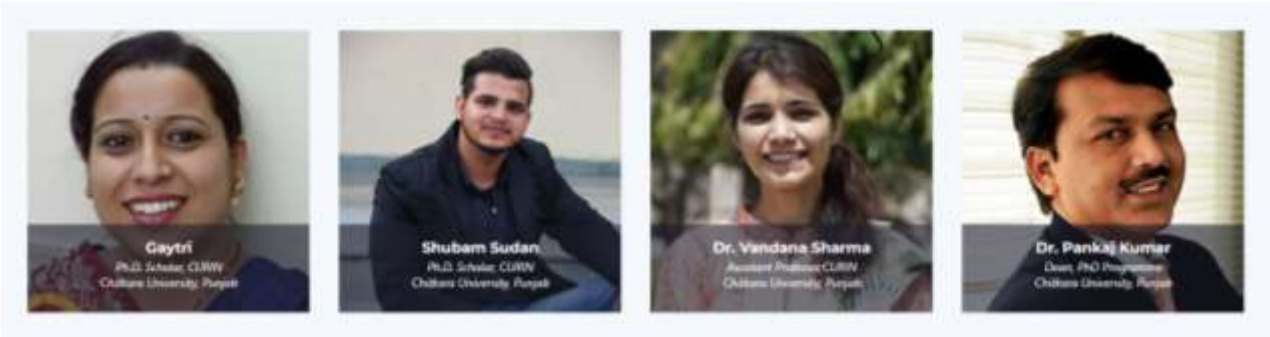
Interventions made:

- Funding support and complete support in procurement of components

Current status:

- Synthesis of metal doped carbon QDs and variation samples is done.
- The synthesis part of the project has been completed and the samples have been sent for analysis.
- Drying of samples is a challenge due to the hygroscopic nature of metallic samples. Various methods have been practiced to overcome the issue.

Video and Photographs: https://youtu.be/Tn4JtQLv8wE



15. Team / Project Description

Title– R-Bit Financial Education Platform

Student Member – Tanshul, Namandeep and Yashika Thakur

Mentors. – Dr. Navjeet Kaur

Description- The project R-Bit is a Financial Learning and Training platform. It consists of learning materials and a training playground with paper money to get some real-life experience about the flow of money, before entering into the real financial world. The platform features all types of investment opportunities, and learning material from basics to advance level so that a person who has no knowledge of this area can be connected to an experienced one. The platform to provide multilingual support to eradicate the language barrier.

Project status at beginning of the Year: It was a well presented idea with a basic framework ready

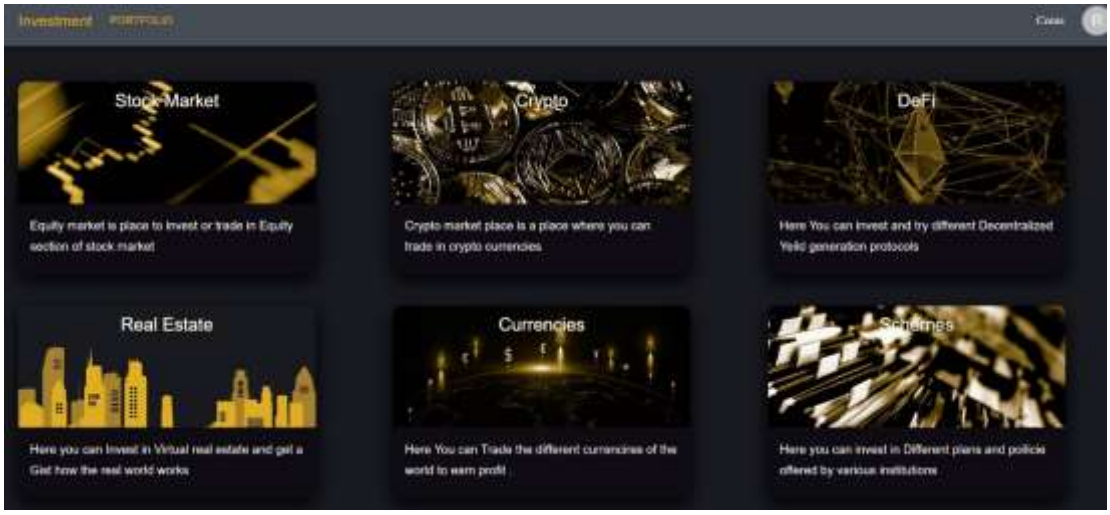
Interventions made:

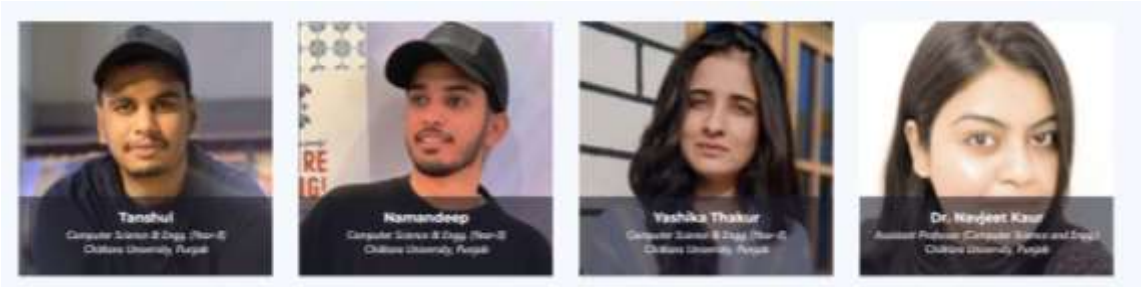
- Funding from NewGen IEDC
- Support in building a team. Mentoring support
- Support in connecting with the right vendors. Trained them on making procurement correctly.

Current status:

- The team has used Adobe for making and editing most of the pictures and components used in the platform
- Coin ranking API has been used to fetch real time data of crypto currency
- Building Charting solution from the scratch

Video and Photographs: https://youtu.be/ZF3Uy_Agi4E





16. Team / Project Description

Title – Rodent Surgical Table

Student Member – Nikhil Garg

Mentors – Dr. Thakur Gurjeet Singh, Mr. Chanpreet Singh and Dr. Debarshi Ghosh

Description– Rodent surgical tables are used for animals' examinations or surgery by a veterinary surgeon or preclinical researchers. It is important to provide an accurate position and height of the working table for surgery with proper temperature regulation, which enables the veterinarian to be in a precise position rather than kneeling or crouching to treat the animal on the floor.

The present invention is an improved surgical table and more particularly to use in veterinary medicine. There are a lot of surgical tables available in the market, but the facilities available are not advanced. The proposed current design is efficient with facilities as it is made up of stainless-steel surface with heating pads, LED lamp, tool tray, waste drainage pipe, beaker space (250 ML and 100 ML), animal tissue holder, with an automated temperature regulator as per the need of physiological demand and an automated position setter for the ease of the surgery. The design's significant commercial value is that it will provide preclinical researchers with a better option for starting rodent surgeries, close to 100 percent efficiency, and reduce the complications. The present need is to work with better equipped facilities to provide excellent options in the preclinical research lab. The proposed design will attract various companies and researchers for the investment in the rodent design of the surgical table.

Project status at beginning of the Year: It was a well-researched idea

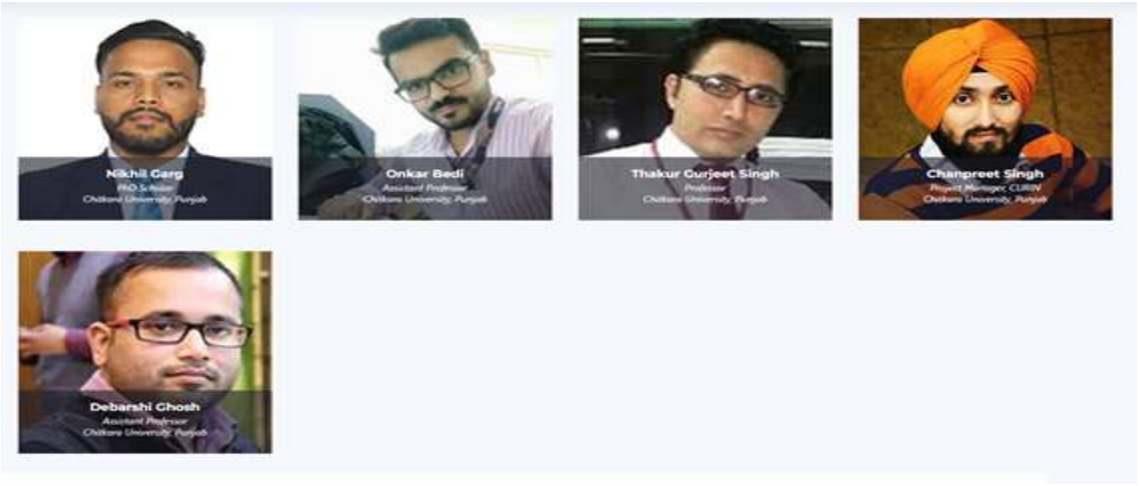
Interventions made:

- Funding and Components Sourcing Support
- Fabrication Support

Current status:

- Prototype is ready
- Patent has been filed 331265-001

Video and Photographs: https://youtu.be/aU2NJ_VrUds



17. Team / Project Description

Title – Screening, Actuation and Sanitizing

Student Member – Urvash Nahata, Rishabh Tandon and Akshat Chandra

Mentors – Mr. Sandeep Kumar

Description– SAS is an apparatus for granting entry permission to an individual, the said apparatus comprising: a temperature sensor for capturing and determining a body temperature by pointed towards head of the individual. A bar code scanner, comprising a scanner that is enabled to read different bar code symbologies present on an identification card authentication. A positive authentication of a person will grant the entry permission to the individual and activate automatically a sanitizer dispenser before entering into a specified region. The data of the entries will be shared with the accounts department for salary disbursement of employees on daily basis.

Project status at beginning of the Year:

The patent of the idea was filed (202011035739) before applying for funding support from NewGen IEDC

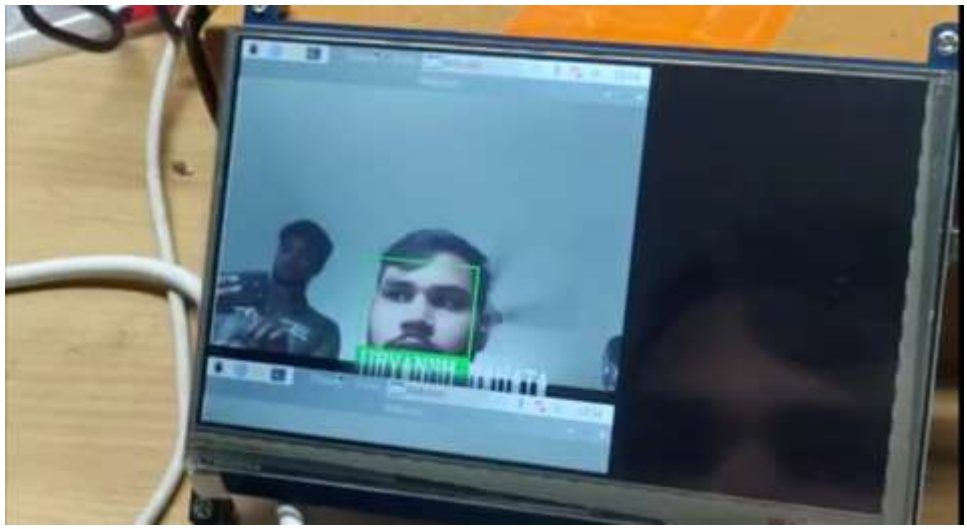
Interventions made:

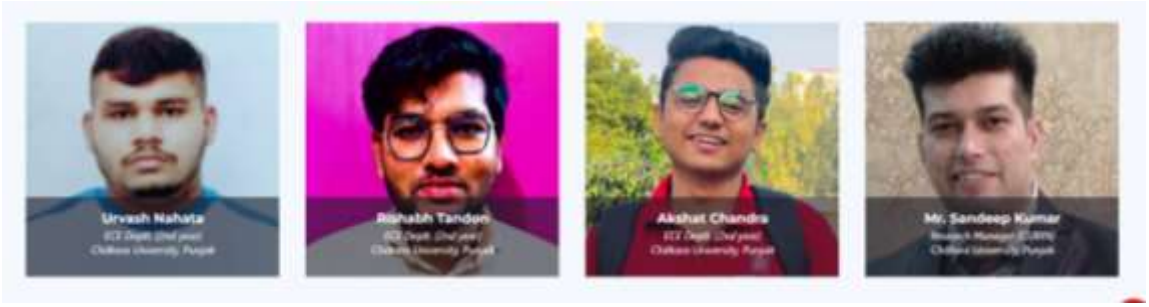
- Funding from NewGen IEDC
- Mentoring in identifying the right components and budget preparation.
- Support in identifying the vendors for procurement

Current status:

- Prototype is ready and final testing is going on.
- Next step is to make an enclosure for housing all the components. 3D printing will be used.

Video and Photographs: https://youtu.be/J8wQivfaIFY





18. Team / Project Description

Title – Schottky Junction Printable Solar Cell

Student Member – Nikhil Shrivastav

Mentors – Dr. Rahul Pandey, Dr. Jaya Madan

Description– Rise in demand for affordable solar power components, including solar panels, is expected to fuel the printable solar cells market in the near future. The photovoltaic cell provides better performance at a good cost, but they are not flexible in nature. Also, conventional crystalline silicon-based PV devices have several problems such as High usage of raw materials, High thermal budget, Recycling of silicon, High manufacturing cost, Several complicated productions, and Less efficient Solar Cells.

Therefore, we thought to fabricate semiconductor nanocrystals-based screen-printed flexible solar cells. The first semiconductor nanocrystals or powder layer mixed with polymer binder or the active layer is screen printed on an FTO coated glass. The First active layer will create a Schottky Junction with the FTO coated glass. Then the Second semiconductor nanocrystals or powder layer mixed with polymer binder is screen printed that would collect the electrons. The second layer would create an ohmic contact for the first layer. Lastly, the back electrode would be screen printed, which would act as a back electrode for electron extraction.

Project status at beginning of the Year: It was just an idea but a well-researched one.

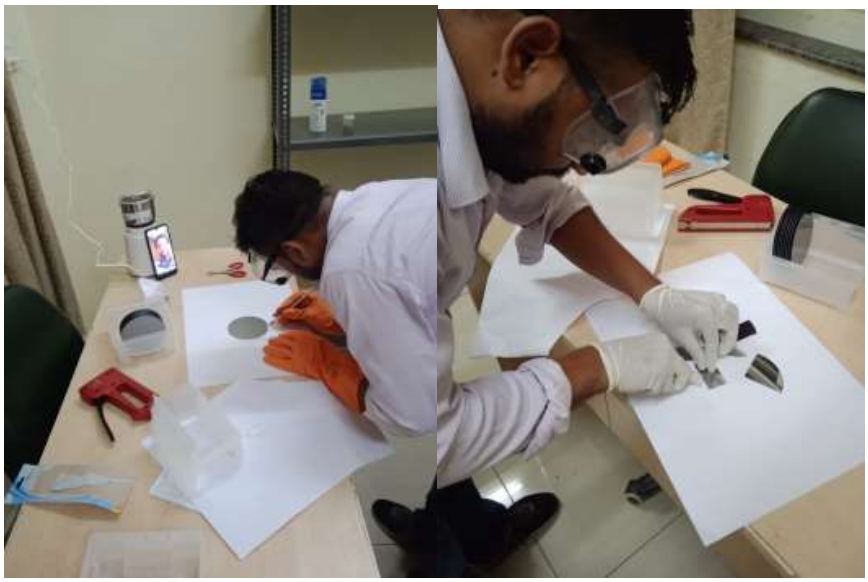
Interventions made:

- Support in identifying a credible industry partner
- Funding and procurement support
- Patent support.

Current status:

- A patent has been filed – 202211009134
- Team has been able to source all the material needed for building a printable solar cell.
- Fabrication process of building a mini prototype is underway
- Work is being done in collaboration with POWERED ELECTRON PRIVATE LIMITED.

Video and Photographs: https://youtu.be/vAtw9im1aJ8



19. Team / Project Description

Title – To develop an energy efficient liquid crystal display device and its study on electro-optical and dielectric behaviour

Student Member – Rajat Takkar

Mentors. – Dr. Vandana Sharma and Dr. Pankaj Kumar

Description -

In the project we plan to build suitable combination of LC, nanomaterials, LC orientations and cell configurations to obtain a superior performance of LC based display devices. The purpose is to develop energy efficient cum high contrast flexible LC displays using non-contact method. Specifically, the performance characteristics of vertically aligned nematic LCs of negative dielectric anisotropy using nanoscale particles of varied sizes and concentrations will be controlled and electro-optical as well as dielectric behaviour will be studied.

Project status at beginning of the Year:

It was a thoroughly researched idea with detailed literature review available with the applicants.

Interventions made:

Funding support and components procurement support from NewGen IEDC

Current status:

- Prepared a few VALCs sample cells.
- Some of the VALCs cells have been prepared using ITO glass substrates and LC mixtures as well as confirmed by Microscopy and conos copy studies.

Video and Photographs: https://youtu.be/IEETBhS3M-k

20. Team / Project Description

Title – Virtual Reality-Based Home Eye Testing Device for Measuring Spectacle Power of the Eye

Student Member – Maheswari Srinivasan and Arshdeep Kaur

Mentors – Dr. Keerti Bhusan Pradhan

Description– There are only 12000 ophthalmologists in India for a population of 136 crores. In some of the rural places of India, there are no eye care facilities. Hence a device for tele-eye consultation and tele-eye testing was required. Our innovation is a virtual reality-based device that can connect clinicians and patients through cloud systems. The device tests the spectacle power of the eye and sends the prescription remotely. It helps the patients to reach out the ophthalmologists easily across the countries.

Project status at beginning of the Year: A very basic level prototype using cardboard modelling was ready. Team had absolute clarity on technical implementation of the project.

Interventions made:

- Funding support from NewGen IEDC
- Support in identifying the vendors and components procurement
- Complete support in 3D designing and 3D printing

Current status:

- A patent has been submitted for examination – 202141028827
- The acrylic prototype is submitted in the ethics committee and ethical approval obtained for clinical trials going on.
- Selected for NIDHI EIR fellowship grant award and receiving Rs. 30000 as stipend per month.
- We are working on the current liquid lens. We have to test on it. If it works out well, we want to buy one more liquid lens.
- Collaborated with M.N eye hospitals in Chennai for clinical trial.

Video and Photographs: https://youtu.be/pfqZTtCeBCI

NewGen IEDC-Mar Ephraem College of Engineering and Technology

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: (Fourth Year) 2022-2023

Name of the College/Institution hosting NewGen IEDC	Mar Ephraem College of Engineering and Technology		
Year of starting NewGen IEDC	2018-2019		
Name of the Head/Principal of the Institution/College	Dr. A. Lenin Fred		
Name of NewGen IEDC Coordinator	Dr. A. Lenin Fred		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	9443483072 leninfred.a@gmail.com edc@marephraem.edu.in		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NewGenIEDC/18-19/RLS-I/06 20/02/2019	60,00,000
	2		47,50,000
	3		60,00,000
	4		60,00,000

1. Details of Activities Undertaken during the year:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Program #1

Name of the Program : Seminar on Innovative Entrepreneurship

Resource person : NewGen IEDC Mar Ephraem Core team

Date : 06/04/2022

No. of Beneficiaries : 1400

Outcomes

- The Seminar on Innovative Entrepreneurship, led by the NewGen IEDC Mar Ephraem Core team, took place on 06/04/2022, benefiting 1400 participants.
- *Knowledge Enhancement:* Participants gained insights into innovative entrepreneurship, including emerging trends, market analysis, business models, and strategies for success.
- *Inspiration & Motivation:* Attendees were inspired and motivated to pursue entrepreneurship through real-life success stories shared by resource persons.
- *Networking and Collaboration:* The seminar facilitated connections among participants, fostering collaborations with fellow entrepreneurs, industry experts, and potential mentors.
- *Skill Development:* Practical workshops and training sessions equipped participants with essential entrepreneurial skills, such as business planning, marketing strategies, and innovative problem-solving.
- *Empowerment and Confidence Building:* Participants gained a sense of empowerment and confidence in their abilities to start and grow their own ventures.

Program #2

Name of the Program : Training for Creating Innovative Mindset among Community Students

Resource person : Ms. Paulin Jini / Trainer

Date : 12/4/2022

No. of Beneficiaries : 107

Outcomes:

- *Enhanced Innovative Thinking:* The training session conducted by Ms. Paulin Jini on 12/4/2022 successfully cultivated an innovative mindset among 107 community students. Through interactive sessions, participants were exposed to creative problem-solving techniques and encouraged to think outside the box.
- *Practical Skill Development:* The resource person facilitated practical activities and exercises that allowed participants to apply innovative thinking to real-world scenarios. They gained hands-on experience in brainstorming, ideation, and prototyping, developing practical skills to generate and implement innovative ideas.
- *Confidence and Self-Efficacy:* The training program instilled confidence and self-efficacy among the community students. Through engaging discussions and experiential learning, participants recognized their potential to contribute innovative solutions to challenges faced by their community. They developed a belief in their ability to make a positive impact.
- *Empowered Community Engagement:* Equipped with an innovative mindset and practical skills, the beneficiaries of the training program became empowered to actively engage with their community. They were encouraged to identify and address local issues through innovative approaches, fostering community development and positive change.

Program #3

Name of the Program **:** Leadership Training Programmers for budding Entrepreneurs

Resource person **:**Dr. R. Leo Bright Singh, Chief Innovation Officer, ACIC Mar Ephraem Incubation Forum

Date **:** 10-10-2022

No. of Beneficiaries **:** 450

Outcomes:

- *Leadership Development:* The Leadership Training Programmers, led by Dr. R. Leo Bright Singh, equipped 450 budding entrepreneurs with essential leadership skills, enabling them to lead their ventures confidently.
- *Entrepreneurial Mindset Cultivation:* Participants developed an entrepreneurial mindset, embracing traits like resilience, adaptability, and innovative thinking.
- *Networking and Collaboration:* The program facilitated networking among participants, fostering collaborations, knowledge sharing, and potential business partnerships.
- *Empowerment and Business Growth:* Beneficiaries were empowered to make informed decisions, navigate challenges, and drive business growth, equipped with the necessary skills and mindset for success.

Program #4

Name of the Program : Seminar on Entrepreneurship

Resource person : Dr. A. Lenin Fred,
Dr. R. Leo Bright Singh,
Dr.Anish John Paul,
Dr. Lalin Laudis
Mr. C. Gigin Durai

Date : 11/11/2022

No. of Benificieries : 63

Outcomes

- *Knowledge Enrichment:* The Seminar on Entrepreneurship, featuring Dr. A. Lenin Fred, Dr. R. Leo Bright Singh, Dr. Anish John Paul, Dr. Lalin Laudis, and Mr. C. Gigin Durai, provided valuable insights to 63 participants, enhancing their understanding of entrepreneurship.
- *Diverse Perspectives:* Multiple resource persons offered diverse expertise, enriching participants' understanding of entrepreneurial practices.
- *Networking Opportunities:* The seminar facilitated networking among participants, fostering connections and collaborations within the entrepreneurial community.
- *Inspiration and Motivation:* Accomplished speakers inspired and motivated attendees, instilling confidence in pursuing their entrepreneurial aspirations.

Program #5

Name of the Program **:** Training program on Entrepreneurial Express

Resource person **:** Mr.N.Rahul Project Lead, StartUpTN

Date **:** 24 & 25 – 11-2022

No. of Beneficiaries **:** 2

Outcomes

- *Skill Development:* The Training program on Entrepreneurial Express, led by Mr. N. Rahul, equipped the two beneficiaries with essential entrepreneurial skills in business planning, marketing, financial management, and pitching.
- *Personalized Attention:* The small group size allowed for individualized guidance and support from Mr. N. Rahul, addressing the specific needs of the participants.
- *Networking Opportunities:* The program provided networking opportunities, allowing participants to connect with Mr. N. Rahul and potentially establish connections within the StartUpTN network.
- *Confidence and Empowerment:* The beneficiaries gained confidence and empowerment to pursue their entrepreneurial endeavors, equipped with the necessary knowledge and skills.

Program #6

Name of the Program : Seminar on How to Identify a great Idea

Resource person : Dr. Siva Bharathy Field Coordinator, EDII Trinelveli
Dr. Silas Surgunam Coordinator, EDII Trinelveli

Date : 18.10.2022

No. of Beneficiaries : 48

Outcomes

- Idea Identification Skills: The Seminar on How to Identify a great Idea, led by Dr. Siva Bharathy and Dr. Silas Surgunam, equipped 48 beneficiaries with the skills to recognize and evaluate promising business ideas.
- Expert Insights: The resource persons provided valuable expertise and insights into factors contributing to great business ideas, such as market demand, innovation, and scalability.
- Practical Application: Participants actively applied the seminar's concepts through interactive sessions, enhancing their ability to evaluate and refine their own ideas effectively.
- Empowered Decision-Making: The seminar empowered beneficiaries to make informed decisions about their business ideas, increasing their confidence and chances of success in entrepreneurship.

Program #7

Name of the Program **:** FDP on Entrepreneurship

Resource person **:** Dr. Melba Kani

Date **:** 17/11/2022

No. of Beneficiaries **:** 21

Outcomes

1. *Expert Guidance*: Dr. Melba Kani provided expert guidance to 21 beneficiaries, offering valuable insights into entrepreneurship.

2. *Enhanced Knowledge:* Participants gained a deeper understanding of entrepreneurial aspects such as ideation, business planning, marketing, and resource management.

3. *Skill Development:* The program equipped participants with practical skills in financial management, market analysis, and effective communication for entrepreneurship.

4. *Empowerment and Confidence:* Beneficiaries were empowered and gained confidence in pursuing their entrepreneurial aspirations, equipped with the necessary tools and knowledge.

Program #8

Name of the Program : Workshop on “How to prepare the business plan”

Resource person : Dr. A. Arun Fred MBA, Ph.D.,
(EDC Coordinator NMCC Marthandam)

Date : 10/12/2022

No. of Beneficiaries : 44

Outcomes

- *Business Plan Skills:* The workshop on "How to prepare the business plan" equipped 44 beneficiaries with essential skills to develop comprehensive and effective business plans.
- *Practical Application:* Participants gained hands-on experience in creating business plans through interactive sessions and practical exercises.
- *Clarity and Structure:* The workshop provided clarity and structure to the business planning process, helping participants organize their thoughts and create a roadmap for their entrepreneurial ventures.
- *Enhanced Confidence:* Beneficiaries gained confidence in presenting their business ideas, increasing their chances of securing support and investment.

Program #9

Name of the Program : Seminar on Government Schemes and Loans for Entrepreneurship

Resource person : Mr. Visvanathan Lead District Manager, IOB.

Date : 11/11/2022

No. of Beneficiaries : 41

Outcomes

- *Government Scheme Awareness:* The seminar on Government Schemes and Loans for Entrepreneurship provided 41 beneficiaries with knowledge about available government schemes to support entrepreneurs.
- *Loan Understanding:* Participants gained a comprehensive understanding of loan options for entrepreneurs, including application process, eligibility, interest rates, and repayment terms.
- *Access to Resources:* The seminar provided information about additional resources like incubation centers, training programs, and networking opportunities for entrepreneurs.
- *Enhanced Financial Literacy:* Beneficiaries developed improved financial literacy, learning financial management, loan repayment strategies, and the importance of maintaining financial records for their ventures.

Program #10

Name of the Program : Challenge Identification Competition

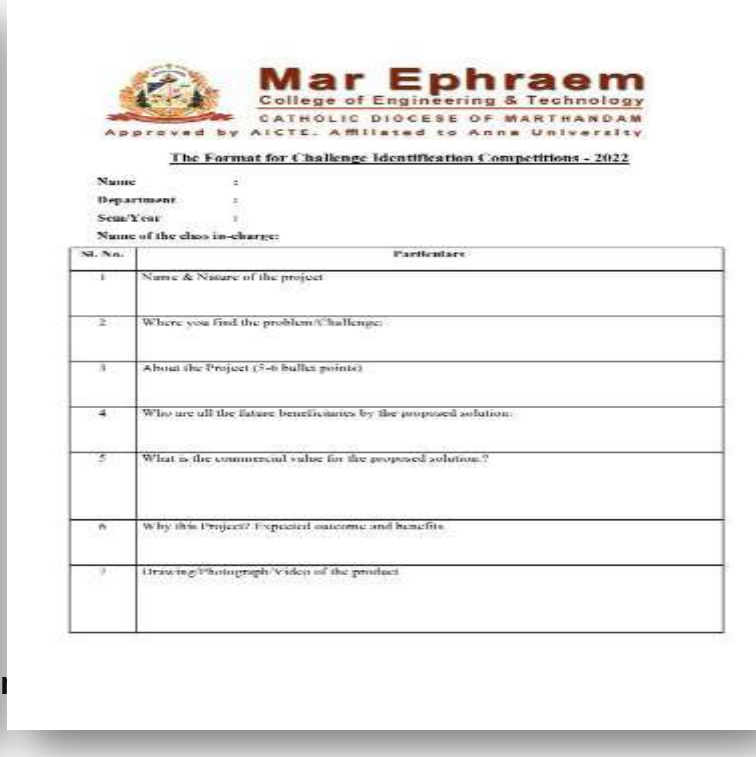
Resource Person : Dr. Melba Kani R.

Date : 22/02/2022

No. of Beneficiaries : 30

Outcomes

- *Government Scheme Awareness:* The seminar on Government Schemes and Loans for Entrepreneurship provided 41 beneficiaries with knowledge about available government schemes to support entrepreneurs.
- *Loan Understanding:* Participants gained a comprehensive understanding of loan options for entrepreneurs, including application process, eligibility, interest rates, and repayment terms.
- *Access to Resources:* The seminar provided information about additional resources like incubation centers, training programs, and networking opportunities for entrepreneurs.
- *Enhanced Financial Literacy:* Beneficiaries developed improved financial literacy, learning financial management, loan repayment strategies, and the importance of maintaining financial records for their ventures.



Mar Ephraem
College of Engineering & Technology
CATHOLIC DIOCESE OF MARTHANDAM
Approved by AICTE, Affiliated to Anna University

The Format for Challenge Identification Competitions - 2022

Name :
Department :
Sem/Year :
Name of the class in-charge:

Sl. No.	Particulars
1	Name & Nature of the project
2	Where you find the problem/Challenge:
3	About the Project (5-6 bullet points)
4	Who are all the future beneficiaries by the proposed solution:
5	What is the commercial value for the proposed solution.?
6	Why this Project? Expected outcome and benefits
7	Drawing/Photograph/Video of the product

Program #01

Name of the Program : Seminar on "Technology commercialization and Business opportunities in different sectors"

Resource Person : Mr. Rajeev Sankaran CEO, FinOS

Date : 17/09/2022

No. of Beneficiaries : 76

Outcomes

- *Technology Commercialization Insights:* The seminar led by Mr. Rajeev Sankaran provided 76 beneficiaries with valuable insights into technology commercialization and identifying business opportunities in different sectors.
- *Sector-specific Opportunities:* Participants were exposed to various sectors and the potential business opportunities that arise from leveraging technology.
- *Entrepreneurial Mindset Development:* The seminar aimed to cultivate an entrepreneurial mindset among attendees, emphasizing the importance of innovation and adaptability.
- *Networking and Collaboration:* Beneficiaries had the opportunity to network with Mr. Rajeev Sankaran and fellow participants, fostering potential collaborations and knowledge sharing within the entrepreneurial community.

Program #02

Name of the Program **:** Boot Camp for Product Development 1

Date :15th August 2022

No. of Beneficiaries : 43

Outcomes

- *Product Development Skills:* The Boot Camp for Product Development 1 provided 43 beneficiaries with practical skills and knowledge in product development. Participants learned about the various stages of the product development process, including ideation, market research, prototyping, and testing.
- *Hands-on Experience:* Through interactive sessions and practical exercises, participants gained hands-on experience in product development. They had the opportunity to apply the concepts learned during the boot camp and work on real-world product development challenges.
- *Collaboration and Teamwork:* The program fostered collaboration and teamwork among the participants. Through group activities and discussions, beneficiaries learned how to effectively collaborate with others, leveraging diverse skills and perspectives to enhance the product development process.
- *Enhanced Problem-Solving Abilities:* The boot camp enhanced the problem-solving abilities of the participants. They learned how to identify and address challenges and obstacles that may arise during product development, developing critical thinking and analytical skills necessary for successful product creation.

Program #03

Name of the Program **:** Boot Camp for Product Development 2

Date **:** 5th December 2022

No. of Beneficiaries **:** 43

Outcomes

- *Advanced Product Development Skills:* The Boot Camp for Product Development 2 enhanced the skills of 43 beneficiaries in advanced product development techniques. Participants learned advanced concepts such as user experience design, agile development methodologies, and market validation strategies.
- *Prototyping and Iteration:* Through hands-on exercises and workshops, participants gained practical experience in prototyping and iteration. They learned how to rapidly build and test prototypes, refine their designs based on user feedback, and iterate on their product concepts to achieve optimal results.
- *Cross-functional Collaboration*: The program emphasized the importance of cross-functional collaboration in product development. Participants learned how to effectively collaborate with professionals from different disciplines, such as design, engineering, and marketing, to create well-rounded and successful products.
- *Market-Ready Products:* By the end of the boot camp, beneficiaries were equipped with the knowledge and skills to develop market-ready products. They learned how to align their product concepts with market demands, conduct market research, and develop a go-to-market strategy, increasing their chances of success in the competitive business landscape.

Program #04

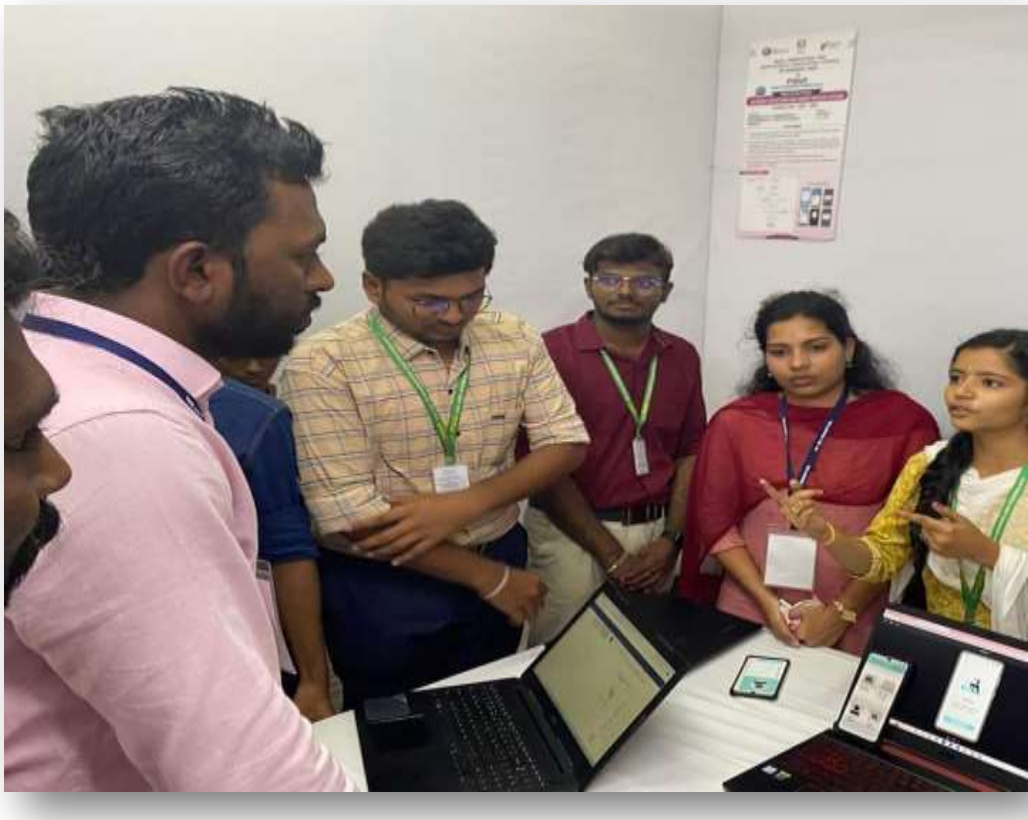
Name of the Program **:** Project Expo

Date **:** 24.6.2022

No. of Beneficiaries **:** 20

Outcomes

- *Showcase of Projects:* The Project Expo provided a platform for 20 beneficiaries to showcase their projects to a wider audience. Participants had the opportunity to present their work and highlight the innovation, creativity, and effort put into their projects.
- *Networking and Collaboration:* The expo facilitated networking and collaboration among the beneficiaries. Participants had the chance to interact with fellow exhibitors, industry professionals, and potential collaborators, fostering potential partnerships and knowledge sharing.
- *Feedback and Evaluation:* The Project Expo offered beneficiaries the chance to receive valuable feedback and evaluation of their projects. They had the opportunity to gather insights from experts and peers, enabling them to further refine and improve their projects.
- *Recognition and Appreciation:* The expo served as a platform to recognize and appreciate the efforts of the beneficiaries. Participants received recognition for their hard work, dedication, and achievements in their respective projects, boosting their confidence and motivation to pursue further endeavors.



Program #05

Name of the Program **:** Project Expo

Date **:**12.01.2023

No. of Beneficiaries **:** 2000

Outcomes

- Diverse Project Showcase: The Project Expo featured a diverse range of projects from 2,000 beneficiaries. Participants had the opportunity to showcase their innovative ideas, solutions, and creations, highlighting their skills and creativity.
- Knowledge Sharing and Inspiration: The expo provided a platform for beneficiaries to share their knowledge and experiences with a large audience. Attendees gained inspiration from the projects on display, encouraging them to explore their own ideas and pursue their passions.
- Networking and Collaboration: The event facilitated networking and collaboration among the 2,000 beneficiaries. Participants had the chance to connect with like-minded individuals, industry professionals, potential investors, and mentors, fostering potential collaborations and future opportunities.
- Recognition and Validation: The Project Expo served as a recognition platform for the beneficiaries' hard work and dedication. Participants received validation for their projects, boosting their confidence and motivation to continue their creative pursuits.

[C] To enhance Industry-Academia interaction

Program #01

Name of the Program **:** Interaction with MSME Officials

Venue : MSME office Trinelveli

Date **:** 12.03.2022

No. of Beneficiaries : 6

Outcomes

- *Problem Statement Awareness:* The interaction with MSME officials provided 6 beneficiaries with valuable insights into the problem statements faced by the community. Participants gained awareness of the real-world challenges and issues that need to be addressed.
- *Access to MSME Support*: The program facilitated the connection between students and MSME officials, offering the beneficiaries an opportunity to seek mentorship and support from experienced professionals. Participants could leverage the knowledge and expertise of MSME officials to find solutions to the identified problem statements.
- *Community Engagement:* Through the interaction, students were encouraged to actively engage with the community and contribute to its development. They gained a deeper understanding of the community's needs and how their entrepreneurial skills and ideas could make a positive impact.
- *Practical Learning Experience:* The program provided a practical learning experience for the beneficiaries, bridging the gap between theoretical knowledge and real-world application. By addressing the problem statements shared by MSME officials, students developed critical thinking, problem-solving, and collaboration skills, enhancing their overall entrepreneurial capabilities.

Program #02

Name of the Program **:**Discussion with NewGen IEDC Mar Ephraem Mentor Dr.Kandasamy, Professor

Date **:** 10.12.2022

No. of Beneficiaries : 4

Outcome of the Program:

- *Mentor Support:* The discussion with Dr. Kandasamy, a professor and mentor from NewGen IEDC Mar Ephraem, provided 4 beneficiaries with valuable support and expertise in entrepreneurship-related activities. Participants had the opportunity to seek guidance and advice from an experienced professional, enhancing their understanding of entrepreneurial concepts and strategies.
- *Knowledge Enhancement:* Through the interaction, participants gained valuable insights and knowledge in the field of entrepreneurship. Dr. Kandasamy shared his expertise, providing beneficiaries with new perspectives, ideas, and strategies to enhance their entrepreneurial endeavors.
- *Personalized Guidance:* The program offered personalized guidance to the beneficiaries. Dr. Kandasamy could address their specific questions, challenges, and aspirations, providing tailored advice and recommendations to help them navigate their entrepreneurial journeys effectively.
- *Networking Opportunity:* The interaction created a networking opportunity for the participants. Beneficiaries had the chance to connect with Dr. Kandasamy, an established mentor in the field of entrepreneurship, potentially fostering future collaborations and partnerships. The networking aspect of the program opened doors to valuable connections and resources within the e

Program #03

Name of the Program **:**Discussion with MSME Officials and StartupTN Officials

Date : 02/08/2022

Venue : Startup Regional Hub

No. of Beneficiaries : 11

Outcomes

- *Strategic Planning:* The discussion with MSME and StartupTN officials enabled 11 beneficiaries to engage in strategic planning for the progress of the startup ecosystem, identifying key steps for growth and development.
- *Access to Expertise:* Participants gained valuable insights and guidance from experienced professionals, benefiting from the expertise of both MSME and StartupTN officials.
- *Collaboration Opportunities:* The program encouraged collaboration between MSME and StartupTN officials, fostering a synergistic approach to support startups and maximize resources.
- *Strengthened Support System:* The outcome of the program resulted in an enhanced support system for startups, providing beneficiaries with clearer access to services, funding opportunities, and resources from MSME and StartupTN.

Program #04

Name of the Program **:** Discussion with alumni Entrepreneur

Date : 05-01-2023

No. of Beneficiaries : 5

Outcomes

- *Alumni Entrepreneur Support:* The discussion with alumni entrepreneurs provided 5 beneficiaries with extended support for the fabrication of their student ideas. Participants received guidance and assistance from successful alumni who have already experienced the entrepreneurial journey.
- *Idea Validation and Refinement:* Through the discussion, participants had the opportunity to validate and refine their ideas. Alumni entrepreneurs shared their insights and expertise, helping beneficiaries identify potential challenges and offering suggestions to improve and strengthen their concepts.
- *Networking and Collaboration:* The program facilitated networking and collaboration among the participants and alumni entrepreneurs. Beneficiaries had the chance to connect with successful individuals in the field, potentially fostering future collaborations, mentorship opportunities, and partnerships.
- *Enhanced Entrepreneurial Skills:* The outcome of the program resulted in the enhancement of the beneficiaries' entrepreneurial skills. By receiving support from alumni entrepreneurs, participants gained valuable knowledge, strategies, and resources, enabling them to navigate the entrepreneurial landscape more effectively and increase their chances of success.

Program #05

Name of the Program **:** Team Discussion for building entrepreneurial Eco-System

Resource person **:**Mr. Gautham Palanisamy, Manager, Sadyabama TBI

Date **:** 13/10/202

No. of Beneficiaries **:** 7

Outcomes

- *Strengthened Entrepreneurial Network:* The team discussion facilitated by Mr. Gautham Palanisamy, Manager of Sadyabama TBI, resulted in the establishment of stronger connections and collaborations within the entrepreneurial network. Participants gained valuable insights and opportunities to engage with like-minded individuals, fostering a supportive ecosystem.
- *Enhanced Knowledge Sharing:* The program promoted knowledge sharing among the 7 beneficiaries. Through discussions, participants exchanged ideas, experiences, and best practices, expanding their understanding of entrepreneurship and gaining valuable insights to apply to their own ventures.
- *Synergistic Approach:* The outcome of the program encouraged a synergistic approach to building an entrepreneurial ecosystem. Participants identified opportunities for collaboration and partnership, leveraging each other's strengths and resources to create a more robust and supportive environment for startups and entrepreneurs.
- *Linkages Establishment:* The program successfully established linkages between the participants, strengthening their professional connections and creating potential avenues for future collaborations, mentorship, and business opportunities. The beneficiaries were able to expand their networks and access a wider range of resources and support within the entrepreneurial community.

Program #06

Name of the Program **:** Discussion on Women Empowerment

Date **:** 17/11/2022

No. of Beneficiaries **:** 6

Outcomes

- Increased Awareness: Participants gained awareness about various schemes available for women entrepreneurs, empowering them with knowledge about government initiatives and support programs.
- Empowerment and Inspiration: The program inspired participants to explore entrepreneurial opportunities and pursue their business ideas with confidence, knowing that support is available for women entrepreneurs.
- Access to Resources: Beneficiaries became aware of specific schemes and resources designed for women entrepreneurs, providing them with access to valuable support systems.
- Networking and Collaboration: The program facilitated networking and collaboration among participants, fostering connections with like-minded women entrepreneurs for potential collaborations and mentorship opportunities.

Program #07

Name of the Program : Discussion with product development expert**.**

Resource person **:** Mrs. Marina CEO, Austind Industries, Australia

Date **:** 12-1-2023

No. of Beneficiaries **:**6

Outcomes

- *Increased Awareness:* Participants became aware of the importance of eliminating errors in the design stage of product development.
- *Improved Design Practices:* The program motivated participants to enhance their design processes, incorporating thorough checks to minimize errors.
- *Quality Enhancement:* Participants understood how early error detection in the design stage can improve product quality and customer satisfaction.
- *Strategic Decision-Making:* Beneficiaries gained insights to make more strategic decisions in their product development processes, preventing costly errors and delays.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

Nil

3. Other important highlights (new initiatives), if any:

- The student project, titled "G-Stick: A Smart Guide Stick for the Blind with Navigation Support," achieved remarkable success at the Mechanical Symposium held at NIT TRICHY. Out of numerous competing projects, G-Stick secured a prestigious position among the top 20 projects. This innovative device, designed to assist the visually impaired, combines cutting-edge technology with navigation capabilities, providing a smart solution for independent mobility. The recognition received at the symposium highlights the dedication, ingenuity, and hard work put forth by the students behind the G-Stick project, further inspiring them to continue making a positive impact in the field of assistive technology.
- The student project, named "Automatic Nutmeg Harvester," achieved an impressive accomplishment by winning the 3rd prize at the National Level India International Science Festival (IISF 2022). This innovative project showcased a mechanized solution for harvesting nutmeg, aiming to improve efficiency and reduce labor-intensive processes. The recognition received at the prestigious festival is a testament to the hard work, ingenuity, and problem-solving abilities of the student team behind the Automatic Nutmeg Harvester. This achievement not only highlights their dedication to agricultural innovation but also serves as an inspiration for further advancements in the field of agricultural technology.

4. STUDENT PROJECTS

Refer to Annexure-A for Details of Student Projects with Prototype Photos

5. Provide a minimum two-page case let each on the two best student projects (either prototype developed or commercialized) from the above list. The case lets should include the following:

Project-1-S-CART – SOLAR DHOBI CART

I. Mentor Name : Dr. Anish John Paul M.

II. Student team details

1. **Aron Carter**
2. **Raghul R.S**
3. **Jacob Samas**

III. Brief description of the student start-up

- The developed system comprises a DC iron box, LED lighting, a fan, charging provision, mobile apps, and rain guard arrangement. The premium model load consumes 100 Watts, while the proposed iron cart consumes 25 Watts.
- The proposed cart is designed to have a minimum workability of 10 hours in ironing. Energy analysis shows that a 110AH battery source and a 600 Watts solar panel are required for the system based on the energy requirement study.
- The DC iron box provides adequate weight for pressing and quick temperature control over a wide range. It features an ironing floor designed for easy movement, minimizing lifting effort, and smooth dragging on clothes. The premium cart is well balanced for easy mobility.
- Battery arrangements take up 60% of the cart's weight, with a preference for lithium polymer batteries due to their increased working efficiency and reduced weight compared to conventional batteries. Black monocrystalline solar panels are used for compact arrangement and offer high efficiency and reduced span area.
- An AC charging point is provided in the proposed cart for emergency cases of low-intensity solar power or nighttime manual charging of the battery system.

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

The entrepreneurial journey of a startup from ideation to prototype or commercialization typically involves several key stages. Here's an overview of the process**:**

- **Ideation:** The journey begins with the generation of an idea for a product, service, or solution that solves a problem or meets a market need. This idea can stem from personal experiences, market research, emerging trends, or innovation opportunities. The field data was collected and the customer's and dhobi's feedback were taken into consideration
- **Market Research:** Once the initial idea is formed, entrepreneurs conduct market research to validate the idea's viability and potential demand. This involves analyzing the target market, identifying competitors, understanding customer needs, and assessing market trends and dynamics.
- **Business Planning:** With market research insights, entrepreneurs develop a comprehensive business plan. This plan outlines the startup's mission, vision, target market, marketing strategy, revenue model, cost structure, and financial projections. It serves as a roadmap for the entrepreneurial journey.
- **Prototype Development:** The next step is to transform the idea into a tangible prototype. Depending on the nature of the startup, this could involve developing a physical product prototype, designing a software or app prototype, or creating a mock-up or wireframe. The prototype helps visualize the concept and test its functionality.
- **Testing and Iteration:** Once the prototype is ready, entrepreneurs conduct rigorous testing to gather feedback and identify areas for improvement. This can involve user testing, alpha and beta testing, and collecting user feedback. The startup iterates on the prototype based on the insights gained during this stage.
- **Intellectual Property Protection:** To safeguard their innovation, startups may consider filing for patents, trademarks, or copyrights, depending on the nature of their offering. This step ensures that their intellectual property is protected from infringement and can be monetized in the future.

V. Contribution of NewGen IEDC in the same

The contribution of NewGen IEDC in the development of the solar dhobi product prototype is of immense value.

- **Seed Fund:** NewGen IEDC provides seed funding, serving as the initial capital for the startup to develop the solar dhobi product prototype. This financial support enables the entrepreneurs to cover expenses related to materials, components, and specialized equipment required for the prototype development.
- **Access to Basic Equipment**: NewGen IEDC offers access to basic equipment facilities necessary for the development of the solar dhobi product. This includes tools, machinery, and testing equipment that may be costly or challenging for the startup to acquire independently. By providing access to these facilities, NewGen IEDC reduces the financial burden on the startup and facilitates efficient prototype development.
- **Computing Facility:** Solar dhobi products often require computing facilities for designing, simulation, and testing. NewGen IEDC provides computing infrastructure, including computers, software licenses, and internet connectivity. This enables the startup to leverage advanced software tools for designing and simulating the performance of the solar dhobi product. Such computing support enhances the startup's technological capabilities and accelerates the development process.
- **Technical Guidance and Mentorship:** NewGen IEDC offers technical guidance and mentorship to the startup teams working on the solar dhobi product. Experienced professionals or experts in the field provide valuable insights, knowledge, and advice throughout the prototype development process. Their expertise helps the startup overcome technical challenges, refine the product design, and ensure the prototype meets industry standards and requirements.
- **Networking and Collaboration Opportunities:** As part of the NewGen IEDC network, the startup gains access to a community of innovators, entrepreneurs, and industry experts. This network provides opportunities for networking, collaboration, and knowledge sharing. Startups working on solar dhobi products can connect with like-minded individuals, potential partners, investors, and industry professionals who can provide support, resources, and valuable market insights.

The contribution of NewGen IEDC in the development of the solar dhobi product prototype encompasses seed funding, access to essential equipment and computing facilities, technical guidance and mentorship, networking opportunities, and validation. These contributions empower the startup to develop a high-quality

prototype, ensuring its readiness for commercialization and increasing its potential for success in the solar dhobi industry.

VI. Future plan

The future plans for this project involve several key initiatives aimed at advancing the solar dhobi product and expanding its reach. Here are some potential future plans:

- **Product Refinement and Enhancement:** The startup intends to further refine and enhance the solar dhobi product based on user feedback and market demands. This includes improving its functionality, durability, energy efficiency, and user experience. Continuous research and development efforts will be focused on incorporating innovative features and technologies to stay ahead of competitors and meet evolving customer needs.
- **Market Expansion:** The startup plans to expand the market reach of the solar dhobi product by targeting new customer segments and geographical regions. This may involve conducting market research to identify potential markets with high demand and tailoring the product to suit their specific requirements. Strategic partnerships, distribution agreements, and marketing campaigns will be deployed to penetrate new markets effectively.
- **Production Scaling:** As the demand for the solar dhobi product grows, the startup will focus on scaling up production capacity. This may include establishing larger manufacturing facilities, optimizing production processes, and streamlining the supply chain. The objective is to meet increasing market demand while maintaining product quality and cost-effectiveness.
- **Collaboration with NGOs:** The startup aims to collaborate with relevant stakeholders such as solar energy companies, government agencies, NGOs, and educational institutions. Such partnerships can provide access to expertise, funding opportunities, regulatory support, and potential distribution channels. Collaborative efforts will help accelerate the adoption of the solar dhobi product and create a positive impact in the industry.
- **Technology Integration:** The startup intends to explore opportunities for integrating advanced technologies into the solar dhobi product. This may include incorporating smart features, connectivity options, and data analytics capabilities to enhance performance, optimize energy usage, and provide additional value to customers. The integration of Internet of Things (IoT) technology, for instance, could enable remote monitoring and control of the product.

- **Customer Support and Service:** The startup recognizes the importance of providing excellent customer support and service. Future plans involve establishing a robust customer support system to address inquiries, provide technical assistance, and ensure customer satisfaction. This includes developing user-friendly manuals, offering warranty programs, and implementing efficient after-sales service channels.

These future plans reflect the startup's vision of creating a successful and sustainable solar dhobi product. By focusing on product refinement, market expansion, production scaling, collaborations, technology integration, sustainability, and customer support, the startup aims to solidify its position in the market, drive growth, and make a positive impact on the laundry industry and the environment as a whole.

VII. Important highlights

- This solar dhobi project introduces a unique and innovative solution that combines the use of solar energy with laundry services, offering an eco-friendly and sustainable alternative to traditional methods of laundry.
- The solar dhobi product emphasizes energy efficiency by utilizing solar power as its primary source of energy. By harnessing the sun's energy, it reduces reliance on conventional electricity, leading to lower energy costs and a reduced carbon footprint.
- Designed with portability and convenience in mind, the solar dhobi product is compact and lightweight, allowing users to perform laundry tasks efficiently in various locations. Its portable nature makes it suitable for both residential and commercial users.
- This project has a significant social impact as it addresses the energy needs of communities and individuals who lack reliable access to electricity. By providing an affordable and sustainable solution for laundry services, it improves the quality of life in areas where conventional power supply may be limited or unreliable.
- The solar dhobi project benefits from the support of NewGen IEDC, that provides seed funding, equipment facilities, and technical guidance. This support enhances the project's chances of success, enabling the entrepreneurs to develop a high-quality prototype and move closer to commercialization.
- An Indian Patent have been granted for this project.

Project-2: ASSISTACLES: A FRIENDLY SPECTACLES FOR VISUALLY CHALLENGED PEOPLE

I. Mentors Name : Dr. Lalin L Laudis

II. Student team details

1. **Ms. Blessiya Valberga K.**
2. **Ms. Vinisha Joy V.M**
3. **Ms. Sheha J.S**

III. Brief description of the student start-up

- "Assistacles" is a groundbreaking prototype designed to assist individuals with visual impairments in navigating their surroundings more independently. Leveraging the power of machine vision technology, this innovative device captures real-time images and provides audio assistance to the user, enabling them to understand their environment more effectively.
- With advanced features such as facial recognition and object recognition systems, "Assistacles" aims to enhance the quality of life for visually challenged individuals by providing them with crucial information in a user-friendly and accessible manner.

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

The entrepreneurial journey of the "Assistacles" startup from ideation to prototype or commercialization involves several crucial stages.

- **Ideation**: The journey begins with the identification of a problem or a need in the market. In this case, the team recognized the challenges faced by visually impaired individuals in navigating their surroundings independently. They envisioned a solution that leverages machine vision technology to provide audio assistance and enhance their quality of life.

- **Research and Validation**: Extensive research is conducted to understand the target audience, existing solutions, and technological feasibility. The startup conducts surveys, interviews, and market analysis to validate the demand and potential impact of their idea. They engage with visually impaired individuals, experts, and organizations in the field to gain insights and refine their concept.
- **Concept Development:** Based on the research findings, the startup develops a detailed concept for the "Assistacles" device. They define the core features, functionalities, and potential benefits of the product. The team explored different technological approaches and considers the feasibility of implementing machine vision, facial recognition, object recognition, and audio feedback systems.
- **Prototyping**: The startup moves forward with creating a functional prototype of the "Assistacles" device. This involves integrating hardware components like cameras, audio output, and processing units into a wearable form factor, such as spectacles. The team works closely with engineers, designers, and software developers to bring the concept to life. The initial prototype may be a basic version that demonstrates the core functionalities and validates the technological feasibility.
- **Iterative Development:** The startup engages in iterative development, continuously refining and improving the prototype based on user feedback and testing. They collaborate with visually impaired individuals, organizations, and experts to gather insights and ensure the device meets their specific needs. This stage involves multiple iterations, incorporating design changes, software updates, and hardware enhancements to enhance usability, accuracy, and user experience.
- **Software Development:** Alongside hardware development, the team focused on developing the software components required for machine vision, facial recognition, object recognition, and audio feedback systems. This involves utilizing deep learning algorithms, training models using TensorFlow, and refining the algorithms to improve accuracy and performance. The software development process is iterative and involves extensive testing and optimization.
- **Testing and Validation:** The startup conducts thorough testing and validation of the prototype to ensure its reliability, accuracy, and effectiveness. They collaborate with visually impaired users to gather feedback and make necessary improvements. User testing sessions, field trials, and real-world simulations help in identifying and resolving any issues or limitations.

Throughout the entrepreneurial journey, the startup seeks funding through various channels like grants, angel investors, venture capital, or crowdfunding platforms. They also engage in networking, industry events, and seek mentorship to gain valuable guidance and support. The journey from ideation to prototype or commercialization requires perseverance, adaptability, and a deep understanding of the target users' needs, ultimately aiming to make a positive impact on the lives of visually impaired individuals.

V. Contribution of NewGen IEDC in the same

The NewGen Innovation and Entrepreneurship Development Centre (IEDC) plays a significant role in supporting the entrepreneurial journey of the "Assistacles" startup. NewGen IEDC is a student scheme that provides seed funding, equipment access, and mentoring support to help transform ideas into viable products

- **Seed Funding**: NewGen IEDC provides crucial seed funding to the startup, enabling them to kickstart their project. This financial support covers early-stage expenses, such as prototyping, market research, software development, and hardware integration. The funding helps the startup to develop a functional prototype of the "Assistacles" device and validate its feasibility.
- **Equipment Access:** NewGen IEDC offers access to essential equipment and resources required for the development and testing of the "Assistacles" prototype. This includes access to advanced cameras, audio equipment, computing resources, and software tools. By providing access to these resources, NewGen IEDC reduces the financial burden on the startup and facilitates the development process.
- **Mentoring Support**: NewGen IEDC assigns experienced mentors to guide and support the startup throughout their entrepreneurial journey. These mentors provide valuable insights, industry knowledge, and guidance on technical,

business, and marketing aspects. They help the startup refine their ideas, overcome challenges, and make informed decisions. The mentors also assist in aligning the "Assistacles" device with the needs and preferences of visually impaired users.

- **Networking Opportunities:** NewGen IEDC organizes various networking events, workshops, and seminars that connect the startup with experts, investors, industry professionals, and potential collaborators. These networking opportunities provide a platform for the startup to showcase their innovation, gain valuable feedback, and explore partnerships or investment opportunities. The connections facilitated by NewGen IEDC contribute to the growth and success of the startup.

VI. Future plan

The future plans for the "Assistacles" product include further refinement and expansion to provide even greater assistance and improve the quality of life for visually impaired individuals. Some potential future developments may include:

- **Advanced Features:** The "Assistacles" device can be enhanced with additional advanced features such as, color identification, and navigation assistance. These features would further empower visually impaired users by providing them with information about, recognizing colors, and guiding them through unfamiliar environments.
- **Connectivity and Integration:** The device can be integrated with other smart devices and technologies to enhance its functionality. Integration with smartphones or smart home systems can enable seamless communication and control, allowing users to access additional features and information.
- **Improved Design and Comfort:** Ongoing efforts can be made to improve the design of the device, making it more lightweight, ergonomic, and comfortable for users to wear for extended periods. Enhancements in the form factor and materials can contribute to a better user experience.
- **Localization and Language Support:** Expanding the device's capabilities to support multiple languages and localization would make it accessible to a broader user base. Localization involves adapting the device's interface, audio cues, and feedback to suit different cultural and linguistic contexts.
- **Continuous Improvement:** Regular software updates and algorithm enhancements can be implemented to improve the accuracy and performance of the machine vision, facial recognition, and object recognition systems. This

ongoing improvement process ensures that the device remains up to date with the latest advancements in technology.

VII. **Important highlights**

- **Machine Vision Technology:** The "Assistacles" device leverages the power of machine vision technology to capture real-time images and provide audio assistance to visually impaired individuals. This technology allows the device to perceive and interpret the user's environment, providing meaningful information to enhance their understanding and navigation.
- **Facial Recognition and Object Recognition:** The integration of facial recognition and object recognition systems in the "Assistacles" device enables users to receive audio cues about recognized faces and objects in their surroundings. This feature enhances social interactions by providing information about the presence and identity of individuals and improves environmental awareness by identifying and describing various objects.
- **User-Friendly Design**: The "Assistacles" device is designed with user-friendliness in mind. It is compact, lightweight, and comfortable to wear as spectacles. The audio feedback system delivers information effectively to visually impaired users, ensuring a seamless and intuitive user experience. The device is designed to enhance independence and accessibility.
- **Increased Independence and Improved Quality of Life:** The ultimate goal of the "Assistacles" product is to increase independence and improve the quality of life for visually impaired individuals. By providing real-time audio assistance, recognizing faces and objects, and enhancing environmental awareness, the device enables visually impaired users to navigate their surroundings more independently, interact socially with confidence, and gain a better understanding of their environment. These highlights contribute to a more inclusive and empowering experience for visually impaired individuals.

Project-1: META MOUSE: A TOUCHLESS USER INTERFACE FOR PERSONAL COMPUTING

1. Project Title : Meta Mouse: A Touchless User Interface for Personal Computing

2. Mentor Name : Dr. V. Suresh / Professor / ECE

3. Student Team Names:

1. Ms. Jemi K
2. Ms. Jijy A.V
3. Gracia Rose J.

4. Project Description:

- The project titled "Meta Mouse" introduces a revolutionary touchless user interface for personal computing. By harnessing the power of pre-trained models and machine learning algorithms, this innovative system enables users to control their computers without the need for a physical mouse.
- Meta Mouse uses advanced computer vision techniques and machine learning algorithms, the system can accurately track and interpret hand motions in real-time.
- The core functionality of Meta Mouse lies in its ability to detect and interpret a wide range of hand gestures and movements. Through the use of pre-trained models, the system can recognize and classify various gestures, such as pointing, clicking, scrolling, and dragging. This allows users to navigate through graphical user interfaces, interact with applications, and control their computers effortlessly.
- The underlying machine learning algorithms employed in Meta Mouse continuously learn and adapt to users' hand movements, ensuring improved accuracy and responsiveness over time.
- Meta Mouse’s touchless interface reduces the strain on the user's wrists and fingers, promoting a more ergonomic computing experience. Furthermore, in a world increasingly concerned with hygiene and touchless interactions, Meta Mouse offers a viable solution for minimizing physical contact with computing devices.
- The project implementation involves integrating computer vision libraries, pre-trained models, and machine learning algorithms into the existing computer operating systems. This ensures compatibility with a wide range of personal

computers, enhancing the accessibility and adoption of Meta Mouse across different platforms.

- Meta Mouse holds the potential to enhance accessibility, ergonomics, and hygiene in the realm of personal computing, transforming the way users interact with their computers.

5. Project status at the beginning of the Year: Idea

6. Interventions made:

- The technical interventions in the Meta Mouse project involve the integration of computer vision techniques, pre-trained models, and machine learning algorithms. Computer vision libraries are utilized to capture and analyze hand gestures and motions in real-time.
- Pre-trained models, developed through extensive training on large datasets, enable the system to recognize and classify various hand gestures accurately.
- Machine learning algorithms play a crucial role in interpreting and mapping these gestures to computer commands. Continuous learning and adaptation of the algorithms ensure improved accuracy and responsiveness over time, enabling personalized user experiences.

7. Current status: Prototype Completed / Patent Filed.

8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

Project-2: ASSISTACLES : A FRIENDLY SPECTACLES FOR VISUALLY CHALLENGED PEOPLE

1. Project Title : Assistacles : A Friendly Spectacles for Visually Challenged People.

2. Mentor Name : Dr. Lalin L Laudis AP/ECE

3. Student Team Names:

1. Ms. Blessiya Valberga K.
2. Ms. Vinisha Joy V.M
3. Ms. Sheha J.S

4. Project Description:

- "Assistacles" is a groundbreaking prototype designed to assist individuals with visual impairments in navigating their surroundings more independently. Leveraging the power of machine vision technology, this innovative device captures real-time images and provides audio assistance to the user, enabling them to understand their environment more effectively.
- With advanced features such as facial recognition and object recognition systems, "Assistacles" aims to enhance the quality of life for visually challenged individuals by providing them with crucial information in a user-friendly and accessible manner.

Benefits:

- Increased Independence
- Improved Social Interactions
- Enhanced Environmental Awareness
- User-Friendly Design

5. Project status at the beginning of the Year: Idea

6. Interventions made:

- *Machine Vision Technology*: The core of the project revolves around the implementation of machine vision technology. This technology involves the use of sophisticated algorithms and techniques to process visual data captured by the integrated camera. By analyzing the captured images, the system can perceive and interpret the user's environment, enabling it to provide meaningful assistance.
- *Facial Recognition System:* The development team integrated a facial recognition system into the "Assistacles" prototype. This system utilizes deep learning algorithms, specifically leveraging Python's TensorFlow library, to

train a model capable of recognizing and identifying different individuals' faces. This intervention enables visually impaired users to receive audio cues about the presence and identity of recognized faces, enhancing social interactions.

- *Object Recognition System:* Another key technical intervention in the project is the integration of an object recognition system. This system employs deep learning algorithms to train a model that can identify and classify various objects within the user's surroundings. The TensorFlow library plays a crucial role in training this model. By providing audio feedback about recognized objects, visually challenged users can better understand and interact with their environment.
- *Audio Aid and Feedback:* To convey information effectively to visually impaired individuals, the project incorporates an audio aid and feedback system. Upon analyzing captured images and recognizing faces or objects, the system generates synthesized voice output. This audio feedback includes relevant details such as the identity of recognized faces or descriptions of objects and their locations. By delivering information through sound, the project ensures that visually challenged users can comprehend and navigate their surroundings more effectively.
- *TensorFlow Model Training:* The development team utilized Python's TensorFlow library to train the facial and object recognition models. TensorFlow's robust deep learning capabilities facilitated the training of accurate and efficient models. By leveraging TensorFlow's functionalities, such as neural network architectures and optimization algorithms, the models were trained on a large dataset of labeled images, allowing them to recognize and classify faces and objects accurately.
- *Integration and Hardware Design:* The project involved the integration of the developed software components with the hardware design of the spectacles. The team ensured that the camera, audio output, and other necessary components were seamlessly integrated into the spectacles' design, making them compact, lightweight, and comfortable for users to wear.

7. Current status: Prototype Completed / Patent Filed.

8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

CROWN SCANNER: A VISION BASED CROWN DETECTION OF COCONUT TREES.

1. Project Title : Crown Scanner : A Vision Based Crown Detection of Coconut Trees.

2. Mentor Name : Mr. Aravind AP/ECE

3. Student Team Names:

1. Ms. Jemi J.L
2. Ms. Jijitha A.L
3. Ms. Beautlin Panisha Malar J.

4. Project Description:

- Crown Scanner: A Vision-Based Crown Detection of Coconut Trees, a groundbreaking product that revolutionizes coconut plantation management. Designed to enhance precision agriculture, Crown Scanner utilizes advanced RCNN algorithms and machine learning techniques to detect coconut tree crowns in aerial drone images with remarkable accuracy.
- With Crown Scanner, coconut plantation owners and farmers can effortlessly identify and monitor the health and density of their coconut trees. By automatically pinpointing the exact locations of coconut crowns, this cutting-edge technology enables efficient and targeted application of fertilizers and other necessary interventions.
- Imagine the savings in time, effort, and resources as Crown Scanner streamlines the process of managing coconut plantations. With its ability to precisely detect crowns, farmers can optimize fertilization strategies, minimizing wastage and

maximizing productivity. Additionally, Crown Scanner opens doors for proactive pest and disease management, enabling timely interventions to safeguard coconut trees' health.

5. Project status at the beginning of the Year: Idea

6. Interventions made:

- Crown Scanner utilizes advanced RCNN (Region-based Convolutional Neural Network) algorithms for precise crown detection of coconut trees in aerial drone images.
- The product incorporates state-of-the-art machine learning techniques to enhance classification accuracy.
- Through the region proposal step, potential regions of interest (ROIs) are generated to focus on areas likely to contain coconut tree crowns.
- Feature extraction is performed using a powerful convolutional neural network (CNN) to extract relevant features from the proposed ROIs.
- A machine learning classifier, such as a support vector machine (SVM) or a fully connected layer, is employed to classify each ROI as containing a coconut tree crown or not.
- Bounding box regression techniques are applied to refine the localization of the detected crowns, improving accuracy.
- The model is trained on a dataset of labeled aerial drone images, where coconut tree crowns are annotated, enabling it to learn and generalize its understanding.
- The product's technical interventions enable efficient and targeted application of fertilizers and other interventions, minimizing wastage and maximizing productivity.
- Continuous improvement and refinement of the algorithms and machine learning models ensure optimal performance and adaptability to different plantation conditions.
- Crown Scanner embraces the latest advancements in computer vision and machine learning, providing a reliable and robust solution for precision agriculture in coconut plantations.

7. Current status: Prototype Completed / Patent Filed.

8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

B-FIX: A BOUNDARY FIXING DEVICE USING GIS

1. Project Title : B-Fix: A Boundary Fixing Device using GIS

2. Mentor Name : Mr Jalbin

3. Student Team Names:

1. Ms. Abi Jashiya J.
2. Ms. Mebin Tiffia M.J.
3. Ms. Anisha Mol T.L

4. Project Description:

- The B-Fix is an innovative and cutting-edge product designed to revolutionize the way boundaries of fields are mapped and managed. This portable device combines the power of vision-based technology and GPS integration to provide accurate and efficient mapping solutions.

Benefits:

- *Time and Cost Savings:* B-Fix significantly reduces the time and effort required for manual boundary mapping. With its automated vision-based technology and GPS integration, it streamlines the mapping process, saving valuable resources.
- *Accurate Boundary Mapping:* By leveraging advanced vision-based technology and high-precision GPS, B-Fix ensures precise and reliable boundary mapping. This accuracy helps avoid boundary disputes and ensures efficient field management.
- *On-site Verification:* The built-in screen allows users to verify the mapped boundaries on-site, eliminating the need for additional visits or manual cross-

checking. This instant feedback enhances confidence in the accuracy of the captured data.

- *Enhanced Field Planning:* B-Fix's field plan generation feature provides farmers, landowners, and agricultural professionals with comprehensive field plans. These plans assist in optimizing crop rotation, irrigation systems, and resource allocation for improved productivity.
- *User-friendly Interface:* The B-Fix device features a user-friendly interface that requires minimal technical expertise. Its intuitive design and straightforward operation make it accessible to a wide range of users, from individual farmers to agricultural consultants.

5. Project status at the beginning of the Year: Idea

6. Interventions made:

- *Vision-based Technology:* Incorporating advanced computer vision algorithms, the device employs image processing techniques to analyze visual data captured from the field. This technology enables the automatic detection and mapping of field boundaries based on visual cues.
- *GPS Integration:* The B-Fix device integrates a high-precision GPS module to accurately determine the location coordinates of the device during boundary mapping. This ensures that the captured boundary data is geographically referenced and aligned with real-world coordinates.
- *GIS (Geographic Information System):* The B-Fix system utilizes GIS technology to process and manage the captured boundary data. It leverages GIS software to store, analyze, and visualize the spatial information, facilitating field plan generation and efficient land management.
- *Portable Design:* The B-Fix device is designed to be portable and lightweight, making it convenient for users to carry it to different field locations. The compact form factor and ergonomic design ensure ease of use and mobility, enhancing the device's usability in diverse environments.
- *Built-in Screen:* The device incorporates an inbuilt screen that provides a real-time display of the captured data, allowing users to verify the accuracy of the mapped boundaries on-site. This screen also serves as a user interface for interacting with the device and accessing various features.
- *Data Storage and Connectivity:* The B-Fix device includes internal storage capabilities to store the captured boundary data, field plans, and other relevant information. Additionally, it may offer connectivity options such as

USB or wireless communication to facilitate data transfer and synchronization with external devices or systems.

- *User-friendly Interface:* The B-Fix system features a user-friendly interface that simplifies the operation and configuration of the device. The interface may include intuitive menus, touch controls, or buttons, ensuring ease of use and minimizing the learning curve for users.
- *Data Processing and Field Plan Generation:* The B-Fix system employs sophisticated algorithms and data processing techniques to analyze the captured boundary data. By leveraging GIS capabilities, it generates comprehensive field plans that aid in effective land management, crop rotation, and resource allocation.

7. Current status: Prototype Completed / Patent Filed.

8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

VEGEBUY: A SMART VEGETABLE PURCHASING DEVICE WITH VISION AND AUTO WEIGHING

1. Project Title : VegeBuy: A Smart Vegetable Purchasing Device with Vision and
Auto Weighing

2. Mentor Name : Dr.R.Benschwartz

3. Student Team Names:

1. Mr. Sajith S.
2. Mr. Albin B.
3. Mr. Plamkottathil Jerlin Jacob

4. Project Description:

- *Vegetable Identification:* VegeBuy incorporates advanced machine vision technology to accurately identify different types of vegetables. The device's integrated camera captures images of the vegetables, and the intelligent image recognition algorithm quickly analyzes and matches them with a comprehensive database of vegetable types. This ensures precise identification and minimizes errors.
- *Weight Calculation:* VegeBuy is equipped with a high-precision load cell that measures the weight of the vegetables placed inside the device. The load cell provides accurate weight measurements, allowing users to determine the exact quantity of vegetables they wish to purchase. This feature helps customers manage their budget effectively and promotes transparency in the shopping process.
- *Real-Time Price Mapping:* Once the vegetable is identified and its weight is measured, VegeBuy maps the weight to the current price of the vegetable. The device is connected to a central system that stores up-to-date pricing information for each vegetable variety. This ensures that customers always receive the most accurate and current pricing, reflecting market fluctuations.
- *RFID Tag Integration:* VegeBuy incorporates RFID (Radio Frequency Identification) technology to enhance the purchasing experience. When the price is mapped, the system updates the user's RFID tag with the specific vegetable, weight, and corresponding price information. This ensures seamless tracking of each customer's purchases and eliminates the need for manual price calculations or price tags on individual vegetables.

- *Convenient Checkout Process:* Once the customer has selected all the desired vegetables, they proceed to the counter for payment. At the checkout counter, the RFID tag is simply scanned, and the system retrieves the complete purchase details. The system generates an itemized bill based on the information stored on the RFID tag, allowing for a swift and hassle-free payment process.
- *User-Friendly Interface:* VegeBuy features a user-friendly interface that enhances the overall shopping experience. The device is designed with intuitive controls, clear display screens, and audio prompts to guide users through the vegetable selection process. This ensures that even individuals with limited technical knowledge can easily operate the device and complete their purchase smoothly.
- *Benefits:* VegeBuy offers several benefits to both customers and retailers. For customers, it saves time by automating the identification, weighing, and pricing processes. The system provides accurate pricing information, allowing customers to make informed purchasing decisions. Retailers benefit from improved efficiency, reduced manual errors, and streamlined checkout procedures, enhancing customer satisfaction and loyalty.

5. Project status at the beginning of the Year: Idea

6. Interventions made:

- *Machine Vision Technology:* VegeBuy utilizes advanced machine vision technology to identify vegetables accurately. The system employs image recognition algorithms and a comprehensive vegetable database to match captured images with known vegetable types. This technology ensures fast and reliable identification, enhancing the overall efficiency of the device.
- *Load Cell Integration:* A high-precision load cell is integrated into VegeBuy to measure the weight of the vegetables. Load cells are sensitive transducers that convert the applied force (weight) into an electrical signal. By incorporating a load cell into the device, VegeBuy provides precise weight measurements, ensuring accurate pricing and eliminating manual errors.
- *Real-Time Data Connectivity:* The VegeBuy device is connected to a central system or a cloud-based platform that stores real-time pricing information for various vegetables. This connectivity ensures that the device always retrieves the latest prices and updates them accordingly. It allows for dynamic pricing

adjustments based on market fluctuations and ensures up-to-date and accurate pricing for customers.

- *RFID Technology:* VegeBuy leverages RFID technology to integrate with user-specific RFID tags. When a vegetable's price is calculated, the device updates the user's RFID tag with the relevant vegetable, weight, and corresponding price information. This RFID tag serves as a digital record of the purchase, enabling seamless and efficient checkout and payment processes.
- *User Interface and Display:* VegeBuy features a user-friendly interface with intuitive controls and a clear display. The interface allows users to interact with the device easily and select their desired vegetables. The display provides real-time information, such as the identified vegetable, its weight, and the calculated price, ensuring transparency and facilitating informed decision-making.
- *Centralized System Management:* The VegeBuy project incorporates a centralized system for managing vegetable data, pricing information, and customer transactions. This system ensures seamless communication between the device, pricing database, and billing process. It enables efficient updates, maintenance, and scalability, supporting a smooth and reliable operation of the VegeBuy solution.
- *Integration and Scalability:* VegeBuy is designed with integration and scalability in mind. The system can be integrated with existing point-of-sale (POS) systems in supermarkets or grocery stores, facilitating a seamless integration into the existing infrastructure. Moreover, the project can be scaled to accommodate additional features, such as personalized recommendations, nutritional information, or even integration with mobile applications.
- The technical interventions in the VegeBuy project, including machine vision, load cell integration, real-time data connectivity, RFID technology, user interface design, centralized system management, and scalability, collectively ensure a robust and efficient smart vegetable purchase system.

7. Current status: Prototype Completed / Patent filed.

8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

PORTABLE SEPTIC TANK

1.Project Title : Portable Septic Tank

2.Mentor Name : Mr. R.JERON

3.Student Team Names

1. Mr. John Britto Thomas
2. Mr. Aswanth . V,
3. Mr. Jenson Mathew
4. Mr. Aswin K Aji

4.Project Description

- The Waste Decomposition and Water Treatment System is an innovative project aimed at efficiently decomposing waste and treating wastewater without causing harm to the environment. The core component of the system is a cylindrical drum filled with bacteria, which facilitates the rapid decomposition of waste materials. The drum is designed to maintain an optimal temperature for the decomposition process.
- The project operates by introducing waste materials into the cylindrical drum. The bacteria inside the drum act as decomposers, breaking down the waste into simpler compounds through a biological process. This decomposition process is significantly accelerated compared to natural decomposition, resulting in a faster turnover of waste materials.
- To ensure the effectiveness of the system, the internal temperature of the drum is carefully regulated. This temperature control allows the bacteria to thrive and

efficiently decompose the waste, ensuring maximum decomposition rates and reducing the time required for the process.

- After the waste materials have been decomposed, the resulting mixture undergoes a filtration process using a filter bed. The filter bed is specifically designed to separate solid particles from the liquid, effectively removing any remaining waste particles and impurities. The filtered liquid, which is now free from pollutants, can then be used for agricultural processes or other non-potable water needs, thereby minimizing water wastage and contributing to sustainable water management.
- The Waste Decomposition and Water Treatment System offers several key advantages. Firstly, it provides an environmentally friendly solution for waste management, as the decomposition process eliminates the need for conventional waste disposal methods such as landfilling or incineration. This helps to reduce pollution and minimize the carbon footprint associated with waste management.
- Furthermore, the system addresses the issue of water pollution by treating the wastewater generated during the decomposition process. By effectively filtering the liquid waste, the project ensures that harmful substances and contaminants are removed before the water is reused for agricultural purposes. This approach not only conserves water resources but also minimizes the potential negative impacts of untreated wastewater on ecosystems and human health.
- In conclusion, the Waste Decomposition and Water Treatment System offers an innovative and sustainable solution for waste management and water treatment. By utilizing bacterial decomposition within a controlled environment, the system efficiently decomposes waste materials while ensuring the environmentally safe treatment of wastewater. The project aims to contribute to a cleaner and healthier environment by reducing pollution and promoting responsible water management practices.

5. Project status at the beginning of the Year: Idea

6. Interventions made:

- *Enhanced Bacterial Decomposition:* A specialized strain of bacteria is employed to accelerate the biological decomposition of the wastewater. These bacteria possess unique characteristics that enable them to efficiently break down organic substances, ensuring faster decomposition rates.

- *Optimal Temperature Control:* The project incorporates a temperature control system to maintain an optimum temperature within the setup. This controlled environment supports the proliferation and activity of the bacteria, maximizing their effectiveness in decomposing the waste materials within the shortest possible time.
- *Oxygenation of the Water Column:* Oxygenation is achieved by pumping atmospheric oxygen into the water column. This process promotes the survival and growth of aerobic bacteria, which require oxygen to carry out decomposition. By ensuring an adequate oxygen supply, the project enhances the efficiency of the bacteria, enabling them to decompose waste materials and organic substances more rapidly.
- *Deliberate Wastewater Agitation*: The wastewater is deliberately agitated to increase the exposure of the organic substances to the bacteria. This agitation increases the contact area between the waste materials and the bacteria, facilitating quicker decomposition. Additionally, it promotes the production of methane gas, a valuable byproduct of the decomposition process.

These interventions collectively optimize the waste decomposition process and enhance its speed and efficiency. By employing specialized bacteria, maintaining optimal temperatures, oxygenating the water column, and promoting agitation, the project maximizes the decomposition rates and accelerates the production of methane gas, contributing to a more efficient and sustainable waste management system.

7.Current status : Prototype Completed / Patent filed.

8.High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

G-STICK: A SMART GUIDE STICK FOR BLIND WITH NAVIGATION SUPPORT

1. Project Title : G-Stick: A smart Guide Stick for blind with navigation Support

2.Mentor Name : Dr. Rajeev, HOD MECH

3.Student Team Names:

1. Mr. Anton James
2. Mr. Christy Varghese,
3. Mr. Scaria Joseph
4. Mr. Joshin Varghese

4.Project Description

- A mobility tool to detect obstacles and to navigate to their personal destination, where to introducing a new innovative supportive guided stick for the blind. With default settings/switch, where about it use and recollect the frequent route map and set it up for their daily journey. Implementation of depth sensor to recognize unusual depth. Without the aid of an external person one can deal on traffic. Improvised with vibration alert.
- The main objective of the device is to help blind people to walk with complete relieve and self- dependency. When you consider them, you will realize very well that without the aid of others they can walk to reach their destination. They have to ask for directions during their daily lives, Navigation to the right destination is a challenging task for the blind. A blind stick with Navigation aid will be of much help for a person to reach the right destination.
- We have developed a g-stick with navigation tools which senses the obstacles before them and provides the necessary guidance to safely reach the destination. With this product in hand the blind person can travel without anxiety and fear.
- The project proposed the design and architecture of a new concept of G-STICK for blind people. The blind stick proposed in this project can aid the visually impaired user by helping him/her navigate through different terrains and obstacles. The advantage of the system lies in the fact that it can prove to be very fast response solution to millions of blind persons worldwide. The proposed combination of various working units makes a real-time system that monitors positions of the user and provide feedback navigation more safe and secure.

- It can be further improved to have more decision taking capabilities by employing varied types of sensors and thus could be used for different applications. It aims to solve the problems faced by the blind people in their daily life. The system also takes measures to ensure their safety.

5.Project status at the beginning of the Year: Litrature review has been done, design

6.Interventions made:

- Programmed using Python and Developed the Module
- As far as we have seen in the literatures, most of the smar stick have been equipped with ultrasonic sensors and Arduino. But to step up the work, we have introduced RP LIDAR with raspberry pi so that the data won't be lost after every successive completion of detection.
- Pi is capable of doing multiple tasks at a time like a computer. The lidar will detect the obstacle in front and measure the distance between the obstacle. The signal from the lidar is transferred to raspberry pi, which will give the output in the required form. The Blind Walking Stick has been finally made into prototype that can be used to guide the blind. It aims to solve the problems faced by the blind people in their daily life.
- The system also takes the measure to ensure their safety. This project will help all the blind people in the world and will make it easier for them to walk. It was done to help the blind move ahead very well. It helps to facilitate the movement ensuring safety.

7.Current status:

- Prototype completed

8.High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

S-CART – SOLAR DHOBI CART

1. Project Title : S-Cart – Solar Dhobi Cart

2. Mentor Name : Mrs. Stephy Angelin

3. Student Team Names:

1. ARON CARTER
2. RAGHUL R S
3. J JACOB SAMAS

4. Project Description:

Objectives:

- To uplift the livelihood of dhobies by developing a solar powered smart dhobi cart.
- To design a dhobi cart with adjustable solar roof, special storage racks, rain guard and sliding seat for increasing the working efficiency of dhobies.
- To engage continuous workability in all seasons by providing an automatic rain guard system in the solar powered smart dhobi cart.
- To design a special lever arrangement for moving the cart in curved paths along with braking will be designed, which does not exist in the traditional cart.

Technical Description

The developed system comprises of dc iron box, led lighting, fan, charging provision, mobile apps and rain guard arrangement. The load for the premium model takes 100 Watts for specially designed dc iron box with the add-on features of fan, lighting and rain guard takes 25 watts for the proposed iron cart. The proposed cart is designed to have a minimum workability of 10 hours in ironing. The energy analysis is performed based on the energy requirement study; from the calculations

based on hard working condition; 110AH battery source and 600 Watts solar panel is required.

The dc iron box provides adequate weight for pressing and quick temperature control over wide range. The ironing floor is specially designed for the easy movement of iron box, minimizing the lifting effort and smooth dragging upon the clothes with horizontal resting on specially designed iron holder floor. The weight of the premium cart is well balanced and it is designed to provide the easy way in moving the cart to desired work places of locations.

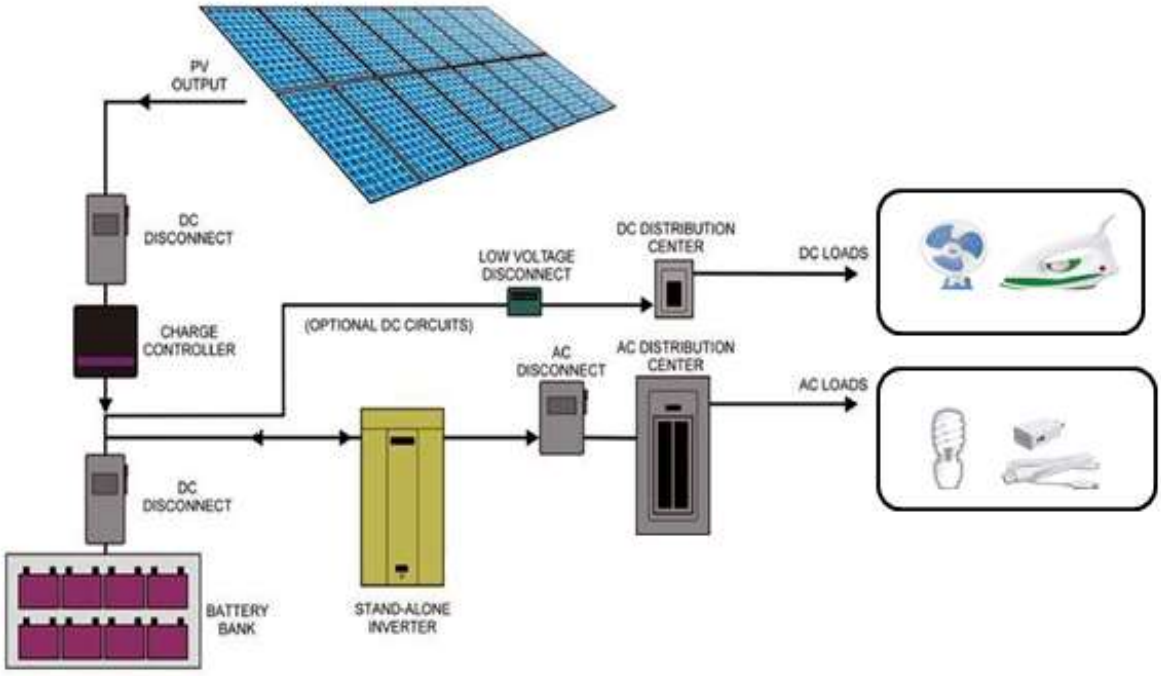


Figure1.Block Diagram of Energy Conversion System

The battery arrangements take 60% of the weight of the proposed cart. The lithium polymer battery is preferred due to its increased working efficiency and reduced weight compare to conventional batteries. To have the compact arrangement of the solar panels on the roof, the size of the panel has to be optimal. This is achieved by the use of black monocrystaline solar panels, which has high efficiency and reduced span area compare to conventional photovoltaic panels. Even though the installation cost is slightly high, they provide good working efficiency and longer span operating periods of the solar dhobi cart.

The ac charging point is also provided in the proposed cart for the emergency case of charging of the battery under very rare circumstance of low intensity solar power or during night time for manual charging of the battery system.

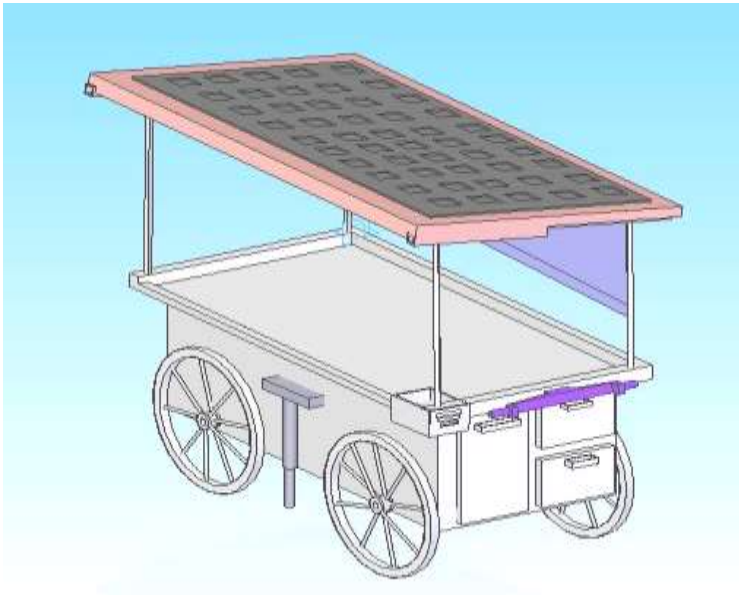


Figure3. Schematic Drawing of Proposed Solar Dhobi Cart

5. Project status at the beginning of the Year: Design Completed

6. Interventions made:

- Dhobi cart is designed with features like automatic rain guard, sliding chair, storage decks for clothes.
- Automatic rain guard is implemented to detect the continuous rain level and operates automatically.
- Handle with lever arrangement and braking is designed for easy angular motion control.

7. Current status: Prototype Completed

8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

S- PATIO: A PORTABLE SOLAR POWER HARVESTING UNIT

1. Project Title : S- Patio: A Portable Solar Power Harvesting Unit

2. Mentor Name : Dr. Anish John Paul M.

3. Student Team Names:

1. Akash D
2. Shaji Mon
3. Aaron S M
4. Sanjay John J

4. Project Description:

Introduction:

S-Patio, also known as a solar patio, is an innovative technology that integrates solar panels with outdoor spaces to generate renewable energy. The system consists of solar panels, a charge controller, a battery bank, and an inverter, which work together to convert solar energy into electricity. S-Patio are widely used for camping trips and outdoor adventures. They provide a portable and temporary shelter where individuals or groups can sleep and store their camping gear. Patio offer protection from the elements such as rain, wind, and insects, allowing campers to have a comfortable and secure place to rest. Patio designed for backpacking are lightweight, compact, and easy to carry, making them ideal for hikers and backpackers who need a portable shelter during multi-day trips. These Patio are usually quick to set up and pack down, enabling adventurers to move efficiently while having a reliable place to sleep.

Objectives:

- **To generate renewable energy :** The system is designed to capture and convert sunlight into usable electricity, reducing reliance on non-renewable energy sources and minimizing the carbon footprint.
- **To provide shelter :** S-Patio are widely used for camping trips and outdoor adventures. They provide a portable and temporary shelter where individuals or groups can sleep and store their camping gear.
- **To store energy :** A s-patio system is designed to store excess energy generated during peak sunlight hours. This will ensure that there is a steady supply of electricity during periods of low sunlight or at night.
- **To provide reliable and cost-effective power :** The s-patio system is used particularly in areas where traditional power sources are not available or are unreliable.

- **To promote environmental sustainability :** The s-patio system is designed to promote environmental sustainability by reducing carbon emissions and minimizing the impact on the environment.

Technical Description:

This s-patio system that utilizes various components, including a charge controller, BMS, inverter, variable frequency animal repellent, and temperature sensor. The system is designed to manage renewable energy sources, such as solar panels, and power various electrical loads while also maintaining a normal temperature. The charge controller ensures that the battery bank is charged at an optimal rate, while the BMS monitors and balances the individual cell voltages within the battery bank to prevent overcharging or discharging. The inverter converts the DC energy stored in the battery bank into AC power that can be used to power various loads. The variable frequency animal repellent uses ultrasonic sound to deter animals from entering the area, thus protecting the equipment and ensuring safety. The temperature sensor monitors the temperature of the equipment and adjusts the system to maintain a normal temperature range. This s-patio system provides an efficient and reliable way to manage renewable energy sources, power various loads, and maintain a normal temperature range.

5. Project status at the beginning of the Year: Design Completed

6. Interventions made:

- Flexible Solar panel is integrated which can capture solar energy during outdoor camps.
- Patio designed for compact, and easy to carry, making them ideal for backpackers who need a portable shelter during multi-day trips.

7. Current status: Prototype Completed

8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

PORTO COUCH: A PORTABLE COUCH FOR TRANSFERRING THE PATIENTS INTO AND FROM CT MACHINE.

1.Project Title : Porto Couch: A Portable Couch for Transferring the Patients into
and from CT Machine.

2.Mentor Name : Mr. Leo Bright Singh

3.Student Team Names

1. Mr. Mohamed Fazil
2. M.,Mr. Shine S,
3. Mr. Jibin J.S,Mr.
4. Manikandan S

4.Project Description

- Transferring patients from the couch to the CT machine, or vice versa, is often a challenging and laborious process. This task becomes particularly crucial as any disturbance to the patient's position can affect the accuracy of the analysis and subsequent treatment. For instance, in cancer treatments, the specific area analyzed by CT scans is used as a reference for treatment planning. Any movement or disruption can lead to inconsistencies in the treatment process.
- To address this issue, a proposed mechanism has been developed to facilitate the seamless transfer of patients from the couch to the CT machine and back, without causing any disturbance to their position. This innovative system aims to maintain the patient's exact location throughout the transfer, ensuring the accuracy and reliability of the analysis and subsequent treatment.
- By implementing the proposed mechanism, healthcare professionals can safely and efficiently move patients between the couch and the CT machine. This eliminates the need for repositioning the patient, reducing the risk of errors and ensuring consistent and reliable data for analysis.
- Overall, the proposed mechanism provides a solution to the challenging task of transferring patients between the couch and the CT machine without disturbing their position. This advancement in patient transfer technology contributes to improved accuracy in analysis and treatment, enhancing the overall quality of healthcare delivery.

5.Project status at the beginning of the Year: Idea

6.Interventions made:

- Mechanism Design and Development: A specialized mechanism has been designed and developed to enable the seamless transfer of patients from the couch to the CT machine and vice versa. The mechanism is designed with precision and care to ensure minimal disturbance to the patient's position during the transfer process.
- Positional Stability: The mechanism is engineered to maintain the patient's exact position throughout the transfer. This is achieved through careful planning and implementation of mechanical components, such as supports, restraints, or adjustable fixtures, to securely hold the patient in place during the movement.
- Precision Control System: A sophisticated control system is integrated into the mechanism, allowing for precise and controlled movements during the patient transfer process. This control system ensures that the patient is smoothly and accurately moved between the couch and the CT machine without any sudden jolts or disturbances.
- Python Programming and Module Development: The mechanism's control system is programmed using Python, a versatile and widely used programming language. Through Python programming, the system's functionalities and movements are precisely defined and executed. Additionally, a dedicated module is developed to interface with the mechanism, providing a user-friendly interface for healthcare professionals to operate the transfer system.
- Testing and Validation: Extensive testing and validation procedures are conducted to ensure the functionality, reliability, and safety of the developed mechanism. This includes simulated transfers with mannequins or volunteers to assess the stability and accuracy of the system. Iterative improvements are made based on feedback and test results to optimize the performance of the mechanism.
- By implementing these interventions, the project successfully addresses the challenge of transferring patients between the couch and the CT machine without disturbing their position. The combination of precise mechanism design, advanced control system programming using Python, and module

development results in a reliable and efficient patient transfer system, enhancing the accuracy and quality of analysis and subsequent treatment.

7.Current status:

- Prototype completed
- Patent Field

8.High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

AN INGENIOUS TEMPERATURE CONTROL MECHANISM IN PHOTOVOLTAIC SYSTEM

1.Project Title : An Ingenious Temperature Control Mechanism in Photovoltaic System

2.Mentor Name : Mr. Huxley

3.Student Team Names

1. Mr. Krishna Kumar R,
2. Mr. Asvin C,
3. Mr. Shani Bharath PS,
4. Ms. Seleena S

4.Project Description

- The project aims to address the efficiency reduction of solar photovoltaic systems caused by temperature increases and other factors. Solar photovoltaic systems are widely used as renewable energy sources globally. However, the efficiency of these systems can be negatively impacted by elevated temperatures in the solar panels.
- To mitigate this issue, the project proposes the installation of a cooling system on the back side of the solar panels. This cooling system helps maintain optimal operating temperatures for the panels, thereby improving their efficiency. By preventing excessive heat buildup, the cooling system ensures that the solar panels can generate electricity more effectively.
- Additionally, the efficiency of solar systems can also be affected by adverse weather conditions and unexpected situations. To tackle this problem, the project incorporates an Internet of Things (IoT) system. The IoT system enables continuous monitoring of the solar system's status and allows for remote control of the cooling system.
- By utilizing IoT technology, the project ensures that the solar system's performance is closely monitored. This monitoring helps identify any issues or anomalies in real-time, allowing for timely intervention and maintenance. Moreover, the IoT system facilitates the remote control of the cooling system, enabling adjustments to be made as necessary to optimize the solar system's efficiency and mitigate any weather-related or unexpected challenges.

- In summary, this project proposes the integration of a cooling system and an IoT monitoring system to address temperature-related efficiency reductions and other factors affecting solar photovoltaic systems. The combined implementation aims to enhance the overall performance of the solar system, improve energy generation, and ensure optimal operation under various conditions

5.Project status at the beginning of the Year: Idea

6.Interventions made:

- Several interventions were implemented in this project to enhance the performance and efficiency of solar photovoltaic systems. Firstly, a cooling system was installed on the back side of the solar panels to prevent temperature increases, which can negatively impact their efficiency. This intervention ensures that the panels operate within an optimal temperature range, allowing them to generate electricity more effectively.
- Additionally, an IoT system was integrated to monitor the state of the solar system. This intervention involves the use of sensors and data collection devices to gather real-time information about the system's performance. The IoT system enables continuous monitoring of factors such as energy output, temperature, and environmental conditions.
- Furthermore, the IoT system allows for remote control of the cooling system. This intervention enables operators to adjust the cooling system settings based on the collected data, ensuring that the panels remain at the ideal temperature for maximum efficiency. By remotely controlling the cooling system, any weather-related or unexpected challenges can be addressed promptly to optimize the solar system's performance.
- Overall, these interventions of implementing a cooling system and an IoT monitoring and control system work in tandem to enhance the efficiency and reliability of the solar photovoltaic systems. By addressing temperature increases and providing real-time monitoring and control capabilities, the project aims to maximize energy generation and ensure the smooth operation of the solar systems in various conditions.

7.Current status:

Prototype completed

Patent Field

8.High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

I-KEY : A SMART DOOR OPENING SYSTEM USING IOT TECHNOLOGY

1.Project Title **:** I-Key : A Smart Door Opening System using IoT Technology

2.Mentor Name **:** Mr. John Pradeep

3.Student Team Names

1. Mr. Pravin Raj S,
2. Mr. Aswin kumar J,
3. Mr. Anubh atshin J R
4. Ms. Lafeni D

4.Project Description

- The objective of this project is to develop a real-time data acquisition and door control system that operates under strict security protocols. The system utilizes various components, including an Arduino microcontroller, a Wi-Fi module, a motor driver, and a keypad. By integrating these elements, the system continuously monitors the status of the gate (open or closed) and provides real-time updates regarding its condition. This ensures enhanced security measures by promptly notifying authorized personnel about any gate-related incidents or breaches.

- One of the primary functionalities of the system is the acquisition and processing of real-time data. The Arduino, with its built-in sensors and connectivity options, collects information about the gate's position and transmits it to a central control hub. The Wi-Fi module enables seamless communication between the gate control system and the central hub, facilitating quick and reliable data transfer.
- To ensure optimal security and access control, the system is equipped with a motor driver and a keypad. The motor driver enables automated gate operation, allowing authorized personnel to remotely control the opening and closing of the gate. The keypad serves as an additional layer of security, requiring authorized users to input a unique code to activate gate control functions.

- One of the essential features of this system is its ability to integrate with the ThingSpeak server. The gate control system communicates with the ThingSpeak server, which acts as a central repository for gate-related data. By leveraging the capabilities of the ThingSpeak server, users can remotely monitor the gate's status, receive notifications in real-time, and analyze historical gate data.
- The significance of this project lies in its contribution to automation and security in controlling electronic doors. The ability to remotely control and monitor gates in secure areas enhances efficiency, minimizes human intervention, and strengthens security measures. By implementing this real-time data acquisition and gate control system, automation and security purposes can be effectively addressed, making it an invaluable solution for securing restricted areas.

5.Project status at the beginning of the Year: Idea

6.Interventions made:

- *Integration of Arduino:* The Arduino microcontroller was selected as the central component of the system due to its versatility, reliability, and ease of programming. The Arduino board interfaces with various sensors, such as proximity sensors or limit switches, to accurately detect the position of the gate (open or closed).
- *Implementation of Wi-Fi Module:* A Wi-Fi module was incorporated into the system to enable seamless communication between the gate control system and

a central control hub. This wireless connectivity ensures real-time data transfer and allows remote monitoring and control of the gate from authorized devices.

- *Motor Driver for Automated Gate Operation:* To automate the gate's opening and closing, a motor driver was integrated into the system. This intervention enables authorized users to remotely control the gate's operation, adding convenience and efficiency to the overall gate control process.
- *Keypad for Enhanced Security:* A keypad was incorporated into the system to provide an additional layer of security. Authorized users are required to input a unique code on the keypad to activate gate control functions. This intervention prevents unauthorized access and ensures that only authorized personnel can operate the gate.
- *Integration with ThingSpeak Server:* The system was designed to communicate with the ThingSpeak server, a cloud-based platform for data storage and analysis. This integration allows real-time monitoring of the gate's status, provides notifications to authorized users, and enables historical data analysis for security audits and performance evaluation.

7.Current status:

Prototype completed

Patent Field

8.High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

DI-MEASURE : AN INGENIOUS SYSTEM TO DETECT THE LEVEL OF THE LPG IN HOUSEHOLD.

1.Project Title **:** Di-Measure : An Ingenious System to Detect the Level of the LPG in Household.

2.Mentor Name **:** Mr. Jude Felix

3.Student Team Names

1. Mr. Abilash S.,
2. Mr. Aswin Mano M,
3. Mr. Jerom J,
4. Mr. Jerlin E.T

4.Project Description

- The project aims to address the challenge of measuring the amount of LPG (liquefied petroleum gas) remaining in household cylinders. The problem statement revolves around the need for an effective intervention to accurately determine the gas level in the cylinder. To tackle this issue, a smart digital setup has been devised, which utilizes weight measurement to provide an accurate estimation of the LPG quantity.
- The primary objective of this project is to develop a reliable and user-friendly system that can measure the weight of the LPG cylinder and initiate an alert when it falls below one kilogram. By implementing this solution, users can avoid unexpected depletion of gas during critical times, such as during cooking or other important tasks that require LPG as a fuel source.
- The smart digital setup consists of various components, including a weight sensor, microcontroller, and a buzzer. The weight sensor is responsible for measuring the weight of the cylinder, providing real-time data to the microcontroller. The microcontroller processes this information and compares it with the predefined threshold of one kilogram. When the weight drops below this threshold, the microcontroller triggers the buzzer, generating an audible alert to notify the user that the gas level is running low.
- This project offers several advantages over traditional methods of measuring LPG quantity, such as manual weight estimation or unreliable gas level indicators. The system's digital setup ensures precise measurements, eliminating human errors and providing accurate data regarding the

remaining gas. Furthermore, the real-time alert system through the buzzer enhances user convenience and reduces the risk of running out of gas unexpectedly.

- In addition to the core functionality, the system can be further enhanced by incorporating additional features. For instance, it could include an LCD display to present the measured weight and provide a visual indication of the gas level. Moreover, the system can be made compatible with wireless connectivity, enabling users to monitor the gas level remotely through a mobile application or web interface.
- Overall, the LPG Measurement System for Household Cylinders project addresses the challenge of accurately measuring the gas level in household cylinders. By utilizing a smart digital setup that measures the weight of the cylinder, users can avoid running out of gas unexpectedly and effectively manage their LPG consumption. This solution provides a convenient and reliable method for monitoring the gas level, ensuring a seamless experience for households relying on LPG as a fuel source.

5.Project status at the beginning of the Year: Idea

6.Interventions made:

- *Implementation of a Weight Sensor*: The project incorporates a weight sensor as a key intervention. The weight sensor is responsible for measuring the weight of the LPG cylinder accurately. By utilizing this sensor, the system can provide real-time data on the gas quantity remaining in the cylinder, ensuring reliable measurements.
- *Integration of a Microcontroller:* A microcontroller is utilized in the system to process the data received from the weight sensor. The microcontroller compares the measured weight with the predefined threshold of one kilogram, enabling it to determine when the gas level falls below the desired limit. This intervention enhances the system's intelligence and enables it to trigger the necessary alerts.
- *Alert System with Buzzer:* The project introduces an alert system using a buzzer as an intervention. When the measured weight of the LPG cylinder drops below one kilogram, the microcontroller initiates the buzzer to generate an audible alert. This intervention promptly notifies the user about the low gas level, ensuring timely action can be taken to refill or replace the cylinder.

- *Reliable Gas Level Monitoring:* Compared to traditional methods such as manual weight estimation or unreliable gas level indicators, this project offers a more reliable intervention for measuring the gas level. The digital setup with the weight sensor and microcontroller provides accurate and precise measurements, reducing the chances of errors or inaccuracies in determining the remaining LPG quantity.

7.Current status:

Prototype developed and tested

8.High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

FISCRUB: A PORTABLE FISH SCALE & FIN REMOVER

1.Project Title **:** Fiscrub: A portable fish scale & Fin Remover

2.Mentor Name **:** Mr. Dani

3.Student Team Names

Mr. Nishinth

Mr. D.J. Alexander,

Mr. G.Shiju,

Mr.R.P. Rahul Prasad,

Mr.V.A. Vignesh

4.Project Description

- The process of removing scales and fins from fishes in household settings has long been recognized as a time-consuming and arduous task. This project aims to address this issue by developing an innovative product designed specifically for the efficient and hassle-free removal of fish scales and fins.
- The proposed solution incorporates an automated fish scale and fin scrubbing device that utilizes a combination of a motor and a specialized scrubbing mechanism. This device aims to simplify the process, saving valuable time and effort for individuals engaged in fish preparation at home.
- The main objective of this project is to create a user-friendly device that guarantees effective scale and fin removal without compromising the integrity and quality of the fish. The device will provide a convenient alternative to traditional manual methods, reducing the tediousness and mess associated with this task.

The key features of the proposed product include:

1. Motorized Operation: The attached motor will power the scrubbing mechanism, eliminating the need for manual labor and reducing the physical strain on the user.

2. Specialized Scrubbing Mechanism: The device will be equipped with a specially designed scrubbing component capable of effectively removing scales and fins without damaging the fish's flesh.

3. Hassle-free Operation: Users will experience a simplified and intuitive operation, requiring minimal skill or expertise. The device will ensure consistent and thorough scrubbing across various fish sizes and species.

4. Hygienic Design: The product will prioritize hygiene and cleanliness, incorporating materials and features that are easy to clean and maintain. This will ensure the device remains in optimal condition, avoiding any potential cross-contamination.

5. Safety Measures: The device will be equipped with safety features to prevent any accidents or injuries during operation. This may include mechanisms such as automatic shut-off in case of excessive force or sensor-based controls.

The successful completion of this project will offer a practical and efficient solution to the laborious task of fish scale and fin removal. By significantly reducing the time and effort required, the automated fish scale and fin scrubbing device aims to enhance the overall fish preparation experience for households.

5.Project status at the beginning of the Year: Idea

6.Interventions made:

- *Motorized Scrubbing:* One of the key interventions in this project is the incorporation of a motorized scrubbing mechanism. By attaching a motor to the device, the manual effort required to scrub fish scales and fins is significantly reduced. This intervention streamlines the process, making it less tedious and more efficient.
- *Specialized Scrubbing Component:* The development of a specialized scrubbing component is another crucial intervention. This component is designed specifically to remove scales and fins effectively without causing damage to the fish's flesh. It ensures that the fish retains its quality and appearance during the scaling and finning process.
- *User-friendly Operation:* The project emphasizes the importance of user-friendliness. The device is designed to be intuitive and easy to operate, requiring minimal skill or expertise. This intervention enables a broader range of users, regardless of their familiarity with fish preparation, to use the product with ease and confidence.
- *Hygiene and Cleanliness:* The intervention focuses on ensuring the device's hygienic design. The materials and features are carefully selected to facilitate easy cleaning and maintenance. This intervention addresses concerns regarding cross-contamination and promotes safe and sanitary fish preparation practice

7.Current status: Prototype completed

8.High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

G-STORE: A FLEXIBLE TRADITIONAL STORAGE UNIT FOR FOOD GRAINS.

1.Project Title **:** G-Store: A Flexible Traditional Storage Unit for Food Grains.

2.Mentor Name **:** Mr. Gigin Durai C

3.Student Team Names

1. Ms. Jinisha PL,
2. Mr. Abishek M ,
3. Mr.Ajay Devan M,
4. Mr. Jobin W.L.

4.Project Description

- The portable food grain storage device is designed to provide a solution for storing food grains for an extended period while ensuring protection against pests and pesticides. The device utilizes neem leaves, known for their natural pesticidal properties, to safeguard the stored grains. Additionally, the device's compact design allows for convenient storage when not in use, making it highly versatile and user-friendly.
- Neem Leaf Pouches: The device will consist of specially designed pouches made of breathable materials that allow the passage of air. These pouches will be filled with neem leaves, known for their insect-repellent properties.

- Multiple Grain Compartments: The device will contain separate compartments to store different types of food grains, ensuring convenient organization and preservation.
- Air Circulation System: To maintain optimal storage conditions, the device will incorporate an air circulation system that allows for proper ventilation and prevents the buildup of moisture, which could lead to spoilage.
- Compact and Foldable Design: The device will be designed to shrink and fold into a smaller size, making it easily storable in tight spaces when not in use. This feature enhances its portability and usability.
- Durable and Lightweight Materials: The device will be constructed using durable yet lightweight materials, ensuring its longevity and ease of transportation.

5.Project status at the beginning of the Year: Idea

6.Interventions made:

- Development of Neem Leaf Pouches: The project involved the design and development of specially designed pouches made of breathable materials. These pouches serve as the primary intervention by providing a container for storing neem leaves. The pouches are carefully crafted to allow air circulation while preventing pests from entering and damaging the stored grains.
- Integration of Neem Leaves: Neem leaves, known for their natural pesticidal properties, are a key intervention in the project. These leaves are carefully sourced and placed inside the neem leaf pouches. Neem leaves contain compounds that act as effective repellents against pests, including insects, larvae, and rodents. The integration of neem leaves in the storage device ensures the protection of the stored grains.
- Design of Multiple Grain Compartments: To enhance convenience and organization, the storage device incorporates multiple compartments for storing different types of food grains. This intervention allows users to segregate grains and prevent cross-contamination while optimizing storage capacity.
- Implementation of an Air Circulation System: Proper ventilation is crucial for maintaining optimal storage conditions and preventing the growth of mold or spoilage. Therefore, an air circulation system is integrated into the storage

device. This intervention ensures the continuous flow of fresh air, reducing moisture buildup and maintaining the quality of the stored grains.

- Compact and Foldable Design: The project focuses on creating a portable and space-efficient storage device. The intervention lies in the design of a compact and foldable structure that allows the device to be easily shrunk and stored when not in use. This feature enables users to maximize available space and conveniently transport the device as needed.
- Selection of Durable and Lightweight Materials: Another intervention in the project involves the careful selection of materials for constructing the storage device. Durable yet lightweight materials are chosen to ensure the device's longevity and ease of transportation. The selection of suitable materials contributes to the overall functionality and practicality of the device.
- Testing and Refinement: Throughout the project, extensive testing and refinement of the storage device were conducted. The interventions mentioned above were continually evaluated, and necessary modifications were made to improve the device's efficiency, effectiveness, and user-friendliness. The testing phase involved assessing the device's ability to protect grains, maintain proper storage conditions, and withstand various environmental factors.

7.Current status:

Prototype completed

8.High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

AUTOMATIC HOUSE HOLD COCONUT GRATER

1.Project Title **:** Automatic House Hold Coconut Grater

2.Mentor Name **:** Dr. N. E Godwin Pithalis

3.Student Team Names

1. Mr. Jude stanish S,
2. Mr. Jino P J,
3. Mr. Kevin Thomas S,
4. Mr. Jefferson Y

4.Project Description

- The fully automatic coconut grating machine is an innovative solution designed to address the challenging task of grating or scraping coconuts, commonly encountered in Indian households. This portable machine aims to significantly reduce the time and effort required for manual coconut scraping, providing a convenient and efficient solution for kitchens.
- The key feature of the machine is its movable chuck, specifically designed to securely hold the coconut in place during the grating process. This ensures that the coconut remains stable and allows for consistent and uniform grating results. The chuck is adjustable to accommodate coconuts of different sizes, making it versatile for various culinary needs.
- Equipped with advanced automation technology, the fully automatic coconut grating machine takes over the labor-intensive task of coconut scraping. Once the coconut is securely placed in the chuck, users can activate the machine with a simple button press. The machine then operates autonomously, grating the coconut with precision and efficiency.

- The portability of the machine enhances its versatility, allowing users to easily move it around the kitchen as needed. Its compact design ensures it can fit into small spaces, making it suitable for homes of different sizes.
- By automating the coconut grating process, this machine significantly reduces the time and effort traditionally required for manual scraping. Users can now save valuable time and energy, enabling them to focus on other culinary tasks. Moreover, the consistent and uniform grating results achieved by the machine ensure high-quality grated coconut, enhancing the overall cooking experience.
- The fully automatic coconut grating machine is poised to revolutionize the way coconuts are prepared in Indian kitchens. Its user-friendly interface, portable design, and efficient operation make it an indispensable tool for households seeking convenience and time-saving solutions.

5.Project status at the beginning of the Year: Idea

6.Interventions made:

- Movable Chuck: The inclusion of a movable chuck in the fully automatic coconut grating machine is a significant intervention. The movable chuck is designed to securely hold the coconut in place during the grating process. This ensures stability and minimizes the risk of accidents or injuries while operating the machine. The adjustable nature of the chuck allows for the accommodation of coconuts of different sizes, providing versatility in grating options.
- Effort Reduction for Working Women: A key intervention of the fully automatic coconut grating machine is its focus on reducing the effort required by working women in the kitchen. Traditionally, scraping coconuts manually can be a time-consuming and physically demanding task. By automating the grating process, this machine significantly reduces the physical effort required, allowing working women to save energy and concentrate on other cooking tasks. This intervention aims to alleviate the burden on working women in the kitchen, promoting convenience and efficiency in their daily lives.
- Time-Saving: Another important intervention of the fully automatic coconut grating machine is its ability to save time in the kitchen. Manual coconut scraping can be a labor-intensive process that consumes a significant amount of time. With this machine, the grating process becomes automated, eliminating the need for manual effort and reducing the time required to grate

coconuts. By saving time on coconut scraping, working women can streamline their cooking process, ultimately reducing overall cooking time. This intervention provides a practical solution for busy households seeking to optimize their cooking routines.

- Enhanced Cooking Efficiency: By reducing the time and effort involved in scraping coconuts, the fully automatic coconut grating machine promotes enhanced cooking efficiency. With grated coconut readily available, cooks can incorporate it seamlessly into various dishes without any delay. This intervention ensures that the cooking process becomes more streamlined and allows for smoother meal preparation. Consequently, working women can achieve faster cooking times and deliver delicious meals with reduced effort, contributing to an improved overall cooking experience.

7.Current status:

Prototype completed

8.High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

SIGN LANGUAGE RECOGNITION WITH MACHINE LEARNING

1.Project Title **:** Sign language recognition with Machine learning

2.Mentor Name **:** Mrs. Ashy V Daniel

3.Student Team Names

1. Ms. Ajisha Jegal JJ,
2. Ms. Kebiya G,
3. Ms. Sharun S S,
4. Ms. Sham Nijin S

4.Project Description

- The recognition application described in this project aims to bridge the communication gap between individuals who use sign language and those who use spoken language. Specifically designed for the deaf-and-dumb community, this application utilizes deep learning techniques to convert sign language into speech language and vice versa. By breaking down barriers to communication, this project seeks to enhance relationships between sign language users and spoken language users, facilitating smoother and more inclusive conversations.
- The project addresses the challenges faced by sign language users in maintaining a seamless flow of communication with individuals who rely on spoken language. Traditionally, these two communities have experienced difficulties in understanding each other due to the differences in their respective communication methods. This recognition application offers a technological solution to this problem, enabling effective communication between sign language and spoken language users.

5.Project status at the beginning of the Year: Idea

6.Interventions made:

- Data collection and annotation: Collecting and annotating sign language data to train the deep learning models accurately.
- Deep learning model development: Creating robust models using advanced techniques like CNNs and RNNs for accurate sign language recognition.
- Preprocessing and feature extraction: Enhancing data quality and extracting relevant features for improved model performance.
- Model training and optimization: Iteratively adjusting model parameters to minimize error and maximize accuracy using optimization techniques.

- Real-time recognition system: Integrating trained models into a system that translates sign language gestures into speech language output instantly.
- User interface development: Designing a user-friendly interface with video capture, gesture visualization, and text-to-speech conversion capabilities.
- Testing and evaluation: Rigorous testing and evaluation to ensure accuracy and reliability of the application.
- Continuous improvement and updates: Incorporating feedback and staying updated with the latest advancements in deep learning to enhance the application's effectiveness over time.

7.Current status:

The prototype of the project is completed and is implemented on Raspberry pi 4 micro controller.

8.High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

OBSTACLE DETECTION IN WATER TANK USING SONAR TECHNOLOGY

1. Project Title **:** Obstacle Detection in Water Tank using SONAR Technology

2.Mentor Name **:** Dr.J.Jerusalin Carol

3.Student Team Names

1. Mr. Gowthem.C,
2. Mr. Jebin.S
3. Mr. Abin.J

4.Project Description

- An ultrasonic sensor is a device that detects an object and measures the distance to it. It measures the distance by emitting ultrasound and receiving the wave that the object reflects.
- Ultrasonic sound vibrates at a frequency above the range of human hearing. Transducers are the microphones used to receive and send ultrasonic sound. HC-SR04 and like other ultrasonic sensor module use a single transducer to send a pulse and to receive the echo. The sensor determines the distance to the target by measuring time lapse between sending and receiving of the ultrasonic pulses
- Ultrasonic sensors uses sound waves to detect the absence or presence of objects entering our zone.
- Ultrasonic Senor triggers the gsm module to notify the third party presence to the user by use of SMS.
- A customised Global System for Mobile communication (GSM) module is designed for wireless radiation monitoring through Short Messaging Service (SMS). This module is able to receive serial data from radiation monitoring devices such as survey meter or area monitor and transmit the data as text SMS to a host server. It has an ability to carry 64 kbps to 120 Mbps of data rates.
- Both the GSM and sensors are connected by using a Arduino board. Arduino is an open source hardware platform that is readily available for hobbyists & enthusiasts across the globe to build projects. It comes with an ATMEGA microcontroller that processes the data and facilitates the proper working of the IoT system.
- The Arduino GSM shield allows an Arduino board to connect to the internet, send and receive SMS, and make voice calls using the GSM library.
- Arduino also tiggers buzzer to alert the object in the overhead tank .Buzzer is useful if the user is near to the overhead tank.
- The system is connected with users device to notify all the activities in the overhead tank.

5. Project status at the beginning of the Year:

- Litrature Review Completed
- Design Completed

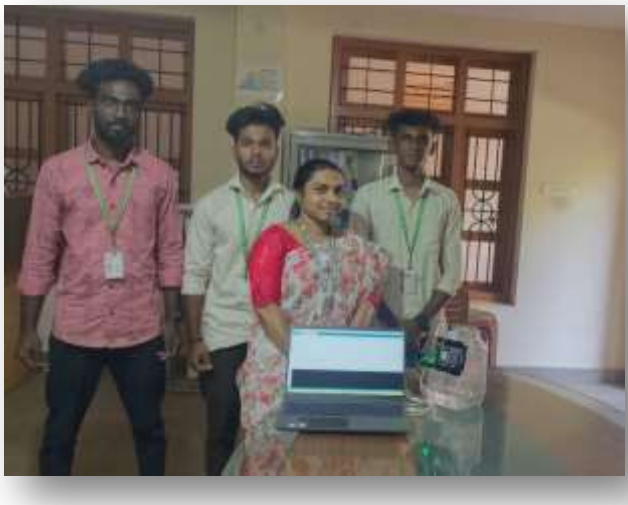
6.Interventions made:

- An fully automized system to monitor overall activity in the overhead tank.
- An mechanism to identify the type of object in the overhead tank.
- Solar powered system to reduce power usage

7.Current status:

Prototype completed

8.High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:



IOT BASED SMART AZOLLA BED

1.Project Title **:** IoT based Smart Azolla Bed

2.Mentor Name **:** Mr. Ashwin G Singerji / HOD CSE

3. Student Team Names

1. Ms. L**.** Mersheba Fred,
2. Ms. J. Divine Love Priscilla,
3. Ms. M. Angelin Abi

4. Project Description

- Azolla possesses the desired qualities of a green manure crop, likequick growth, large biomass production, higher nitrogen content, and easy decomposability in the soil. However, Azolla cultivation is a labor-intensive technology, Smart Azolla Bed can change the intensive pressure on farmers.
- We are have used vibration and shock technology to impair the snail and emancipate the plant from the snail. Every 15 minutes it will vibrate for 30 seconds. A concrete vibrator with needle is used to vibrate the azolla bed. The set-up is done using the required components including relay driver and wires. The program is uploaded to Node MCU and it acts accordingly.
- Temperature sensor is used to detect the temperature of water and is monitored using a blynk software. And using a temperature sensor the temperature of water is checked all time and if the temperature exceeds 40 degree Celsius, alarm sound will be heard and the people responsible for the care of azolla does necessary arrangements which will help the azolla to grow in a healthy environment.

5.Project status at the beginning of the Year: Idea

6.Interventions made:

- Programmed using Node MCU and Developed the Module

7.Current status:

Prototype completed

Patent Filed

8.High-resolution pictures showing the Prototype/product along with the students and their mentor for each project: Fiscru

NewGen IEDC-Nehru Institute of Engineering and Technology

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: (Fourth Year) 2022-2023

Name of the College /Institution hosting NewGen IEDC	Nehru Institute of Engineering and Technology, Nehru Group of Institutions, Coimbatore, Tamil Nadu		
Year of starting NewGen IEDC	2018		
Name of the Head/Principal of the Institution/College	Dr. P. Krishnakumar Nehru Group of Institutions, Coimbatore, Tamil Nadu		
Name of NewGen IEDC Coordinator	Dr. T. Jayaprakash		
Contact Details of NewGen IEDC Coordinator • Mobile Number • E-Mail ID	Mobile Number: 9843121361 E-Mail ID: coordinatornewgeniedc@nehrucolleges.com		
Financial Details	Year	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC/18-19/07 & 13.11.2018	Rs.60,00,000
	2		Rs.47,50,000
	3		Rs.60,00,000
	4		Rs.60,00,000

1. **Details of Activities Undertaken during the year (also provide two/three photographs oneach activity):**

To inculcate the spirit of innovation and entrepreneurship amongst S&Tstudents

Sr. No.	Activities	Outcome/Achievements
1	Awareness Programme on Entrepreneurship and Skill Development	Outcome: Students of Nehru Institute of Technology were given Idea on the skills required for successful and efficient entrepreneurs.

2	Seminar on Start Your Own Start-up	Outcome: 127 Students from Nehru Institute of Engineering and Technology were participated andunderstood how to start a start-up.
3	Seminar on Sustainable Management of Water and Sanitation: Latest Development	Outcome: 158 Students from Nehru Institute of Technology and Nehru Institute of Engineering and Technology were participated in the seminar and gained knowledge on importance of water, necessity to save water and resources available.

4	Induction Programme on NEW GEN IEDC Start-ups	Outcome: 112 students from Jawaharlal College of Engineering and Technology attended the induction Programme and understood the opportunities and benefits of NEW GEN IEDC Scheme.

5	Awareness Programme on Innovation Voucher Program Proposals	Outcome: 97 Students from Nehru Arts and Science College were participated and now students are aware about how to write an effective proposal for Voucher Program.
6	Workshop on IPR, Start-Up & Innovation	Outcome: Faculty Members and Students from Nehru Group of Institutions acquired the concepts of patent filing.

7	Awareness on Startup Immersion Programme	Outcome: Students from Nehru Institute of Technology gained knowledge about the objectives and procedures of NewGen IEDC.

8	Seminar on Intellectual Property Rights	Outcome: Many startup students were participated and understood about the various facts of Intellectual Property Rights.
9	Awareness Programme on Startup Idea	Outcome: More than 100 students were participatedand acquired knowledge on how to create new start-ups in India.

10	Induction Programme on Innovation and Incubation	Outcome: This programme created awareness on how to develop an innovative product.

[A] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	Seminar on Business Growth and Changes	Outcome: This programme will increase the number of entrepreneurs thereby creating a knowledge in the development process of business growth.

2	Workshop on Business Idea Pitching	Outcome: Many startup students understood how to present the good business idea.
3	Workshop on Entrepreneurship Development	Outcome: Many startup students understood how to develop their entrepreneurship skills.

4	Screening Committee Meeting	40 Startups were presented their Ideas into External Panel Members through online mode.
5	Mentors Meeting	Every Two weeks, regularly arranging Mentors – Students meet.
6	Purchase Committee Meeting	To identify the difficulty of purchasing the equipment, Purchase committee has been framed.
7	Review Committee Meeting	Regular Interactive Session has been arranged among the startup students.

To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Staff training Programmes for the Industrial Enterprises	Regularly organized the Programmes.
2	Marketing Assistance & Technology Commercialization	Through NGI – TBI, we have arranged the facility for the startup students.

2. **Deviation (shortfall) from the proposed action plan (with reasons), if any: NIL**

3. **Other** important highlights (new initiatives), if any:
   - MoU's with accelerators for initiating projects into next level.

4. **Student Projects**:
   Please provide project wise details as per Annexure-A attached
5. **Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized). The case-let should include:**

Title of Project: Screening of Foot Ulcer Diabetic Neuropathy

1. Screening of Foot Ulcer Diabetic Neuropathy

❖ **Mentor's Details (with contact information)**

Name: Mrs.K.Sivakami
Designation: Assistant Professor
Department: Electronics and Communication Engineering
College : Nehru Institute of Engineering and Technology
Mobile No: +91 9789613811
Email id: nietsivakami@nehrucolleges.com

❖ Student team details (with contact information)

S Wasim Khan
R Pavithran
S.Baranitharan
V. Monisha

❖ Brief description about the student start-up

The foot ulcer detector is a device designed to screen diabetic foot ulcer neuropathy using a vibration motor and microcontroller. It is non-invasive and easy to use, with the vibration motor fixed at specific points on the foot, including the plantar surface of the foot, at an angle of 45 degrees, and at the first metatarsal head and heel.

The device includes a portable remote control that regulates the vibration motor's oscillation from minimum to maximum rpm, and the microcontroller controls the oscillation frequency of the vibration motor in a range of 20 Hz to 300 Hz. The method for screening diabetic foot ulcer neuropathy is by placing the foot on the device and controlling the vibration motor using the portable remote control.

The foot ulcer detector device has significant commercialization possibilities in the healthcare industry, particularly for healthcare providers and individuals who suffer from diabetes and are at risk of developing foot ulcers. The device can be packaged with a user manual and a portable remote control device, making it easy for users to operate and monitor.

- Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs

The background of the product is rooted in the increasing prevalence of diabetes worldwide. Diabetic foot ulcer neuropathy is a common complication of diabetes that affects millions of people globally. This condition can lead to severe consequences such as limb amputations and can also have a significant impact on the quality of life of patients. Current treatment options include medications and wound care, which can be time-consuming and expensive. Therefore, there is a pressing need for innovative solutions that can address this issue effectively. The product aims to provide a noninvasive and cost-effective solution that can improve blood circulation in areas of the
foot susceptible to neuropathy, thus reducing the risk of developing ulcers and other complications.

Problem statement

The problem addressed by the product is the development of diabetic foot ulcers, which is a serious complication of diabetes. Diabetic foot ulcers are a leading cause of hospitalization and amputation among people with diabetes. The condition affects the nerves in the feet and can lead to reduced blood flow, which in turn can cause foot ulcers. If left untreated, foot ulcers can become infected and lead to serious health problems. The existing treatments for diabetic foot ulcers are often invasive and costly, which limits their accessibility and effectiveness. Therefore, there is a need for a non-invasive, portable, and cost-effective solution to prevent the development of diabetic foot ulcers and improve the quality of life of people with diabetes.

Objective of the project

• To develop a non-invasive, portable, and cost-effective solution for diabetic foot ulcer neuropathy that can significantly improve the quality of life for patients.

• To create a device that can accurately detect the early stages of diabetic foot ulcer neuropathy, allowing for prompt medical intervention and potentially preventing more serious complications such as limb amputation.

• To combine vibration therapy and pulse monitoring in a single device, providing a complete solution that offers a unique combination of benefits for patients suffering from diabetic foot ulcer neuropathy.

❖ Contribution of NewGen IEDC in the same

NGI - NewGen IEDC provide access to Computer & Prototyping facilities and facilitate networking with Professional Resources, Advisors, Consultants, Rich pool of Industry Practitioners and Mentors.

❖ Future plan

We have planned on producing mass production of foot ulcer detector with the help of NGI TBI. We also plan to collaborate with various companies in future and also with e-commerce websites to promote this innovation in India.

2.Title of Project: **Manual Vegetable Planter**

2. Manual Vegetable Planter

❖ **<u>Mentor's Details (with contact information)</u>**

Name: Mr Ashutosh C Kakde

Designation: Assistant Professor

Department: Agriculture Engineering

College : Nehru Institute of Technology

Mobile No: +91 8308894659

Email id: nitashutosh@nehrucolleges.com

❖ Student team details (with contact information)

Prasanth M

Salison Daniel D

- Brief description about the student start-up
  - The process of plantation by the human only with the modern practice of mechanized machinery with no requirement of bullock, tractor power and self-propelled.
  - By this machine, we can plant the seed with definite depth and maintained the plant to plant and row to row spacing.
  - By this, we can use to plant the seed on bed of four row which gives good yield and have better canopy for the plant.
  - Whereas the cost of the operation is very less regards of broadcasting method.
  - Every farmer has a plot of vegetable in their farm, they plant that vegetable for their home use.

Problem Statement

No need of mechanized machinery with no requirement of bullock, tractors, etc.

Problem from oxygen consumption, heart rate, discomfort etc issues going in the worker by broadcasting or use of dibbler.

We design mechanized machinery with less human drudgery reduction by accepting ergonomical parameters.

A single man does this operation of planting the vegetable plant from this human drudgery reduction.

Every farmer has a plot of vegetable in their farm, they plant that vegetable for their home use.

- Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs

A wide variety of agro-climatic conditions exist throughout India, enabling the production of numerous different agricultural crops. Vegetable biodiversity is abundant in India which is also the primary or secondary origin country for many vegetables. Production of vegetable crops is significant to the Indian economy. Vegetable crops include the chilli (Capsicum Annum L), brinjal (Solanum melongena), and tomato (Lycopersicum esculentum). However, due to a lack of mechanization in the agricultural sector, production and product quality are inferior in compared to many wealthy nations. Farmer’s small land holdings might be a significant barrier to mechanization. Farmer’s land

holdings are getting smaller and smaller as a result of urbanization and population increase. Small land owner farmers in India wont be able to buy expensive machinery or large powerful machines until they are made available for custom hiring.

We have been made to formulate the design and development of a manually operated nursery vegetable planter. Seed to seed spacing and sowing depth were inconsistent when seeds were sown using the conventional method. There is a potential that two or more seeds will be planted in the same location, which will cost the farmers money. In order to meet the country's agricultural mechanization needs, manually operated farm equipment, machinery, and tools must be used. This vegetable planter uses a horizontal plate seed metering system to plant tomato, chilli and brinjal seeds. The planter is constructed from common materials and is intended for the preparation of raised bed nurseries with four rows. The seed plate and hopper were built using the engineering and physical characteristics of the tomato, brinjal and chilli. The ideal furrow opener is an M.S. angle iron and a soil covering device is affixed to the backside of the furrow opener. Every height of worker is accommodated by handle adjustment.

For larger seeds that cannot be sown with standard seed drills, planters are the ideal sowing equipment. The broadcasting method is mostly used for the preparation of vegetable saplings. This sowing technique was ineffective. The plant to plant and row to row distances are not maintained, there is a significant labour need, and a high seed rate is necessary, among other drawbacks of the traditional method. By planting seeds with the appropriate spacing, one can predict how productive a crop will be. It's essential to place the seeds in a row precisely at the right depth in the soil for effective germination and at an equal space.

- Contribution of NewGen IEDC in the same

NGI - NewGen IEDC provide access to Computer & Prototyping facilities and facilitate networking with Professional Resources, Advisors, Consultants, Rich pool of Industry Practitionersand Mentors.

- Future plan

We have planned for mass production by applying seed fund through NGI TBI. We also plan to collaborate with various companies in future

and also with e-commerce websites to promote this innovation in India.

Annexure-A

Details of Student Projects-Fourth Year (2022-23)

Project Title:	**1. Screening of Foot Ulcer Diabetic Neuropathy**
Mentor's Name:	Mrs.K.Sivakami, Assistant Professor/ECE, Nehru Institute of Engineering and Technology
Student Team Names:	1. Mr. Wasim Khan S, B.E – ECE, NIET 2. Mr. Baranitharan S, B.E – ECE, NIET 3. Ms. Monisha V, B.E – ECE, NIET 4. Mr. Pavithran R, B.E – ECE, NIET
Project Description:	Our start-up idea is to detect the foot ulcer diabetic neuropathy in earlier stage. The diabetics is becoming a great threat to mankind and the diabetic study shows that upto 15% of the diabetic individual will develop their foot ulcer during the lifetime. Our idea is to design a product for detecting the food ulcer diabetic neuropathy. Investigation of foot ulcer is carried out by the vibratory motor. The normalized peak pressure can be calculated by pressure by placing motors at different points. This product gives complete information to examine the food ulcer which is highly required for the current situation.
Project status at beginning of theYear:	Ideation Stage
Interventions made:	Early detection of Foot Ulcer Neuropathy using IoT
Current status:	• Product developed and testing process ongoing • Patent filed on 02.05.2023 and waiting for Grant Approval

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:	

Project Title:	**2. Gesture Controlled Bluetooth Speaker**
Mentor's Name:	Mr.S.Mohan, Assistant Professor in ECE, Nehru Institute of Engineering and Technology
Student Team Names:	1. Ms. Ajisha R, B.E – ECE, NIET 2. Ms. Kaviya V, B.E – ECE, NIET 3. Ms. Karthika P, B.E – ECE, NIET 4. Ms. Sandhiya Devi P, B.E – ECE, NIET
Project Description:	Bluetooth speakers are the most widely used speakers nowadays. This gesture based speaker takes Bluetooth to the next level by integrating touchless operation. This Bluetooth allows user to change music just by swiping their hand over the Bluetooth speaker. Also this speaker allows the user to adjust volume just by raising and lowering their hand over the speaker. The user can operate the complete speaker operation without even touching his/her mobile phone or the speaker.
Project status atbeginning of the Year:	Ideation and Market feasibility stage
Interventions made:	• Handy and Portable • Touchless Operation
Current status:	• Product developed • Patent filed on 02.05.2023 and waiting for Publication
Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their	

mentor for each project:

Project Title:	**3. Soil Fertilizer Recommender**
Mentor"s Name:	Dr.V.Jayaraj, Professor and Head / ECE, Nehru Institute of Engineering and Technology
Student Team Names:	1. Ms. Muppala Pooja, B.E – ECE, NIET 2. Ms. Daivala Deeepika, B.E – ECE, NIET 3. Ms. Hema Naga Srilakshmi, B.E – ECE, NIET 4. Ms. Polamreddy Dharani, B.E – ECE, NIET
Project Description:	Our start-up idea is to craft a device that is technologically advanced and easily usable for people who practice agriculture. It is developed to identify the level of nutrients present in the soil and inform the farmer about the requirements. It also identifies the soil moisture and PH level of the soil. The main goal is to automate Agricultural practices at affordable cost.
Project status atbeginning of the Year:	Designing & Market study
Interventions made:	• Custom made Technology • It is feasible one. • It reduces the farmer's manual work and the time.
Current status:	• Product Developed and Testing Process is ongoing. • Patent filed on 02.05.2023 and waiting for Grant Approval.

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:

Project Title: **4. Paper Bags from Banana Fibre to Replace Plastic**

Mentor"s Name: Mr.John George, AP/ Aeronautical, Jawaharlal College of Engineering and Technology

Student Team Names:

1. Mr. Rahul Joseph Saji, B.E. – Aeronautical, JCET
2. Mr. Alby A K., B.E. – Aeronautical, JCET
3. Mr. Aswanth Raj, B.E. – Aeronautical, JCET
4. Mr. Safwan M K, B.E. – Aeronautical, JCET

Project Description:	This innovation makes paper bags stronger, reusable and cheaper and most importantly its free from harmful effect for mankind and nature. The bags pose a problem when one tries to carry wet and moist things like milk packets vegetables and fish. Also paper bags are expensive owing to the production cost. But these bags are more stronger than plastic carry bags and withstand as much as or more than that a plastic bag can carry, also these bags are suitable for carrying leaking or damp items, also most attractively these bags are reusable for a long period (if get wet we can dry and use it again).
Project status atbeginning of the Year:	Ideation Stage
Interventions made:	Reusable, Recyclable and bio degradable
Current status:	• Testing Process ongoing • Patent filed on 03.05.2023 and waiting for Publication

Three/four high resolution (at least 300 dpi) pictures in jpeg format showing the prototype/ product along with the students and their mentor for each project:

Project Title: **5. Instant pothole Repair mix**

Mentor"s Name:

1. Mr.P.Siddharthan, Assistant Professor / Civil Engineering, Nehru Institute of Technology
2. Dr.M.Sivaraja, Professor & Principal, Nehru Institute of Technology

Student Team Names: Mr. Sharan Sai P, B.Tech – Civil Engineering, NIT

Project Description: Potholes are one of the main source of inconvenience and major cause of accidents. Our idea mainly focuses on this aspect of repairing those potholes with a new approach of filling them with Non-Newtonian fluid rather than the other traditional methods in repairing those potholes as they require a lot of physical labour and the idea is economically well driven ,requires less human effort.

Project status atbeginning of the Year: Ideation Stage

Interventions made: Utilization of Non-Newtonian fluid in repair works

Current status:

- Testing Process ongoing
- Patent filed on 03.05.2023 and waiting for Grant Approval

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:

Project Title: **6. Smart Glaucoma Predictor**

Mentor"s Name: Dr.S.Subasree, Professor & Head, Department of Computer Science and Engineering, Nehru Institute of Engineering and Technology.

Student Team Names:

1. Mr. Mohamed Bayas A– B.Tech – AI&DS, NIET
2. Mr. Parasakthi Kumar K- B.Tech – AI&DS, NIET
3. Mr. Rajiv R - B.Tech – AI&DS, NIET
4. Ms. Sasikala M - B.Tech – AI&DS, NIET

Project Description: Early Detection and treatment of Glaucoma are important to prevent disease progression. Need to predict higher risk of developing visual field loss. Existing Instruments needs more and complex procedure to detect Glaucoma. To address this issue, this product Smart Glaucoma Predictor is planned to propose. It will be more compact and portable. Existence instruments cannot be used without the support of any additional experts / technicians. It is a Portable Scanning Eye Predictor cum Reporter. It has inbuilt powerful computer hardware (Raspberry pi4). This product is planned to design for Lab Technician, Researchers, Ophthalmologist and home as well to check themselves.

Project status atbeginning of the Year: Market feasibility study

Interventions made: As Single Product functioning without External Monitors, Controllers and Computing devices

Current status:

- Product Completed and Market feasibility study process ongoing
- Patent filed on 03.05.2023 and waiting for Grant Approval.

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:

Project Title: **7. Bio-degradable food wrapping sheet by biofilms**

Mentor"s Name: Dr.S.Rathinavel, Assistant Professor in Aeronautical Department, Nehru Institute of Engineering and Technology

Student Team

1. Mr. Gokula Kannan M P R, B.E. – Aeronautical Engineering, NIET

Names:	2. Mr. Kamala Kannan B, B.E. – Aeronautical Engineering, NIET 3. Mr. Dinesh Kumar S, B.E. – Aeronautical Engineering, NIET
Project Description:	Our start-up idea is to make a food wrapping sheet that is bio-degradable and which also increases the food life. It is developed to eradicate plastic wrappers and to initiate the use of bio-degradable wrappers that doesn't affect the food. The main goal is to destroy the pyrosis juliflora and to create a healthy food life and good environment.
Project status atbeginning of the Year:	Ideation stage
Interventions made:	Utilization of Silver nano particles is incorporated
Current status:	• Product developed and market feasibility ongoing • Patent filed on 02.05.2023 and waiting for Publication

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:

Project Title: **8. Herbal Handwash**

Mentor"s Name: Dr. David Jayaseelan, Assistant Professor/Microbiology, Nehru Arts and Science College

Student Team Names:

1. Ms. Hrithika K V, M.Sc., Microbiology, NASC
2. Ms. Meena Kalyani B, M.Sc., Microbiology, NASC
3. Mr. Sreerag S, M.Sc., Microbiology, NASC

Project Description:	The main aim of hand wash is to prevent the spread of infection. Washing hands with hand wash is better than using alcohol based sanitizer. At this pandemic situation, world is in need of better herbal hand wash, which is free from all harmful chemicals. The harmful chemicals lead to various skin ailments such as allergies, irritation, cancer etc. From younger to older, hand wash plays an important role, hence using a chemical free herbal hand wash is mandatory. Where our herbal hand wash includes the natural ingredients and free from all harmful chemical which are used in the hand washes available in the market. It is very effective and free from all skin ailments. At present, hand wash not only cleans your hands, but also saves' your life.
Project status atbeginning of the Year:	Ideation stage
Interventions made:	Production of herbal handwash by using the herbs without chemicals.
Current status:	• Product developed • Patent filed on 03.05.2023 and waiting for Grant Approval.

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:

Project Title:	**9. Development of Phytosome loaded herbal pain relief transdermal patch for Menstrual cramps**
Mentor's Name:	Dr.Sapna Shrikumar, Dean, Nehru College of Pharmacy
Student Team Names:	1) Ms. Maria Nison, M.Pharm, Nehru College of Pharmacy 2) Mrs. Swetha T P, M.Pharm, Nehru College of Pharmacy 3) Mrs. Fathimath Shameena, M.Pharm, Nehru College of Pharmacy 4) Mr. Asish S - M.Pharm, Nehru College of Pharmacy
Project Description:	Our start-up idea is to develop a Phytosome loaded herbal pain relief transdermal patch by isolating the bio fraction from the bark of Saraca asoca which will be highly effective and easily used for mild to severe menstrual cramps. It is developed to provide a

permanent pain relief for women during those difficult times of their menstrual cycles. Our main goal is to develop 100% effective, affordable and instant pain relief Phytosome loaded transdermal patch with ignorable side effects.

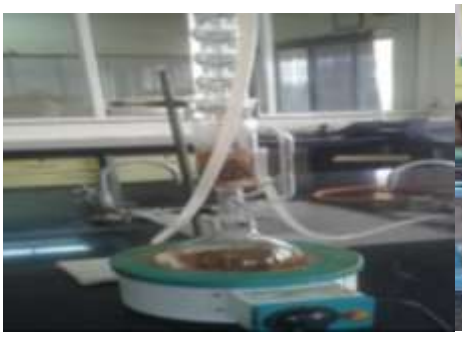
Project status atbeginning of the Year: Ideation and Design Stage

Interventions made: Provides sustained release upto 12 hours than analgesic sprays, creams or ointments which require re-application every 3 to 4 hours

Current status:

- Product Completed and Market Feasibility study ongoing.
- Patent filed on 02.05.2023 and waiting for Grant Approval.

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:



Project Title:	**10. Development of Natural Nutritive Jelly with Protein and Dietary Fibre Enrichment**
Mentor"s Name:	Dr.J.Suganya, Professor & Head-Food Technology, Nehru Institute of Technology
Student Team Names:	1. Ms. Janani S, B.Tech Food Technology, NIT 2. Ms. Karthika S, B.Tech Food Technology, NIT 3. Ms. Sarvadharshini M - B.Tech Food Technology, NIT 4. Ms. Legha Shri K - B.Tech Food Technology, NIT
Project Description:	Lack of nutrition and addition of synthetic ingredients in jellies promoted us to prepare jelly from natural under-utilized sources namely, banana pseudo stem juice and green pea extract which are highly enriched with dietary fibre and protein, respectively. Our proposed project is to convert the biowaste pseudo stem and underutilized green peas into a value-added convenience food product, hence, reducing global carbon prints by focusing on sustainable food processing. Our proposed product is more beneficial for growing kids, diabetics patients, people suffering from obesity, kidney stone and digestive disorders.

Project status atbeginning of the Year:	Market Feasibility Study
Interventions made:	Product is prepared from under-utilized food materials, hence reducing global carbon prints
Current status:	• Product developed and market feasibility study
Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:	
Project Title:	**11. Manual Vegetable Planter**
Mentor"s Name:	Mr. Ashutosh C. Kakde, Assistant Professor /Agriculture, Nehru Institute of Technology

Student Team Names:	1.Mr. Prasanth M – B.E Agriculture Engineering, NIT 2. Mr. Salison Daniel D – B.E Agriculture Engineering, NIT
Project Description:	• It will plant the seed with definite depth and maintained the plant to plant and row to row spacing • No requirement of bullock, tractor power, and self propelled. • It is used to plant the seed on bed of four row which gives good yield and have better canopy for the plant.
Project status at beginning of theYear:	Market Feasibility Study
Interventions made:	Seed metering plate in manual planter
Current status:	• Product developed and testing process ongoing • Patent filed on 03.05.2023 and waiting for GrantApproval.
Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:	

Project Title:	**12. Design and Fabrication of Arduino based Solar Tracking System with Vertical Windmill**
Mentor"s Name:	Dr. S. Jeevanantham, ASP/ Mechanical, Nehru Institute ofEngineering and Technology
Student Team Names:	1. Mr. Shankar Shiju, B.E – Mechanical, NIET 2. Ms. Aravindh M, B.E – Mechanical, NIET 3. Mr. Rajkamal D, B.E – Mechanical, NIET 4. Mr. Madhavan M, B.E – Mechanical, NIET
Project Description:	We are utilizing the renewable energy like solar, wind energy and convert it into electricity. Using fixed Photovoltaic panels extract maximum energy only during 12 noon to 2 PM in which results in less energy efficiency. Therefore, the need to improve the energy efficiency of PV solar panel through building a solar tracking system cannot be over-emphasized. We are using Vertical windmill to maximum energy at the same time solar is producing energy so both can be combined to form good amount of energy from same area.
Project status atbeginning of the Year:	Ideation Stage
Interventions made:	Utilizing the renewable energy like solar ,wind energy and convert it into electricity
Current status:	• Product developed and testing process ongoing

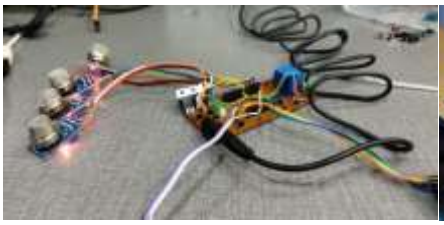
- Patent filed on 03.05.2023 and waiting for Publication

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:

Project Title:	**13. Smell & Odour Monitoring Device**
Mentor"s Name:	Ms. Radhika K Manjusha, Assistant Professor/Computer Science and Engineering, Nehru College of Engineering and Research Centre.
Student Team Names:	1. Ms. Greena Sunny,B.E. – CSE, NCERC 2. Mr. Sreejith A, B.E. – CSE, NCERC 3. Mr.Raheeb U, B.E. – CSE, NCERC 4. Ms. Aiswarya R Nayanar, B.E. – CSE, NCERC

Project Description:	An electronic device is proposed that can balance the unpleasant odour of the bathroom it can sense the odor with the help of an electronic nose and mark the level of odor in the room. If the odor exceeds its limit, there is a communication system that alerts the respected authority which can be helpful for the cleaning purpose. We are also installing a QR code for the customer's feedback. The idea proposed here has a base frame on the health & hygiene of comfort room atmosphere, our idea is a health-based idea that ensures safety from Saxon and other health problems, it is an electronic device which balances the odor in the atmosphere so whenever such a foul smell is experienced in the atmosphere the system will control that particular area and then apply the recovery procedure. The whole system is made in such a way that, it is automated with the help of sensors and a communication system is also installed to alert the respected authority in case the odor goes beyond its limit.
Project status atbeginning of the Year:	Ideation and Market Feasibility Stage
Interventions made:	• If the odor exceeds its limit, there is a communication system that alerts the respected authority which can be helpful for the cleaning purpose. • Installing a QR code for the customer's feedback
Current status:	• Product developed and testing process ongoing • Patent filed on 03.05.2023 and waiting for Publication

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:



Project Title:	**14. Bluetooth to IR Remote Technology**
Mentor"s Name:	Mr. Saneesh A S, Assistant Professor/Mechatronics, Nehru College of Engineering and Research Centre.
Student Team Names:	1) Mr. Ajith Shaijan, B.E. Mechatronics, NCERC 2) Mr. Majid Bin Sulaiman, B.E. Mechatronics, NCERC 3) Mr. Anirudhan, B.E. Mechatronics, NCERC
Project Description:	BiR is a technology which is designed to overcome the limitation to control old set-top box. Older IR remote is replaced by adding a external bluetooth smart remote which is connected to the set top box using a converter (Bluetooth to IR) which is place just before the Set-top box's IR signal receiver. The device only replace the remote control method it doesn't replace the Set-top box.
Project status at beginning of	Ideation Stage

theYear:

Interventions made: The device only replaces the remote control method

Current status:

- Product Completed.
- Market Feasibility study ongoing.
- Patent filed on 03.05.2023 and waiting for Publication

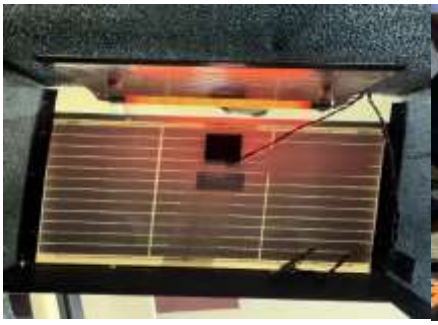
Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:

Project Title: **15. Multi Purpose Smart Solar Cloth Dryer**

Mentor"s Name: Mr. S. Satheesh Kumar, Assistant Professor, Department of Agriculture Engineering, Nehru Institute of Technology

Student Team Names:	1. Mr. Sanjay C, B.E – Agriculture Engineering, NIT 2. Mr. T. Kapil Kritik, B.E – Agriculture Engineering, NIT 3. Mr. Pradeep Singh Rathore A, B.E – Agriculture Engineering, NIT
Project Description:	It is very difficult to dry the clothes during the winter and rainy seasons. Improper drying during these seasons leads to an unpleasant smell rising and may give room for the fungal growth in the clothes. Also drying the clothes in the open atmosphere makes room for dirt during summer season. Keeping this in mind, a smart cloth dryer has been put forth by us which will overcome all the cloth drying problems throughout the year and all the seasons.
Project status atbeginning of the Year:	Ideation Stage
Interventions made:	Device provides the constant updates in the consumer's mobile phone about the cloth drying status
Current status:	• Product Completed. • Patent filed on 20.04.2022 and published.

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:



Project Title: **16. Vehicle Accident Alert System**

Mentor"s Name: Mr.V.Satheeswaran, Assistant Professor/Computer Science and Engineering, Nehru Institute of Technology

Student Team Names:
1. Mr. Kesaav N A, B.E. CSE, NIT.
2. Mr. Ragul T, B.E. CSE, NIT.
3. Ms. Swathi P, B.E. CSE, NIT.
4. Ms. Alisha Shaik, B.E. CSE, NIT.

Project Description: This project is to develop an application based on IoT which is used to help the users for saving their life. This application will be adding on functions such as reconnection, SMS triggering and Geo Location to ease user to identify accident spot. Since

nowadays most of the devices have GPS and GSM technology which is readily installed and fixed inside their IoT devices. This product focused mainly to the users who want to keep track on their belongings as they are moving around so that they would feel secure as this IoT would also be able to help users to search back their belongings as well.

Project status atbeginning of the Year:

Ideation Stage

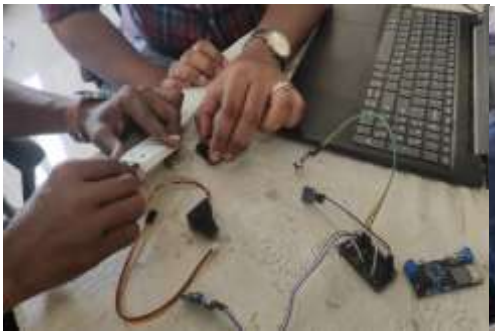
Interventions made:

- Quick identification of accident area

Current status:

- Product Completed.
- Patent filed on 02.05.2023 and waiting for Publication

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:



Project Title:	**17. Green Synthesis of Nano Particles from Polyherbal formulation against Viral Infections to boost the immunity**
Mentor"s Name:	Dr. K. Narayanasamy, ASP/Biochemistry, Nehru Arts and Science College
Student Team Names:	1. Mr. Sreejith Mohan Kumar Nair – Department of Biochemistry, NASC 2. Mr. Karthikeyan P - Department of Biochemistry, NASC
Project Description:	Poly herbal formulations can enhance immunity and the Nanoparticles can be synthesized using poly herbal formulations that can fight against several viral infections including Corona Virus. After the synthesis of the Herbal nanoparticles, the shape and characteristic studies of nanoparticles can be done to standardize the formulation for herbal remedies. Herbal formulations can give more effective impact on the populations as it gives considerable good results without any side effects. It will also give good social benefits to the population.

Project status at beginning of the Year:	Ideation Stage
Interventions made:	Purely Herbal Product
Current status:	• Product Completed. • Patent filed on 03.05.2023 and waiting for Publication
Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:	
Project Title:	**18. Chitoson based biodegradable active films for food and drug packaging**

Mentor"s Name:	Dr.N.Saranya, Prof & Head – Biotechnology, Nehru Arts and Science College
Student Team Names:	1. Mr. Joel S P, M.SC – Biotechnology, NASC 2. Ms. Fazeela A, M.SC – Biotechnology, NASC 3. Mr. Karthik M, M.SC – Biotechnology, NASC 4. Ms. Karthika S, M.SC – Biotechnology, NASC
Project Description:	Bioplastics can be composed of starches, cellulose and biopolymers and variety of other materials. So, we are using Chitosan as a biopolymer which is use instead of normal Plastics. Most importantly for packaging of foods and vegetables. Chitosan is abundantly present in the shells and scales of fishes, which is extracted and used as source of chitosan in the project. Chitosan is one of the emerging materials for various applications. The most intensive studies have focused on its use as a biomaterial and for biomedical, cosmetic, and packaging systems. The research on biodegradable food packaging systems over conventional non-biodegradable packaging systems has gained much importance in the last decade. Chitosan is a naturally derived polymer, it is biodegradable and safe for human consumption. Food-focused researchers are exploiting the properties of chitosan to develop biodegradable food packaging systems.
Project status atbeginning of the Year:	Ideation Stage and Market feasibility Study
Interventions made:	Preparation of active films with no toxic effect
Current status:	• Product Completed and Testing process ongoing • Patent filed on 03.05.2023 and waiting for Publication

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:

Project Title: **19. Upscaling Agricultural Wastes-Value Addition to Jackfruit Seeds**

Mentor"s Name: Dr. A Swarnalatha, Assistant Professor and Head, Department of Food Science & Nutrition, Nehru Arts and Science College

Student Team Names:

1. Ms. Afsiya S, Food Science & Nutrition, NASC
2. Ms.Hathiqa Hussain Ali, Food Science & Nutrition, NASC
3. Ms. Devi Vijayan, Food Science & Nutrition, NASC

Project Description: The main focus of the Seedy Bio-Products is to produce safe and quality bioproducts from locally available edible agricultural waste. This is a social enterprise which promotes economically viable bioproducts from underutilized agricultural waste, through which it promotes sustainable solution to the existing societal problem. Generally, seeds of the fruits are wasted without utilizing for any

constructive purpose other than for the cattle feed. The jack fruit seeds are one among those seeds which can be consumed by the human being but in recent years they are underutilized and less acknowledged by people. Upscaling this edible agriculture waste to edible cutleries will provide an additional income to the farmers as well as reduce the landfilling by the plastic cutleries.

Project status at beginning of theYear: Ideation Stage

Interventions made: Waste into wealth

Current status:

- Product Completed and testing process ongoing
- Patent filed on 03.05.2023 and waiting for Publication

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype/ product along with the students and their mentor for each project:

Project Title:	**20. Nanofertilizer for enhancing Agriculture Productivity**
Mentor"s Name:	Dr.R.K.Selvakesavan, AP/Biotechnology, Nehru Arts and Science College
Student Team Names:	1. Ms. Janany T, B.Sc – Biotechnology, NASC 2. Ms. Saswatha Pramod, B.Sc – Biotechnology, NASC 3. Mr. Sarankumar N, B.Sc – Biotechnology, NASC
Project Description:	Nano fertilizers are a recently developed product in agriculture using nanotechnology, which has the advantage of controlled release of the essential metals for plant growth. Recent studies showed that the combined application of biofertilizers and Nano fertilizers would improve soil fertility. Soil condition varies from place to place. Customised fertilizer is a new technology launched in India based on the nature of the soil. Every year the composition of customised fertilizer changes based on the nutrients present in the soil. A good fertilizer practice requires analysing the soil and supplementing the nutrients according to

the insufficient nutrients in the soil. Our idea is to improve the customised fertilizer technology using Biofertilizer and nano fertilizer to support the rural farmers in and around the Coimbatore district.

Project status atbeginning of the Year: Ideation stage and Market Feasibility Study

Interventions made: Agriculture using nanotechnology, which has the advantage of controlled release of the essential metals for plant growth

Current status:

- Product Completed.

Three/four high resolution (at least 300 dpi) pictures in jpeg forma tshowing the prototype /product along with the students and their mentor for each project:

NewGen IEDC-SRM Institute of Science and Technology

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: (Fourth Year) (2022-23)

Name of the College/Institution hosting NewGen IEDC	SRM Institute of Science and Technology		
Year of starting NewGen IEDC	2019		
Name of the Head/Principal of the Institution/College	Dr. C. Muthamizhchelvan Vice-Chancellor		
Name of NewGen IEDC Coordinator	Dr. Shantanu Patil Associate Director- SRM Innovation, Incubation and Entrepreneurship Centre		
Contact Details of NewGen IEDC Coordinator · Mobile Number · E-Mail ID	+91 7030142727 assocdirector.iiec@srmist.edu.in		
Financial Details	Year	Sanction Order No./ Date	Amount Sanctioned
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC/18-19/08 02.01.2019	60,00,000
	2		47,50,000
	3		60,00,000
	4		60,00,000

1. **Details of Activities Undertaken during the year (also provide two/three photograph on each activity):**

   [A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

Sr. No.	Activities	Outcome/Achievements
1	Startup TN Chennai Regional Hub is organizing 'Aadukalam Date : 07.02.2023	A pitching and validating program' in association with SRM Innovation Incubation and Entrepreneurship Centre (SIIEC) and NATIVELEAD foundation The Startup TN flagship event, #Aadukalam, sets the stage for startup founders to validate their business models and ideas through mentorship support that will help them reframe their concepts and make them flexible for commercial growth. We invite passionate startup entrepreneurs, enthusiasts, and other ecosystem players to attend the pitch, engage in conversation, validate and fine-tune their ideas, and gain valuable insights from the program. The platform was provided to startup founders from Chennai, Chengalpattu, Kancheepuram, and Thiruvallur to showcase their startups ideas to raise investments. A total of 20 Startups participated in pitching their concepts to investors Ketan Jain (Beej network and We Founder Circle), Dr. Mohamed Adil (CEO – Ganesan Incubation and Entrepreneurship Centre Link Url : https://www.facebook.com/photo/?fbid=5969

		21419114115&set=a.463052802500978 https://www.facebook.com/photo?fbid=604925968313660&set=pcb.604926351646955
2	AMTech expo **Date : 02.12.2022 & 03.12.2022**	It is truly a great pleasure to see our incubatee become a recognized and relevant part of the industry. Kudos to Kreator3D who had successfully launched their product A1, KreatorCloud and Microfactory product lines at the Prestigious AMTech expo, the country's only Additive Manufacturing trade show held on 2nd and 3rd of December at the Hitex exhibition center, Hyderabad. **Link Url:** **https://www.facebook.com/photo/?fbid=553983503407907&set=pcb.553984526741138**
3	THE TRIUMPH TALK **Date: 18.08.2022**	
4	Next Gen Start-up Challenge Contest (Chunauti 4.0) **Date : 14.07.2022**	Dr. Sanjay Tyagi, Director, STPI Chennai, STPI is looking to identify and support promising start-ups working towards Transforming Digital India by developing innovative solutions using emerging technologies in Banking & Financial Sector which helps start-up to create application for domains such as Agriculture, Education, Healthcare & Wellness, E-Governance Solutions, Tourism & Hospitality, Cyber Security, Supply Chain &Logistics and Environment. Link for Photo: https://www.facebook.com/srmiic/photos/a.158941246132039 6/3135076183420675/

		https://www.facebook.com/photo/?fbid=3145170272411266&set=pcb.3145170422411251 **https://www.facebook.com/photo/?fbid=3145170202411273&set=pcb.3145170422411251** **https://www.facebook.com/photo/?fbid=3145170355744591&set=pcb.3145170422411251**
2	Entrepreneurship Boot Camp (Edition 3 and Edition 4) **Date : 21.11.2021**	Experiential Journey based program modelled of the Berkeley Method of Entrepreneurship 5 days of intense interactions with experienced trainers, Startup founders, Investors and Industry stalwarts Encourages participants to explore and experiment new startup ideas Introduces the teams to fundamentals of business plans, raising funding and pitching their startups. 123 students and faculty members participated as 18 teams. The top 3 teams are currently being incubated at SIIEC. Link for Photo: https://www.facebook.com/photo?fbid=3082354302026197&set=pcb.3082354418692852

		https://www.facebook.com/photo/?fbid=3083099088618385&set=pcb.3083099391951688 https://www.facebook.com/photo/?fbid=3083769541884673&set=pcb.3083769871884640 https://www.facebook.com/photo/?fbid=532616195544638&set=pcb.532621388877452 https://www.facebook.com/photo/?fbid=533035728836018&set=pcb.533036378835953
3	**Industrial Training on Innovations in Advance Manufacturing**	Mr.Sukhpreet, CEO, TANSAM covered the areas including Industry4.0, IoT devices, smart factory, smart manufacturing, and emerging technologies.

[B] To identify, develop & commercialize students' innovative ideas

Sr. No.	Activities	Outcome/Achievements
1	3D printing of concrete: A recent Innovation in Construction Industry **Date : 05.01.2023**	Er. V. Umaheshwaran, Senior Manager, L&T Construction & Er. S. Lakshmi Narayanan, Head Robotics, L&T Construction Shared knowledge on the 3D printing, its application,
2	Industrial Training on Innovations in Advance Manufacturing **Date : 27.01.2023**	Mr.Sukhpreet, CEO, TANSAM. Speaker covered the areas including Industry4.0, IoT devices, smart factory, smart manufacturing, and emerging technologies.
3	Workshop on Design Thinking , Critical Thinking and Innovation	Dr.Arunkumar was the resource person for the event explained the implication of design

Sr. No.	Activities	Outcome/Achievements
	Design **Date : 25.2.2022**	thinking in terms of product innovation. The session helped the student in selecting their project topic for the third semester and final year which tries to solve the problems in the stakeholder point needs.
4	Entrepreneurship Development Training on Plastic Free Bags Making Business Ideas and Opportunities for Self Help Group Women **Date : 24.01.2023 to 27.01.2023**	Tmt. Deivanayaki, Director, SIRD & PR, Govt. of Tamil Nadu Entrepreneurship Development Training on Plastic Free Bags Making Business Ideas and Opportunities for Self Help Group Women organized by Dept. of ECE under the theme of SDG Localizing the sustainable development goals – Poverty-free and improved livelihoods
5	Exciting Opportunities and Careers in Applied Biotechnology and Molecular Genetics in Current Scenario-Veterinary Biotechnology and Diagnostics **Date : 09.02.2023**	Dr. Puneet Kumar Gupta, Senior Lead Scientist - Head Molecular diagnostics, CavinKare Research Center, Chennai Discussed on Application of diagnostic methods in veterinary field.
6	SEMICOLON 8.0 Hackathon Competition **Date : 25.01.2023**	Dr. Shantanu Patil, Associate Director, SIIEC, SRMIST A coding competition is an event where individuals come together to showcase their programming skills and compete against one another. The objective of the competition is to provide a platform for coders to challenge their abilities, learn from one another, and potentially win prizes.
7	Field Visit to School of Design Thinking	Dr. Anbu Rathinavel, Head and Co-Founder, School of Design Thinking 1. The scope and significance of design thinking became

Sr. No.	Activities	Outcome/Achievements
	Date: 27th and 28th February 2023	clearer as the activity was a practical application of the interactive classroom sessions. 2. Empathizing with the stakeholders was identified as the key element in design thinking observing the stated and unstated needs. 3. Building a problem statement, the frequent errors involved and difference in perspectives was emphasized. 4. Real life examples such as the Noora health opened up the idea of wider prospects of the field.
8	SMART CAMPUS HACKATHON - Inter/Intra Institutional Innovation Competition/Challenge/Hackathon and Reward Best Innovations - Manage through YUKTI-NIR **Date: 22nd to 23rd February 2023**	1. Dr.Shantanu Patil, Associate Director, SRMIST, 2. Dr. R. Ananth Kumar, CIO, SRMIST and 3. Dr.Mukesh Krishnan, Professor, SRMIST The goal of the Smart Campus Hackathon is to give students across the Institute a forum to address some of the major challenges that we encounter on a daily basis and to foster a culture of product innovation and a problem-solving mindset.

[C] To enhance Industry-Academia interaction

Sr. No.	Activities	Outcome/Achievements
1	Industrial Training on Innovations in Advance Manufacturing **Date : 27.01.2023**	Mr.Sukhpreet, CEO, TANSAM. Speaker covered the areas including Industry4.0, IoT devices, smart factory, smart manufacturing, and emerging technologies.
2	Workshop on Design Thinking, Critical Thinking and Innovation Design **Date : 25.2.2022**	Dr.Arunkumar was the resource person for the event explained the implication of design thinking in terms of product innovation. The session helped the student in selecting their project topic for the third semester and final year which tries to solve the problems in the stakeholder point needs.
3	Entrepreneurship Development Training on Plastic Free Bags Making Business Ideas and Opportunities for Self Help Group Women **Date : 24.01.2023 to 27.01.2023**	Tmt. Deivanayaki, Director, SIRD & PR, Govt. of Tamil Nadu Entrepreneurship Development Training on Plastic Free Bags Making Business Ideas and Opportunities for Self Help Group Women organized by Dept. of ECE under the theme of SDG Localizing the sustainable development goals – Poverty-free and improved livelihoods
4	Exciting Opportunities and Careers in Applied Biotechnology and Molecular Genetics in Current Scenario-Veterinary Biotechnology and Diagnostics **Date : 09.02.2023**	Dr. Puneet Kumar Gupta, Senior Lead Scientist - Head Molecular diagnostics, CavinKare Research Center, Chennai Discussed on Application of diagnostic methods in veterinary field.
5	SEMICOLON 8.0 Hackathon Competition **Date : 25.01.2023**	Dr. Shantanu Patil, Associate Director, SIIEC, SRMIST A coding competition is an event where individuals come together to showcase their programming skills and

Sr. No.	Activities	Outcome/Achievements
		compete against one another. The objective of the competition is to provide a platform for coders to challenge their abilities, learn from one another, and potentially win prizes.
6	Field Visit to School of Design Thinking **Date: 27th and 28th February 2023**	Dr. Anbu Rathinavel, Head and Co-Founder, School of Design Thinking 1. The scope and significance of design thinking became clearer as the activity was a practical application of the interactive classroom sessions. 2. Empathizing with the stakeholders was identified as the key element in design thinking observing the stated and unstated needs. 3. Building a problem statement, the frequent errors involved and difference in perspectives was emphasized. 4. Real life examples such as the Noora health opened up the idea of wider prospects of the field.
7	SMART CAMPUS HACKATHON - Inter/Intra Institutional Innovation Competition/Challenge/Hackathon and Reward Best Innovations - Manage through YUKTI-NIR **Date: 22nd to 23rd February 2023**	1. Dr.Shantanu Patil, Associate Director, SRMIST, 2. Dr. R. Ananth Kumar, CIO, SRMIST and 3. Dr.Mukesh Krishnan, Professor, SRMIST The goal of the Smart Campus Hackathon is to give students across the Institute a forum to address some of the major challenges that we encounter on a daily basis and to foster a culture of product innovation and a problem-solving mindset.

2. **Deviation (shortfall) from the proposed action plan (with reasons), if any: NIL**

3. **Other important highlights (new initiatives), if any:**

4. **Student Projects:**
   Please provide <u>project wise details</u> as per Annexure-A attached

5. **Provide a minimum two page case-let each on the two best student projects (either prototype developed or commercialized). The case-let should include:**

TEAM 1

- Title of Project: Aerem
- Student team details –
  Inderan Kannan
  Sukriti Pandey
  Atul John Abraham
  Aninda Ghosh
  Avinash Sinha
  Shashank Shekhar
- Mentor's Details
  1. Dr. Dhanalakshmi
  2. Dr. Samuel Jacob
- Brief description about the student start-up
  - Develop an air purifier with an unique carbon capture technology using microalgae to capture CO2 directly from the atmosphere and convert it into oxygen.
  - Integrate HEPA and activated carbon filters to filter out PM 2.5, VOCs and other gaseous pollutants.
  - Develop sustainable products from the algal biomass like biofuels, bioplastics etc. subsequently.
  - Produces oxygen equivalent to 2500 trees!

- Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs

- Contribution of NewGen IEDC in the same
    - We have supported this project not with just the funding but also with the industry connect.
- Future plan
    - Photoperiod for optimum light and dark cycles for the algal growth
    - Carbon Capture solution efficiency in the Test Environment Setup

- Other important highlights – Winner in the National Innovation Competition held by Innovation council of AICTE

TEAM 2

- Title of Project: BrainWaves
- Student team details –

  Anket Sahoo

  Dr. Bhasi Sukumaran
- Mentor's Details
  - Dr. Bhasi Sukumaran
- Brief description about the student start-up

  Application of Virtual Reality to Stroke Rehabilitation Incorporation of motion sensing using IMU, EMG and EEG Adopting principles of biofeedback and neuro-feedback Mirror neuron activation
- Startups entrepreneurial journey from ideation to prototype or commercialization along-with 2-3 high resolution photographs

More information about this project kindly visit the Link :

https://drive.google.com/file/d/1wF4t1ztNA2fuJm3OI3V3MU3ujGtk7HHW/view

- Contribution of NewGen IEDC in the same
  - We have supported this project not with just the funding but also with the high-end computer workstation. The medical college has been roped in to help with field testing of the modules created.
- Future plan
  - Development of prototype
  - Complete Customer Discovery process
  - Submit report to IITM IC regarding progress
  - Complete patent application process
- Other important highlights – NA

Annexure-A

Details of Student Projects-Fourth Year (2022-23)

Project-01:

1. **Project Title:** THE SMART PARKING ASSIST
2. **Mentor Name:** Dr. Vivek Duraiswamy Maikandavel
3. **Student Team Names:**
   - Y. Mohan Simha
   - K. Vaibhav
   - Uttez. P
   - Kalidasu Sai Sandilya
   - Mettina Varghese
4. **Project Description:**

   1. Smart parking is an innovative strategy that uses technology to reduce the effort of drivers to park their vehicles by saving their fuel and time.

   2. The Project is about to develop smart parking systems in India which are robust and can be built at a minimal cost.

   3. By using this smart parking assist we can optimize the parking space usage and improve the efficiency in the parking operations.

   4. This smart parking can be achieved by using the Internet of Things. That includes a Sensor and an app.

   5. Sensors tell about the Parking Area availability and the app helps them to book the spot, go to the spot and park the vehicle.
5. **Project status at beginning of the Year: 2022**- **Idea Level:** Testing
6. **Interventions made: Pre –** Parking slot system
7. **Current status:** Completed
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-02:

1. Project Title: Construct The Bio Feedback Device For Balance Training In Normal Individual's Using Bosu Ball

2. Mentor Name: Dr. SURESH J, Prof.Veeragoudhaman T.S., Prof.Malarvizhi D, Prof.Anandhi D

3. Student Team Names:

a. Aravind S
b. Raja Rishi
c. Divyanshu Chourasiya
d. Mr.Suresh J

4. Project Description:

BOSU stands for "Both Sides Up." When you first start balancing on a Bosu ball, place the flat side down so you stand on the rounded surface. Keeping your knees soft, stand with both feet on it. Progress to semi-squats, then full squats. Lunge forward, placing one foot in the center of the Bosu ball, then push up to balance on one foot. You can also throw a medicine ball against a wall or do some basic strength training while standing on the rounded surface of the Bosu ball. Standing on the flat surface of the Bosu ball can offer a different challenge to you balance. However, doing so while lifting weights is not recommended; the same recommendation holds true for the wobble board. Based upon this principle we planned to construct the device which is going to give bio feedback (auditory Feedback) which helps to alter the limb for weight bearing and to improve balance.

5. Project status at beginning of the Year: 2021

Idea Level: TRL 3- Prototype development

6. Interventions made: Skeletal VR software and skeletal IMU hardware connected

7. Current status: Incorporated as a Startup, funding through NIDHI-Prayaas

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:

Project-03:

1. Project Title: Design and Development of Disinfection System for Dental Sewage (UV Clear)

2. Mentor Name: Dr. K.T. Magesh

3. Student Team Names:

a. Mr. Alden Schnyder Jason D

b. Mr. Bhuvan Chand D

4. Project Description:

UV Clear is a novel disinfection system that helps eradicate all the pathogens from the dental effluent. The dental effluent usually contains saliva, water, blood filling and impression materials. These substances often act as carriers of various pathognomic diseases such as AIDS, Hepatitis, Mucormycosis, Staphylococcal infections and even Covid-19. The UV Clear treats the effluent before it gets released into the sewage rapidly thereby reducing the chance of spread of these noxious diseases. The proposed project has two models of UV Clear, one for a small capacity which could be attached to the dental chair and the other for a large capacity tank containing the effluents. UV Clear provides a simple, efficient and unique way of annihilating the pathogens.

5. Project status at beginning of the Year: 2022

Idea Level:

6. Interventions made:

7. Current status: Completed

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:

Project-04:

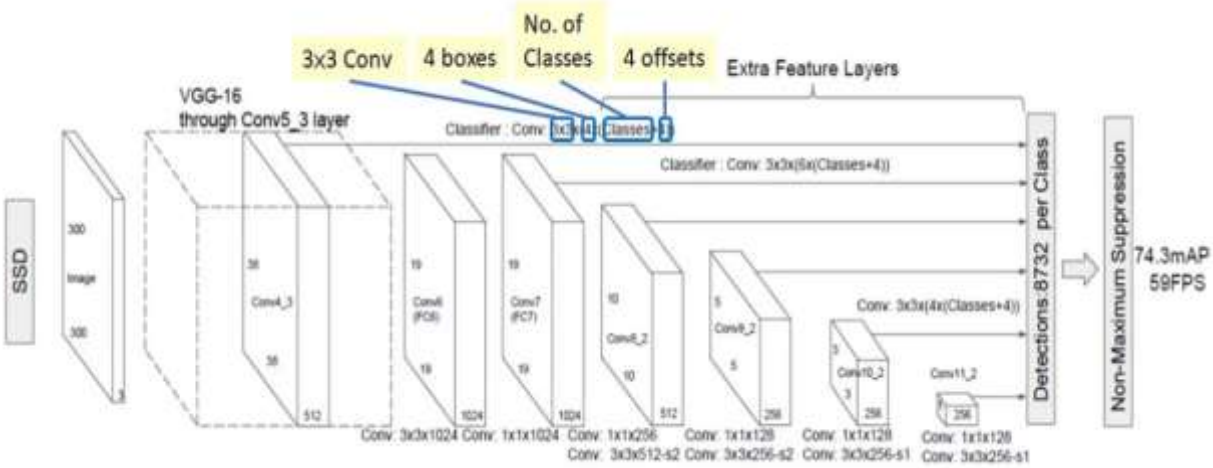
1. **Project Title:** Coastrack
2. **Mentor Name:** Dr. Selvakumar Samy
3. **Student Team Names:**
   a. Mr. Atulya Deep
   b. Mr. Gautam J
   c. Mr. Brijesh Kumar
   d. Mr. Neelak Dasgupta
   e. Mr. Sounak Singh
4. **Project Description:**

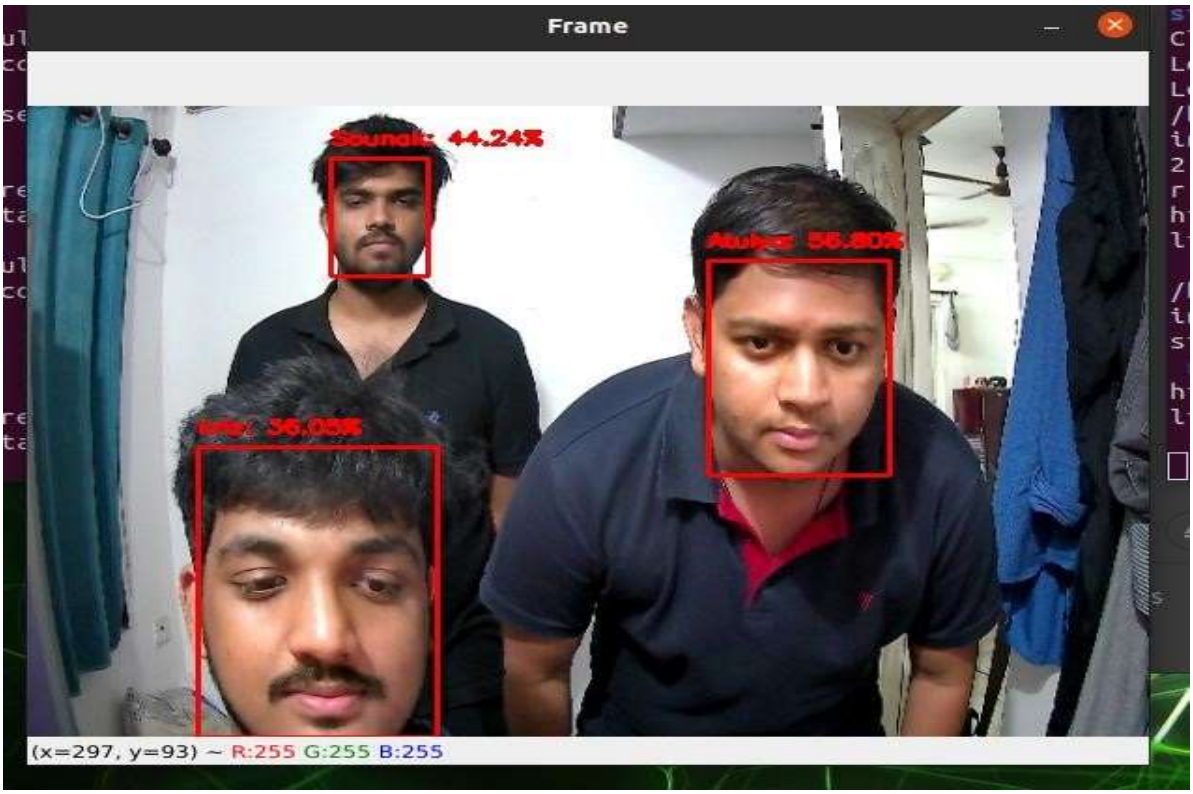
   We consider the problem of automatic accounting of the fishermen and fishing boats at sea in harbours in real time. We would create a custom database of thermal images which in turn would be used for facial recognition at the coast and harbour. We would use CNN models to verify the data from the thermal cameras installed at the harbours. We will also use object detection to keep track of the fishing boats that move in and out of the sea ports. Also SOS system for fishermen safety
5. **Project status at beginning of the Year: 2022**

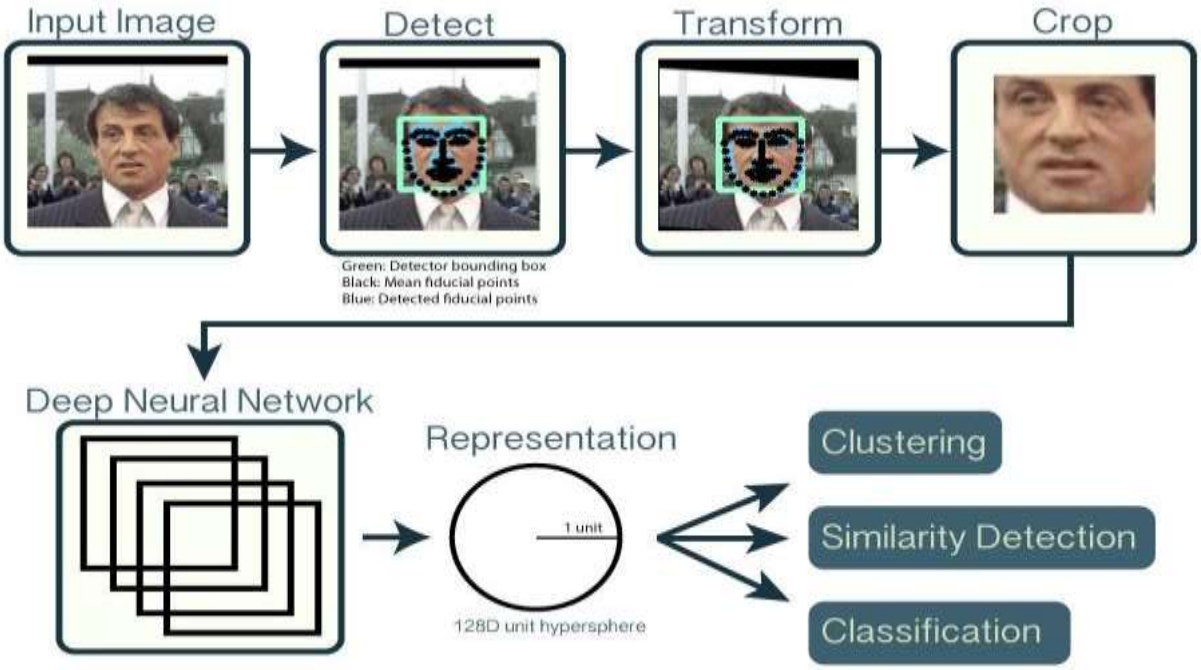
Idea Level: Prototype

6. **Interventions made:**
7. **Current status:** Currently they have developed the final products with all interactions.

8. High resolution pictures showing the Prototype/product along with thestudents and their mentor for each project:







Project-05:

1. **Project Title:** AsK (AI skilled KOCH)
2. **Mentor Name:** Dr.K.V. LEELA, Dr.S.Ramya
3. **Student Team Names:**
    a. R.Sujith
    b. R.Rajkumar
    c. Rishav banerjiee
    d. omang baheti

4. Project Description:

Medical under graduate(UG)students learn the history and basics of medical microbiology by interacting with a skilled Robert Koch (Father of Microbiology). Medical post graduate(PG)students to learn diagnostic microbiology by interacting and asking the procedures of tests, phenotypic and genotypic characteristics of microbes ,revelant diagnostic and treatment protocol.

5. Project status at beginning of the Year: 2022

Idea Level:

6. Interventions made:

7. Current status: Completed

Project-06:

1. Project Title: AI based condition monitoring system for yard activities

2. Mentor Name: Dr.S.Karthik

3. Student Team Names:

a. Sivaprasath S
b. Vibhu jain
c. Yash Goel
d. N Muhammad Fadil

4. Project Description:

Often, manufacturing equipment is utilized without a planned maintenance approach. Such a strategy frequently results in unplanned downtime, owing to unexpected failures. Scheduled maintenance replaces components frequently to avoid unexpected equipment stoppages, but increases the time associated with machine non-operation and maintenance cost. The emergence of Industry 4.0 and smart systems is leading to increasing attention to predictive maintenance (PdM) strategies that can decrease the cost of downtime and increase the availability (utilization rate) of manufacturing equipment. In this project, the AI-based algorithms for predictive maintenance will be used and also it will be integrated with sensors . Sensors help a lot in gathering additional data for predictive models, and also providing constantly-updated information on whether failure thresholds have been met.

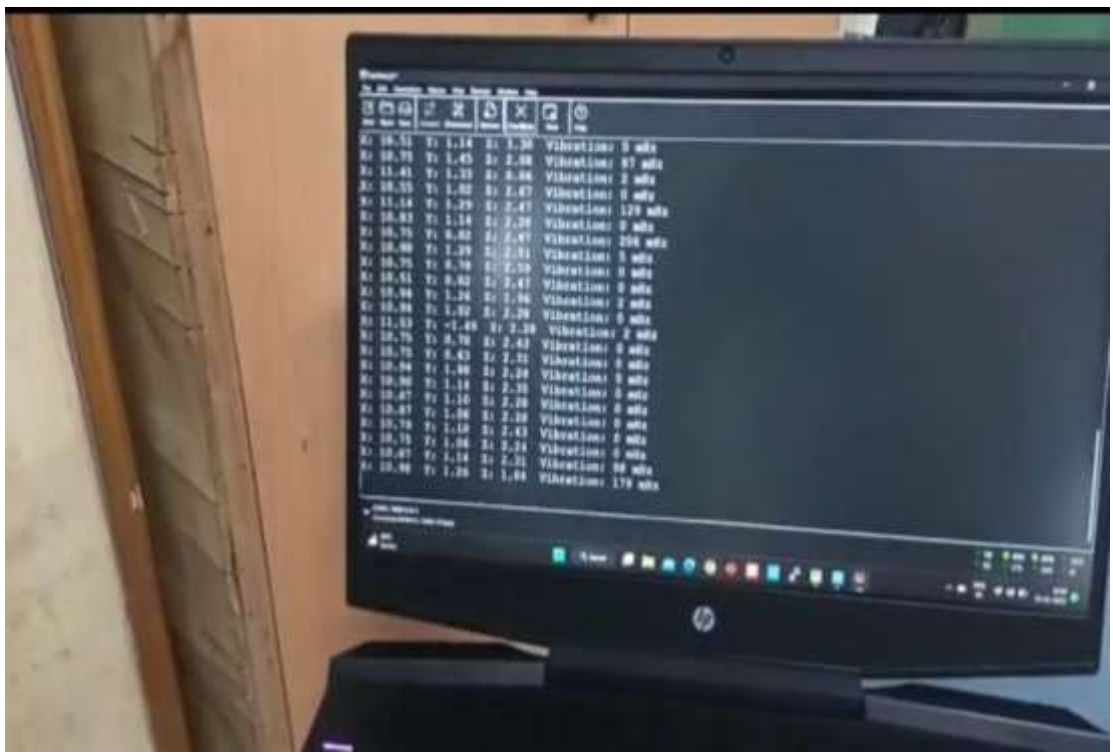
5. Project status at beginning of the Year: 2023

Idea Level: Testing

6. Interventions made: Marine Technology

7. Current status: Currently they have developed the final products with all interactions.

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:



Project-07:

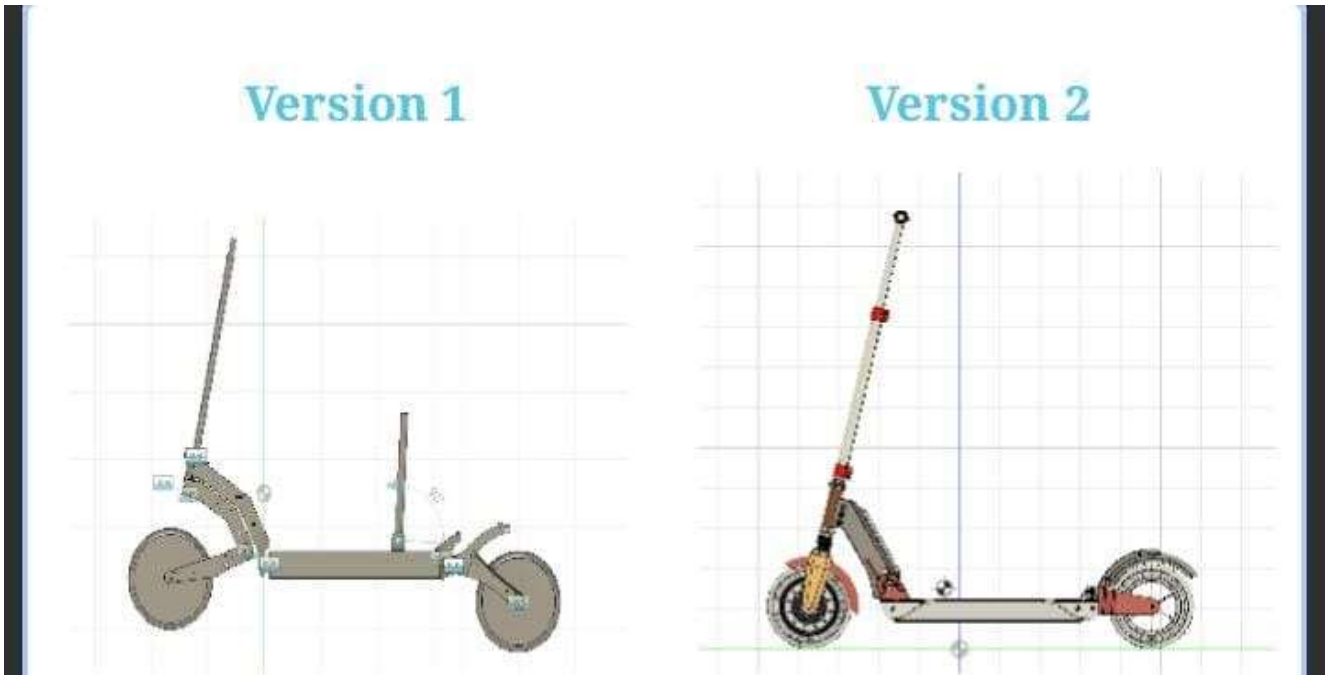
1. **Project Title:** Wireless Charging based Electric Skate Scooter
2. **Mentor Name:** Dr.J.Preetha Roselyn
3. **Student Team Names:**
   a. M. Yuvabharath
4. **Project Description:**

Daily commutes are getting tough and requires much time due to the rise of population density in urban/rural areas. Other side, carbon emission with the fossil fuel based vehicles banged danger bells to the World's global warming. In this context, a low cost, flexible, Electric based Scooter with wireless charging is proposed for short commutes. The main object of the project is to design and develop an E-skate Scooter with wireless charging technology. Most of the skate scooters in the market are having wire based on-board chargers, which are complex in perception, include line losses, and frequent maintenance.

5. **Project status at beginning of the Year: 2023**

Idea Level: Prototype stage

6. **Interventions made:** E- vehicle Mobility
7. **Current status:** Testing Stage
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



PROF. K.S. HEGDE

Project-08:

1. **Project Title:** SEVITHIRAN Application
2. **Mentor Name:** Dr. Praveena J, Dr. R.Rajkumar and Dr.P.A Sridhar
3. **Student Team Names:**
    a. P Akshya
    b. Sandesh Jain
    c. Naman Sharma
4. **Project Description:**

The device developed from this project will help children using hearing aid to have a parent monitored self training. Its helps parents who dont have access to auditory training to use this device for training at home. This device will provide us an evidence based rehabilitation when the pre and post rehabilitation results are compared. This device will provide a systematic intervention for hearing aid using children with hearing loss. The whole application is developed in Tamil which will focus on the intervention for native Tamil speaking children with hearing los

5. **Project status at beginning of the Year: 2023**

Idea Level: Progress

6. **Interventions made:**
7. **Current status: Completed**
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-09:

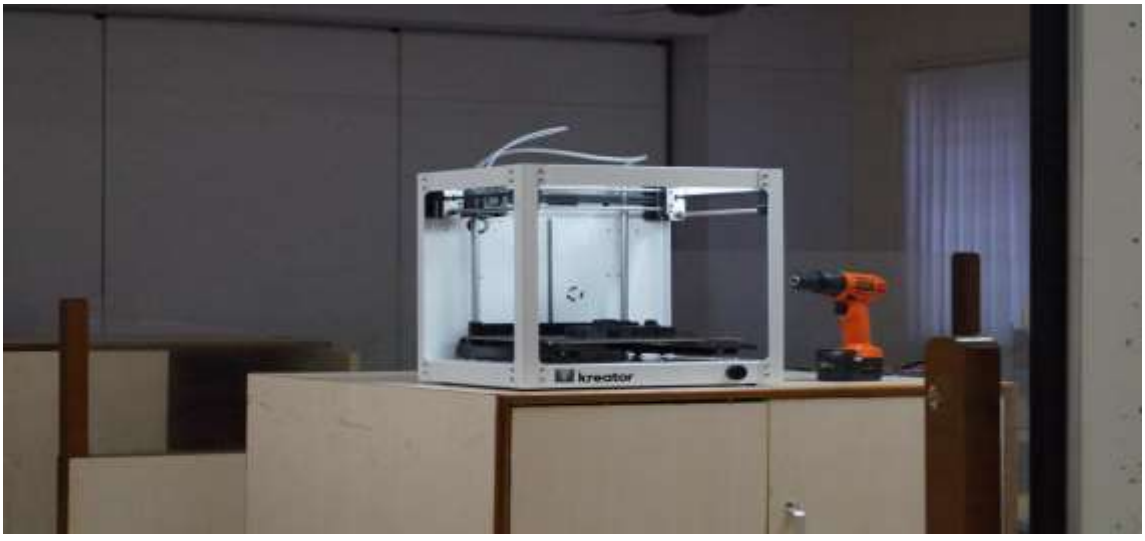
1. **Project Title:** Extrusion System for Tissue Engineering
2. **Mentor Name:** Dr. Shantanu Patil
3. **Student Team Names:**
    a. Animesh Kumar Singh
    b. Anurag Atulya
    c. Shubham Sampat Dawkhar
    d. Yash S Narang
4. **Project Description:**

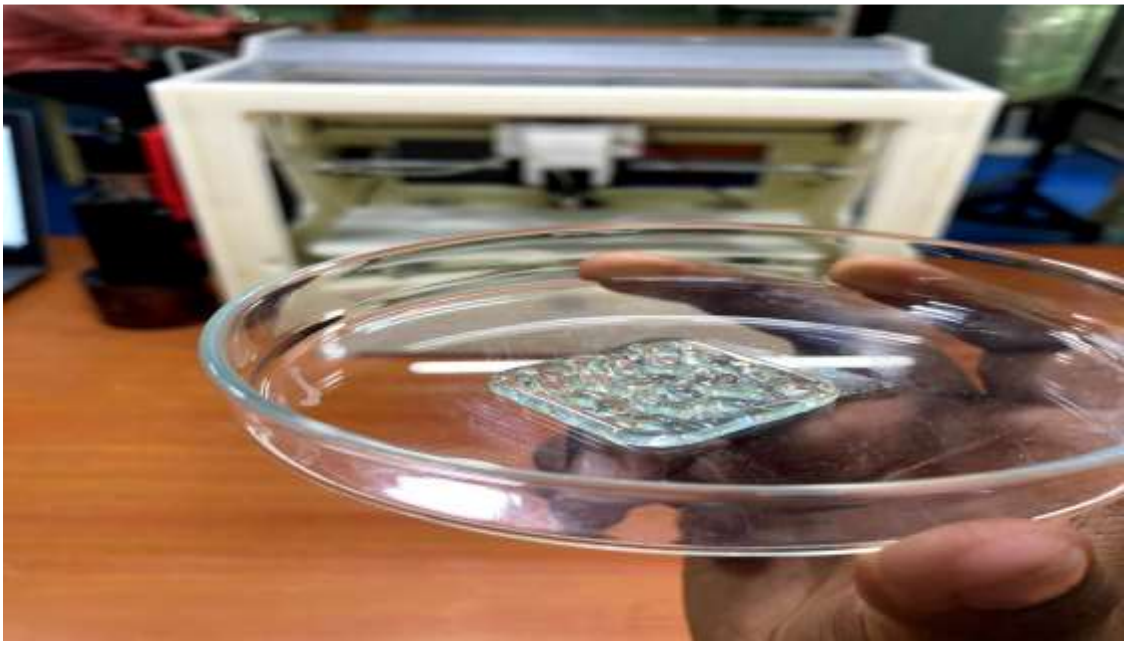
    Development of Extrusion system with reduced pressure on the fluid and controlled flow of the fluid capable enough of dispensing various viscosity fluids at various speeds and volumes with minimal error margin. The following is designed with various cell types in mind for a wide application is tissue engineering.
5. **Project status at beginning of the Year: 2023**

Idea Level: Testing stage

6. **Interventions made:**
7. **Current status:** Completed

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:





Project-10:

1. **Project Title:** Bionic arm controlled by EMG signals and hand gestures
2. **Mentor Name:** Dr. Varshini Karthik
3. **Student Team Names:**
    a. Atul John Abraham
    b. Gouri Lakshmi
4. **Project Description:**

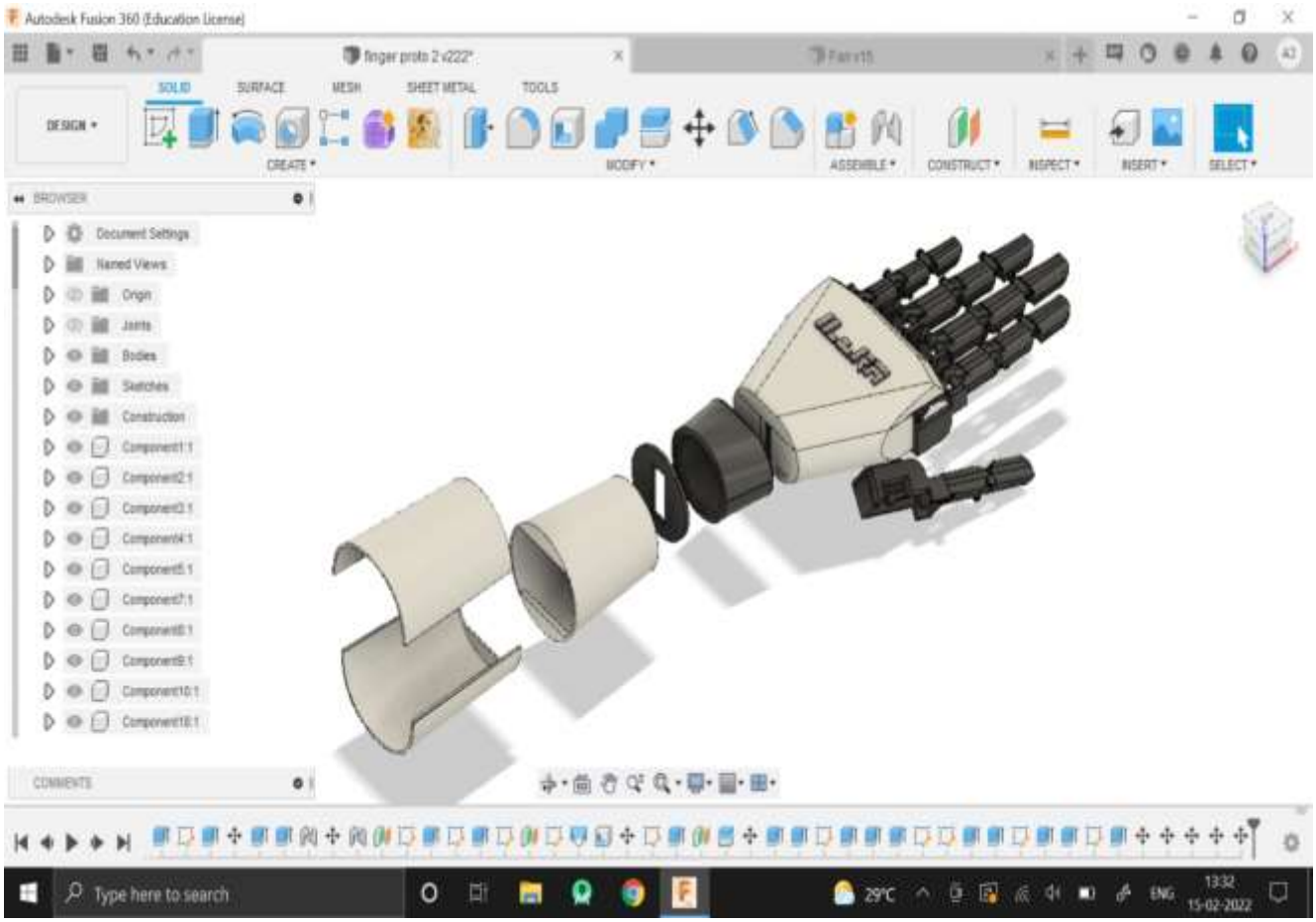
The bionic arm is a cutting-edge technologically advanced artificial limb that can communicate with the body. With the help of specific sensors, they detect and convert the natural electrical signals produced by muscles into movement. It is custom-built to match the residual limb of the user and tuned to the strongest muscle impulses of that person. With the advances in bionic prosthetic technology, the ability to pick up electrical impulses from muscles and translate them into actions, like grasping, has become more intuitive. There are neural connections that are allowing for more accurate function and a better perception of motion and feedback, such as gripping an object, as well as the ability to react and move as before the amputation. Electromyography records muscle activity using electrodes attached to the bionic arm's sensors. With no impact on its functionality, the prosthetic device can be removed and repositioned easily. It may still be necessary to undergo therapy to strengthen the muscles that support your bionic prosthesis, despite advances in technology. Here we are designing a bionic arm that is low cost, lightweight, and has five ranges of motion, recognizing that conventional myoelectric prosthetics are expensive and heavy. This is created with the use of 3D printing, which is being done with PLA filament. The cost rises as the arm's design becomes more complicated. However, we are developing a bionic arm with a complicated mechanical design that is also cost effective.

5. **Project status at beginning of the Year: 2023**

Idea Level: Completed

6. **Interventions made:**
7. **Current status:** Designs Ready for Testing

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:



Project-11:

1. **Project Title:** Smart Helmet
2. **Mentor Name:** Dr. G. Joselin Retna Kumar
3. **Student Team Names:**
    a. Harikrishnan M
    b. Gadiraju Chinmay
    c. VarmaPranav Malakar
    d. Yakub Mathew
    e. Prithiv Raj Kannan
4. **Project Description:**

Allowing the welder to view both the job as well as arc at the same time. Capture and display following real time welding parameters- voltage, current, traverse speed, electrode stick out. Compare the captured data with ideal WPS parameters and provide feedback to the welder in a color-coded manner. A rugged, lightweight and comfortable product for the welder to use for relatively prolonged duration

5. **Project status at beginning of the Year: 2023**

Idea Level: Prototype

6. **Interventions made: Defense Sector**
7. **Current status: Fabrication**
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-12:

1. **Project Title:** Smart Electricity Conservation System
2. **Mentor Name:**

   Ms. S. Ushasukhanya

   Dr.C.Malathy

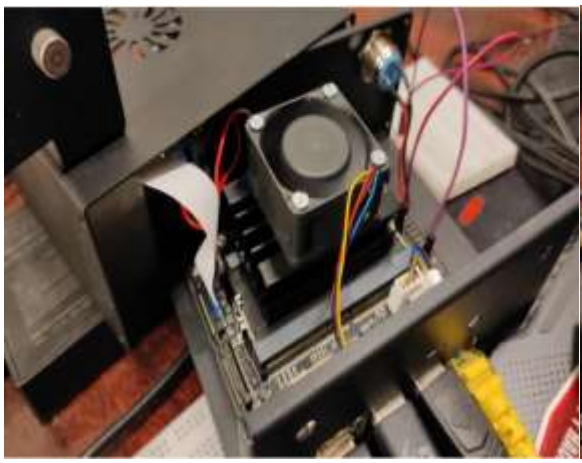
   Dr. T. Y. J. Naga malleswari

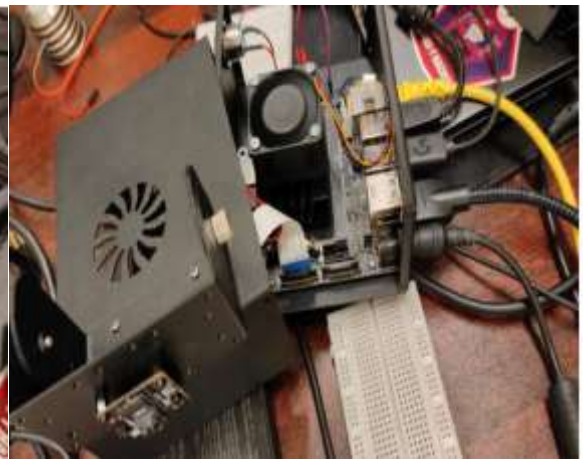
   Ms. P. Mahalakshmi
3. **Student Team Names:**
   a. Debaditya Sen
   b. Ritesh Bucha
   c. Harsh sharma
   d. Harshit Agarwal
4. **Project Description:**

   It is an automatic system that functions with the existing CCTV surveillance camera to enable/disable the electric power supply, only in the location where human is present/absent respectively. The system is developed without the use of sensors, based on Regional Convolutional Neural Network (R-CNN). The entire processing happens in the cloud environment. the output of the model is fed to the inbuilt Arduino which enables/disables the electric power subsequently
5. **Project status at beginning of the Year: 2023**

Idea Level: Prototype stage

6. **Interventions made:** Testing
7. **Current status:** Completed
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**





Project-13:

1. **Project Title:** Rhythm Monitor
2. **Mentor Name:** Dr. K. Sornalakshmi
3. **Student Team Names:**
    a. Shalin N
    b. Jerome Samraj M
    c. Ashwin Raja S S
    d. Hamunesh P
    e. Viveka M
4. **Project Description:**

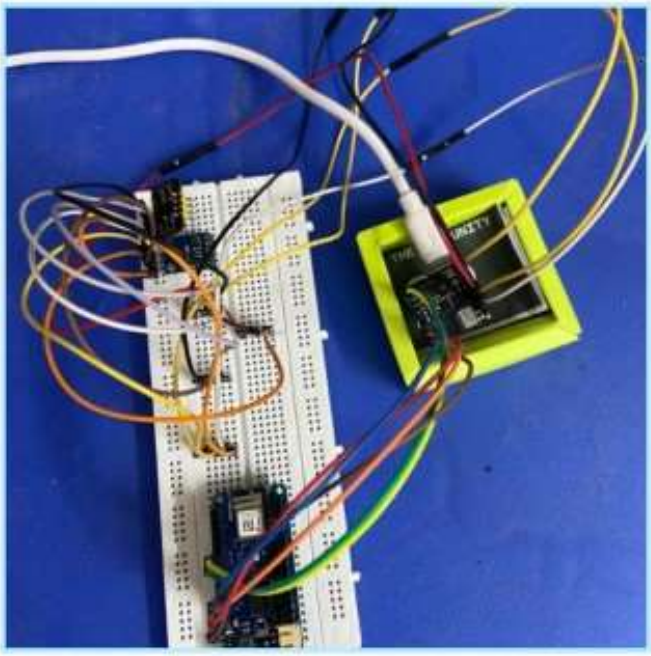
    We have developed a hardware named “Rhythm Monitor’ which effectively monitors the circadian parameters such as sleep, light, wrist temperature, activity and environmental temperature. The circadian function indexes of these parameters are calculated in our circadian management system which is located in the cloud. These circadian function indexes are used to indicate the circadian robustness of the user. CFI value of zero indicates the absence of circadian rhythmicity and one indicates a robust circadian rhythm. With the proposed device, users can effectively track their circadian rhythmicity.

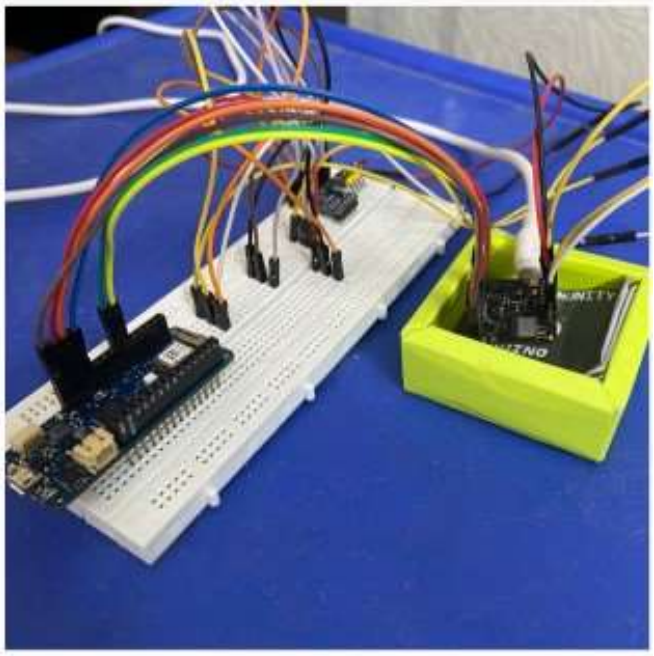
5. **Project status at beginning of the Year: 2023**

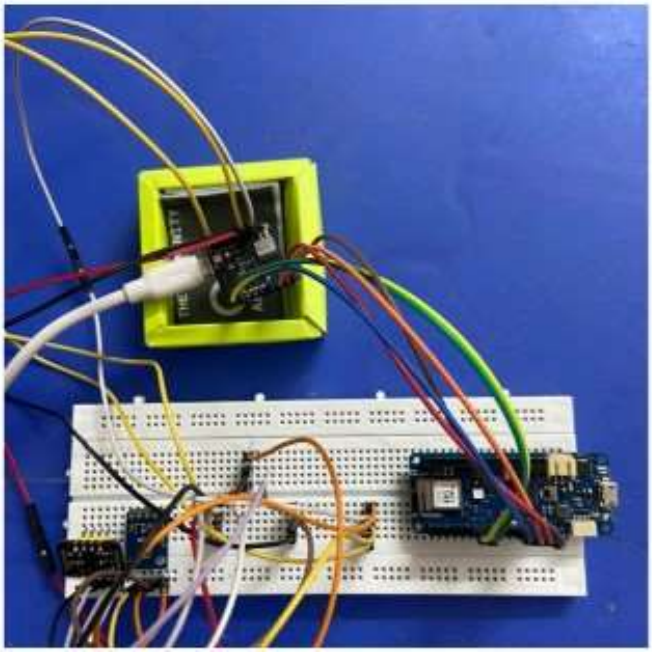
Idea Level: Prototype

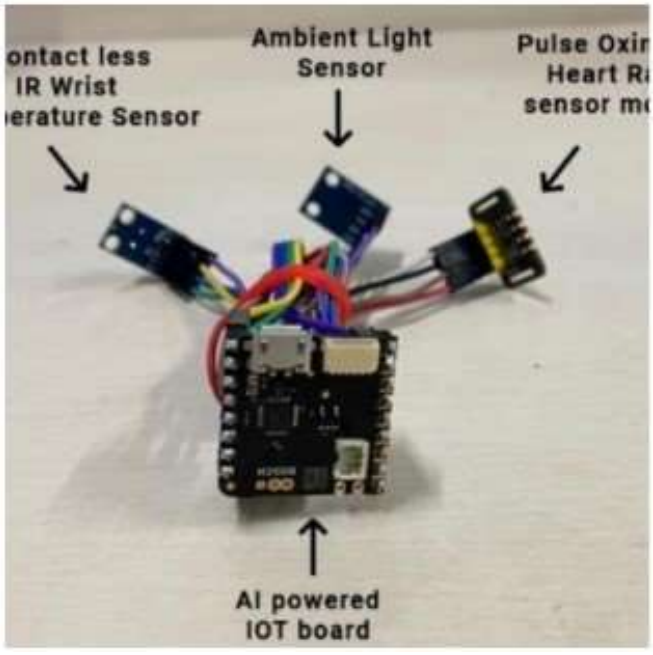
6. **Interventions made:**
7. **Current status:** Completed

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:








ontact less
IR Wrist
erature Sensor
Ambient Light
Sensor
Pulse Oxi
Heart R
sensor m
AI powered
IOT board

Project-14:

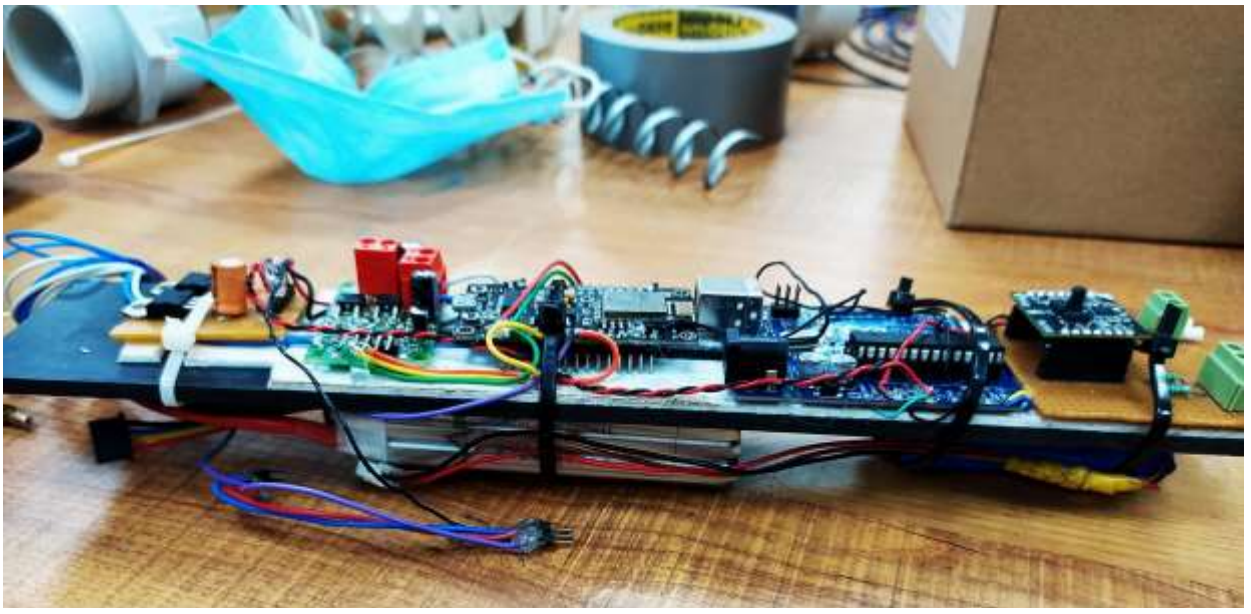
1. **Project Title:** Aquabot
2. **Mentor Name:** Dr.J.Preetha Roselyn, Dr.R.Annie Uthra
3. **Student Team Names:**
    a. Aryan Anand
    b. Shinjinee Maiti
    c. Sanka Karthik
    d. Thejaswin S
    e. S Sharan Prasath
4. **Project Description:**

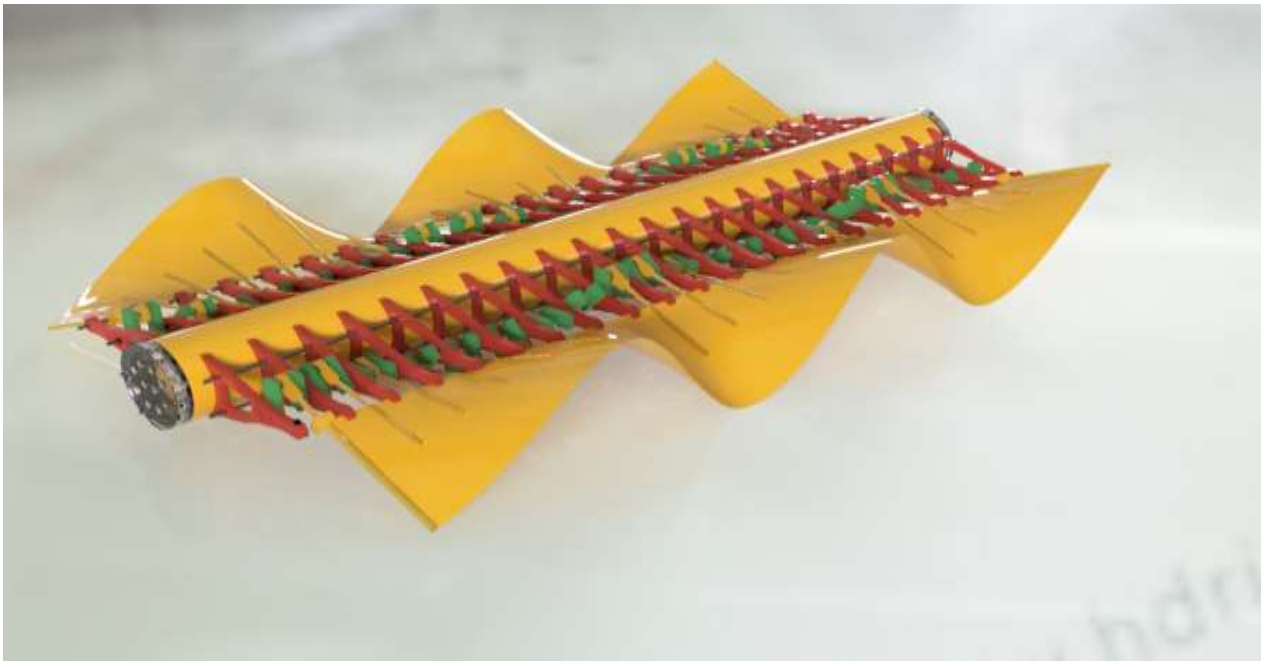
Aquabots is developing AUVs based on aquatic animal design and capability to improve performance in a varied environment of the ocean. On comparison of aquatic animal's swimming performance to the conventional AUVs and ROVs demonstrate that natural systems still have maneuvering capability beyond the current state of technology. Hence the main aim of this project is to study and analyze the behavior and movement of different aquatic animals.

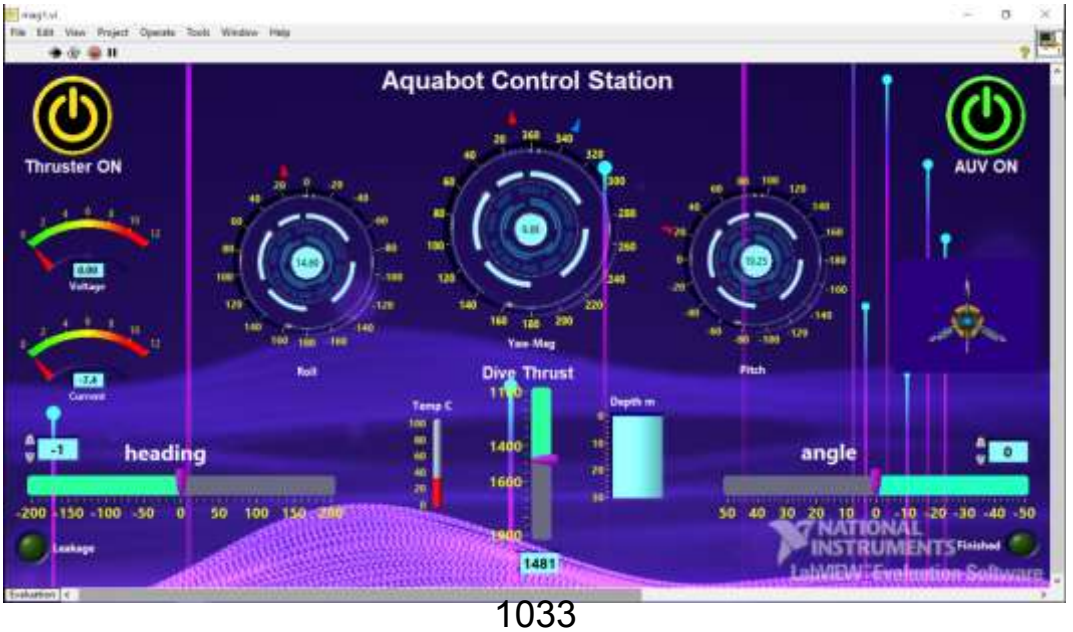
5. **Project status at beginning of the Year: 2023**

Idea Level: Prototype

6. **Interventions made:** Marine Technology
7. **Current status:** Completed
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**






Aquabot Control Station
Thruster ON
AUV ON
Roll
Yaw-Mag
Pitch
Dive Thrust
Temp C
Depth m
heading
angle
Leakage
Finished
NATIONAL INSTRUMENTS
LabVIEW Evaluation Software

Project-15:

1. **Project Title:** Intelligent IoT based affordable petroleum soot separator for machines, vehicles and other industrial equipments
2. **Mentor Name:** Dr.P.Selvaraj
3. **Student Team Names:**
    a. Sachi Kumari
    b. S.Nithyashree
    c. C S Sanjay Krishna
    d. Anusmita Som
4. **Project Description:**

Soot separators are the inevitable component to remove the dirty particles that comes out from the exhaust hose. Our objective is to make the best use of any fuel that releases soot, and separate the soot particles of varying sizes completely from the exhaust hose. The proposed device will be based on the model of a cyclone separator. The IoT based intelligent algorithm will drive the gears into a particular type of separator based on the type of the particle.

5. **Project status at beginning of the Year: 2023**

Idea Level: Development of Prototype

6. **Interventions made:**
7. **Current status:** Fabrication stage

Project-16:

1. **Project Title:** Smart Visor
2. **Mentor Name:** Prof. R Rajkumar
3. **Student Team Names:**
    a. Madhurya Mozumder
    b. Omkareshwar Rai
4. **Project Description:**

The proposed distance of physical distancing as prescribed by the public health bodies

is about 6 feet. The smart device will safeguard the user against the infection. The device helps in keeping personal safety as well as helps in maintaining the physical distancing. The device provides protection for a proximity of 6 feet of line of sight.

If a subject is present within the 6 feet radially, the body temperature of the person will be scanned and the user will be notified and a shield will be deployed in front of the user's face, providing the protection. For enhancement of the security, we proposed a mobile app deployment with thermal sensor data to detect the virus affected people. Through the mobile app, we can collect the real time data to ensure
the social distancing and also count the number of infected people.

5. Project status at beginning of the Year: 2023

Idea Level: Completed

6. Interventions made: Implementing for kinder Garden school children (SRM school)

7. Current status: Completed

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:

Project-17:

1. **Project Title:** Beetle
2. **Mentor Name:** Dr. C. Bharatiraja
3. **Student Team Names:**
    a. Mr. Benjamin George Samuel
    b. Deepak Shankar R.
    c. Krishna Teja B.
    d. Vignesh S.
    e. Chandresh Muthukumaran
    f. Kanvar Kailash T.
4. **Project Description:**

Autonomous Delivery System for enterprises. Integrated Fleet management system. Long endurance for multiple missions. Multirotor - Fixed wing design for multiple tasks. Delivery Drone which is capable of delivering packages up-to 1kg autonomously. Hybrid VTOL plane design to increase the efficiency. Capable of BVLOS operations. Precision Landing. Multiple failsafe features to ensure safety.

5. **Project status at beginning of the Year: 2023**

Idea Level: Prototype

6. **Interventions made:** Delivery Drone for hospitals
7. **Current status:** Testing stage

Project-18:

1. **Project Title:** ReFlow
2. **Mentor Name:** Dr. S. Murugaanandam
3. **Student Team Names:**
    a. M Chakreesh
    b. Rajkumar
    c. Shiivansh Singh
    d. Vishnu M
4. **Project Description:**

Main objective of the whole project is to find a novel method to measure the level of liquid & volume in a tank excluding the conventional glass tubing's and replace them with ultrasonic sensors and digitally map the readings onto a mobile app. Idea that would solve an immense safety

hazard at chemical factories. Chemical factories have chemical tanks which are fitted with conventional glass tubes to measure the level of liquid present in the tank, the issue arises when a worker hits his elbow or arm accidentally onto the glass tube and incase the container has some harmful chemical it could lead to serious complications to the worker. To resolve this issue I have developed a product which will be fitted inside the tank to measure the level of liquid and as well calculate the volume of liquid filled. This makes the job convenient and faster and also safe for the workplace. The data are logistically stored and can be visualised using a mobile app or a laptop.

5. Project status at beginning of the Year: 2023

Idea Level: Prototype

6. Interventions made: Commercial

7. Current status: Completed

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:

Project-19:

1. **Project Title:** SEA BORDER SECURITY ALERT SYSTEM
2. **Mentor Name:** Dr. R. Rajkamal
3. **Student Team Names:**
   a. Mr.G.Vibhu Kumaran
   b. Mr.Suraj ARS
4. **Project Description:**

In day-to- day life, we hear about many fishermen being caught and put under naval forces of other countries and many fishermen were lost their life. The sea border between the countries is not easily identifiable and during the period of October to January & June to August (India) is prone to cyclone and low pressure. During this period, it is difficult to find and rescue fishermen. These factors are the main cause for the cross border cruelty. This motivates us to propose the design of sea boarder security alert system using embedded system which protects the fishermen by alerting the cross border using Global Positioning System (GPS) and Global system for mobile communication (GSM). The proposed prototype consists of a controller placed at base station and a hand held device with fisherman boat. The prototype is configured with GPS receiver which is used to find the current location of the fishing boat. Using GPS and what3words, the current latitude and longitude values are located and are sent to the controller. Then the controller finds the current location by comparing the present latitude and longitudinal values with the predefined value. The Controller identifies the id of the boat. From the database the details of the boat and the fishermen

present in it along with their names and location i.e. longitudes, latitudes and also even nautical miles distance are fetched. The database sends the communications and instructions to the border coastal guard through notification interfaces and the alert system is enabled.

5. Project status at beginning of the Year: 2023

Idea Level: Prototype

6. Interventions made: Marine

7. Current status: Completed

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:

Project-20:

1. **Project Title:** Development of LiFi module for Data Transfer
2. **Mentor Name:** Dr. B. Ramachandran
3. **Student Team Names:**
    a. Kiruthika.P
    b. Tejashwer.U
4. **Project Description:**

The purpose of LiFi technology is to provide a high-speed data communication using visible light spectrum. It has a potential advantage that can make a supplement RF communication and can be used to improve wireless network performance. LiFi is also very secure because, unlike WiFi, it cannot pass through walls. Data exchange would remain confined to lit areas, thus putting an end to the threat of hackers. Considering the above advantages of LiFi, the proposal of joining two technologies i.e., LiFi & WiFi would result in a hybrid network with the advantages of both LiFi and WiFi. One of the primary advantages of software defined networking is that it creates a framework to support more data-intensive applications like big data and virtualization. The adoption of virtualization is being driven by big data and SDN provides the means to manage virtual machines and big data network traffic. Hence having a hybrid network of LiFi and WiFi with SDN framework might open doors for better and faster networks.

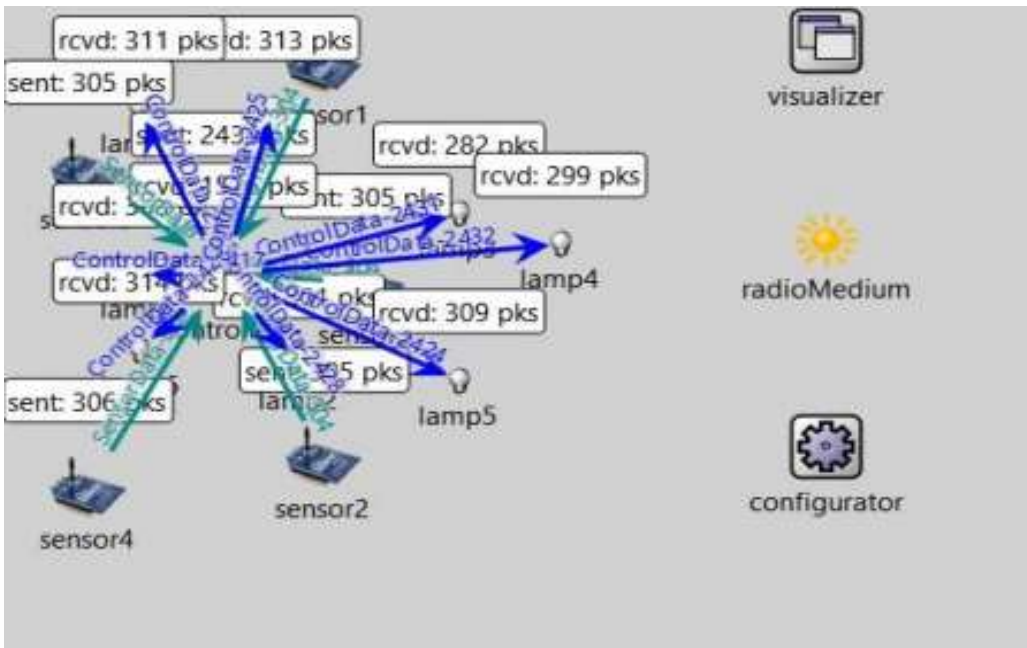
5. Project status at beginning of the Year: 2023

Idea Level: Our project has gained good number of milestones, and the level of idea we progressed is in good upward curve!

6. Interventions made: We haven't faced any big interventions in the progress of prototyping. Had few issues with the compatibility of the devices. We have added up our project in couple of conference papers, and one milestone in the process!

7. Current status: Testing stage

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:



Project-21:

1. **Project Title:** Preventive maintenance of Electric vehicle
2. **Mentor Name:** Dr.Roopa M
3. **Student Team Names:**
    a. Adithya.G
    b. Nirmal Raj M.U
    c. Adinath Jayanth Shirodkar
4. **Project Description:**
   Hardware which acquires vehicle data and computes vehicle health status using machine learning then predicts the fault in future and schedules maintenance service automatically
5. **Project status at beginning of the Year: 2023**

Idea Level: Prototype Completed

6. **Interventions made:** Nil
7. **Current status:** Testing stage

Project-22:

1. **Project Title:** Women Safety Shoes
2. **Mentor Name:** Dr. B Hariharan
3. **Student Team Names:**
    a. Kanav Malhotra
    b. Aditya Paul
    c. Shreyansh Kumar
    d. Ronit Roy
4. **Project Description:**
   Talking about the shoe in brief, we are making a shoe with an inbuilt device doing various functions at once. This device will have many things to do and accomplish and will contain a complete circuit. This circuit will include a dc voltage source, a source with which this dc voltage source will get recharged(using the piezoelectric crystal lattice), a dynamo to store all this energy generated and then sending it to the dc voltage source, it also contains a sensor to obtain a particular sense to activate the complete circuit connected to an AI enabled chip with GPS, emergency card and activating all the components of the circuit as soon as the sensor receives the form of information it requires. The chip will basically act as a trigger to

the complete circuit after receiving the input from the sensors. After the circuit gets triggered the shock wave will be traversed from the circuit to the sexual predator or the bad person over there through an outlet provided in the shoe itself. Also, after the triggering of the circuit the GPS and emergency card will come into working by sharing the location with the Police, ambulance and the emergency contact as specified by the customers via an app.

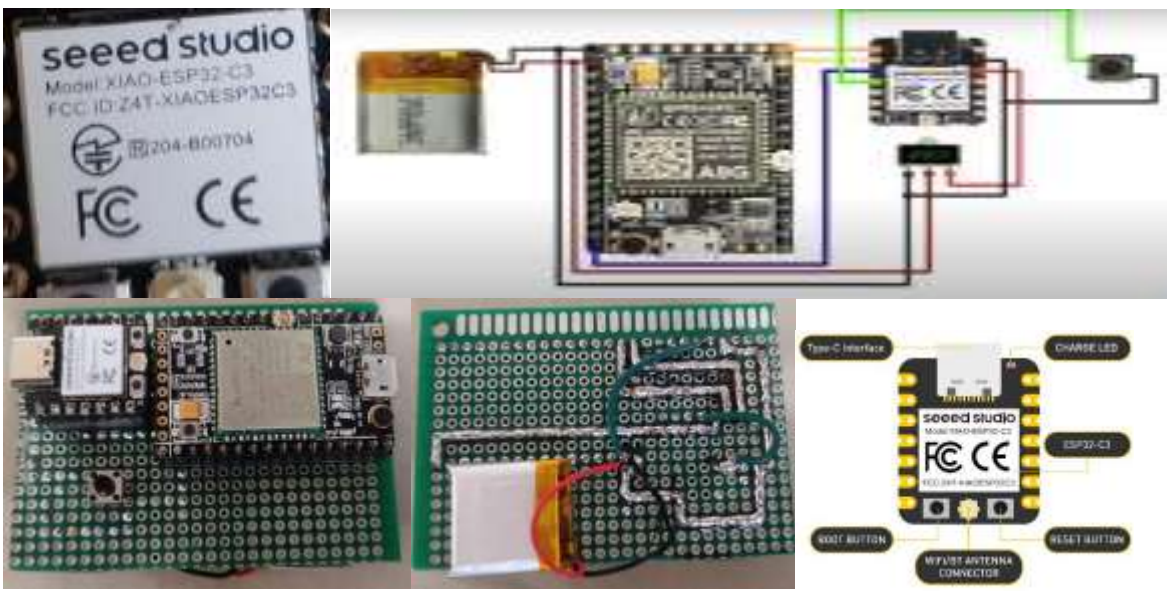
5. Project status at beginning of the Year: 2023

Idea Level: Prototype

6. Interventions made:

7. Current status: Testing stage

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:



Project-23:

1. **Project Title:** Cost Effective Medium/Large Format Sensor for Higher Resolution Camera
2. **Mentor Name:** Dr. P. Selvaraj
3. **Student Team Names:**
    a. Suraj Mahapatra
    b. Aayush Kumar
    c. C S Sanjay Krishna
    d. Sai Kowshik Dhulipala
    e. Aniruddha Ghosh
    f. Yepuri Karthikeya
    g. Aastha HarishKumar Patil
    h. Devansh Singh
    i. Divyansh Tyagi
4. **Project Description:**

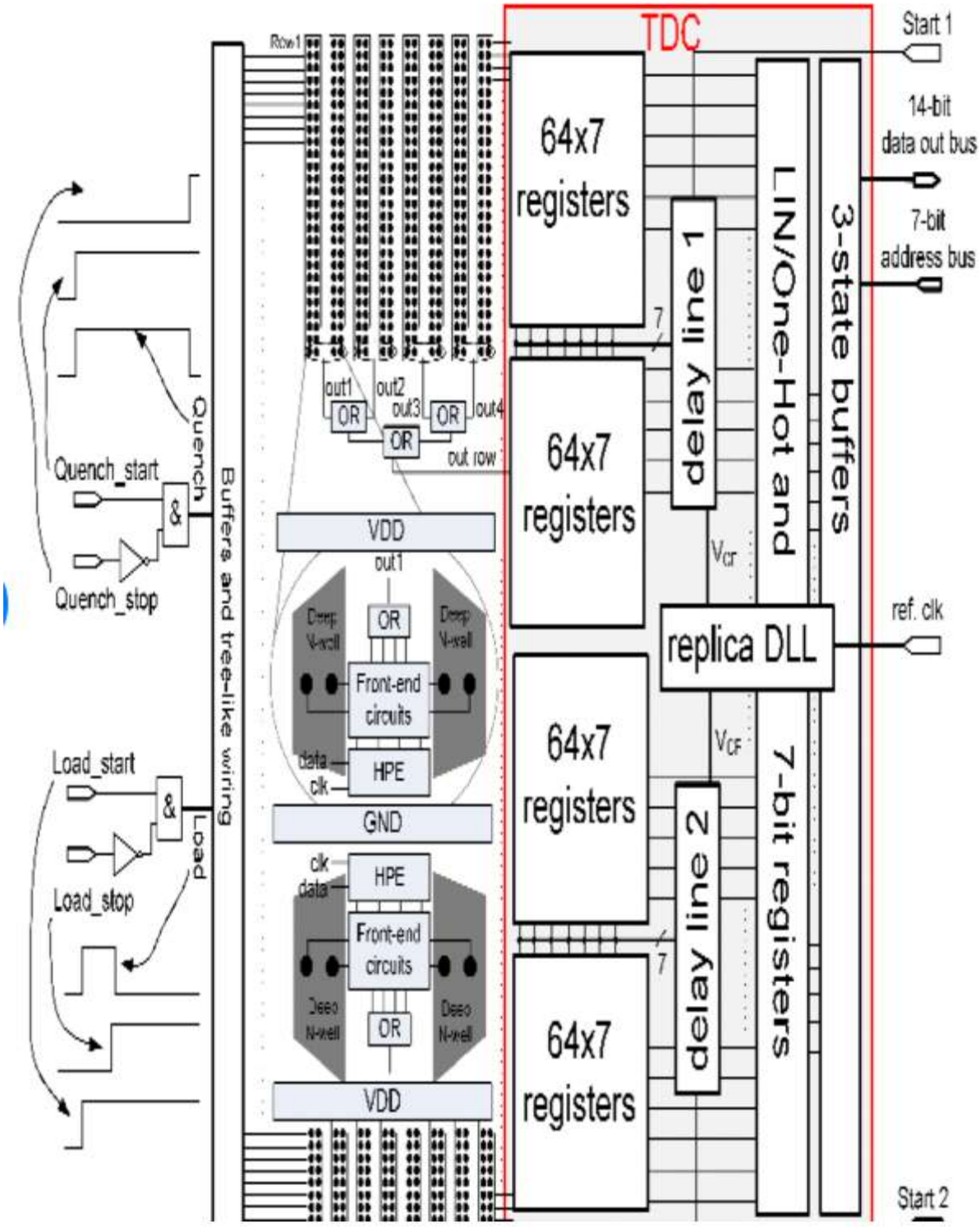
Astronauts need to capture the planets and other cosmos, stars with Higher sharpness and Details with extraordinary color ranges for further analysis and research. The proposed camera will be highly recommended to the video-production department, Photographers who face problems while shooting in low light conditions. The proposed camera will be highly recommended to the cinematographers, photographers, Videographers, Digital Creators to create high-quality content for the people. Cinema shooting In medium format with zero grain and noise in video stills will create the best results compared to other existing full-frame and APS-C camera technologies. We can approach the film industries too for the marketing of this technology. We can approach mobile camera industries, who are in demand of extreme color ranges and higher resolution details for more customer satisfaction.

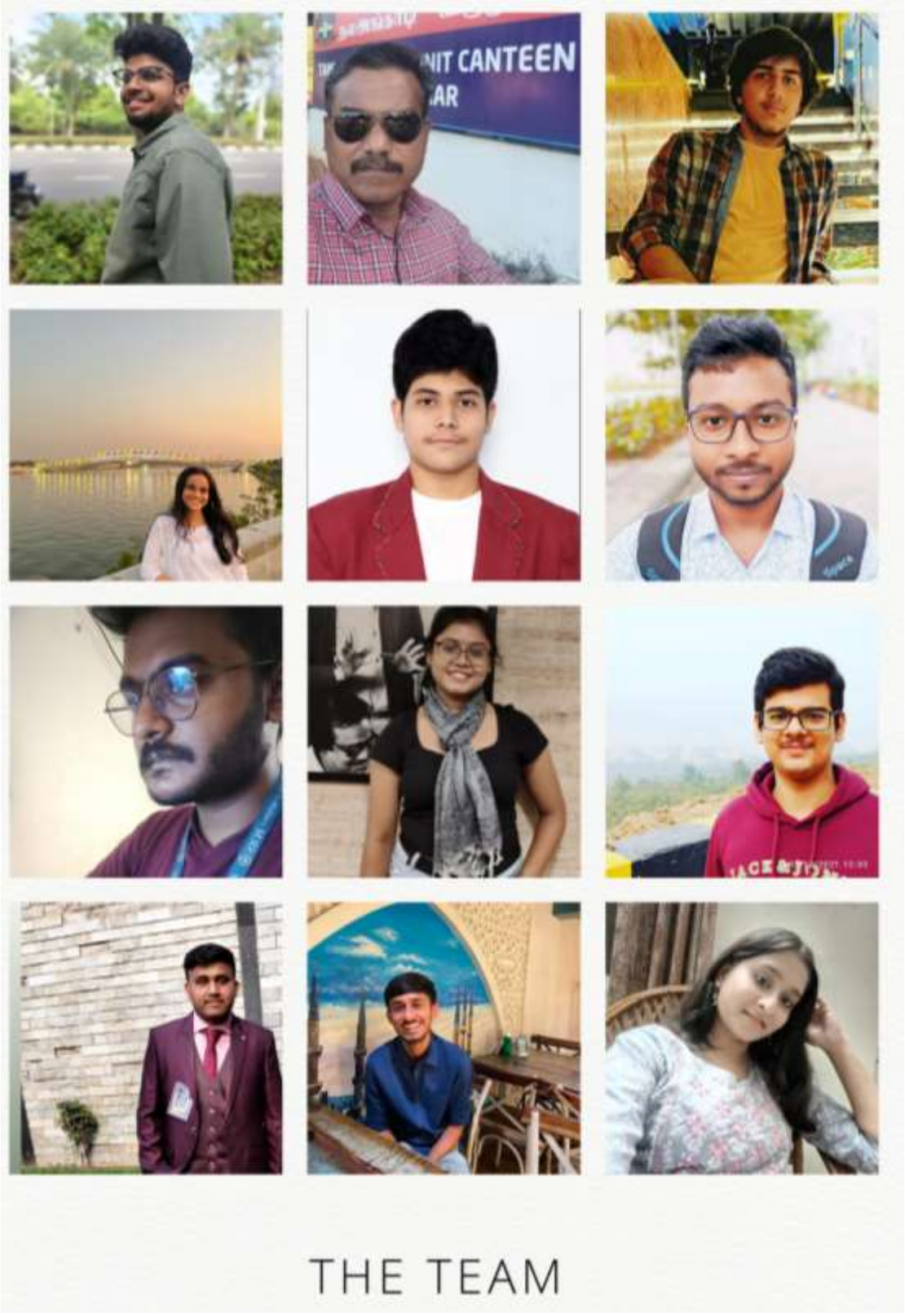
5. **Project status at beginning of the Year: 2022**

Idea Level: Prototype

6. **Interventions made:**
7. **Current status:** Testing stage

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:




NIT CANTEEN
THE TEAM

Project-24:

1. **Project Title:** Quadrotor Project
2. **Mentor Name:** Dr.C.N.S.Vinoth Kumar
3. **Student Team Names:**
    a. Sohan Sarkar
    b. Eshaan Bhardwaj
    c. Aritra Dutta
4. **Project Description:**

The project involves usage of drones for performing tasks like surveillance and transportation of documents. The solution proposes drone-recorded videos with object identification algorithms for surveillance. The solution also proposes engineering autonomous drones for floor-to-floor delivery of documents for large skyscrapers. The drone service will be usable via a mobile/web app for the use of members of an organization

5. **Project status at beginning of the Year: 2022**

Idea Level:

6. **Interventions made:**
7. **Current status: Fabrication**
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-25:

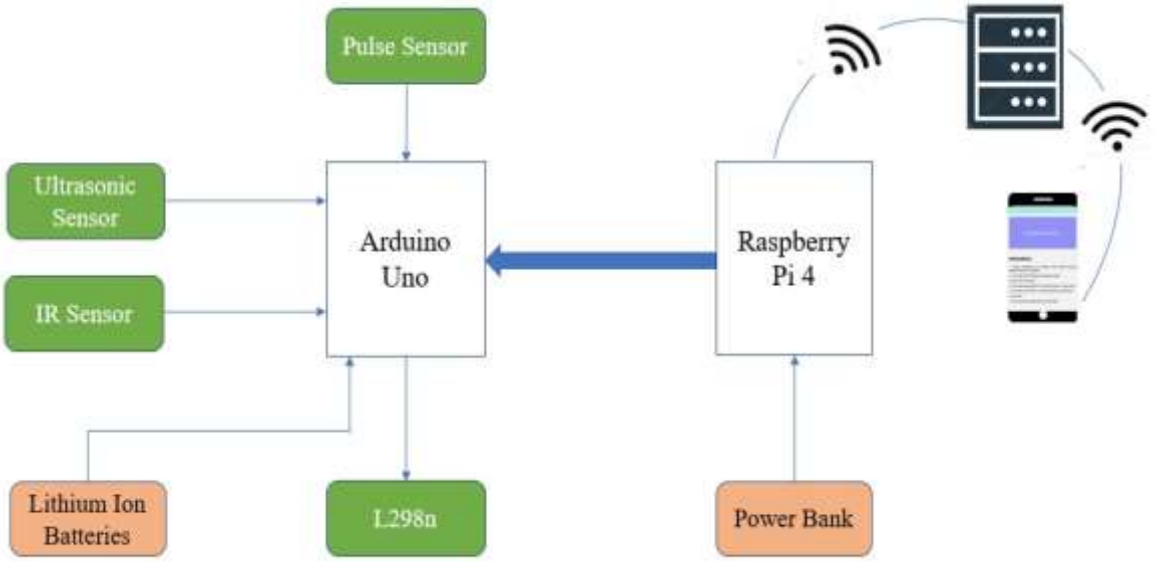
1. **Project Title:** Vehicle saving driver during emergency
2. **Mentor Name:** Dr. K. Vadivukkarasi
3. **Student Team Names:**
    a. Sumadeep Juvvalapalem
    b. Marada Rajeev
    c. Edidi Sai Anant
4. **Project Description:**

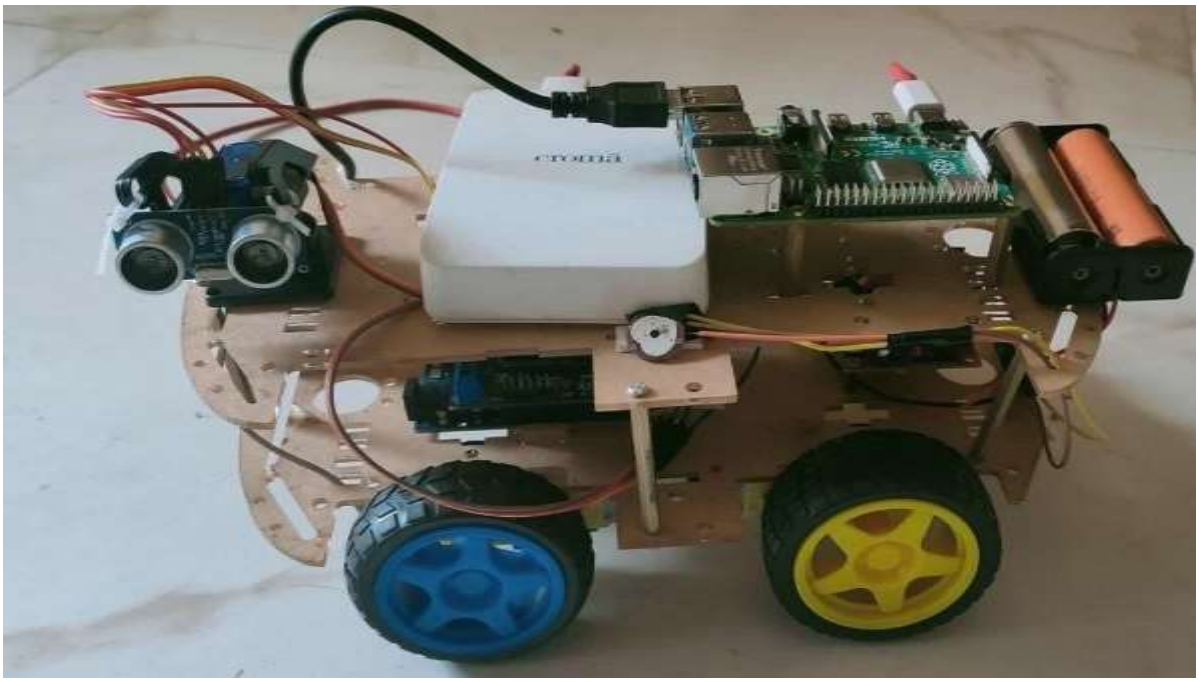
    Now a days we are witnessing autonomous vehicles (AV) on road in many countries. They are evolving from years but still there are some issues which are lacking in AV's. One of them is vehicle alerting a driver when the hands are not on steering/slept is fine but when the driver is still unconscious while driving due to sudden seizure attacks or silent heart attack, parking a car at road side and informing to ambulance will takes some time to take patient to the hospital. During the time there may be chances of losing a life before ambulance reaching a patient. In our proposing model instead of waiting for ambulance the vehicle has to take over a control and keep moving to the nearby hospital to save driver.
5. **Project status at beginning of the Year: 2022**

Idea Level: Ideation Level

6. **Interventions made:**
7. **Current status: Testing Level**
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Design





Results

```
17:50:38.332 -> *******Started Auto Navigation*******
17:50:38.365 -> Disabling manual controls
17:50:38.398 -> *******Started Auto Navigation*******
17:50:38.431 -> Disabling manual controls
17:50:38.464 -> *******Started Auto Navigation*******
17:50:38.499 -> Disabling manual controls
17:50:38.531 -> *******Started Auto Navigation*******
```

Project-26:

1. **Project Title:** Optical Head Mounted Display
2. **Mentor Name:** Dr. D. Rajeswari
3. **Student Team Names:**
    a. Shivansh
    b. Dhruv Sikka
    c. Harsavardhan S
    d. Shashank patel
    e. Harsh Vardhan
4. **Project Description:**

An Optical Head Mounted Display (OHMD) is a wearable device that has the capability of reflecting projected images as well as allowing the user to see through it. Optical head-mounted display uses an optical mixer which is made of partly silvered mirrors. It can reflect artificial images, and let real images cross the lens, and let a user look through it. It is analogous to Google glass. It offers an augmented reality experience by using visual and audio based Inputs to provide relevant information. It can be used to make our day to day life more comfortable

5. **Project status at beginning of the Year: 2022**

Idea Level: Prototype

6. **Interventions made:**
7. **Current status: Fabrication stage**
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-27:

1. Project Title: Gremlin Defiers

2. Mentor Name: Dr. Uma Maheshwari

3. Student Team Names:

a. Rishi Kesavan B
b. Siddharth Banerjee
c. Ruchi Sinha
d. Sakshi Singh
e. Arpit Nigam
f. Vaishnavi Jha

4. Project Description:

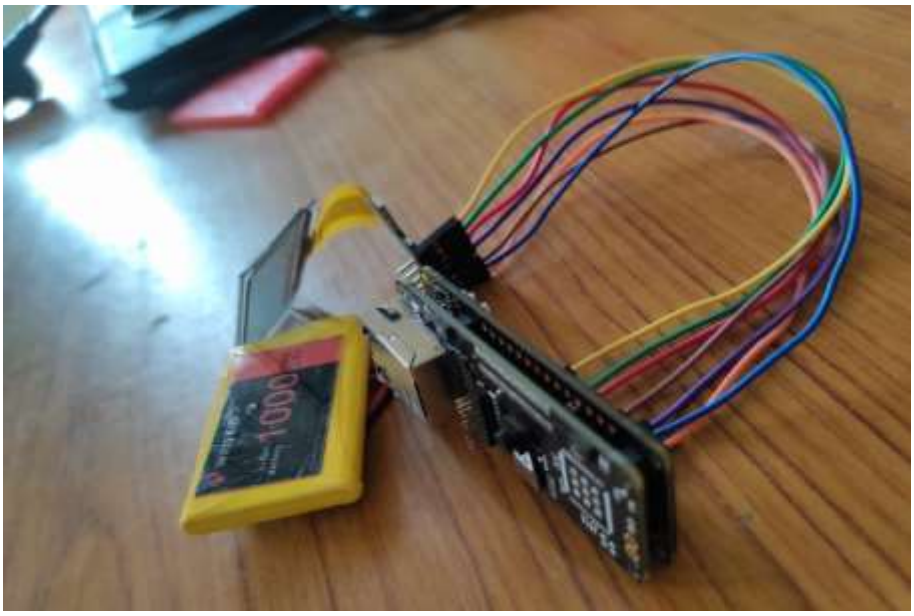
We're embedding various sensors to Live Monitor the Temperature, humidity, altitude they are working in, detecting various harmful gases like methane, along with some biomedical sensors with the jumpsuit worn by the mining workers, which will help in monitoring their health and prevent them from any hazardous accidents that can occur in coal mines. Every worker is given a Wrist gadget to display Hazard Alerts telling them what is the hazard which is detected by this suit. GPS module and GSM module embedded here with an accelerometer for Sudden Fall Detection Tech triggering notification to manager and calls to rescue and medical teams along with a location of worker notification Providing Health Scores in for every worker based on the health data we obtained through this suit. This score lets know manager, about the live condition.

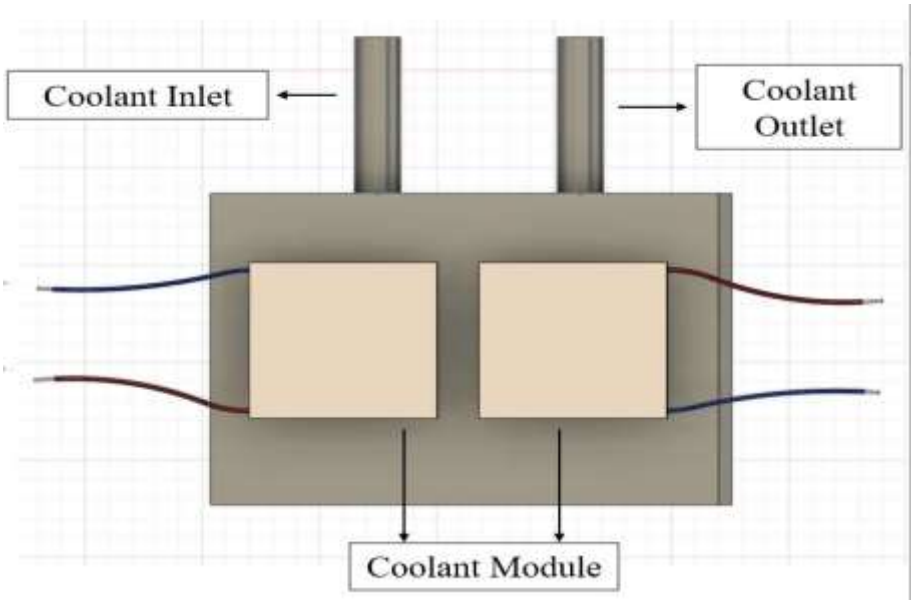
5. Project status at beginning of the Year: 2022

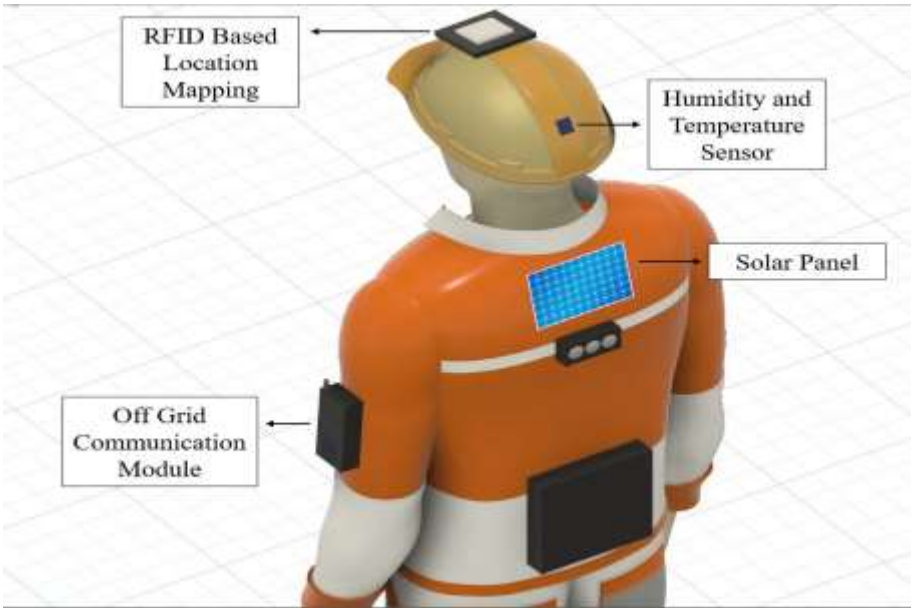
6. Interventions made:

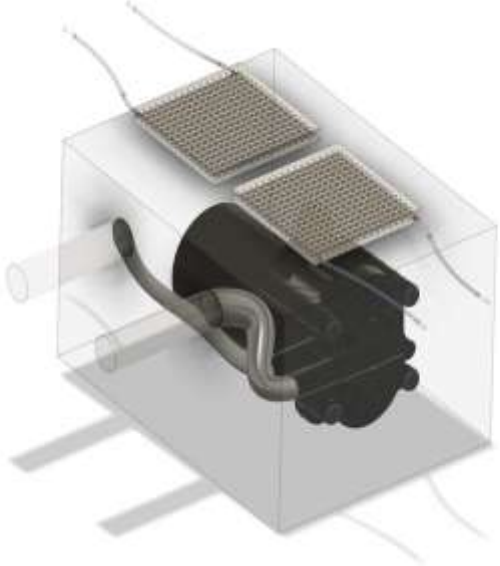
7. Current status: Completed

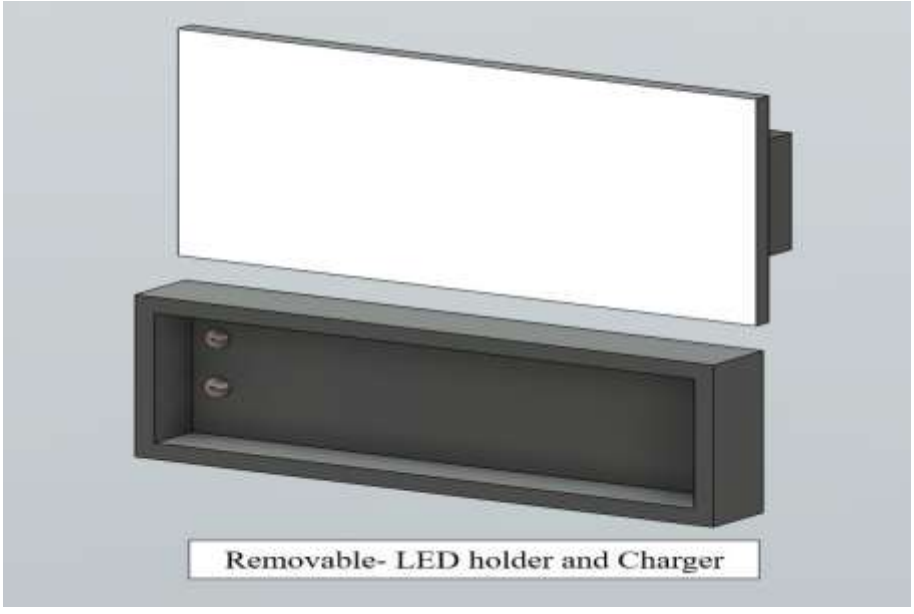
8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:

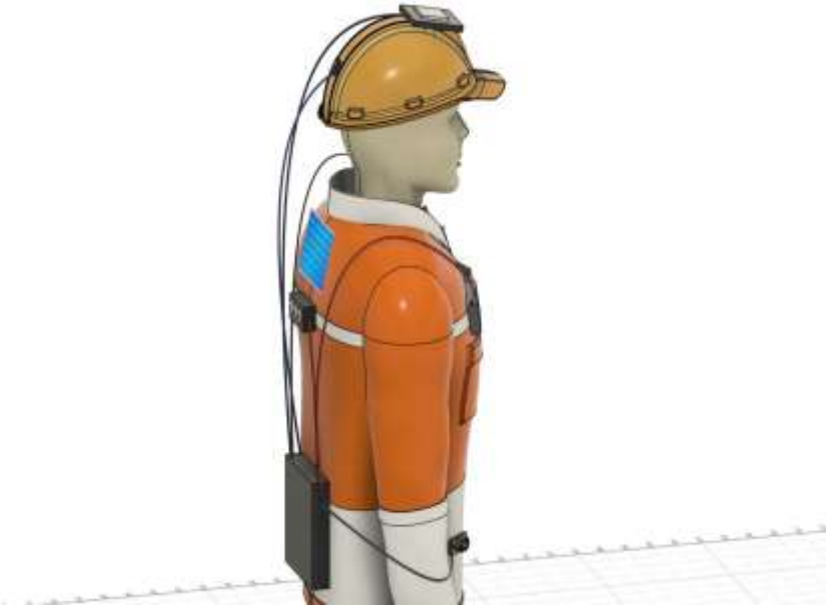





RFID Based Location Mapping
Humidity and Temperature Sensor
Solar Panel
Off Grid Communication Module




Removable- LED holder and Charger



LI-ION
BATTERY
2200mAh

Project-28:

1. **Project Title:** Portable Lightweight Prefabricated Bullet Proof Wall for Defense
2. **Mentor Name**: Dr. S. Pradeep
3. **Student Team Names:**
    a. K V Kannan
    b. L vaishnavi
    c. Sakthi Avinash
    d. Dantuluri sathya Aashrith Varma
    e. Kaushik S Gummadi
4. **Project Description:**

Bullet proof panels with lesser weight and lesser thickness. Incorporation of the Kevlar fiber provide high strength, ductility and flexural stiffness. Replacement of the cement by metakaolin and silica fume gives reduced density and portable properties will be obtained. Addition of the GONS dispersion as enhancer will provide energy absorbing property and flexibility to the cement mortar. These sandwiched material makes the bullet proof wall panel with high protection in war units**.**

5. **Project status at beginning of the Year: 2022**

Idea Level: Prototype

6. **Interventions made:** Defense
7. **Current status:** Testing stage

Project-29:

1. **Project Title:** Low Cost Light Weight Prefabricated Toilet
2. **Mentor Name:** Mr. S.Pradeep
3. **Student Team Names:**
    a. P.Deepak
    b. K.V.Kannan
    c. L.Vaishnavi
    d. S.Brindha
    e. V.Subhash
    f. K.Gnanasambantham
    g. Karthik Vinod
    h. Sumit Kumar Singh

4. Project Description:

The twin pit toilet system is a prefabricated Panel consisting of a superstructure (Toilet) and treatment units (two chambers). It can be constructed in the manufacturing yard and it can be fixed in half-day of time. The two underground chambers (pits) are provided to hold fecal sludge. These are normally offset from the toilet and should be at least 1 meter apart. A single pipe leads from the toilet to a small diversion chamber, from which separate pipes lead to the two underground chambers. The pits should be lined with open jointed brickwork. Each pit should be designed to hold at least 12 months of accumulation of fecal sludge.

5. Project status at beginning of the Year: 2022

Idea Level: Prototype

6. Interventions made: Fly ash helps in reducing the cost, weight, and amount of carbon dioxide emitted into the environment during the construction process.

7. Current status: Completed

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:

SRM
SRM Innovation Incubation and Entrepreneurship Centre
NewGen IEDC SRM
ASCE
LOW COST –LIGHTWEIGHT –PREFABRICATED TOILET
(funded by NEWGEN IEDC SRM)
HIGHLIGHTS
Lightweight with high strength
Transportable
Faster Construction
Relocatable
Cost Efficient
Low maintenance
Customizable
STRUCTURAL ELEMENTS
Measurements (mm)
1. Back wall 1166 x 2025 x 25
2. Base plate 1166 x 1341 x 100
3. Foundation grid 1166 x 500 x 100 1200 x 500 x 100
4. Side wall panel 2250 x 1230 x 25
5. Roof panel 1250 x 1850 x 25
Total Weight 1275 kg
Density of the material 1750 kg/m³
Total Cost Rs.16,250
INVENTORS:
1. KANNAN KV – M-Tech Structural Engineering
2. VAISHNAVI L – M-Tech Structural Engineering
3. DEEPAK P – M-Tech Structural Engineering
MENTOR :
S.PRADEEP – Assistant Professor
Department of Civil Engineering
SRM Institute of Science and Technology

Project-30:

1. **Project Title:** InControl
2. **Mentor Name:** Dr.P.Supraja
3. **Student Team Names:**
    a. Grithar N
    b. Chakreesh M
4. **Project Description:**

Motorsport is an interesting area to tackle the daily problems faced by racing drivers, the most common ones are racing lines with braking and accelerating points. Every driver has been taught how to identify these points on track and tested. The issue faced is the cost of testing is humongous and inefficient. Our team is on endeavour to develop a power steering module which is calibrated on race track with race lines and AI which helps the race driver to correct racing lines with adaptive force touch providing confidence and practice. Our motive is to develop a race steering module where the ECU is tuned to correct race lines on board while the driver is testing to produce a more efficient driver who can tackle racing lines in real time.

5. **Project status at beginning of the Year: 2022**

Idea Level: Prototype

6. **Interventions made:** Go Kart car
7. **Current status:** Dropped

Project-31:

1. **Project Title:** Netra: IoT- based Cane for Deaf-Blind
2. **Mentor Name:** Dr. Mary Subaja Christo and Ms. D Saisanthiya
3. **Student Team Names:**
    a. Umansh Agarwal
    b. Rishika Gupta
4. **Project Description:**

Netra is a device that is used to help blind and deafblind people become independent by developing an IoT based Cane- Netra interfaced with different sensors, buzzers, GPS for navigation and detection of Obstacles while walking. Till now all the all the smart canes that have been build are for blind people alone. However, we aim to develop a smart cane for not only blind but deaf blind disabled people as well.

5. Project status at beginning of the Year: 2022

Idea Level: Prototype

6. Interventions made: Defense

7. Current status: Dropped

Project-32:

1. Project Title: Effective Underwater Search/ROV

2. Mentor Name: Dr. Annapoorani Paniyappan .K

3. Student Team Names:

a. Anish Chaudhary

b. Kumar Vaibhav

c. Pratiksha Mohite

d. Uttez Pallapothu

4. Project Description:

Team SRM AUV is aiming to design an ROV for the problem statement released by the national disaster response force. Idea is to implement a high resolution camera supported by high intensity lights improving visibility in adverse conditions and compact design for easy maneuverability

The ROV is mounted with high resolution camera supported with high intensity lights improving the visibility in murky waters, Compact and robust for easy manoeuvrability, Vector thruster configuration for withstanding strong reverse currents, positively buoyant so that vehicle surfaces automatically in case of any power failures, plug and play electronic stack where components can be easily replaced, Live streaming of camera on board to the base station, customizable payloads according to the use case. Designed to meet all the industrial standards. Safe to operate and user friendly.

5. Project status at beginning of the Year: 2022

Idea Level: Ideation stage

6. Interventions made: Marine

7. Current status:

Project-33:

1. **Project Title:** Dronecharya
2. **Mentor Name:** Dr. Madhavan Shanmugavel
3. **Student Team Names:**
    a. Prakhar Sethi
    b. Aditya Kumar
    c. Abhistha Singh
    d. Manvi Singhal
    e. Manasvi Das
    f. Navneet Singh Parhar
4. **Project Description:**

Develop a drone based Ambulances system to avert the challenges faced on ground during golden hour reaction time.

5. **Project status at beginning of the Year: 2022**

Idea Level: Prototype

6. **Interventions made:** Social Need
7. **Current status:** Testing stage

Project-34:

1. **Project Title:** Omni Ring
2. **Mentor Name:** Dr. G. Joselin Retna Kumar
3. **Student Team Names:**
    a. Roel Pais
    b. Abishek V.
    c. Nikit Mathur
    d. Adheesh Mathur
    e. Danush Ramakrishnan
4. **Project Description:**

The Omni-Ring is based on a combination of three different mechanisms: a picking mechanism, a feeding mechanism, and a launching mechanism, for the rings it has to pick up and shoot during the competition. The picking mechanism consists of a platform that is able to move up and down with the help of a pulley system. The robot pushes the stack of rings against a wall in the arena and then moves the platform upwards. The feeding mechanism consists of two rods that rotate to push the topmost ring

of the pile into the launcher. The launching mechanism consists of a pneumatic piston with an extension that shoots the ring at a 45 degree angle

5. Project status at beginning of the Year: 2022

Idea Level: Developed and in Operation

6. Interventions made: Testing

7. Current status: Completed

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:

Project-35:

1. **Project Title:** Ablaze: Fire Safety Solutions
2. **Mentor Name:** Dr.C.N.S.Vinoth Kumar
3. **Student Team Names:**
    a. Hrivu Dasmunshi
    b. Madhurya Mozumder
    c. Amish Agarwal
    d. Animesh Mondal
    e. Tushar Goel
    f. Devansh Bhandari
4. **Project Description:**

This is an integration of IoT with different systems like fire detection and alarm. This will not only detect and alert fire in home due to general causes but also tell us about short circuit and cut off electrical supply to prevent damage. Also Deploy a fire fighting robot if necessary

5. **Project status at beginning of the Year: 2022**

Idea Level: ideation stage

6. **Interventions made:** Fire Fighting robot
7. **Current status:** Dropped because student passed out

Project-36:

1. **Project Title:** Air Purifiers
2. **Mentor Name:** Dr. S. Dhanalakshmi
3. **Student Team Names:**
    a. Ashish Balan S
    b. Tharun Chettiar
    c. Athiban N
    d. V Revathi Aishwarya
    e. Nikhil Taparia
    f. Dhruv Sahu
    g. Sahil Sunilkumar
    h. Prajwal K R
4. **Project Description:**

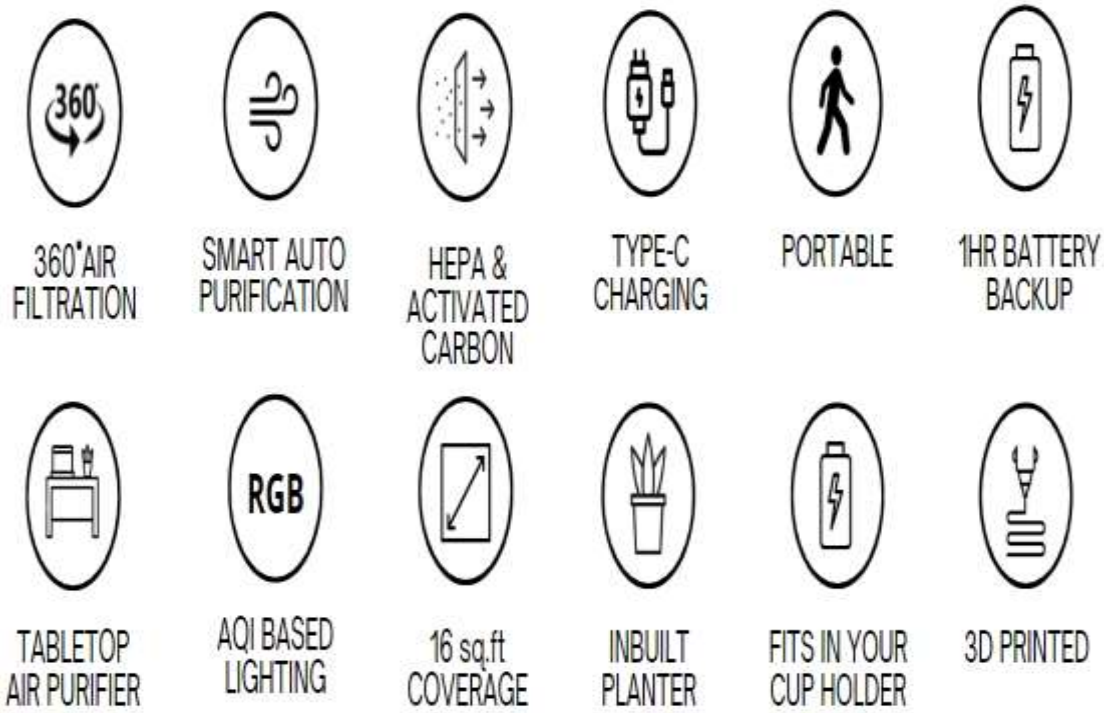
Understanding the fact that the existing myoelectric prosthetics are expensive and heavy, we have developed a bionic arm which is low cost, lightweight and with 12 ranges of motion. This was developed with the help of 3D printing where we are using PLA filament for printing. The overall weight of the prototype amounted to 1.3 kilos, which is lighter than the existing solutions. The EMG signals were picked up from the upper forearm using a Myoware EMG sensor from Sparkfun. The EMG signals were later fed into a Regression Tree based AI model which would predict the arm/finger movements according to the signals picked up by the sensor. This helped the arm to learn and adapt to the movements making it smarter over the due course of usage. The movement of individual fingers were controlled through individual servo motors that were attached to a set of mechanical designs enabling flexion and extension of the fingers. With the help of 3D printing and AI we were able to cut down the cost by 60% wrt the conventional models allowing us to develop the Smart Bionic Arm in less than INR 20,000.

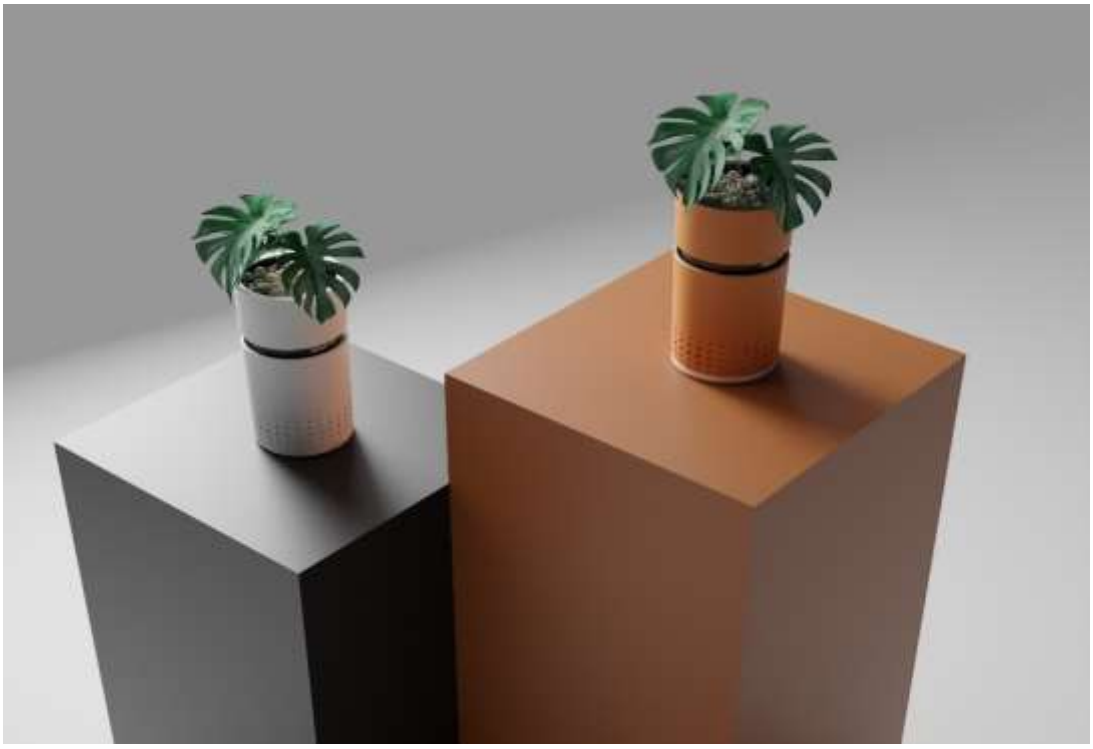
5. **Project status at beginning of the Year: 2022**

Idea Level: Prototype

6. **Interventions made:** Defense
7. **Current status:** Testing stage

8. High resolution pictures showing the Prototype/product along with thestudents and their mentor for each project:





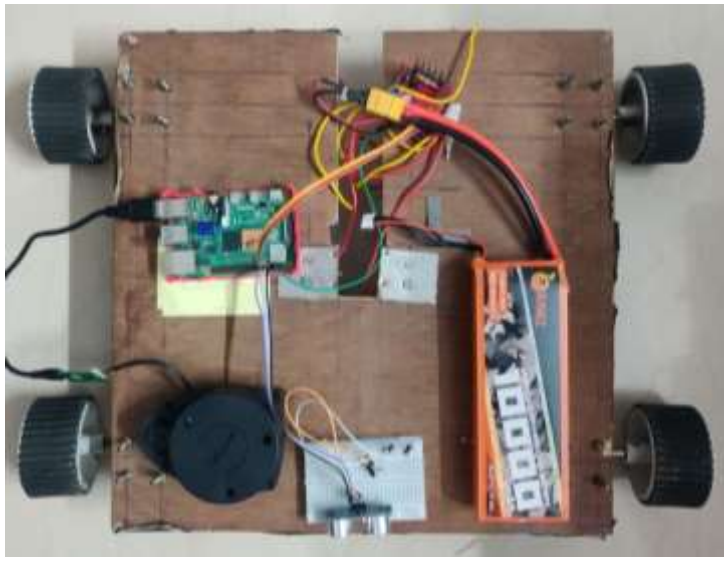
Project-37:

1. **Project Title:** Ethernet Cable Management In Server Rooms Robot
2. **Mentor Name:** Dr. Madhavan Shanmugavel
3. **Student Team Names:**
   a. Yazid Marzuk K P Eshaan
   b. Bhardwaj
   c. Atharva Patil
4. **Project Description:**

   Ethan is a fully autonomous Robot that is supposed to achieve LAN Cable (RJ-45) management of all servers placed in the server room with multiple racks of servers. It is designed to plug out and plug in the cables connected to the servers in an orderly fashion as instructed using AI and control systems engineering. The Robot Can reach up to a height of 43cm and the Arm of the Robot can reach up to an additional length of 38cm. The Robot is to be equipped with a Vision Sensor as close to the manipulator as possible to recognize the position and orientation of the RJ-45 port on the servers. Also, the robot is fitted with some UltraSonic Sensors to detect ground-level obstacles. The Robot has a Lidar Module to help it with the Mapping and Navigation of the Server Room.
5. **Project status at beginning of the Year: 2022**

Idea Level: ideation stage

6. **Interventions made:**
7. **Current status:** Completed
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-38:

1. Project Title: Construction and Validation of Portable Projectable Hess Chart

2. Mentor Name: Ms Divya, Dr Aiswaryah Radhakrishnan

3. Student Team Names:

a. Ms Indirakumari P

b. Ms Pragathi B

c. Mr. Kamalesh K

4. Project Description:

The Hess screen is an instrument for measuring eye deviation. The Hess Screen can be used to identify the overacting or underacting eye muscle, the angle of eye deviation in patients with double vision and muscle Paralysis following a road traffic accident, nerve paralysis, etc. It is typically a wall-mounted chart with grid lines that curves outwards as it moves away from the center and red spots are indicated at the 15° and 30 ° lines along the horizontal-vertical axes from the center. The patient sits 50cm away from the screen, wearing red and green goggles and a green laser pointer. The patient is then instructed to use his pointer to indicate the location of each red mark on the screen.

5. Project status at beginning of the Year: 2022

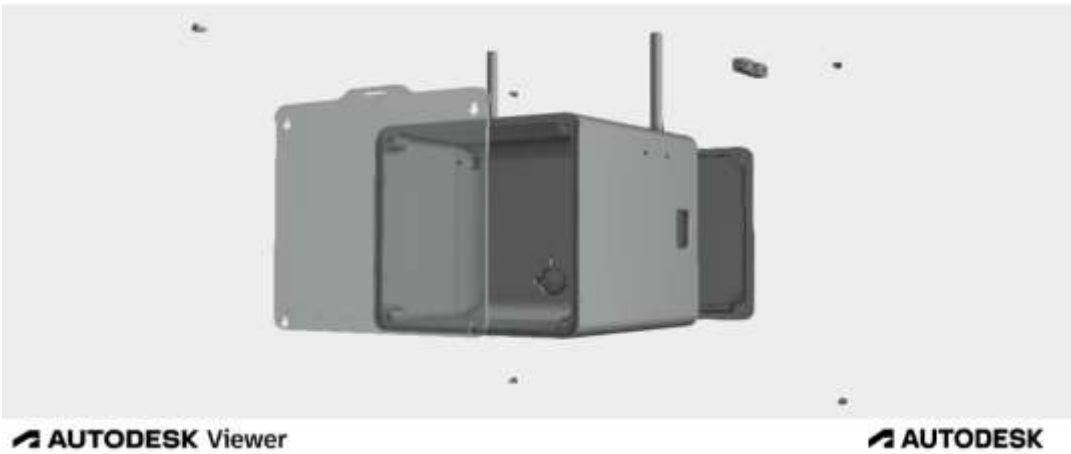
Idea Level: ideation stage

6. Interventions made: Fire fighting robot

7. Current status: Testing stage

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:

Hess ChartAssembly1.stp.png



NewGen IEDC-CVR College of Engineering

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: (Fourth Year) 2022-2023

Name of the College/Institution hosting NewGen IEDC	CVR College of Engineering		
Year of starting NewGen IEDC	2018-2019		
Name of the Head/Principal of the Institution/College	Dr. K. Ramamohan Reddy		
Name of NewGen IEDC Coordinator	Prof. P. Viswanath		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	9848561514 panchagnulaviswanath@gmail.com		
Financial Details	**Year**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC /18-19/09 &13.11.2018	60,00,000
	2		47,50,000
	3		60,00,000
	4		60,00,000

1. Details of Activities Undertaken during the year:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. Activity: Workshop on "Entrepreneurship and Innovation as Career Opportunities in IoT"

Date: 2/12/2022

No. of students: 42

No.of Faculty: 4

Objective: The main objective of this program was to facilitate students into budding entrepreneurs by providing information on entrepreneurial opportunities especially in IoT sector.

Event: The workshop focussed to get to the essence of some aspects of the "innovation" buzzword while avoiding definitions of creativity, innovative individuals, and innovative companies. Dr. Praveen Chakkravathy, Associate Professor of CVR College of Engineering was resource person. The resource person urged the students that they should take their innovative ideas forward and prepare proof of concept, ideation, business plan, etc. to start ups. He also gave a presentation on entrepreneurial opportunities in IoT sector. Expert of the day also mentioned about "Traits of innovative companies and how to become one". Students gave positive feedback on the event

Outcomes:

- Students expressed their will to head for the goal of entrepreneur and to avail the schemes of government.
- The workshop provided opportunities for students to expand their dexterities in various significant facets involved in building Career Opportunities in Entrepreneurship and Innovation.
- Students interacted with the resource person and got clarified their doubts regarding various aspects of entrepreneurship and government subsidies.

2. Activity: Five Day Workshop on "Entrepreneurship Skills, Attitude and Behaviour Development"

Date: 09/02/2023 to 14/02/2023

No. of. students: 58 & No.of Faculty : 5

Objective:

- To instil the entrepreneurial abilities and inspire students to be innovative.

Event:

The workshop aimed to get to the heart of some aspects of the "innovation" catch phrase while ignoring definitions of originality, innovators, and creative enterprises. Resource persons were Prof. Prasanth Kumar Sriram, member of Indian Lean Construction Excellence, Dr. Amit Hedau, NICMAR, Hyderabad, and Dr. Balasubramani Mahesh, Programme Director, Advanced Construction Management, NICMAR. The resource persons urged the students to pursue their innovative ideas and start preparing prototype, ideation, business plans, and so on for start-ups. He also spoke about the entrepreneurial opportunities in the IoT sector. The event received positive feedback from students.

Outcomes:

- Students expressed their desire to pursue the goal of entrepreneurship and to take advantage of government programs.
- The workshop gave students the opportunity to hone their skills in a variety of important areas related to launching a career in entrepreneurship and innovation related to civil engineering and other domains.

- Students interacted with the trainer and had their questions about entrepreneurship and government subsidies answered.

3. Activity: Workshop on "Achieving Problem-Solution Fit & Product Market Fit"

Date**:** 3 February 2023

Objective:

To understand about Problem solution fit & Product market fit

Event: Mr. Sai Kiran Chavali, Senior Innovation Architect at Verizon in Mobile and Immersive Center of Excellence inspired the participants by highlighting various examples of companies that failed due to ignoring the concept Problem-Solution Fit & Product-Market Fit. He emphasized the importance of a company being flexible in changing markets, identifying strong market demand, repurposing or reorganizing old ideas, meeting the needs of customers, and keeping an eye on the future.

The guest speaker explained and answered some of the very important questions like –

- Why problem-solution fit is so important?
- How do you find the problem-solution fit?
- Who should gain from the problem-solution fit?

Outcome:

Detailed overview and case studies of many startups were taken for gaining proper knowledge so that one will be able to understand the challenges in problem solution fit and product market fit. The students were very satisfied with the event and gave positive feedback.

4. Activity: One - Day Workshop on "How to plan a Start-Up and Legal and Ethical Steps"

Date: 31 March 2023

Objective:

- To unleash student's creativity by providing them a perfect platform.

To provide a hands-on learning experience to students with regard to expanding their start-up ideas under the mentorship of experienced entrepreneurs.

Event:

An awareness session on Start-up was conducted by the CVR College of Engineering on 31 March 2023 under the Entrepreneurship Development Cell of the Institute. The session was organized by Prof. Viswanath, Chief Coordinator of EDC. The speakers were the Mr. K. Vignesh, founder of Becoba Pvt. Ltd and III year student of Mechanical Department and Mr. G. Vivek, founder of Eforge Pvt. Ltd and IV year student of ECE Department. The speakers explained the concept of business plan development associated with the basics of start-up and guided the

students about the importance of it. The speakers then provided an overview of the process based on which valid registrations of a start-up can be done. The session was organized in an interactive way.

Outcome of the event:

The students got inspired by the presentation given by Start-up founders who are also currently students at CVR College of Engineering. Students got insight on how to plan a Start-Up and Legal and Ethical Steps to be followed while establishing a Start-Up.

[B] To identify, develop & commercialize students' innovative ideas

1. Activity: Ideathon

Date: First round: 30/11/2022 ; Second Round: 5/12/2022

No. of. students: 42 ; No.of Faculty: 5

Objective:

- To unleash student's creativity by providing them a perfect platform.

Event:

Students beautifully presented their ideas via oral and PowerPoint presentations. Each of the idea was unique and inventive. Ideas were presented on the following themes- Agriculture and Rural Development, Energy and Environment, Waste Management, Healthcare and other societal problems. Ideathon was conducted in two rounds. First round was conducted on 30 November 2022. In the first round,

students submitted their ideas. Second round was conducted on 5 December 2022. Second round involved power point presentation by top 20 ideas. Each idea was presented by a team of three students. First five ideas were given cash awards.

Outcome of the event:

The students showed a nice inter-disciplinary approach to solve the various problems of different sectors. The jury was happy that such event was conducted at such huge scale in the campus for students. Moreover, the participation of students was really appreciated.

2. Activity: IT HACKATHON

Date: 27 and 28 February, 2023

No. of Students: 60 students

Objective: To identify and develop students' innovative ideas

Event:

The themes for the hackathon: Agriculture System, Cyber Security, Health Care ,Smart Education.Winners announcements and distribution of Certificate of merit, Appreciation letter and prize money as follows: 1st Prize - Rs. 10,000/- to Team GUNA for the project AI Chatbot for students under the theme Smart Education System; 2nd Prize - Rs. 5,000/- to the Team RUMOR RAIDERS for the Fake News Detection project under the theme Cyber Security ; Consolation Prize - Rs. 2,500/- to the Team TOO MANY RE-RENDERS for the Smart Attendance System project under the theme Smart Education System ; Consolation Prize - Rs. 2,500/- to the Team THE CRUSADERS for the Agrilite - " A delight in farme- -r's life" project under the theme Smart Education System.

3. Activity: DEMO DAY

Date: 2/11/2022 and 30/11/2022

Objective:

- To discuss on the type of ideas that need to be generated

Event:

DEMO Day was held in offline mode to give a platform to the participants to showcase their ideas to get desired support or external visibility with the support of the Institute Innovation Ambassador. Demo Day was held on 30 November 2022 in the college campus. Prof. P. Viswanath, Chief Coordinator, EDC and Innovation Ambassadors – Dr. P. Vanishree Sah and Mr. T. Manoj of CVR College were the speakers for the event. The speakers gave insight on the type of ideas that need to be generated; sources of getting ideas, The speakers gave assurance to provide the required mentorship support to the participating teams. Amongst the audience were various faculty members and the students of Second year B.Tech. Students gave positive feedback on the event.

Outcome:

1. Young students got encouragement to generate creative and innovative ideas
2. The participants were able to get an insight on sources of getting ideas
3. Link was established between the participants and Innovation Ambassadors

4. Activity : Project Expo

Date: 15/10/2022

No. of. students: 48 ; No. of Faculty : 4

Objective:

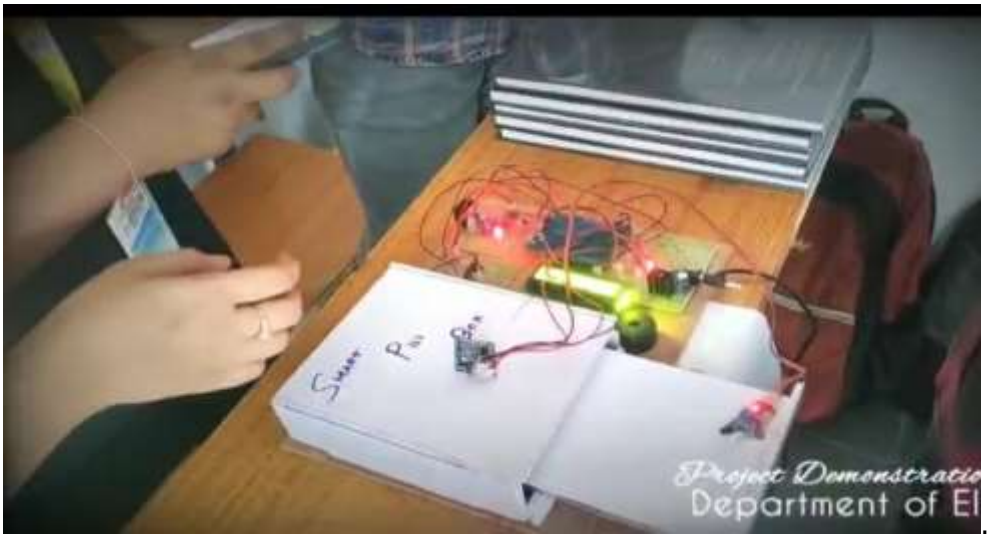
The objective of this event is to cultivate idea of innovation among the students.

Event:

Project design and expo was organized in which students exhibited prototype products developed by them. Cash awards were given to top three winners for best prototype products developed. All the participants were given participation certificates.

Outcome:

1. Young students got encouragement to be creative and innovative
2. The participants were able to get an insight on how an idea can be converted into a prototype product



[C] To enhance Industry-Academia interaction

1. **Activity:** Industrial Visit TSGENCO, CIRCLE OFFICE,NSHES, Nagarjuna Sagar, Telangana 508266

   Date: 3 December 2022

   No. of Students: **45** & Faculty **: 2**

   Objectives:

   1. to understand how TSGENCO is generating adequate, reliable , cost effective and eco friendly power
   2. to observe and understand how it generates sufficient power from reliable sources

   Outcomes:

   1. The students were able to relate to the problems being faced by the company in generating adequate, reliable, and cost effective and eco friendly power
   2. They were able to understand the smart solutions being implemented by the company to overcome its problems.

2. Activity: Visit to T-Hub (Telangana Hub, IIIT-Hyderabad Campus, Gachibowli, Hyderabad, Telangana)

Date: 24 February 2023

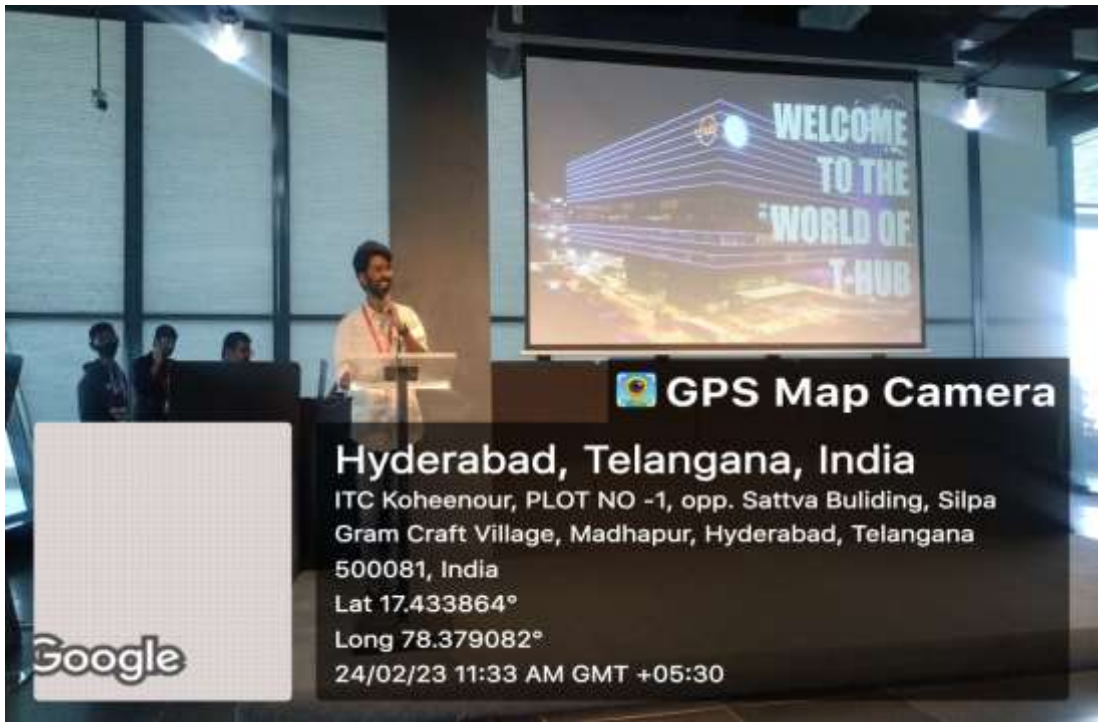
No.of participants: Total of 40 students visited t-hub accompanied by 2 faculty. The faculty who have accompanied students were Dr. Lakshmi Swarupa, Professor, EEE Dept. and Mr. NSSS. Adithya, Asst. Professor, CSE Dept.

Aim of the Field trip:

- To provide an exposure to students about practical working environment.
- To provide students a good opportunity to gain full awareness about start-ups.
- To get awareness about new technologies being adopted by the Start-ups.

Outcome:

The students were able to get an insight into the journey of the start-ups that were being incubated at t-hub. The students got an opportunity to interact with the mentors at t-hub and also with the entrepreneurs having their start-ups incubated at t-hub. The students also got an insight into the types of mentorship being provided by t-hub to the Start-ups.



3. Activity: Seminar by Er. Balaiah Santhara, Director-COPES, Secretary – IIPE

No. of. students: 40 ; No.of faculty: 6

Objective of the event: To emphasize the importance of saving Energy for future.

Event Report:

A guest lecture was organized on “Energy Conservation Aspects In Engineering Disciplines For Sustainable Living”, by Er. Balaiah Santhara, Director-COPES, Secretary – IIPE on 14th December 2022 from 11 AM to 1:00 pm. It was attended by more than 40 students. Guest Speaker highlighted on the following topics:

- Replacement of conversional energy sources with non-conventional sources.
- Methods to utilize energy optimally and efficiently with real time examples.
- Recent changes in climatic conditions caused due to non-Energy conservation and high-levels of carbonic emissions.

Learning Outcomes:

1. Students understood the importance of saving energy and reducing our reliance on non-renewable sources of energy.
2. It improved their outlook on energy conservation

2. Deviation (shortfall) from the proposed action plan (with reasons), if any: NIL

3. Other important highlights (new initiatives), if any:

a. Our college has signed MoU with Atal Incubation Center, Sri Krishnadevaraya University to help our students in their journey towards Entrepreneurship and Start-ups.

b. Our college students are undergoing pre-incubation programme being conducted by Incubation center, ICFAI, Hyderabad.

4. Student Projects

<u>Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos</u>

5. **Provide a minimum two-page case let each on the <u>two best student projects</u> (either prototype developed or commercialized) from the above list. The case lets should include the following:**

Best Student Project 1: Li-ion Battery Repurposes and Reuses (LRR)

I. **Mentor Name :** N.N.S.S.S. Adithya

II. **Student team details**

1. K. Vigneshwar
2. K. Praneetha
3. Preethika

III. **Brief description of the student start-up:**

Prototype of emergency lights and power banks have been developed using recycled lithium ion batteries. There are different type of batteries like lead acid, li-ion, and li-polymer, etc. The major appliances like laptops, power banks, e-scooters use li-ion based batteries. Challenge comes when the BMS(Battery Management System) fails. It renders the complete pack as useless when BMS fails. Such packs have to be replaced with new ones. The old batteries end up in a land fill and into toxic waste. Repurposing these batteries for wide variety of applications is possible which includes emergency lights, power banks and such types of small-scale requirements. We have developed emergency lights, power banks using recycled lithium ion batteries according to safety standards and reusing them safely.

IV. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**

Ideathon was held at our college in the month of June 2022. Around 200 ideas were presented by the students of our college form all the years of B.Tech. Li-ion battery repurposes and reuse (LRR) was one of the ideas that was selected for NewGen IEDC 2022-23 projects. An amount of Rs 2.5 Lakhs from NewGen funds was given towards development of the prototype product. The team of students also went through pre-incubation programme conducted by Incubation Centre of ICFAI, Hyderabad. By the end of the programme, the students were able to convert the prototype into the final commercialized product. The students have registered for Start-up and have got further funds from our college for start-up registration process.

V. Contribution of NewGen IEDC in the same

- Provided funds of Rs 2,50,000 and technical support.
- Helped in connecting with multiple incubation centers and also helped in being part of pre-incubation programs.
- Provided mentoring support from idea stage to start-up registration process

VI. Future plan :

Future plan is to scale up and use the product in various other applications such as market yard lamps, emergency lights and battery based pedestal fans to increase the market base. There is a huge market potential in both B2B and B2C markets.

VII. Important highlights

- 18650 cells categorized into bins.
- Safe and standard regularization
- BMS management with pack specific
- Extracting 18650 cells from old and dead laptop batteries
- Cleaning, by removing glue, gunk etc., from cells.
- Charging and discharging cells individually to test cell health.
- Re-sleeving the batteries with new capacity printed on them.
- Re-packing batteries to required configuration.

Best Student Project 2: Iot Based Smart Display Board

I. Mentor Name: Dr. S. Praveen Chakkravarthy

II. Student team details

Vivek Gaddam

P. Bharath Chandra

D. Anwar Basha

III. Brief description of the student start-up:

The objective of the Start-up was to design a low cost, customizable and smart IoT based Display board. The product developed is a display connected to a server system that continuously listens for the incoming messages from the user, processes it, and displays it on the LED screen. The message displayed is updated every time the user sends new information. The control is provided only to the admin to display content on the LED screen. LED screen is controlled by commands through the Microcontroller. One board (768x768 mm) is connected to Wi-Fi module and USB Port and another board (1536x1536 mm) is connected via USB port.

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

Ideathon was held at our college in the month of June 2022. Around 200 ideas were presented by the students of our college form all the years of B.Tech. Iot Based Smart Display Board was one of the ideas that was selected for

NewGen IEDC 2022-23 projects. An amount of Rs 2.5 Lakhs from NewGen funds was given towards development of the prototype product. The team of students also went through pre-incubation programme conducted by CVR College of Engineering. By the end of the programme, the students were able to convert the prototype into the final commercialized product. The students have registered for Start-up and have got further funds from our college for start-up registration process.

V. Contribution of NewGen IEDC in the same

- Provided funds of Rs 2,50,000 and technical support.
- Helped in connecting with multiple incubation centers and also helped in being part of pre-incubation programs.
- Provided mentoring support from idea stage to start-up registration process

VI. Future plan :

Future plan is to scale up and use the product in various other applications to increase the market base. There is a huge market potential in both B2B and B2C markets.

VII. Important Highlights:

- It gives quick exchange of data and is less expensive compared to exisisting Display boards.
- It is an effective method for showing messages on Display Board utilizing IoT.
- It gives client validation to maintain a strategic distance from any abuse of proposed framework

Annexure-A

Details of Student Projects: Fourth Year

1. **Project Title** : Smart Automated Waste Monitoring and Collection System
2. **Mentor Name** : Mr. Ahmed Shahebaaz
3. **Student Team Names:**

   a. Basheer Sadiq Sheikh

   b. Praneeth Sai C Harsha
4. **Project Description:**

   Objective:

   To provide an automated waste collection system using artificial intelligence and IoT.

   Prototype developed:

   Prototype of "Smart waste monitoring and automated waste collection system" has been built by using camera instead of any hardware sensor integrated into the bin. Even high-definition CCTV camera can also be used for this purpose. Because of this, it is robust in nature and viable also. Artificial Intelligence based IoT system has been used for the development of this project. Amazon Web Services or Google Cloud Platform was used for data storage.
5. **Project status at the beginning of the Year:**
   - Idea Stage
6. **Interventions made:**
   - Provided support in making prototype product
   - Provided mentoring from faculty and industry experts
   - Provided support in field deployment of the product
   - Given a grant from NewGen IEDC
7. **Current status:**

   Prototype of the product has been developed

8. Pics of “Smart Automated Waste Monitoring and Collection System”

2. Project Title: High-Endurance Autonomous Mapping Plane

Mentor Name: Mrs. S Sailaja

Student team names:

a. Jaleel Pasha

b. P. Jayachandra Reddy

c. Chakka Nikhila, Sola Raghu

Project Description:

Objective: To design a plane that can fly for up to 2.5 hours in a single flight, under the budget of Rs 2 Lakhs. It can be achieved by increasing the wing span without losing its mechanical strength and adjusting motor characteristics to the optimum body-to weight ratio.

Prototype developed: Prototype of “UAV plane” has been developed. The plane wing extinctions are designed in AutoCAD and fabricated using balsa wood ribs for lightweight, and covered with 0.5 mm carbon composite material overall weight of the plane is a key factor. The plane’s overall weight was kept under 2 kg which helps in enhancing flight time. Tuning autopilot to the modified plane using PID loops makes a stable flight. Since increasing wingspan reduces stall speed, throttle curves have been reduced in order to achieve longer flights.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “High-Endurance Autonomous Mapping Plane”

3. Project Title: Vehicle Monitoring System

Mentor Name: Mr. B. Janardhana Rao

Student team names:

a. M. Samhitha

b. Y. Naveen

c. S. S. S. Krishna

Project Description:

Objective:

- To reduce this with our vehicle monitoring system that signals, alerts, and guides the driver whenever he is crossing the safe driving line."
- Provide proper evidence for claiming insurance helping both driver and insurance companies.

Prototype Developed: Prototype of "vehicle monitoring system" which has been developed, is a combination of a central processor with multiple sensors distributed across the vehicle to get the various parameters and accurate data in real-time which helps the processor to calculate accordingly and respond in realtime in case of critical limits are exceeded or store the data to the cloud to evaluate the diver's performance. This data is again used by self, owner or insurance provider of the vehicle. This data recorded can be used for driver assistance and autonomous driving cars in the future. Tesla being a leading autonomous car manufacturer it records the driving habits of their drivers in a database to further improve its autonomous driving capabilities.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

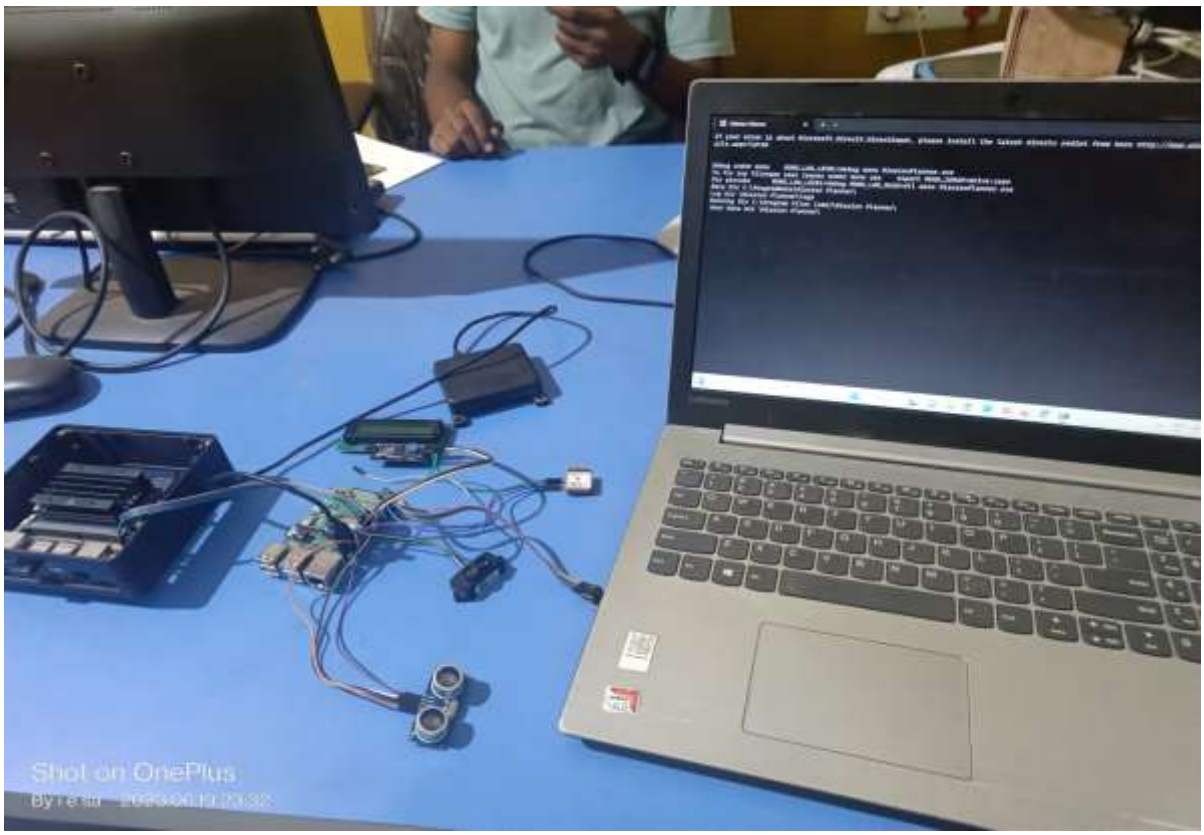
• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Vehicle Monitoring System”



4. Project Title: Li-ion battery repurposes and reuses (LRR)

Mentor Name: N.N.S.S.S. ADITHYA

Student team names:

a. K. Vigneshwar

b. D. Venkata Sarath Sai

c. K. Praneetha

d. B. Preethika

Project Description:

Objective: In the modern world electricity is the basic need and the most vital commodity to store and reuse energy from in a portable form we are using batteries from decades.

Prototype developed: Prototype of emergency lights and power banks have been developed using recycled lithium ion batteries. There are different type of batteries like lead acid, li-ion, and li-polymer etc., The major appliances like laptops, power banks, e-scooters use li-ion based batteries. Challenge comes when the BMS(Battery Management System) fails. It renders the complete pack as useless when BMS fails. Such packs have to be replaced with new ones. The old batteries end up in a land fill and into toxic waste. Repurposing these batteries for wide variety of applications is possible which includes emergency lights, power banks and such types of small-scale requirements. We have developed emergency lights, power banks using recycled lithium ion batteries according to safety standards and reusing them safely.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Li-ion battery repurposes and reuses (LRR)”

5. Project Title: Exercise Trakking

Mentor Name: N.N.S.S.S. ADITHYA

Student team names:

a. Tummalapalli Akhilender Reddy

b. Mohammed Abdul Subhan

c. Kallagunta Poojitha

Project Description:

Objective: To revolutionizes the way users perform exercises by seamlessly integrating with their television or large screens.

Prototype Developed: To prototype developed serves as a comprehensive training companion, offering real-time analysis and visual feedback to ensure users maintain proper form and technique during their workouts. With easy connectivity to any compatible screen, our device provides users with step-by-step instructions, detailed visual demonstrations, and personalized feedback for each exercise. By harnessing the power of technology, users can conveniently view their workout analysis in the app, enhancing their understanding of their performance and enabling them to make necessary corrections. By prioritizing proper form and technique, our device empowers users to train effectively and minimize the risk of injuries. With its user-friendly interface and interactive features, this fitness device is designed to support individuals in achieving their fitness goals while enjoying a seamless and engaging workout experience.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of Exercise Trakking

6. Project Title: Iot Based Smart Display Board

Mentor Name: Dr. S. Praveen Chakkravarthy

Student team names:

a. D. Anwar Basha

b. P. Bharath Chandra

c. G. Sai Kiran

d. G. Vivek

e. V. Sahithi

f. K. Yasash

Project Description:

Objective: To design a low cost , customizable and smart IoT based Display board

Prototype developed: The product developed is a display connected to a server system that continuously listens for the incoming messages from the user, processes it, and displays it on the LED screen. The message displayed is updated every time the user sends new information. The control is provided only to the admin to display content on the LED screen. LED screen is controlled by commands through the Microcontroller. One board (768x768 mm) is connected to Wi-Fi module and USB Port and another board (1536x1536 mm) is connected via USB port.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Iot Based Smart Display Board”

7. Project Title: Cost Effective Water Purifier

Mentor Name: Dr. Narendra B. Mustare

Student team names:

a. B.Sirisha Reddy

b. Siri Chendana

c. Y Pramodkumar

Project Description:

Objective: Development of water filters suitable for the removal of suspended solids, pathogenic bacteria and other toxins for drinking.

Prototype Developed: Low cost water purifier has been developed. Procurement and conditioning of the low cost ceramic materials and additives was done. Disc formation using different ceramic compositions was done using fabricated die/Moud. This was followed by heat treatment of the green body in a programmable furnace. There was characterization of Morphology. Then fabrication of housing for the disc filter was done. This was followed by testing of ceramic disc filter for water purification using different water samples.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Cost Effective Water Purifier”

8. Project Title: Multi-Functional Water Treatment System

Mentor Name: Mr. Tangudu Manoj

Student team names:

a. Ms. S. Rishitha

b. S. Sai Nithin

c. G.Sathwika

d. Mr. K. Shiva

Project Description:

Objective: To design / develop multifunctional water treatment equipment that can accommodate different mechanism based techniques

Prototype Developed: A water treatment equipment was developed involving techniques that are based on conventional micron filters, adsorption based beds, ion-exchange columns, UV cartridges, membrane techniques such as microfiltration, ultrafiltration, nanofiltration etc.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of "Multi-Functional Water Treatment System"

9. Project Title: Self Defence Gadget

Mentor Name: Dr. P. Vanishree Sah

Student team names:

a. K.N. Koushik

b. Aryan Satya

c. Gogineni Jitendra

Project Description:

Objective: In the real time situations women become panic and they are not able to defend themselves even though they are trained and well equipped. With this device they are able to defend themselves.

Prototype Developed: A self-defence gadget has been developed for women. It comprises of high voltage booster module / transformer , Li- ion battery 3.7v 300mAh (1000 charge cycles),Charging module with over current protection , charging indication , full charging indication,On off switch, Push button For device operation, Printed circuit board, Metal probes for output and Plastic Enclosure. Its functionalities are that when a woman is in danger she can use this device to give electric shock of low voltage which will numb the hands of the culprit for few minutes and she can also press a button to spray hot pepper on the culprit.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Self Defence Gadget”

10. Project Title: BTMS in EV Batteries

Mentor Name: Mr. M. Srinivas Reddy

Student team names:

a. M. Sai Vamshi Reddy

b. A. Nikhil

c. G. Shanthan Kumar

Project Description:

Objective: The main objective of liquid immersion cooling in batteries is to improve their thermal management and increase their overall performance and safety. This can include reducing the risk of thermal runaway, which can lead to fires or explosions, and improving the charging and discharging efficiency of the batteries. Additionally, liquid immersion cooling can also help to extend the lifespan of batteries by reducing the amount of damage caused by overheating.

Prototype Developed: A battery unit was developed that will have a self-cooling technology when the battery is under load conditions. Liquid used is transformer oil. Transformer oil acts as an insulator, preventing electrical shorts and fires. Additionally, the liquid can be circulated through a chiller or heat exchanger to further remove heat. Liquid immersion cooling of batteries has a sealed container filled with liquid coolant, with the batteries suspended in the liquid. The container has a cooling system, such as a radiator or cooling fins, to remove heat from the liquid and a pump to circulate the liquid. The system has sensors to monitor the temperature and charge level of the batteries, as well as control systems to manage the flow of liquid and the operation of the cooling system

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “BTMS in EV Batteries”

11. Project Title: Fabrication of Insulated Test Chamber for Testing Building Materials

Mentor Name: Mr. G. Naveen Kumar

Student team names:

a. T. Dhanraj

b. G. Sai Ram

c. Project Description:

Objectives:

- Fabrication of Insulated Test Chamber for testing Building Materials.
- Developing Encapsulated PCM embedded cement mortar slabs (EPCM).

Prototype Developed: "Building Materials Insulated Test Chamber" has been developed. It consists of hot chamber and cold chamber, a separate insulating material is used to separate these two chambers, apart from that the whole chamber is also insulated to avoid heat interaction from the system to the environment and vice versa. The maximum and minimum set temperature of hot and cold chambers is 70 °C and 15 °C respectively. Performance evaluation of material can be carried out placing the specimen in between the hot and cold chamber. Heat transfer analysis of specimen is carried out using set of thermocouples. Encapsulated PCM was also developed which has a capability of absorbing and distributing the Latent Heat near the temperature of 24 °C. The main intention behind incorporating the encapsulated PCM in the cement mortar is to save the energy for cooling applications by blocking the heat due to solar radiation. The Insulated Chamber is intended for testing and evaluating the performance of developed Encapsulated PCM embedded Cement Mortar (EPCM).

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Fabrication of Insulated Test Chamber for Testing Building Materials”

12. Project Title: Robotic Prosthetics

Mentor Name: Ms. R. Prameela Devi

Student team names:

a. T. Karthik Guptha

b. P. Pranavi

c. M. Pravalika Reddy

Project Description:

Objective: To develop a light weight high energy density robotic prosthetic using additive manufacturing techniques.

Prototype Developed: Prosthetics arm developed is a low cost additive manufacturing model to mitigate continuous integration costs. It uses surface EMG techniques to avoid invasive procedures. It uses AI/ML algorithms that will enable novel use case scenarios without replacing the control circuitry. It is self contained to enable non surgical day to day placement and removal. It uses non invasive sensorimotor sensing for actuation and motion artefacts.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of "Robotic Prosthetics"

13. Project Title: Portable Energy Device

Mentor Name: Ms. Ch. Shravani

Student team names:

a. P.Rakesh

b. M.Tejaswi Reddy

Project Description:

Objective: To develop the system to store energy for extended operation from both conventional and non-conventional sources

Prototype Developed: Portable Energy Storage Device has been developed. It will be powered from Conventional power, Solar and Hand Cranked Generator. It can deliver AC and DC in fixed and adjustable factors.It has Maximum energy density in small form factor. It provides multiple connector interfaces for field use. It uses trickle charge mechanism for enhancing idle time storage. The system has multiple Voltage and current outputs to cater to different equipment and use case scenarios. The device is envisaged to output fixed DC voltages of 5, 12, 24 and 48 VDC, adjustable DC 0-30 VDC and 230/110 V AC outputs with specified connector interfaces. The said device is also intended to be charged using both conventional AC power and Alternate sources of energy like solar and hand cranked EMF generator.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Portable Energy Device”

14. Project Title: Wearable Oxygen Concentrator

Mentor Name: Mr. P. Srinivas Reddy

Student team names:

a. D. Vivek

b. G. Uday

c. S. Shivaprasad

Project Description:

Objective: To develop a light weight portable oxygen concentration unit which is wearable.

Prototype Developed: Portable Oxygen Concentrator has been developed which uses a manifest valve mechanism to reduce component cost and increase the ease of maintenance. It is portable and light weight to enable self reliance in patients. There is use of ultrasonic volumetric analysis to determine oxygen concentration. Best multiple molecular sieves have been used to increase the output in small form factor.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Wearable Oxygen Concentrator”

15. Project Title: Smart access control: Using Vehicle License plate recognition.

Mentor Name: Dr.Swapna.T

Student team names:

a. V.Harshith Reddy

b. M.Paawan Kumar

Project Description:

Objective: To develop a Automatic vehicle license plate recognition (AVLPR) to identify the authorized and unauthorized vehicle plate number

Prototype Developed: The Automatic vehicle license plate recognition (AVLPR) developed is used to identify the authorized and unauthorized vehicle plate number. When the vehicle comes near the gate, a camera located in front of the gate or the barrier captures the plate number then it sends to the system to recognize the license plate and check whether stored in the database or not. The system using raspberry pi along with LEDs (red and Green) and Buzzer is used to check the plate number and authentication. There are two cases:

1. If the Vehicle Registration number is not in the data base, red light should glow and buzzer should be on. The security guard should manually enquire the purpose of the visit and allow the vehicle.
2. If the Vehicle Registration number is in the data base, green light should glow and the License plate number entry should be automatically done in the cloud data base along with timings.The vehicle entry and exit data should be made available to download in excel format for the authenticated users.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

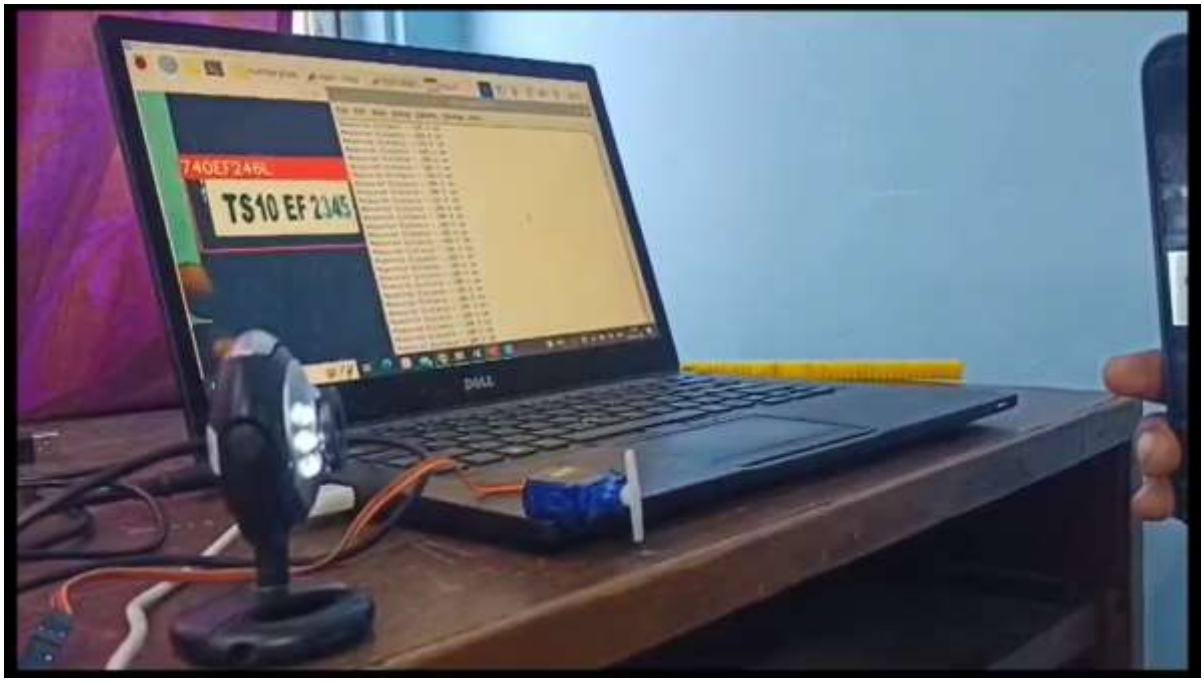
• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Smart access control: Using Vehicle License plate recognition”



16. Project Title: DC-DC converter for EVs

Mentor Name: Mr.K.S.V. Phani Kumar

Student team names:

a. D. Meghana

b. D. Sanjana

Project Description:

Objective: To develop DC-DC converter that inputs an unregulated DC voltage input and outputs a constant or regulated voltage.

Prototype Developed:DC-DC converter has been developed which is of 50watts to 100 watts auxiliary power supply with a 200-400V input and a 12-15V adjustable output for Electric Vehicle applications. It involves topology selection, analysis, and simulation of functional blocks of a converter for different operation points. Anisolated DC-DC converter topology for simultaneous charging has been designed and estimation of loss has also been considered. Additionally, we are trying to improve performance in efficiency without sacrificing wide input voltage range that can benefit future DC-DC converter designs.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

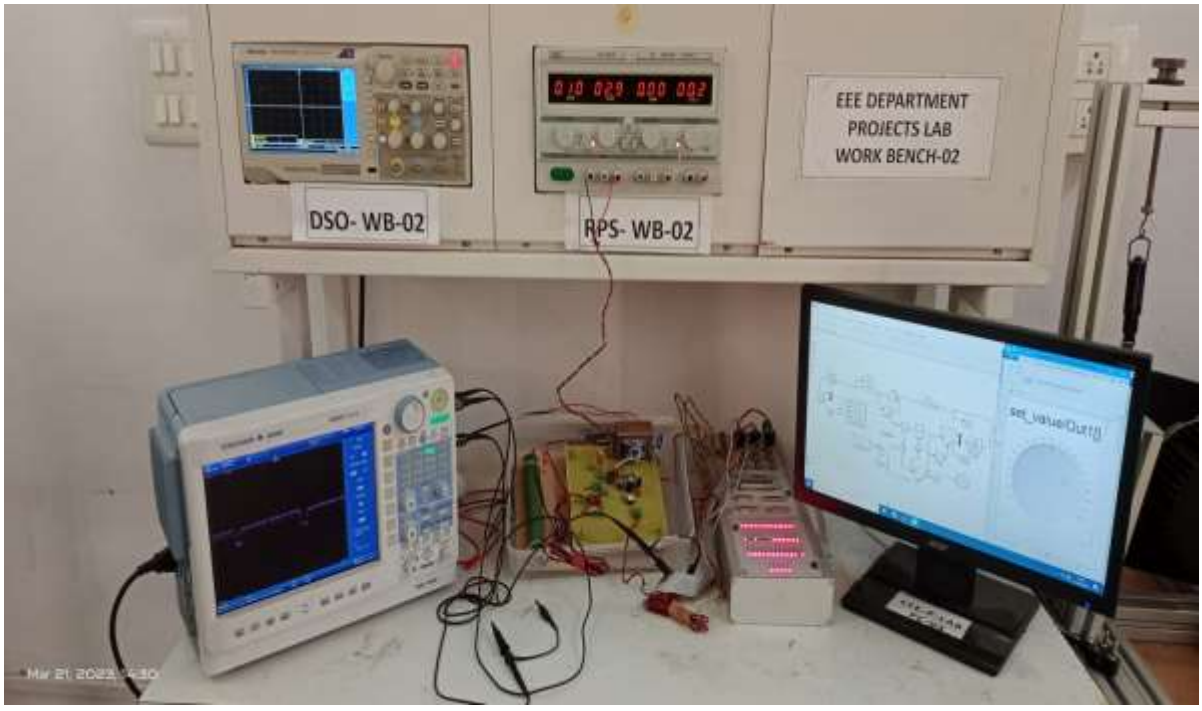
• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of DC-DC converter for EVs



17. Project Title: E-paper Notice Board

Mentor Name: N.N.S.S.S.Adithya

Student team names:

a. Kunti Aruna

b. Ajith Reddy

c. K.Sai Chandana

Project Description:

Objective: To develop a display board using the latest e-paper display technology which is light weighted and has less power consumption.

Prototype developed: Prototype of “e-display board” has been developed using the latest e-paper display technology which is light weighted and has less power consumption. E-ink is the low-power consumption display technology, The notion of a low-power paper-like display had existed since the 1970s, originally conceived by researchers at Xerox PARC, but had never been realized. We create a wireless display which can take an image as input wirelessly over WI-Fi or Bluetooth. This will be drawn on the screen with a driver board. It can be used for wide variety of applications such as like Commerical Advertizing, Menue Boards in restaurants and public spaces.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “E-paper Notice Board”

18. Project Title: Rain Water Harvesting (RWH) and Aquifer Recharge

Mentor Name: Dr. B. Naga Malleswara Rao

Student team names:

a. E. Rajashekar goud

b. G. Vinay

c. P. Sanjeeva

Project Description:

Objective: To develop three RWH and innovative aquifer recharge structures in order to augment the groundwater and yield of existing bore wells

Prototype Developed: Rain Water Harvesting (RWH) and Aquifer Recharge has been developed. The bore well recharge technology has the capacity to recharge more rainwater in shorter span of time. The technology is more effective in augmenting groundwater compared to the conventional methods, such as, ponds, check dams or percolation pits. These three structures on the college campus will also serve as demonstration models for the neighbouring institutions and village farmers. The college will make effort in future to expose the local farmers to this innovative technology and replication of the same.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Rain Water Harvesting (RWH) and Aquifer Recharge”

19. Project Title: Design of Broadband Millimeter wave patch antenna array for 5G applications

Mentor Name: Prof. C.H.V.R.S. Gopala Krishna

Student team names:

a. Kamlekar Priyadarshini

b. Kotla Sindhu

c. Vittalapuram Purna Prajna

Project Description:

Objective: To design broad band array antenna for 5G applications

Prototype developed: The array antenna has been developed. It has been designed for 5G communication applications. Millimeter wave (mm-Wave) band is strong candidate for future 5G communication because it has availability of large spectrum and wide bandwidth. It supports high data rate and low latency services. CST tool has been extensively used in the design and simulation studies. FR-4 substrate with printed copper material was used. Performance of prototype of array antenna has been tested and validated. The array antenna is operating from 18-26 GHz frequency band.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Isolation Device for Array Antennas”

20. Project Title: Solar-Wind Powered charging station for Electric Vehicles

Mentor Name: Gummadilli Venkateswarlu

Student team names:

a. M.K. Abhishek Basavesh

b. K. Narasimha Koushik

c. N. Supreet Reddy

d. P. Bhavana

Project Description:

Objective: To develop a Solar-wind Powered EV charging station that enables the user to charge their vehicle during the day and night using solar and wind power (when there is high demand, due to the lack of possibility to charge their vehicles using solar power).

Prototype Developed: Solar-VAWT (Vertical Axis Wind Turbine) powered EV charging station has been developed to incorporate a direct charging station and a storage unit in order to charge vehicles in the remote locations where raw power is not available. These stations can provide sustainable and clean power for EV charging by harnessing solar and wind energy. They reduce carbon emissions, alleviate grid strain, and enhance grid resilience. The integration of solar and VAWT technologies ensures a consistent and reliable energy supply, enabling EV owners to charge their vehicles conveniently while contributing to a greener transportation system.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

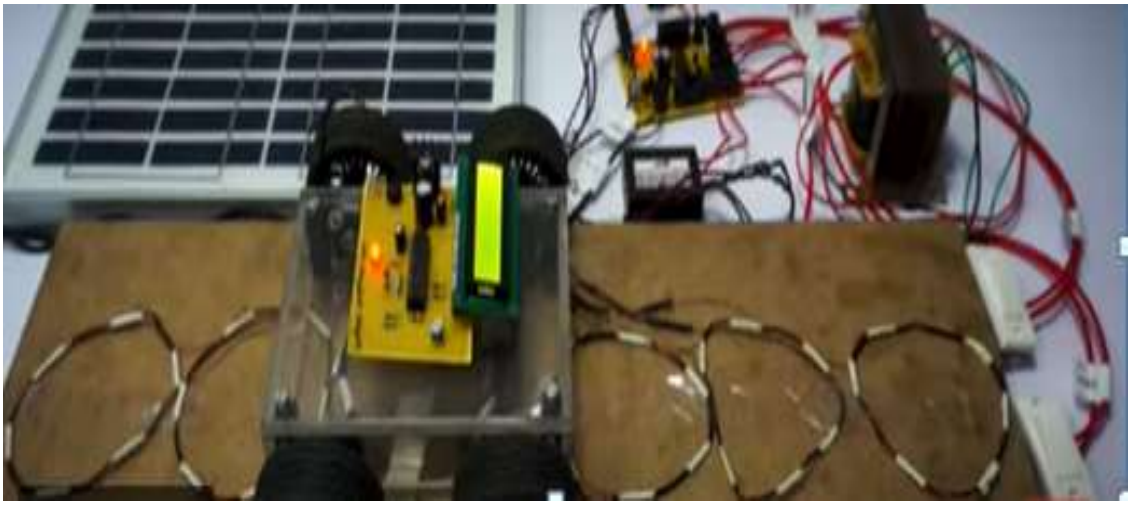
• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Solar-Wind Powered charging station for Electric Vehicles”



21. Project Title: Design and Development of C-Band Troposcatter Antenna Feed

Mentor Name: Mr. L. Nageswara Rao

Student team names:

a. K Vyshnavi

b. Anreddy Ajantha Reddy

Project Description:

Objective: To design and development of C-Band feed to illuminate a 4.5 M ϕ parabolic reflector

Prototype Developed: A C-Band feed has been developed to illuminate a 4.5 M ϕ parabolic reflector. The feed system is designed to illuminate a 0.25 to 0.5 focal length to diameter (f/D) reflector to achieve high gain, low side lobes and high cross polarization discrimination. The feed system has been developed as a scalar feed. The feed is dual linear polarized to provide polarization diversity. The detailed design, analysis and gain secondary radiation pattern is computed. The material for fabrication is chosen as brass or HE 30 Aluminum. The troposcatter antenna is operating from 4.4 to 5 GHz frequency band.

Project status at the beginning of the Year:

• Idea Stage

Interventions made:

• Provided support in making prototype product

• Provided mentoring from faculty and industry experts

• Provided support in field deployment of the product

• Given a grant from NewGen IEDC

Current status:

Prototype of the product has been developed

Pics of “Design and Development of C-Band Troposcatter Antenna Feed”

NewGen IEDC-Sumathi Reddy Institute of Technology for Women

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: (Fourth Year) 2022-2023

Name of the College/Institution hosting NewGen IEDC	**Sumathi Reddy Institute of Technology for Women**		
Year of starting NewGen IEDC	**2018-2019**		
Name of the Head/Principal of the Institution/College	**Dr. I. Rajasri Reddy**		
Name of NewGen IEDC Coordinator	**Ranjith Kumar Marrikukkala**		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	**9949254506** **newgeniedc@sritw.org** **ranjith1220@gmail.com**		
Financial Details	**Sr. No.**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NewGen-IEDC/18-19/0 Date: 13/11/2018	Rs. 60,00,000
	2		Rs. 47,50,000
	3		Rs. 60,00,000
	4		Rs. 60,00,000

1. **Details of Activities Undertaken during the year (*also provide two/three photograph on each activity*):**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. Weekly Innovation Challenge

- Every week student teams developed a solution for a given problem statement

2. Project Expo

- Every student gets hands on experience on project development

3. Startup Awareness Drive

- Seven Products are established startup and Ten products are under process to establish their commercialization

4. Women Entreprenurial Week-2023

- SRITW NewGen IEDC conducted a 1 week women entrepreneurial week.

[B] To identify, develop & commercialize students' innovative ideas

1. Tinker Camp
    1. Students from different disciplines will be chosen and work together to complete the project. Tinker camp helps different engineering students to know the role of other disciplines in completing a project. Campers will also know how engineering can change human living conditions. Tinker Camp is organized for engineering and management students every year

2. Ideation Fest
    1. 23 Ideas are shortlisted for NewGen IEDC Second Year projects

3. Innovision
    - Students presented their ideas, and projected prototypes

4. Buildathon
    1. Students went through a 24 hours buildathon for converting their idea into a product

[C] To enhance Industry-Academia interaction

1. Industry Interaction Program (IoTHackathon)
    - Student teams participated in a 24hours hackathon to develop IoT based prototypes

2. SRITW Hackathon
    - 30 student teams are present their solutions in internal Hackathon

2. Deviation (shortfall) from the proposed action plan (with reasons), if any: NA

3. Other important highlights (new initiatives), if any: NA

4. **Student Projects**

Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos

5. **Provide a minimum two-page case let each on the two best student projects (either prototype developed or commercialized) from the above list. The case lets should include the following:**

Best Student Project-1: Coconut De-husking Apparatus

I. **Mentors Name: Dr. I. Rajasri Reddy**

II. **Student team details**

1. Vadala Niharika
2. G.Neha
3. K. Nikhitha
4. Tejasree Samala
5. Adepu Sumana Rushi
6. Anjali Pingili

III. **Brief description of the student start-up**

Husking of coconut is among the most-difficult post-harvest operations relevant to coconut. Traditionally the entire husking is done manually using either a machete or a crowbar, and it involves much human drudgery, skill, training, and endurance. There are lots of machines invented all over the world to mechanize this operation, but only a few of them are available in market, sadly some of them have vanished from the market and the rest have not reached the market yet due to many reasons. So a study was conducted about the various coconut husking machines which were made so far stating what are advantages and disadvantages of them, the study included both the manually and mechanized versions of husking mechanisms

IV. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**

V. **Contribution of NewGen IEDC in the same:** 3,52,450

VI. **Future plan:** Commercialization

VII. **Important highlights:** Product utilized in market

Best Student Project-2: Automatic Car Jack

I. **Mentors Name** **:** K. Ravi Kiran

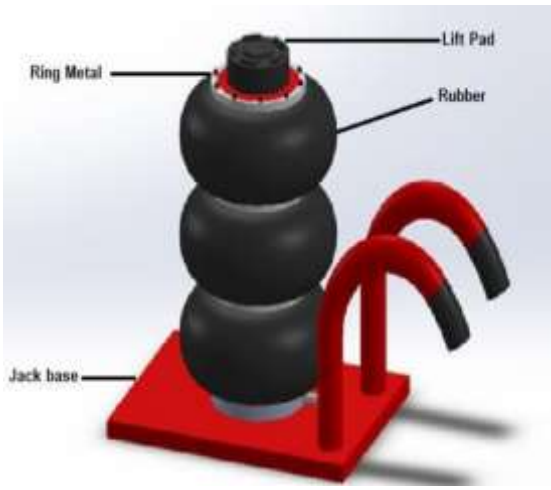
II. **Student team details**

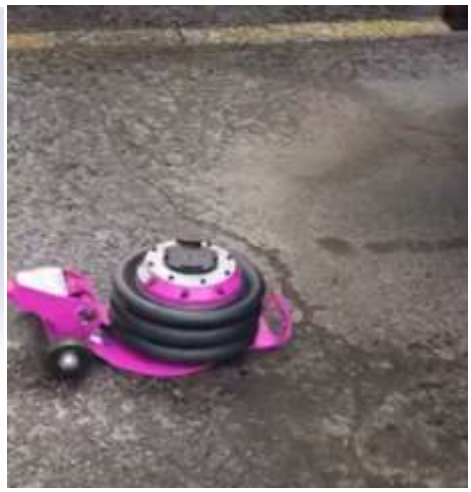
1. Romana Tafheem
2. Gudimalla Pravalika
3. Huzaifa Gaznam
4. Keesari Shalini
5. Sahana G.
6. Ramya

III. **Brief description of the student start-up**

The primary jacking tool on frame racks, alignment devices, and in all sorts of repair facilities is a pneumatic lift jack. They are practically maintenance-free and really quick! One of the most helpful items in any body shop is the lifts. Simply said, this is the most straightforward and efficient method of mounting pinch-weld clamps on the frame machine.

IV. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.**





V. **Contribution of NewGen IEDC in the same**3,04,890

VI. **Future plan** Commercialization

VII. **Important highlights** Product utilized in market

Annexure-A

Details of Student Projects: Fourth Year

Project -01: Coconut De-husking Apparatus

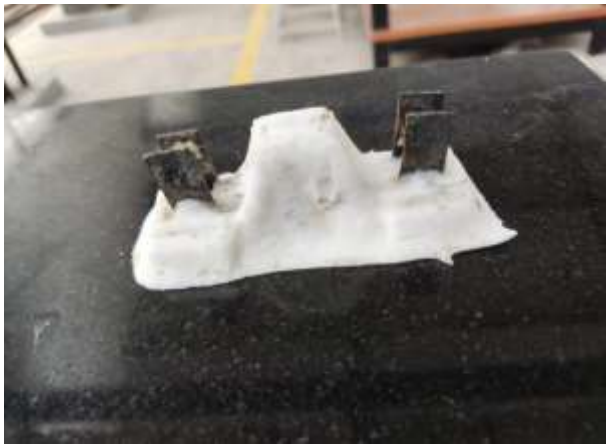
1. **Project Title** : Coconut De-husking Apparatus
2. **Mentor Name** : Dr. I. Rajasri Reddy
3. **Student Team Names:**
    1. Vadala Niharika
    2. G.neha
    3. K.Nikhitha
    4. Tejasree Samala
    5. Adepu Sumana Rushi
    6. Anjali pingili
4. **Project Description:** Husking of coconut is among the most-difficult post-harvest operations relevant to coconut. Traditionally the entire husking is done manually using either a machete or a crowbar, and it involves much human drudgery, skill, training, and endurance. There are lots of machines invented all over the world to mechanize this operation, but only a few of them are available in market, sadly some of them have vanished from the market and the rest have not reached the market yet due to many reasons. So a study was conducted about the various coconut husking machines which were made so far stating what are advantages and disadvantages of them, the study included both the manually and mechanized versions of husking mechanisms
5. **Project status at the beginning of the Year:** Working model
6. **Interventions made:**
7. **Current status:** Prototype developed
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

Project -02: Agriculture Machine for Shredding of Harvested Crops

1. **Project Title** : Agriculture Machine for Shredding of Harvested Crops
2. **Mentor Name** : Dr. E. Sudarshan
3. **Student Team Names:**
    1. Gogula Sowmya
    2. Seelam Nandhini
    3. Devatha Rishitha
    4. Sumera Gouhar
    5. Bajyam Kavya
    6. Shruthi Indripala
4. **Project Description:** Harvested crops removing is difficult task for farmers, it is time consuming process, which leads to late crop. To addressing this problem we are developed a shredding machine, which removes the harvested crop wastage in fast manner.
5. **Project status at the beginning of the Year:**
    - Idea generated
6. **Interventions made:**
7. **Current status:** Prototype developed
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

Project -03: Electrical Insulators Designed By Polymer Wastage

1. **Project Title** : Electrical Insulators Designed By Polymer Wastage
2. **Mentor Name** : M. Sruthi
3. **Student Team Names:**
    1. Kavya Sri
    2. Keerthika Ravula
    3. Kancharla Siri
    4. P.Sankeerthana
    5. Mamidala Pooja
    6. Chinnala Sony
4. **Project Description:** Polymer waste is converted into useful product, Flexibility of the product, Electrical insulators with different compositions and Eco-friendly product. The product is safer in comparison to other insulation materials as it has increased the resistance capacity by 1.5 Volts.
5. **Project status at the beginning of the Year:** Idea generated
6. **Interventions made:**
7. **Current status:** Prototype developed
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

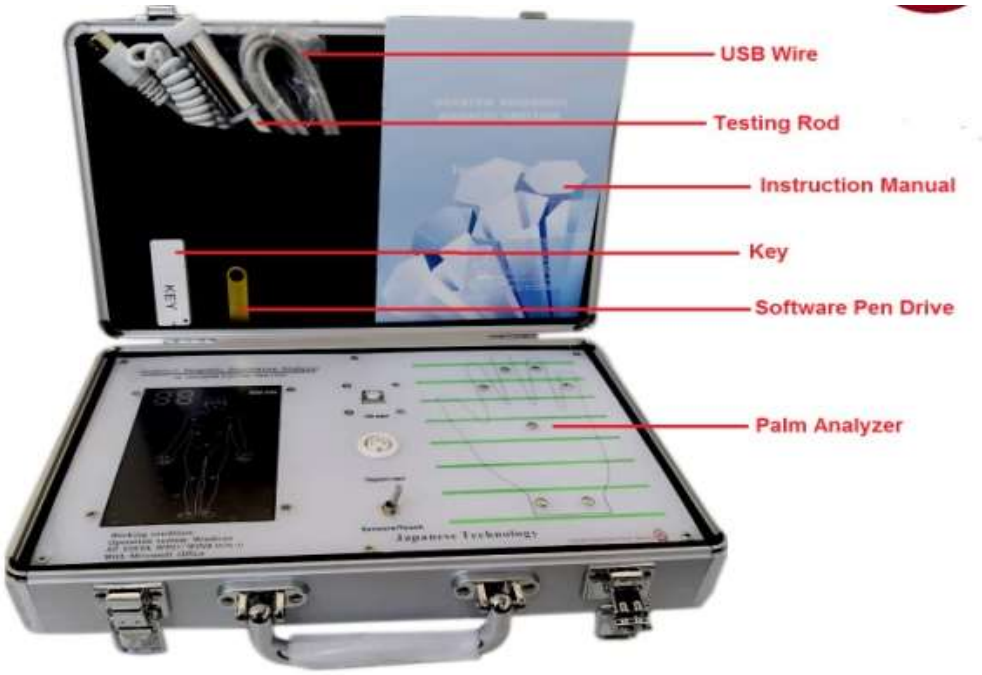


Project -04: Smart Shopping Cart

1. **Project Title** : Smart Shopping Cart
2. **Mentor Name** : M. Ranjith Kumar
3. **Student Team Names:**
    1. A. Laxmi Prasanna
    2. Kawade Jyothi
    3. L Vanditha Reddy
    4. Vyshnavi.Gudem
    5. Ch.Likhitha
    6. Kurma Bhavana
4. **Project Description:** This idea can be used for the customers arriving at hypermarkets. The system is designed to track objects by spinning left and right to keep the object in sight and driving forward and backward to maintain a constant distance between the system and the object. This system is also implemented with automatic billing using RFID readers and tags.
5. **Project status at the beginning of the Year:** Working model developed
6. **Interventions made:**
7. **Current status:** Prototype developed
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

Project -05: Full Body Testing Using Electronic Device

1. **Project Title** : Full Body Testing Using Electronic Device
2. **Mentor Name** : J. Vedika
3. **Student Team Names:**
    1. Agurla Amulya
    2. Gourishetty Keerthika
    3. Gampa Sakruthi
    4. Sravya Salendra
    5. Bitla Roja
    6. Sharanya Manem
4. **Project Description:** It is highly acclaimed by the clients for a complete analysis of the body organs in accordance with the height and other parameters. Theoretically based on medicine, this health device utilizes the advanced electronic equipment to collect the weak magnetic field of human cells for scientific analysis. Then on the basis of this analysis, the tester can get the health status of the tested person and make diagnosis.
5. **Project status at the beginning of the Year:** Idea generated
6. **Interventions made:**
7. **Current status:** Prototyped under development
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**



Project -06: Maize Stalk Biodegradable Disposals

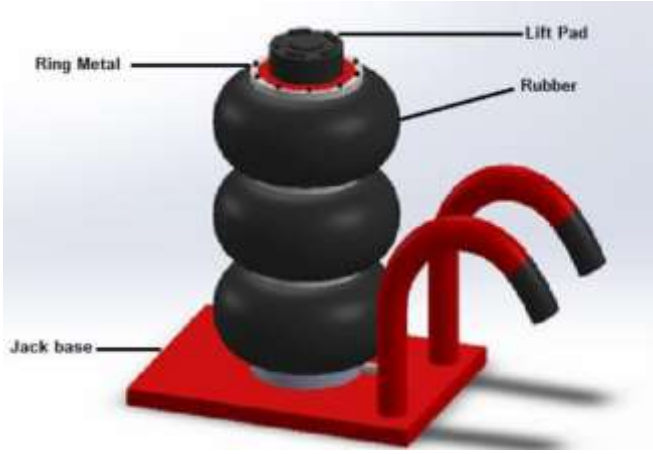
1. **Project Title** : Maize Stalk Biodegradable Disposals
2. **Mentor Name** : V. Pranathi
3. **Student Team Names:**
    1. Poshala Supriya
    2. G.Lakshmi Prasanna
    3. Ankathi Swathi
    4. Joshnavi
    5. Pooja
    6. Abhigna
4. **Project Description:** The use of plastic in various forms has lead to increase in soil pollution as well as causing an harm the cattle grazing in such areas. Though many new concepts and ideas have been developed by may innovators to replace plastic nothing has been materialized to totally eradicate the issue. The disposal of plastic table ware in to open lands after use is the main cause for pollution which can be minimized by making productive use of waste materials like sugarcane pulp and corn stalk.
5. **Project status at the beginning of the Year:**
    - Idea developed
6. **Interventions made:**
7. **Current status:**
    - Prototype developed
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

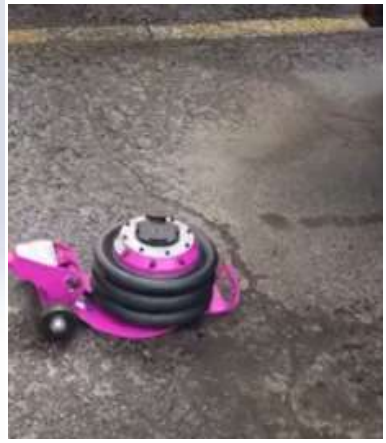
Project -07: Metal Magnetic Absorption Climber

1. **Project Title** : Metal Magnetic Absorption Climber
2. **Mentor Name** : M. Ranjith Kumar
3. **Student Team Names:**
    1. Ashna Aroosa
    2. Bommagani Bhavani
    3. Uppula.Yashasri
    4. Boga Bhavishya
    5. M.Tejaswini
    6. Dugyala Akanksha
4. **Project Description:** The components of a magnetic climbing system are a pair of shoes and handholds. To efficiently climb magnetic/metallic surfaces, a magnetic climbing mechanism is employed. Access to more objects is possible thanks to the system. Divers entering from the water may use this. The sides of the ship, for example, can be accessed from any location and at any height of shoe structures, which can be advantageous strategically.
5. **Project status at the beginning of the Year:**
    - Idea generated
6. **Interventions made:**
7. **Current status:**
    - Prototype developed
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

Project -08: Automatic Car Jack

1. **Project Title** : Automatic Car Jack
2. **Mentor Name** : K. Ravi Kiran
3. **Student Team Names:**
    1. Romana Tafheem
    2. Gudimalla Pravalika
    3. Huzaifa Gaznam
    4. Keesari Shalini
    5. Sahana.G
    6. Ramya
4. **Project Description:** The primary jacking tool on frame racks, alignment devices, and in all sorts of repair facilities is a pneumatic lift jack. They are practically maintenance-free and really quick! One of the most helpful items in any body shop is the lifts. Simply said, this is the most straightforward and efficient method of mounting pinch-weld clamps on the frame machine.
5. **Project status at the beginning of the Year:**
    - Idea generated
6. **Interventions made:**
7. **Current status:**
    - Prototype developed
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**





Project -09: Fitness Based Washing Machine

1. **Project Title** : Fitness Based Washing Machine
2. **Mentor Name** : N. Govardhan
3. **Student Team Names:**
    1. Kothapalli Sreeja
    2. Burla Harika
    3. Lingala Varshasri
    4. Palle Shivani
    5. Katta Sushma
    6. Sowmyasree Kokkarakonda
4. **Project Description:** The machine uses abs machine for washing clothes. Moreover, you can also get your clothes dry with the same procedure. Homemakers have less time to exercise to stay in shape. On the other hand, if they are under stress about being fit, they will likely neglect some housework. If you're one of those people who struggle to juggle both tasks, there's a new innovation that could help you stay fit while doing laundry. You can't let this important household task slip by without washing your garments.
5. **Project status at the beginning of the Year:**
    - Working model designed
6. **Interventions made:**
7. **Current status:**
    - Product developed
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

Project -10: Solar Portable Traffic Signal

1. **Project Title** : Solar Portable Traffic Signal
2. **Mentor Name** : Dr. M. Gopal
3. **Student Team Names:**
    1. Shushma Suddala
    2. Emmadi Sathwika
    3. Navya Kashaboina
    4. Junnuthula Vidhya Reddy
    5. Thallapalli Navyasree
    6. Shaik Rizwana
4. **Project Description:** Solar portable traffic signals allow you to effectively manage traffic. Whether you need emergency backup, one lane work Jones, Bridge repair or special events these traffic control systems are portable and reliable are available Daily and long term rentals are available .Portable traffic signals are most often used at shuttle working sits i.e., sites where the width of the road is restricted so that traffic can only pass in one direction at a time.
5. **Project status at the beginning of the Year:**
    - Idea generated
6. **Interventions made:**
7. **Current status:**
    - Product developed

8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

Project -11: Biopots Made With Groundnut Shell

1. **Project Title** : Biopots Made With Groundnut Shell
2. **Mentor Name** : Raghavakumari Devi
3. **Student Team Names:**
    1. Pendota Bhavani
    2. Pinninti Siri
    3. Merugu Harshini
    4. Udutha Swathi
    5. Uppula Sushmitha
    6. D.Anusha
4. **Project Description:** Polythene bags are conventionally used for large-scale seedling production in nurseries. These usual methods employed in raising seedlings have been practicing all over the world which is very harmful to the Environment. It was very saddening truth that, people were not removing the polythene bags while sowing the plants in the soil. Groundnut shells are the leftover product obtained after the removal of groundnut seed from its pod.
5. **Project status at the beginning of the Year:**
    - Idea generated
6. **Interventions made:**
7. **Current status:**
    - Product Developed
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

Project -12: Eco-friendly Cardboard Furniture

1. **Project Title** : Eco-friendly Cardboard Furniture
2. **Mentor Name** : B. Prashanth
3. **Student Team Names:**
    1. Saniya Salwa
    2. Gnapika
    3. Manda Keerthana Varma
    4. Akshara Addagoda
    5. Sundilla Jyothi
    6. Ledalla Vishalika
4. **Project Description:** Cardboard furniture is designed with eco-friendly 3 ply corrugated sheets manufactured from paper. This tends to be much cost-effective compared to traditional timber furniture and interiors. As the furniture is modular it is easy to mass produce and involves much easier logistics compared to traditional furniture manufacturing. Cardboard furniture simplifies the overall lifecycle of furniture staring from designing and manufacturing to installation and recycling. As the modular cardboard furniture comes disassembled in a flat box, it is easy to transport and deliver to the clients.
5. **Project status at the beginning of the Year:**
    - Idea generated
6. **Interventions made:**

7. **Current status:**
    - Product developed

8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

Project -13: Supply Chain Management Solutions

1. **Project Title** : Supply Chain Management Solutions
2. **Mentor Name** : M. Ruchinadhan
3. **Student Team Names:**
    1. P. Chaithanya
    2. Cepathi Shivani
    3. Aparaja Akshaya
    4. Keshetti Krishnaveni
    5. Sheshugari Kavya
    6. Vura Akhila
4. **Project Description:** Fruits and vegetables are transported orchards or origin points to consumer locations which are far away. This necessitates the proper cold chain with refrigerated container transportation along with temperature control. During international transportation in a shipping container, the controlling of temperature and other gas composition inside the container is uncertain. Any fluctuation in the parameters inside the container makes the fruits and vegetables vulnerable to spoilage or degradation. The losses due to improper control of temperature and gas conditions leads to shrinkage, spoilage, weight loss and poor quality at the receiving ports. Poor quality is undesirable for all stakeholders.
5. **Project status at the beginning of the Year:**
    - Idea generated
6. **Interventions made:**
7. **Current status:**
    - Product Developed
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

Project -14: FarmerKart

1. **Project Title** : FarmerKart
2. **Mentor Name** : M. Ranjith Kumar
3. **Student Team Names:**
    1. Kanantha Reddy Vasavi
    2. Vulli Harshitha
    3. Nelutla Pavani
    4. Salendra Hema
    5. Soujanya Reddy Enugala
    6. Yara.Akhila
4. **Project Description:** This can be achieved by Delivery of fertilizers to customers when they need on time through telecommunication and some services.(example like gas booking system through telecall). With help of PAC's (Primary Agriculture Committees and Fertilizer distributors we can achieve this.
5. **Project status at the beginning of the Year:**
    - Idea generated
6. **Interventions made:**

7. **Current status:**
    - Prototyped developed

8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

Project -15: Smart Water Bottle

1. **Project Title** : Smart Water Bottle
2. **Mentor Name** : V. Srinivas
3. **Student Team Names:**
    1. Minukuri Saipriya
    2. Ch Swathi
    3. Saindla Swetha
    4. Maramreddy Velangini Shamitha-
    5. Ch Sonalika
    6. Jooluri Manaswini
4. **Project Description:** Aim of the product, is to make dirt water in clean and hygienic with out loss of minerals we made cheap and best water filter in which it converts water in alkaline water our system is same as kangen water but whic is not even 10% cost of kangen water filter

5. **Project status at the beginning of the Year:**
    - Idea generated
6. **Interventions made:**

7. **Current status:**
    - Prototype Developed

8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

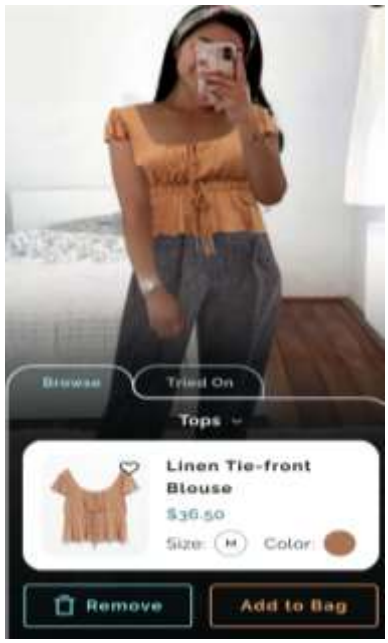
Project -16: Apparatus Rain sensor

1. **Project Title** : Apparatus Rain sensor
2. **Mentor Name** : Dr. E.Raju
3. **Student Team Names:**
    1. K. Vaishnavi
    2. Farah Muskaan
    3. Vaddeboina Harshitha
    4. Thode Keerthi
    5. Balne Sandhya Rani
    6. Jannu.Snehitha
4. **Project Description:** When the rain falls on the cover by the sensing the wet or water it's automatically closes the cover it's manily user in rice (vaddalu) it's save the rice without not to fall water on it
5. **Project status at the beginning of the Year:**
    - Idea generated
6. **Interventions made:**

7. **Current status:**
    - Prototype developed
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**

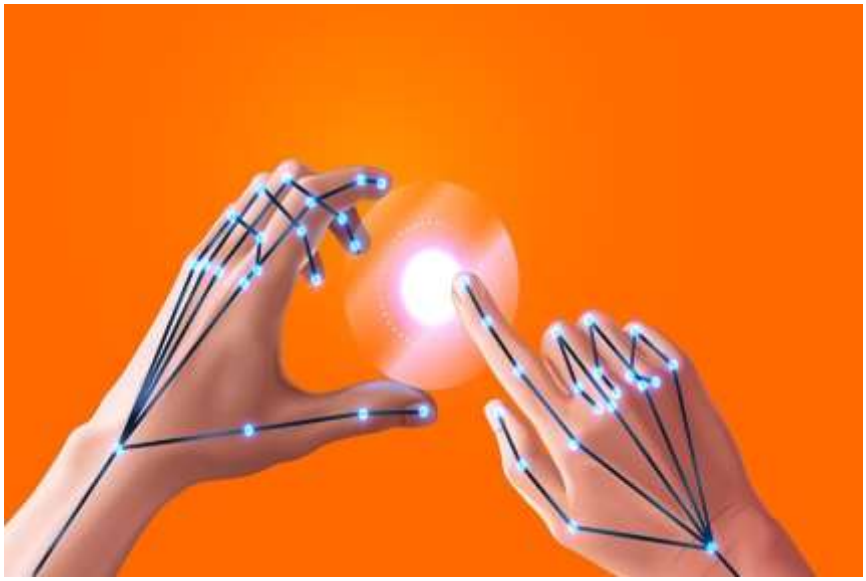
Project -17: CuteFit

1. **Project Title** : CuteFit
2. **Mentor Name** : M. Anitha
3. **Student Team Names:**
    1. Thalla Namitha
    2. Sankineni Nithyanjali
    3. Muppa Meghana
    4. Thahniyath Imrana
    5. Syeda Simra Konain
    6. Ambala Geethanjali
4. **Project Description:** Cutefit is an app which allows the user to try on clothes, jewellery, watches, sneakers etc. before buying them. It is also a platform for users to try on several interesting combinations and then upload results on social media and showcase them to the world. Lastly, it serves as a huge market for 1000s of small boutiques and allows anyone who likes designing to reach 100s of potential customers.
5. **Project status at the beginning of the Year:**
    - Idea generated
6. **Interventions made:**
7. **Current status:**
    - Prototype developed
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**



Project -18: Gesture Recognition System

1. **Project Title** : Gesture Recognition System
2. **Mentor Name** : P. Prathuysha Reddy
3. **Student Team Names:**
    1. R Lakshmi Chandana
    2. B.Harshitha
    3. Ayesha Nishath
    4. Sangem Shruthi
    5. Nagekar Akshaya
    6. Banothu Kalyani
4. **Project Description:** We are developing a hand tracking technology that converts sign language into speech and helps our deaf friends to communicate freely! This sensor based gesture recognition technology has endless potential to disrupt various other segments.
5. **Project status at the beginning of the Year:**
    - Idea generated
6. **Interventions made:**
7. **Current status:**
    - Prototype under development
8. **High-resolutionpictures showing thePrototype/product along with the students and their mentor for each project:**



NewGen IEDC-I.T.S Engineering College, Greater Noida

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: (Fourth Year) (2022-2023)

Name of the College/Institution hosting NewGen IEDC	I.T.S Engineering College, Greater Noida		
Year of starting NewGen IEDC	2018-2019		
Name of the Head/Principal of the Institution/College	Dr. Mayank Garg		
Name of NewGen IEDC Coordinator	Mr. Upendra Kumar Agarwal		
Contact Details of NewGen IEDC Coordinator • Mobile Number • e-Mail ID	9650866636 upendraagarwal.eee@its.edu.in		
Financial Details	**Sanction Order No./ Date**		**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST-NewGen IEDC/18-19/11 Date: 13/11/2018	60,00,000
	2		47,50,000
	3		60,00,000
	4		60,00,000

1. Details of Activities Undertaken during the year:

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students

1. Workshop on "Innovation for Better Future & Sustainable Development"

Date of the Event: 13th October 2022

Brief of the programme:

- To motivate students to think out of box and to become innovators
- The resource person Er. Dharam Raj Panwar, Co-Founder & Chief Technical Officer, STEAMEDU LEARNING PRIVATE LIMITED, Anveshan Foundation Incubation Center, Delhi enlightens the participants with his vast knowledge, skill and expertise about the importance of innovation for better future and sustainable development.

The outcome of the programme:

- Participants got to know recent trends in robotics technology, Artificial Intelligence, Machine Learning, Python and smart sensors.
- Participants got hands-on training with Robotics Kit

2. Expert Talk on "NEP2020: A Revolution in Indian Education System"

Date of the Event: 11th November 2022

Brief of the programme: To spread awareness about National Education Policy (NEP) 2020 and to discuss the policy with participants.

The outcome of the programme: Participants learnt about National Education Policy (NEP) 2020

Participants got to know the key features of NEP 2020 along with the credit system. Also got the Motivation to pursue international Certification courses from reputed Universities along with their regular course.

Photographs of the programme:

3. "My Story - Motivational Session by Successful Innovators"

Date of the Event: 16th November 2022

Brief of the programme:

- motivate the participants for Innovation and to motivate students to do innovative projects & innovative activities
- The resource person Ms. Manasi Bansal, Director & Co founder, Raahee Wellness Services Pvt. Limited explained how she came up with innovative idea while pursuing her B.tech. and explained her journey of starting her own venture and the difficulty she faced and the solution of the problems.

Outcome of the programme:

- Participants learnt the journey of an innovator and got motivated to do innovative projects.
- Participants got the information and knowledge to get financial & handholding support from funding agencies and mentors.

4. **“My Story - Motivational Session by Successful Innovators”**

Date of the Event: 22nd November 2022

Brief of the programme:

- To motivate students to start entrepreneurial activities and chose entrepreneurship as career option
- The resource person Mr. Vivek Singh, Founder & CEO, of VS Energy Harmonization & Automation Pvt. Ltd. discussed his story of starting his own company. He explained how his company got the opportunity to sign MOU with Uttarakhand State Government for the project GRAM Light

The outcome of the program:

- Participants learned about Entrepreneurship and Development.
- Participants were motivated to start entrepreneurial activities and chose entrepreneurship as a career option

5. **Workshop on “Data Sciences as a career option”**

Date of the Event: 24th November 2022.

Brief of the programme:

- To get aware the students about the various Data Science Tools and Applications used in Industries.
- The resource person Mr. Jitendra Kumar & Mr. SonuParkash discussed the key features of Data Science used in industry. They explained the students that data Science is a multidisciplinary approach that combines principles and practices from the fields of mathematics, statistics, artificial intelligence, and computer engineering to analyze large amounts of data. They explained about the opportunity for students to start their own venture in data science.

The outcome of the programme:

- Participants learned about the use of data science as career options.
- Participants got to know the key tools and application of Data Science used in Industries

6. Workshop on "Industrial Robotics & Control"

Date of the Event: 30th November 2022.

Brief of the programme:

- To provide hands-on training on Industrial Robotics & Control and to develop skillsin Robotics & control technology concepts of Robotics & Control.
- The resource person Mr. Ravindra Mishra , R& D Engineer, Sofcon India Pvt. ltd. explained the basic concepts of robotics and control and then explained working principle of Robotics, Motion Control, Drive circuit, ARDUINO UNO, Motion Control Simulation and Programming, Different Sensors, Node MCU, Servo Motor, Microprocessors.

The outcome of the programme:

- Participants learnt about Robotics technology and got exposure to industrial application of robotics.
- Participants understood how to make Robotics based Projects.

7. Expert Talk on "Corporate Initiatives for Conservation of Energy & Environment"

Date of the Event: 20th December 2022

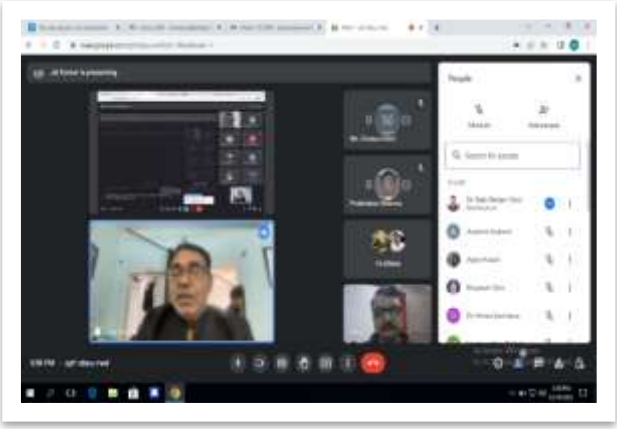
Brief of the programme:

- To spread awareness about Energy Conservation and to explain initiatives taken by companies for the conservation of Energy & Environment

- The expert Mr. Jai Kumar, Chief Engineer (Production), ONGC Limited, A Maharatna Company (A Government of India Enterprise) explained the importance of National Energy Conservation Day and discussed various initiatives taken up by ONGC to conserve energy and the environment.

The Outcome of the programme:

- Participants had been sensitized for energy conservation
- Participants got the information about Initiatives taken by ONGC for Conservation of Energy & Environment



8. Workshop on "Introduction to SDGs & Entrepreneurship"

Date of the Event: 20th December 2022

Brief of the programme :

- Spread awareness among students about United Nations (UN) Sustainable Development Goals (SDGs) and motivate them to choose Entrepreneurship as career option
- The resource person Mr. Aditya Bose, Founder & CEO, ProBano, explained in details about the sustainable development goals as these goals are the blueprint to achieve a better and more sustainable future for all.

The outcome of the programme:

- Students got to know about United Nations (UN) Sustainable Development Goals
- Got Motivation to choose Entrepreneurship as career option

9. One Day Entrepreneurship Awareness Program

Date of the Event: 22nd December 2022

Brief of the programme:

- To spread awareness about Entrepreneurship and to discuss schemes of MSME and incentives for MSME sectors
- The resource person Mr. Manoj Sharma, Assistant Director, MSME-DFO, New Delhi, discussed about schemes of MSME and incentives for MSME sectors to the participants. Mr. Vivek Singh, CEO & Founder, V S Energy explained the opportunities and challenges in the field of entrepreneurship. Mr. Om Prakash, Sr. Manager (Retd.) Canara Bank presented and explained the banking schemes for budding entrepreneurs.

The Outcome of the programme:

- Understood the opportunities and challenges in the field of entrepreneurship and Innovation, Entrepreneurship & Startup culture in HEI

10. Expert Talk on "How to channelize the energy of Youth to make India a developed country"

Date of the Event: 12th January 2023.

Brief of the programme:

- To motivate students to work hard and contribute towards the development of the nation to make India a developed country
- The resource person Mr. Sumit Verma, Founder & Managing Director, RJ Solar Pvt. Limited motivated the participants to work hard in the field, whatever their forte are, and contribute towards the development of the nation to make India a developed country. Mr Verma explained how he started his own venture in the Solar Technology.

The outcome of the programme:

- Motivate the participants to start their own venture and provide jobs to others.

11. Workshop on "Entrepreneurship Skill, Attitude and Behaviour Development"

Date of the Event: 25th January 2023

Brief of the programme:

- To enhance the Entrepreneurship Skill of participants and to induct positive attitudes for Entrepreneurship among participants
- To develop the entrepreneurial behavior of participants
- The resource person Mr. Dev Pratap, Founder & Director, Aqua Synthesis Pvt. Limited discussion to prune the Entrepreneurship Skill of participants He explained that an entrepreneur is an individual who creates and/or invests in one or more businesses, bearing most of the risks and enjoying most of the rewards.

The Outcome of the programme:

- Participants learnt to develop entrepreneurship skill, attitude and entrepreneurial behavior.

12. Session on "Intellectual Property Rights and IP management for Startups"

Date of the Event: 27th January, 2023

Brief of the programme:

- To sensitized the students and faculties about the different aspects of IPR.
- To initiate the process of patent of ideas of students and mentors
- The resource person **Ms. Pooja**, Head- Innove Intellects LLP enlighted the students and faculty members and startups. She discussed about the need of patents in a lucid manner with great insight.

The Outcome of the programme:

- The students and faculties learned about patenting procedures and patent informatics, patent searches, the role of innovation and invention in academia-industry partnerships.

[B] To identify, develop & commercialize students' innovative ideas

1. Expert Talk on "Startups- Need of Hour"

Date of the Event: 28th January 2023

Brief of the programme:

- To motivate students to start their own startup.
- The resource **person Mr. Arunabh Singh, Co-Founder, BIOCRUST PRIVATE Ltd. Head QHSE-PIPECARE Group** explained in details about the need & scope of startup in today's scenario. Mr. Singh discussed about different startup schemes supported by Government of India and state governments. Startup India is an initiative of the Government of India.

The Outcome of the programme:

- Participants learnt about Startup schemes. Participants got to know success and failure story of a startup.
- Got Motivation to choose startup as career option.

2. Leadership Talk for IIC institutions by Prof. T.G. Sitharam, Chairman, AICTE

Date of the event: 30th January 2023

Brief of the programme:

- To enhance leadership quality of the participants
- Dr. Abhay Jere, Chief Innovation Officer, Ministry of Education Innovation Cell, Government of India, started the session with his inaugural address and welcome of the Speaker. Prof. T.G. Sitharam, Chairman, AICTE discussed his journey right from schooling to IIT to IISc and how he took the responsibility of AICTE, Chairman.

The Outcome of the programme:

- Participants got motivation to explore different opportunities in multidisciplinary fields.

[B] To identify, develop & Commercialize student's innovative ideas

1. Workshop on Problem Solving and Ideation

Date of the Event: 14 October 2022

Brief of the programme:

- To provide skill to participants for problem solving and ideation
- The resource person Mr. Pratik Dwivedi, Assistant Professor, MBA Department discussed about importance of innovation and idea generation, importance of problem solving, the concept of entrepreneurship, the skills,

characteristics, attributes and functions of entrepreneurs, the importance of creative thinking and strategic thinking.

The outcome of the programme:

- The session was very fruitful for the participants as they understood the skill of problem solving and ideation.

2. Workshop on "Design Thinking, Critical Thinking and Innovation Design"

Date of the Event: 4 January 2023

Brief of the programme:

- To imbibe the concepts and application of Design Thinking, Critical thinking and Innovation Design.
- resource person Mr. Rahul Pandey, CEO & Founder, PULPY DIVE Pvt. Limited discussion about concepts and application of Design Thinking, Critical thinking and Innovation Design Innovation with design thinking demands critical thinking because we must understand our assumptions that frame our ideas and shape our design.

The outcome of the programme:

- Participants understood the concepts and application of Design Thinking, Critical thinking and Innovation Design.

- Acquisition & support of Innovative ideas and making a repository
- Organized Intra Institutional Idea Competition - Managed through YUKTI-NIR for B.tech and MBA students. Students have been asked to submit their innovative ideas on YUKTI Portal of ITS Engineering College Greater Noida. 180 students registered and 27 students group submitted their innovative ideas. The best three innovative ideas had been awarded with a certificate and a token of appreciation

Outcome of the programme:

- Participants were motivated to come up with innovative ideas and got support to nurture their ideas

4. Workshop on " Business Model And Canvas"

Date of the Event- 22 March 2023

Brief of the programme:

- To make participants understand straightforward way.
- NewGen IEDC, ITS Engineering College, Greater Noida organized Workshop on **"Business Model Canvas (BMC)" on 22nd March 2023.**
- The Resource Person **Mr. Rachit Kumar, CEO & Founder, BIZFINN Pvt. Ltd** discussed that us to better understand a business model in a structured and straightforward way.
- The practicality of BMC really helps in conveying the idea to be developed and commercialized the product or business to the market.

The outcome of the programme: Participants understood

- Attendees imbibed the effectiveness of customer relationships.
- Participants can do research work in BMC.

5. Expert Talk on Intellectual Property Rights (IPRs) to celebrate World Intellectual Property Day

Date of the Event- 26 April 2023

Brief of the Programme:

- To spread awareness and to discuss about Intellectual Property Rights
- The Resource Person Prof. Arjun J. Chaudhuri (Advocate and Corporate Consultant) started his talk with an introduction of Patents, Designs, Trade Marks and Geographical Indications and then discussed the topics in detail. He explained that patents are exclusive privilege/rights granted by the Government to the patentee for 20 years from date of filing gain in consideration of full disclosure of his/ her invention as a Territorial Right & not worldwide. Trade Marks Registry was established in India in 1940 and presently it administers the Trade Marks Act, 1999 and the rules there under. It acts as a resource and information centre and is a facilitator in matters relating to trade marks in the country.

Outcome of the Programme:

- Understood the role of Patent and benefits of IPR
- Understood the difference between Patents, Designs, Trade Marks and Geographical Indications.

6. Workshop on "Block chain Technology"

Date of Event: 08/05/2023

Brief of the Programme:

- NewGen IEDC, ITS Engineering College, Greater Noida organized an expert talk on **"Blockchain Technology Society.** The speaker of the event was Engineer @NeonLabs.
- She further explained about Web 1.0 , Web 2.0 and Web 3.0 . To make session more engaging and interactive contracts and NFTs with real life examples.
- Further students had hands everyone made their first Crypto wallet through MetaMask and added 100 Neon coins. I.T.S Engineering College, Greater Noida Blockchain Technology", hosted by Cyberium Society

Outcome of the Programme:

- Students understood the different aspects of blockchain technology
- Understood the role of blockchain technology in their entrepreneurial journey.

7. **Seminar on "Unlocking New Possibilities using Technology" to celebrate National Technology Day**

Date of the Event- 17 May 2023

Brief of the Programme:

The Chief Guest & Keynote Speaker Mr. Arun Mishra, CEO & Founder-Bizbrolly Solutions discussed about his technopreneur journey and experience of software product development across various platforms and organisations globally. He explained the key of forming technology teams and how to deliver the innovative solutions of real life problems. Mr. Mishra also explained recent technologies as AI, ML, Robotics, Quantum computing Block chain, Robotics etc.

Outcome of the programme:

- Students understood the role of technology and entrepreneurship in their life.

8. **Demo Day & linkage with Innovation Ambassadors for Mentorship Support**

Date of the Event: 23rd May 2023

Brief of the Programme:

NewGen IEDC, ITS Engineering College Greater Noida organized Project Exhibition of PoC & linkage with Innovation Ambassadors for Mentorship Support in the NAVRACHANA Foundation, ITS Engineering College Greater Noida on 23rd May 2023. On YUKTI Portal of ITS Engineering College 180 students registered and 27 students group submitted their innovative ideas. 24 registrations had been verified and 21 innovative ideas had been assigned to innovation ambassadors. The best 18 innovative ideas had been recommended by the assessors. Students made model of their innovative ideas and developed the PoC.

9. Workshop on "Prototype/Process Design and Development

Date of the Event- 31 May 2023

Brief of the Programme:

- NewGen IEDC, ITS Engineering College organize"Prototype/Process Design and Development by Dr. Akhilesh Kumar Mishra, HOD MBA, SOMS,ITSEC Greater Noida.
- The Mr. Prabhat Chandra Sinha, (PGDM Professor of Practice- BIMTECH Gr. Noida, explained the concepts of Prototype Development and Process Design and Development defining the product type and deciding various attributes such as customers' requirements, problem statement, and the conceptual design of the product. In simple terms, when the working replica of the product is developed. A business to conquer a place in the market needs to have a product that is ready to meet the market discussed various Prototype Development Techniques, Stages of Prototype Development and Importance of Prototype Development.

[C] To enhance Industry-Academia interaction

1. Visit at EV India 2022 Expo (Electric Motor Vehicle Show)

Brief of the programme:

- NewGen IEDC organized one day industrial visit at **EV India 2022 Expo,** India Expo Centre, Greater Noida UP. It is an International Electric Motor Vehicle Show provides the opportunity and platform to students to get an exposure on latest EV Products, technology and equipment, Smart and NextGen transport, electric passengers cars, scooter, motorcycle, cycles, buses etc.
- They got an excellent exposure of the parts are using in manufacturing different kind of electric vehicles like batteries, hub motors, electronic control unit

Outcome of the programme:

- Understand the technology using in electric vehicles.
- Understand the different parts using in electric vehicle.
- Understand the concept and working of electric vehicles.

2. An Expo Visit for students of B. Tech at India Expo Centre – Greater Noida (REI-2022)

Brief of the visit:

- To provide students an overview of various types of renewable energy converters that is currently used in the world NewGen IEDC organized one day industrial visit at **REI -2022 Expo,** India Expo Centre, Greater Noida UP.
- The REI was the most comprehensive and reputed global platform where India's green economy community congregates to discuss industry trends, challenges and market insights including the Indian regulatory framework in presence of international stakeholders of repute.

The Outcome of the visit:

- Witness the recent innovations and technological advancements in Renewable Energy sector
- Exposed to various multinational companies who are dealing in renewable energy.
- Exposed to recent advancement in solar energy generation.
- Understood the importance of Green energy.

3. An Expo Visit for students of B. Tech at India Expo Centre – Greater Noida (Auto Expo-2022)

Brief of the visit:

- To provide an exposure and opportunities in Automobile sector covering I.C. Engine vehicles, ethanol & hydrogen based vehicles, concept cars and especially Electric Vehicles NweGen IEDC, I.T.S Engineering College Greater Noida has organized a visit to AUTO EXPO 2023 (The Motor Show), India Expo Mart, Greater Noida.
- students and facuty members visited different halls of expo mart decorated by different multinational automobile companies like KIA motors, LEXUS, Hyundai, TATA Motors, Maruti Suzuki, Toyota, Volvo, Eicher, ISUZU, MG, Greaves, JBM etc. with their latest I.C. Engine vehicles with single fuel or flexi fuels, ethanol & hydrogen based vehicles, concept cars and Electric Vehicles/ Hybrid Electric Vehicles.

The Outcome of the visit :

- Understood the recent innovations and technological advancements in Automobile industry covering I.C. Engine vehicles, ethanol & hydrogen based vehicles, concept cars and especially Electric Vehicles.

- Witnessed various multinational companies who are dealing in automobile and E-vehicles.
- Understood scope for engineers in these companies & industries.
- Advancement in technology and scope for improvement through research and innovation.

4. A Visit to attend a grand event (SEMICON India 2023) hosted by IIT Delhi

Date of Event: May 12, 2023

Brief of the Programme:

The program started with the lamp lightening in that some renowned persons of the companies were present namely Dr. Sushmita Chakrabarty, Synopsys, Mr. Girija Vedi, VVDN Technologies, Prof. Jasdeep Kaur, IGDTUW and Ms. Vrinda Kapoor, 3"Tech. The program proceeds with the session on the opportunities for future DESIGN start-ups in Automotive, Mobility and compute sectors by Hidetoshi Shibata, President & CEO, Renesas Electronics. Next session which was conducted on the opportunities for futureDESIGN start-ups in Space and Defence Sectors by Dr. Vivek Lall, Chief Executive, General Atomics Global Corporation. The session was procedded by the keynote session on catalyzing India's Next-Generation Semiconductor Design Startups by Shri Rajeev Chandrasekhar, Hon'ble Minister of State for Electronics & Information Technology and Skill Development & Entrepreneurship, Government of India followed by Q&A by the audience.

2. **Deviation (shortfall) from the proposed action plan (with reasons), if any:**

Programmes have been conducted on basic themes of innovation and entrepreneurship as proposed in the action plan. However, some changes made in programme titles mode of conduct due to resource person availabilities.

3. **Other important highlights (new initiatives), if any:**

- NewGen IEDC I.T.S Engineering College has initiated an outreach programme on Entrepreneurial Awareness to Diploma level students.
- Facilities developed for AI innovations.
- Facility developed for water testing Lab
- Developed IoT Lab for innovation in mechatronics field.

4. **Student Projects:**

   Refer to ANNEXURE-A for details of Student's Projects with Prototype Photos.

5. **Provide a minimum two-page case-let each on the two best student projects (either prototype developed or commercialized) from the above list. The case-let should include:**

Best Student Project- 1

1. **Project Title :** Development of Flexible 5G Antenna substrate.
2. **Mentor Name:** Dr. Praveen Chandra Jha and Mr Chandan Kumar
3. **Student Team Details:**
   1. Mr. Raghunandan Kumar
   2. Nr. Prabhat Kumar Mishra
4. **Brief description of the startup:**

   Startup Name : Naravno Eletric Private Limited, Ghaziabad

   CIN No. : U27900UP2023PTC181617

   UDYAM REGISTRATION NUMBERUDYAM : UP-29-0087229

   Profile : Manufacturing of electric and electronic equipment.
5. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high resolution photographs**

   Project status at the beginning of the year:

   Different blended solutions of modified shellac are made in lab and flexible antenna substrate is manufactured. Patent applied for flexible antenna base material. Final Flexible antenna is to be made.

Improvisation made:

Modified shellac based compositions are made in solution state.

These different solutions are the starting material for flexible antenna substrate material. Shellac based developed substrate material and the flexible antenna formed using this substrate is useful because it can be formed even in micrometer thickness. So miniature 5G electronic devices can be made using this antenna.

Current status:

Antennas are made of different dimensions and testing of this manufactured antenna is done for different frequencies. The startup has been registered.

6. **Contribution of Newgen IEDC**
   - Support provided for detailed scope of the project.
   - Provided the modelling and fabrication support.
   - Provided the lab and infrastructure support for experimentation.
   - Patent drafting and filing support.
   - Provided support for startup registration.
7. **Future plan:**
   - Preparation of detailed business plan and target customers.
   - Proposal letter and product catalogue preparation for marketing of the product.
   - Bulk manufacturing of the product to supply the customers
   - Atomization of the manufacturing of flexible antenna for large scale production
8. **Important Highlights**
   - The antenna is flexible in nature which is useful in wearable gadgets.
   - Addressing the problem of e-waste as its nature of biodegradability.
   - Economically cheaper compared to other available antenna

Best Student Project- 2

1. **Project Title :** IF-YO-NO (Open-source microcontroller board for robotics and automation)
2. **Mentor Name:** Mr. Sachin Sharma
3. **Student Team Details:**
   1. Ms. Ananya Sharma
   2. Md. Samiruddin Ansari
4. **Brief description of the startup:**
   Startup Name : Iotyde Technologies Private Limited, Noida
   CIN No. : U72100UP2023PTC181429
   UDYAM REGISTRATION NUMBERUDYAM : In process
   Profile : Manufacturing of electric and electronic equipment.
5. **Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high resolution photographs**
   Project status at the beginning of the year:
   In the beginning of the year, the project was on the ideation level, however literature and market survey was done on the open-source microcontroller board for roboticsand automation

Improvisation made:

Considering the disadvantages of Arduino controller such as Lack of Multitasking, Not optimized for performance, Lack of communications Less Memory Storage Capacity, an updated made in India microcontroller board “if-YONO” is being designed and developed. it will have following features such as easy to use, inexpensive hardware, active user community, cross platform support, multitasking and optimized for performance no lack of communication.

6. **Current status:**

All the components have been procured.

Design has been finalized and under fabrication.

First iterative prototype is ready.

Testing for different frequencies and different inputs in under process.

7. Contribution of Newgen IEDC

- Support provided for detailed scope of the project.
- Provided the modelling and fabrication support.
- Provided the lab and infrastructure support for experimentation.
- Patent drafting and filing support.
- Provided support for startup registration.

8. Future plan:

- Preparation of detailed business plan and target customers.
- Proposal letter and product catalogue preparation for marketing of the product.
- Bulk manufacturing of the product to supply the customers
- Atomization of the manufacturing of IF YO-NO controller for large scale production

9. Important Highlights

- Easy to use
- Inexpensive hardware
- Active user community
- Cross platform support
- Multitasking and optimized for performance
- No lack of communication

Annexure – A

Details of Student Projects

Project-01

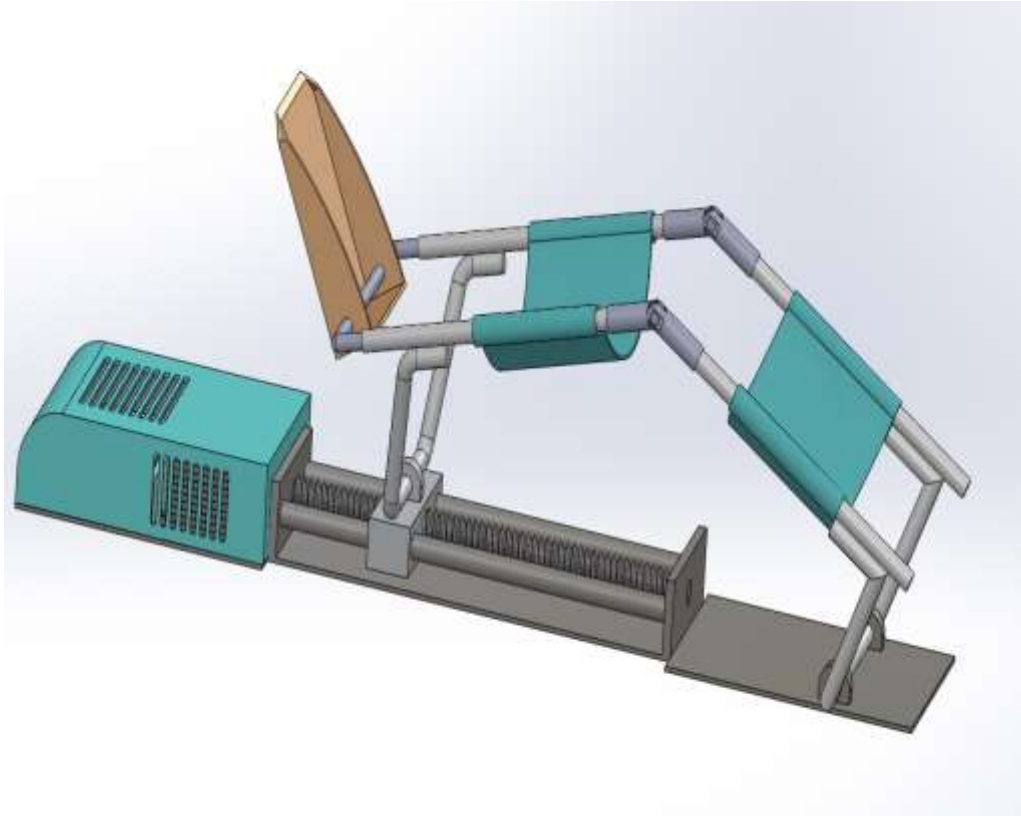
1. **Project Title:** Knee and Ankle Continuous Passive Motion (CPM) Machine.
2. **Mentor Name :** Mr. Chetan Dixit
3. **Student Team Name :** **1.** Deepanjan
   2. Suraj Kumar
4. **Project Description :**

   Post surgery causes stiffness in muscles, which is cured by CPM process performed by the help of physiotherapist. It is a highly time taking process for the physiotherapists. Hence, the physiotherapist could only cure limited number of patients. So, the project aims to automate the below waist joint movement using this Knee and Ankle CPM Machine. It will save the time as well as effort of the physiotherapist, so he/she can look after more patients. Along with the knee CPM, ankle CPM is also provided within the same device, whose motion will be controlled by using a synchronous motor. This synchronous motor will again be controlled by the same Arduino/Atmega unit. It will move the ankle up and down, providing a full stretch to the ankle joint.

   As per the requirement/advice of the therapists, the range, splint angle, speed and time limit of the continuous passive motion could be set/configured by the machine controller unit.
5. **Project status at the beginning of the year:**

   Ideation Level
6. **Interventions made :**
   - Support provided for detailed scope of the project such as designing and procurement.
   - Provided the CAD modelling and fabrication support.
   - Provided the programming and electronic items required.
7. **Current Status:**
   - All the components have been procured.
   - Lead screw and the mechanism has been finalized and under fabrication.
   - Development of Program Algorithm of motor and driver is in process.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Schematic view of knee and ankle CPM Machine

Project 02

1. Project Title : Advance Datum Surface Table

2. Mentor Name : Mr. Chetan Dixit

3. Student Team Names: Jayant Singh Rajput

4. Project Description:

For every manufacturing process, accurate geometric and physical dimensions are important. There are two methods. One is the conventional method that involves the use of surface plate on which measurement is done by hand tools or optical comparators. However, these tools require expertise and are open to lots of errors. The other is the use of a CMM machine that can measure the dimensions of a machine/tool parts using coordinate technology. The traditional methods of measuring parts has many limitations such as experienced and skilled manpower

and sophistication of the parts But the measure limitation of CMM machine is the cost of the machine which every vendor company cannot afford. So, designing and fabrication is done with new attachment on existing surface plate so that it provides better accuracy at lower cost.

In order to measure Geometry, Dimensions and Tolerances, spotting, Marking and inspection of the product, Arms of the surface table has been extended through welding and mechanism has been attached to that arms. This system uses digital Verniercaliper to measure all three axis movement accurately.

5. Project status at the beginning of the Year:

Ideation Level

6. Interventions made:

- Support provided for detailed scope of the project such as designing and procurement.
- Provided the CAD modelling and fabrication support.
- Provided the programming and electronic items required.

7. Current status:

- All the mechanisms are designed
- After the finishing of all parts assembly had been completed.
- Prototype is ready.
- Balancing and calibration of the machine is in process which will be completed with the help of balance gauge.

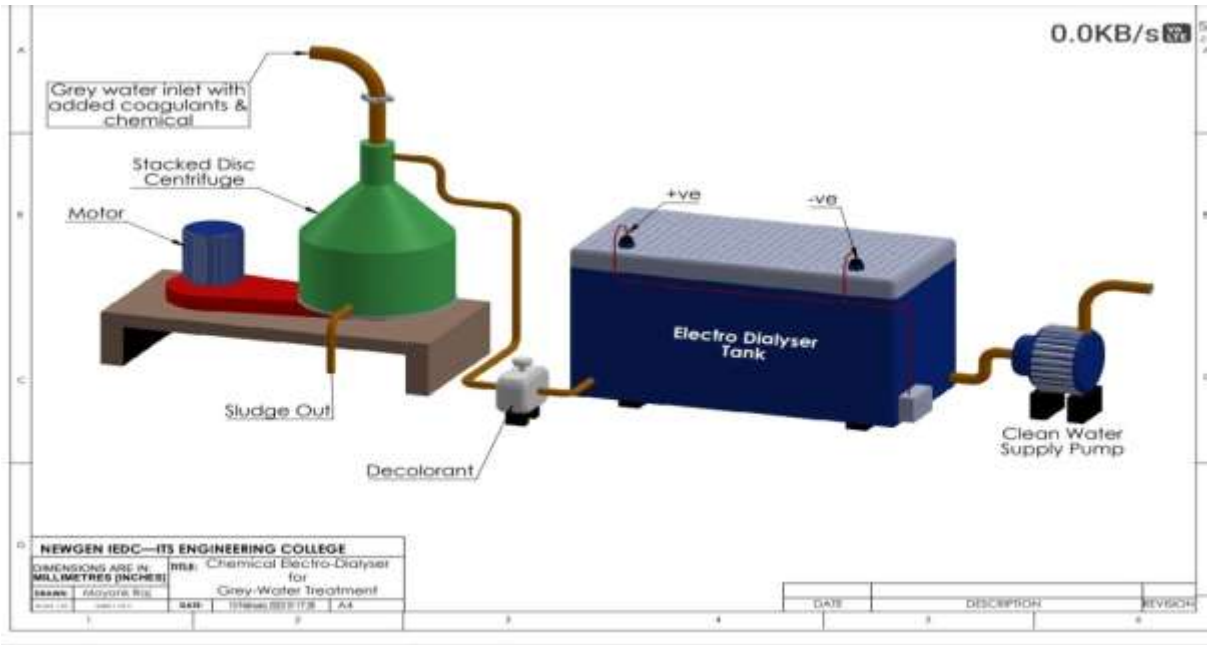
8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

Project-03:

1. **Project Title**: Chemical Electrodialiser for Waste Water Treatment
2. **Mentor Name**: Dr Praveen Chandra Jha
3. **Student Team Details**: Mohit ravi Kumar (B. Tech 1st Year ME)
   Pangersungla Pongen (B. Tech 1st Year CE)
4. **Project Description:**

The outgoing water from our bathrooms and sinks are grey water which generally contains oil and soap impurities in addition to hardness producing ions. In high rise societies thousands of liters of water get wasted as grey water daily and this water could not be used even in toilets because this water is coloured and foamy. Chemical electrodialyser uses combination of chemical treatment as well as electrodialysis which removes all the contaminants and colour from grey water.

It has good commercial value as no such system is available today and this system can continuously treat grey water with proper control.



5. **Project status at the beginning of the year:**

   Ideation Level

6. **Interventions made:**

- Support provided for detailed scope of the project such as designing and procurement.
- Provided the CAD modelling and fabrication support.
- Provided the programming and electronic items required.

7. **Current status:**

- Initial filtration chamber is made.
- Electrodialiser camber is to be made.

8. **High resolution pictures**

Project 4:

1. **Project Title:** Enterprise Security and Automation
2. **Mentor Name:** Mr. Sudhanshu Ranjan
3. **Student Team Names:** **1)** Shubham Kumar
   2) Shashwat Pandey
   3) Md. Samiruddin Ansari
4. **Project Description:**

   Enterprise Security and Automation, stands as a unified solution to security and automation of various commercial spaces, where both security and automation of the facility becomes a need to manage the spaces in a hassle-free manner. For security, the system analyses CCTV data in real-time and, checks for the problems like intrusion, unauthorized access, trespassing etc. The system analyses these factors from the real-time camera feed and raise an alert when required. The system also, monitors factors such as presence, frequency of movement requirement of lighting, and various other appliances, and signals a subsystem when to toggle appliance based on behavioral pattern analysis. The system also analyses hand gestures, to pick up various user requests optically. This proves to be an improvement over the voice-controlled systems. The controlled system does not prove to be a useful

choice for large commercial and co working spaces. Hand gestures make the system more convenient and lean to use. The system also proves to be more user-friendly for differently-abled as well. Overall, the system aims to provide a complete automation of various large spaces such as office buildings, co-working spaces, libraries, cafeterias, laboratories, classrooms, museums, and various other enterprise level commercial spaces. Use of AI and deep learning to provide security solutions by analyzing, real-time video feed analyzing hand gesture for executing commands from user to create a seamless natural interface with the surrounding. Tracking movement of people and raising alerts in case of, trespassing or possession of weapons or dangerous objects.

5. **Project Status at The Beginning of The Year:**
   Ideation Level
6. **Interventions Made:**
   - Support provided for detailed scope of the project such as designing and procurement.
   - Provided the CAD modelling and fabrication support.
   - Provided the programming and electronic items required.
7. **Current Status:**
   - All the items have been procured.
   - Program algorithm is developed and under testing for various conditions.
   - Primary iterations have been conducted.
   - Final fabrication is under process
8. **High resolution pictures showing the prototype product along with the students and their mentor for each project:**

Project: 5

1. **Project Title:** Face Attendance Management System – FaceAMS
2. **Mentor Name:** Mr. Agha Asim Husain
3. **Student Team Names:** Aman Pratap Singh, Shashwat Pandey
4. **Project Description:** FaceAMS is an attendance management solution for educational institutions. To facilitate hassle free teaching learning process, as attendance count is a direct concern of administration and not the faculties. It is usually noticed that the faculties are burdened with the task of recording the attendance of students. Due to the unavailability of any automated process, the usual old methods are used and are time-consuming, which wastes the time of lecture. To resolve these problems FaceAMS is a proposed concept that can fully automate the process of recording, storing and evaluation of attendance of students. A completely streamlined solution to record and monitor attendance of student is being designed and developed. A dedicated attendance dashboard is also being developed that will be available to the students via a Web-App and an Android app. The students will also have a feedback mechanism to through which they can raise an issue if their attendance was not marked despite their presence.
5. **Project Status at the Beginning of The Year:**
   Ideation Level
6. **Interventions Made:**
   - Support provided for detailed scope of the project such as designing and procurement.
   - Provided the CAD modelling and fabrication support.
   - Provided the programming and electronic items required.
7. **Current Status:**
   - Algorithm for the face detection been developed.
   - Various tests have been conducted for facial detection and recognition techniques.
   - Performance evaluation and accuracy improvement is in process.
   - Dashboard have designed and under testing for various presentations.
   - Support system is being designed and developed.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project - 06

1. **Project Title:** Development of Flexible 5G Antena substrate.

2. **Mentor Name:** Dr Praveen Chandra Jha and Mr. Chandan Kumar

3. **Student Team Details:** Prabhat Kumar Mishra
   Raghunandan Kumar

4. **Project Description**

Flexible electronic systems require the integration of flexible antennas operating in specific frequency bands to provide wireless connectivity which is highly demanded by today's information oriented society. To comply with flexible technologies, integrated components need to be highly flexible and mechanically robust for which many materials such as fabric, paper, and some plastics etc are used. The biodegradability after use is also an important criteria in taking care of environment. No literature is available on the use of shellac based flexible dielectric films as substrate In the present project Modified Shellac based flexible substrate is developed which will form the base of Flexible antenna and also biodegradable shellac will give solution to its e-waste. For this purpose the Shellac is solution blended with some synthetic resin in common solvents. The solvent of this blended Shellac solution is casted as film on the conductive layer to form the basic substrate layer of flexible antenna. The Final flexible antenna is fabricated and gets tested for various frequencies.

5. **Project status at the beginning of the year:**
   Ideation Level
6. **Interventions made:**
   - Support provided for detailed scope of the project such as designing and procurement.
   - Provided the CAD modelling and fabrication support.
   - Provided the programming and electronic items required.
7. **Current status:**
   - Antennas are made of different dimensions
   - Testing of this manufactured antenna is being done for different frequencies.

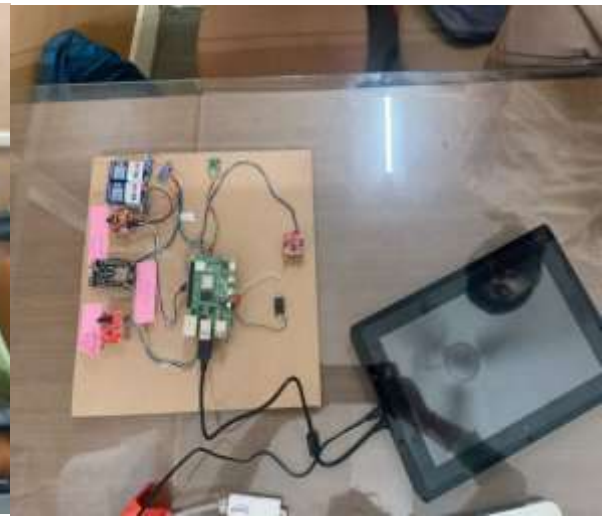
8. **High resolution pictures**

Project – 07

1. **Project Title: Digital Healthcare Assistant**
2. **Mentor Name:** Dr. SetuGarg
3. **Student Team Name:** Ainul Hasan
   Aditya Shankar
   AshwinYadav
4. **Project Description:**

The Digital Healthcare Assistant is capable of monitoring blood sugar level, heart rate, temperature, oxygen level and health of muscles. The system developed is a continuous blood sugar monitoring system for better diabetic management. The system is able to continuously monitor for any type of cardiovascular disorder. The system is able to reveal any nerve dysfunctions, muscle dysfunctions, and nerve to muscle signal transmission. The system is able to detect any abnormality in the oxygen level and temperature to detect covid-19 symptoms.

5. **Project Status at the beginning of the Year:**
   Ideation Level
6. **Intervention Made:**
   - Support provided for detailed scope of the project such as designing and procurement.
   - Provided the CAD modelling and fabrication support.
   - Provided the programming and electronic items required.
7. **Current Status:**
   - Design and User Interface for prototype is ready
   - Research has been conducted to ensure a seamless user experience.
   - Natural Language Processing and AI Integration has done.
   - Iteration on the prototype based on user feedback is in process.
8. **High Resolution pictures showing the Prototype/ Product along with the students and their mentor:**



Project – 08

1. **Project Title** : IF-YO-NO (Open-source microcontroller board for roboticsand automation)
2. **Mentor Name** : Mr. Sachin Sharma
3. **Student Names** : Ananya Sharma
   Md. Samiruddin Ansari
4. **Project Description** :
   Considering the disadvantages of Arduino controller such as Lack of Multitasking, Not optimized for performance, Lack of communications Less Memory Storage Capacity, an updated made in India microcontroller board “if-

YONO" is being designed and developed. it will have following features such as easy to use, inexpensive hardware, active user community, cross platform support, multitasking and optimized for performance no lack of communication.

5. **Project status at the beginning of the year:**

   Ideation Level

6. **Interventions made :**

   - Support provided for detailed scope of the project such as designing and procurement.
   - Provided the CAD modelling and fabrication support.
   - Provided the programming and electronic items required.

7. **Current Status:**

   - All the components have been procured.
   - Design has been finalized and under fabrication.
   - First iterative prototype is ready.
   - Testing for different frequencies and different inputs in under process.

8. **High-Resolution pictures showing the prototype/ product along with the students andtheir mentor for each project**

Project 09:

1. **Project Title:** Kinetic Chandelier with Sinusoidal Flipping Translucent Light-Diffusing Wings
2. **Mentor Name: Mr. Upendra Kumar Agarwal**
3. **Student Team Name: Mr. Shubham Kumar**
4. **Project Description :**

The present invention introduces an innovative chandelier design that creates an enchanting visual illusion, resembling a fish gracefully swimming in water. The chandelier deviates from traditional static fixtures by incorporating wings capable of dynamic up and down motion. The wings are being constructed from translucent material with light-diffusing properties, not only contribute to the aesthetic appeal but also enhance the overall lighting ambiance. The chandelier will comprise multiple wings, each equipped with an integrated light source. These wings are intricately interconnected to a central body, forming an arrangement resembling a sinuous wave. By coordinating the synchronized movement of all wings, the chandelier exhibits a captivating fish-like motion, simulating the graceful swimming of a fish through the sinuous undulation of the wings. The combination of the dynamic wing motion and the light diffusion properties generates an immersive and visually captivating experience, transforming any space into a mesmerizing underwater-like environment. It is worth noting that advancements in lighting technology, such as LED lighting, have allowed for greater flexibility and creativity in chandelier designs. LEDs offer energy efficiency, longer lifespan, and the ability to produce a wide range of colors, making them suitable for incorporating into dynamic chandelier concepts. However, the specific combination of dynamic motion, light diffusion, and fish-like illusion, as described in the invention, represents a unique and innovative approach not commonly found in existing chandelier designs.

5. **Project Status at the beginning of the year**

Ideation Level

6. **Interventions Made**

- Support provided for detailed scope of the project such as designing and procurement.
- Provided the CAD modelling and fabrication support.
- Provided the programming and electronic items required.

7. **Current Status:**

- All the items have been procured.

- Program algorithm is developed and under testing for various conditions.
- Primary iterations have been conducted.
- Final fabrication is under process.

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project 10:

1. **Project Title-** Automatic Milk Adulteration Testing unit
2. **Mentor Name –** Mr. Sudhanshu Ranjan
3. **Students Name-** 1) Shubham Kumar
   2) Shashwat Pandey
   3) Md Samiruddin Ansari
4. **<u>Project Description: -</u>**

The Chemical-Based Automated Milk Adulteration Testing Unit is a progressive technology designed to accurately and efficiently detect adulterants in milk samples. Adulteration of milk with substances like Melamine, Water, Starch, Neutralizer, Urea, Sugar,Detergent, and other chemicals poses a significant health risk to consumers. Therefore, this automated testing unit serves as a vital tool for ensuring the quality and safety of milk products in the dairy industry.

Identification of the chemicals and research part of the automation process is done.The testing unit employs a combination of chemical substances and advanced

automation techniques to analyze milk samples and identify potential adulterants and also identifying the features and uniqueness of the unit following are the key components and features of the unit:

Sample Preparation: The milk samples are carefully prepared to remove any impurities or foreign particles that may interfere with the testing process. The samples are homogenized and filtered to ensure uniformity.

Reagent Dispensing: The automated unit accurately dispenses specific chemical reagents required for the detection of various adulterants. Each reagent is stored in separate chambers to prevent cross-contamination and maintain the integrity of the testing process.

Adulterant Detection: The unit tests for common adulterants such as water, urea, detergent, and other chemicals. The milk sample is mixed with the appropriate reagents, and the resulting chemical reactions are monitored.

Data Analysis and Interpretation: The unit's software processes the sensor data and provides accurate results based on predefined thresholds. The results are displayed on a user-friendly interface, indicating the presence or absence of adulterants and their respective concentrations.

5. Project Status at the Beginning of the Year:

Ideation Level

Ground survey for Chemical Analysis of milk adulteration.

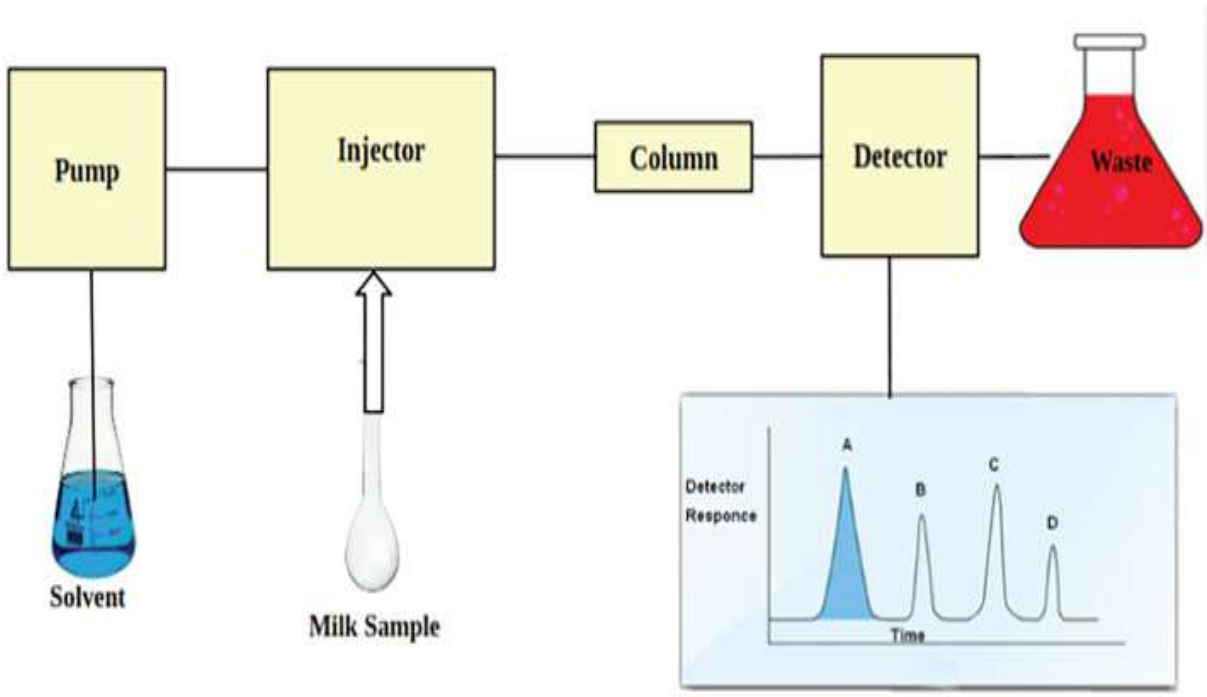
6. Intervention Made

- Support provided for detailed scope of the project such as designing and procurement.
- Provided the CAD modelling and fabrication support.
- Provided the programming and electronic items required.

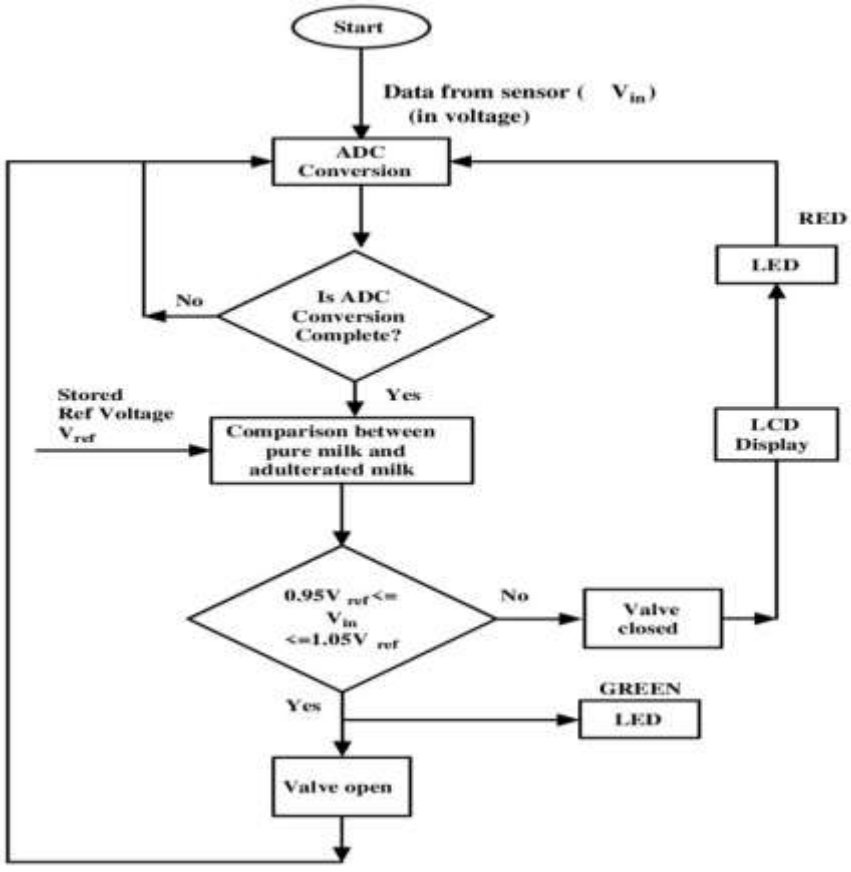
7. Current Status:

- Finalizing the Design structure.
- Procurement of all items is completed
- Ground Analysis of the milk from different dairy farms has been conducted
- Electronic fabrication is in process.

8. **High Resolution pictures showing the Prototype/ Product along with the students and their mentor:**



Block Diagram: -



Project- 11

1. **Project Title** : Multi-Level Encryption System
2. **Mentor Name** : Mr. Chetan Dixit
3. **Student Team Names** : Nikunj Kaushik
   Shivansh Seth
4. **Project Description** :

   The Multi-Level Encryption System is a security mechanism designed to protect email communication by using multiple ciphers to encrypt text in a randomizing order. Encryption is the process of converting plaintext into unreadable cipher text, ensuring that only the intended recipient can access and understand the message. This system goes a step further by employing multiple ciphers, which are algorithms or mathematical functions used for encryption and decryption. By using multiple ciphers, the system adds an extra layer of complexity and security to the encrypted text. These ciphers are applied in a randomizing order, making it more challenging for potential attackers to decipher the encrypted content. The randomization adds an element of unpredictability, enhancing the overall security of the encryption process. At the receiver's end, the Multi-Level Encryption System is employed to decrypt the received email. It reverses the encryption process by applying the same combination of ciphers but in the reverse order. This ensures that the recipient can access the original plaintext message and understand its contents. By encrypting email text during transmission and decrypting it at the receiver's end, the Multi-Level Encryption System provides a secure channel for communication. It safeguards the confidentiality and integrity of email messages, protecting sensitive information from unauthorized access or interception. A key is generated which is used to decrypt the text at the receiver’s end. This key is generated at the sender’s device and is parsed at the back end through the dedicated server which creates a temporary path linking the sender and receiver. Once the key is parsed the path/link breaks making it impossible to tamper and create a back door from it. Even if the server or any of the system gets compromised the integrity of the text remains checked

5. **Project status at the beginning of the Year** :
   - Ideation Stage
   - Started gathering all the required resources

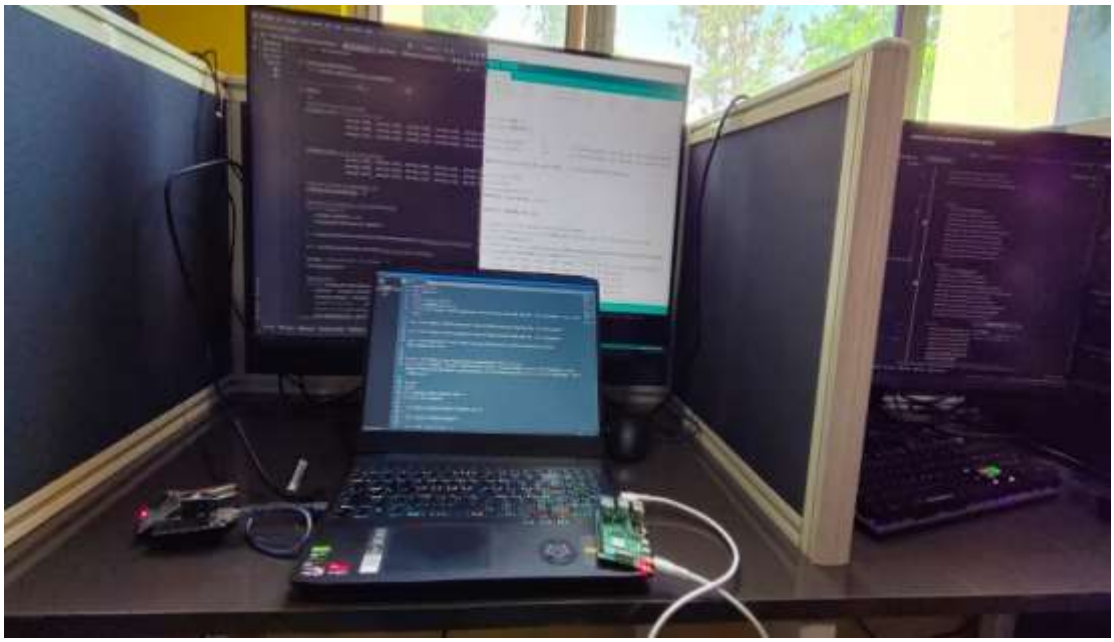
6. **Interventions made :**

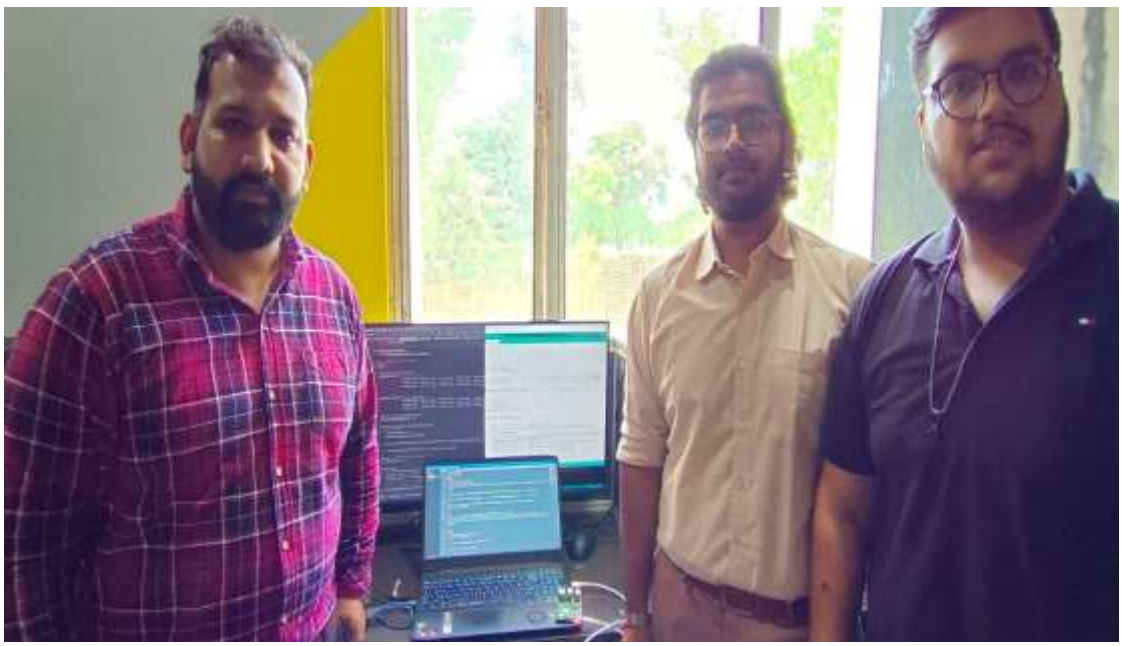
- Support provided for detailed scope of the project such as designing and procurement.
- Provided the CAD modelling and fabrication support.
- Provided the programming and electronic items required.

7. **Current status:**

    - Programming is almost complete (80%)
    - Server is needed to be setup and configured

8. **High Resolution pictures showing the Prototype/ Product along with the students and their mentor:**





Project - 12

1. **Project Title**: Automatic Milled Raw Rice Age Finder
2. **Mentor Name** : Dr. P C Jha
3. **Student Team Names** : Md Samiruddin Ansari
   Manish Pandey
4. **Project Description**:
   The Rice Age Finding Machine is a novel idea that automatically determines the age of raw milled rice with a click. A ground-breaking study that aspires to accomplish two major goals is now underway in the field of chemical analysis and solution composition. The first goal is to use research articles that offer powder composition solutions to determine precise liquid solution compositions. The second goal focuses on automating this procedure and streamlining and accelerating the analysis using state-of-the-art technologies. The significance of this initiative and its prospective effects on many sectors and fields of science are examined in this article. By using research articles that offer details on solutions with powder composition, the primary goal of this endeavor is properly identifying the composition of liquid solutions. Researchers and professionals frequently work with liquid solutions whose compositions are not easily available in many scientific studies and commercial procedures. The Rice Age Finder Machine tries to fill this gap and precisely identify the composition of liquid solutions by referring to research publications that give powder composition solutions.

5. **Project Status at the Beginning of the Year**:
   Ideation Level
6. **Intervention made:**
   - Support provided for detailed scope of the project such as designing and procurement.
   - Provided the CAD modelling and fabrication support.
   - Provided the programming and electronic items required.
7. **Current Status:**
   - Chemical Testing Process manually successfully completed.
   - CAD Design completed
   - Fabrication is in process

8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project - 13

1. **Project Title:** IOT BASEDSMART MIRROR - Two-way mirror with an inbuilt display behind the glass.
2. **Mentor Name:** Ms. Pragati Tripathi, Dr Monika Jain
3. **Student Name**: Mr. Devraj Singh
   Mr. Aditya Shankar

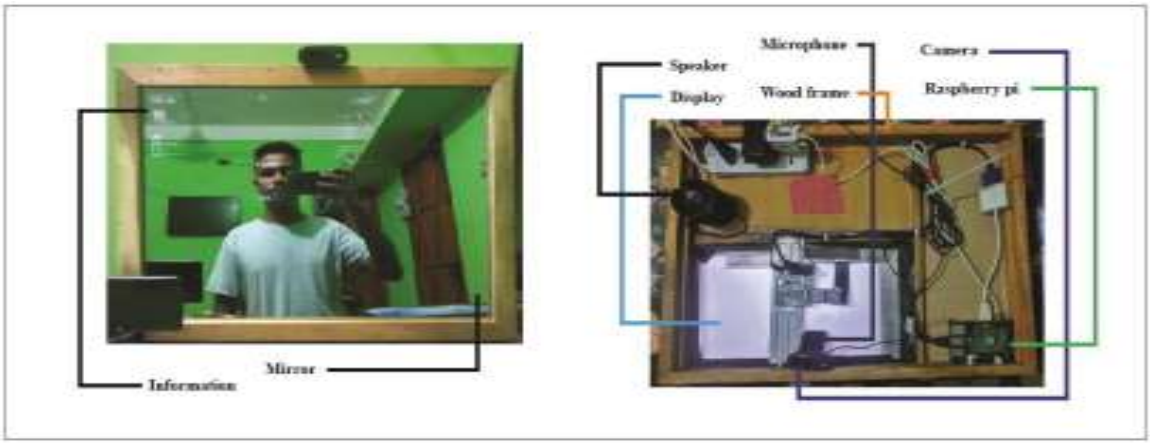
4. **Project Description**:
   A Smart Mirror is a two-way mirror with an inbuilt display behind the glass. The display can show anything we want on the mirror's surface such as the current time, weather forecast, news feed, upcoming appointments, and more. The aim is to build a low-cost intelligent mirror system that can display a variety of details based on user recommendations. Therefore, in this article, Internet of Things (IoT) and AI- based smart mirror is introduced that will support the users to receive the necessary daily update of weather information, date, time, calendar, to-do list, updated news headlines, traffic updates, COVID-19 cases status and so on. Moreover, a face detection method also implemented with the smart mirror to construct the architecture more secure. Our proposed Smart Mirror application provides a success rate of nearly 87% in interacting with the features of face recognition and voice input. The mirror is capable of delivering multimedia facilities while maintaining high levels of security within the device.

5. **Project status at the beginning of the Year: -**

Ideation Level

6. **Innervations made:**
   - Support provided for detailed scope of the project such as designing and procurement.
   - Provided the CAD modelling and fabrication support.
   - Provided the programming and electronic items required.
7. **Current status:**
   - Circuit Design and simulation completed
   - Compatibility of sensors with system checked and verified
   - Final fabrication and testing is in process.

8. **High-resolution pictures showing the prototype/product along with the students and their mentor for each product.**



Project 14:

1. **Project Title** : Smart Solar Bench using DOOH plateform
2. **Mentor Name** : Mr. Sudhanshu Ranjan
3. **Student Names** : Mr. Shaswat Pandey
4. **Project Description** :

The smart solar bench by is a highly advanced urban infrastructure solution that enhances public spaces with sustainability and connectivity. Operating in a self-sustainable hybrid mode, it uses solar power to charge its batteries, reducing its carbon footprint and contributing to greener cities. With a sleek aesthetic design, the bench seamlessly blends into urban landscapes, while its features

include ambient lighting for comfort and safety during evenings, a night vision camera for surveillance and crime prevention, free public Wi-Fi, a DOOH marketing screen, electronics devices charging facility, and a Public Information Display for real-time updates.

Additionally, it prioritizes safety with emergency SOS buttons, creating a comprehensive and innovative solution that transforms public spaces and fosters smart cities' growth. The smart solar bench is being designed to operate in a hybrid mode, combining solar power with battery storage.

This approach ensures that the bench can harness solar energy during the day, storing excess power for use during evenings and periods of low sunlight. The core intervention of the project is integrating solar panels into the bench's design. These solar panels capture and convert sunlight into electrical energy, which is then used to power the various features of the bench. These basic features include ambient lighting, a night vision camera for security purposes, free public Wi-Fi access, a Digital Out-of-Home marketing screen, electronics device charging facility, Public Information Display, and emergency SOS buttons for safety.

5. **Project status at the beginning of the year:**

   Ideation Level

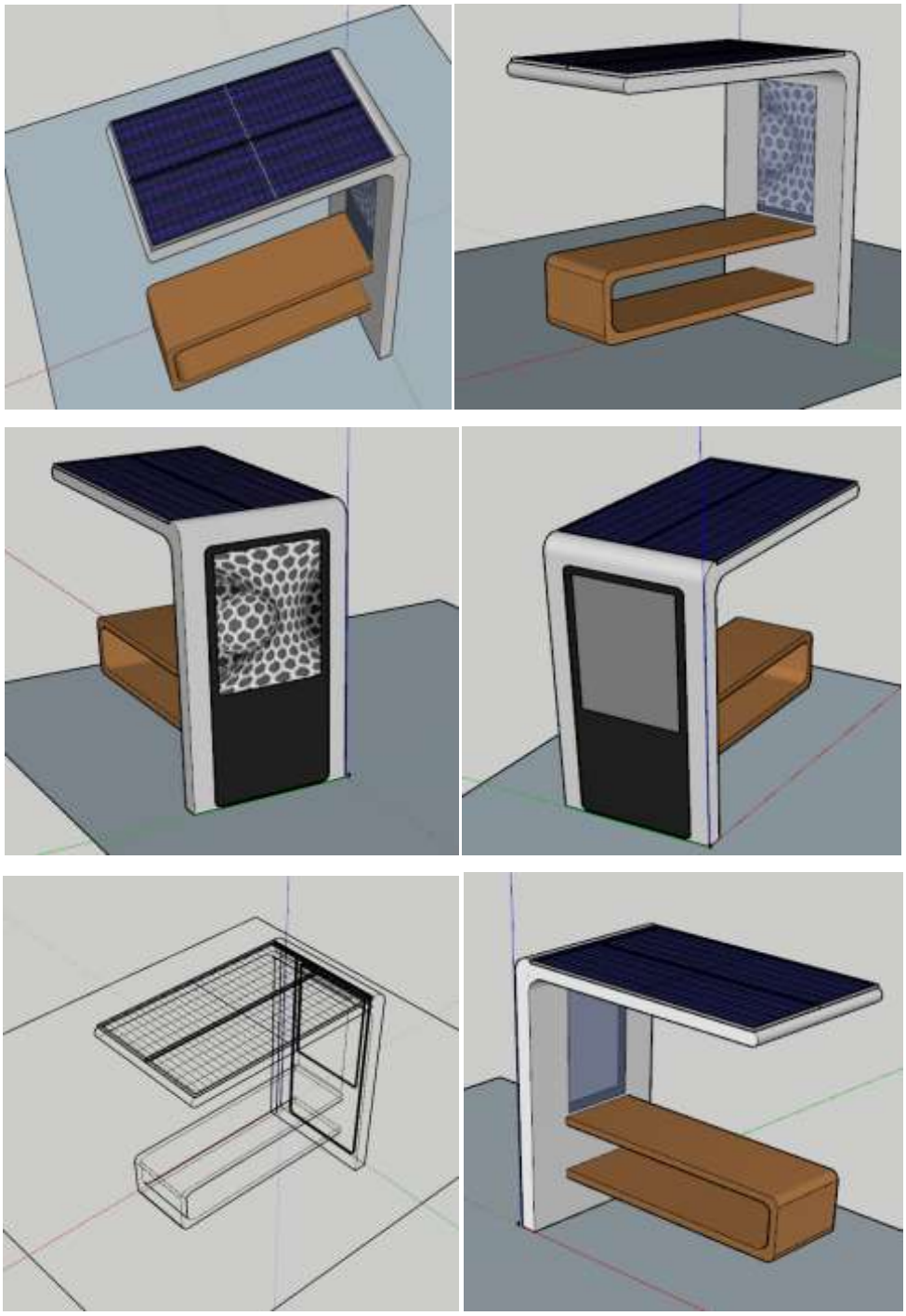
6. **Intervention Made :**

   - Support provided for detailed scope of the project such as designing and procurement.
   - Provided the CAD modelling and fabrication support.
   - Provided the programming and electronic items required.

7. **Current Status :**

   - All the components have been procured.
   - Under testing and modification.
   - Development of PCB for electronic component.
   - Fabrication is under process.

8. **High-Resolution pictures showing the prototype/ product along with the students and their mentor for each project**

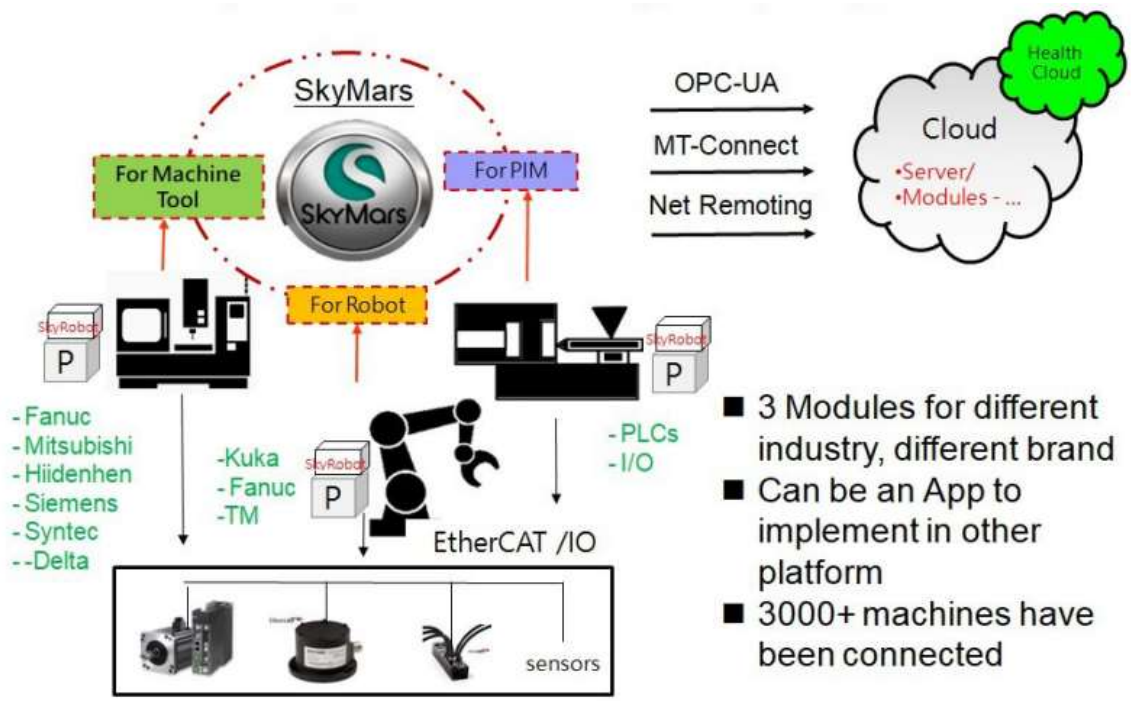


Project 15:

1. **Project Title:** Smart Machine Box for industry 4.0
2. **Mentor Name:** Mohd. Ayub Khan
3. **Students Team Name:**
4. **Project Description:**

Smart Machine Box is the solution for the demonstration companies to collect data from machines through corresponding controller interfaces, monitor statuses and calculate figures for production management, and then report them through Ethernet interface to the shop floor server for visualization, further analysis, and cloud connection.

Inside SMB is embedded several interfaces of mainstream controllers .e PLC hence the demonstration companies do not have to take care the interface related issues. Furthermore, production management software modules such as equipment utilization management and proactive fault alert, depending on requirements, can also be embedded inside SMB.



5. **Project status at the beginning of the year:**

Ideation Level

6. **Intervention made:**

- Support provided for detailed scope of the project such as designing and procurement.
- Provided the CAD modelling and fabrication support.
- Provided the programming and electronic items required.

7. Current Status:

- Material procurement is completed.
- Algorithm has been developed and tested for various inputs.
- Design is ready and simulation has been completed.
- Fabrication of various items has been started.
- Experimentation, calibration and standardization are yet to be done.

8. High resolution picture showing the prototype /product along with the students and their mentor for each project:

(1) Equipment Utilization Management

(2) Proactive Fault Alert

(3) Job Completion Measure Management

(4) Prediction of Job Finish Time

Project 16:

1. **Project Title**: Solar Power Swapping Station
2. **Mentor Name:** 1) Mr. Sudhanshu Ranjan
3. **Student Team Name:** 1) Md. Samiruddin
4. **Project Description**:

By harnessing the power of the sun, we will provide an eco-friendly and convenient charging experience. Solar panels are used at swapping stations to provide clean, renewable energy, removing the need for conventional power networks and lowering carbon emissions. This sustainable method of environmental protection and a more environmentally friendly future. The swapping procedure is quick and easy. To avoid the need for prolonged charging sessions, EV users may drive into our stations and immediately swap out their discharged batteries for fully charged ones. The solar-powered swapping stations will be strategically located in high-traffic areas and along major transportation routes, ensuring easy accessibility for EV users. Furthermore, in order to meet their specific requirements and promote the use of electric cars in commercial settings, we will cooperate with fleet managers and transportation providers. Our mission is to accelerate the transition to clean transportation while making a positive impact on the environment by providing a reliable, effective, and user-friendly charging solution. Utilize our solar-powered exchange stations to see how EV charging may develop in the future.

5. **Project Status at The Beginning of The Year:**

   Ideation Level

6. **Interventions Made**:

- Support provided for detailed scope of the project such as designing and procurement.
- Provided the CAD modelling and fabrication support.
- Provided the programming and electronic items required.

7. **Current status:**

- All the items have been procured.
- Program algorithm is developed and under testing for various conditions.
- Primary iterations have been conducted.
- Final fabrication is under process.

8. High resolution pictures showing the prototype product along with the students and their mentor for each project:

Project 17:

1. Project Title: TMR Mixture

2. Mentor Name: Mr. Chetan Dixit

3. Student Team Names: **1)** Shivendra Kumar Singh
2) Shubham Kumar

4. Project Description:

The Mixing and Blending Machine for Dairy Farms project aims to develop a system that optimizes the mixing and blending process of feed ingredients for dairy cattle. The project focuses on enhancing efficiency, consistency, and nutritional balance in feed preparation to improve herd health, milk production, and overall farm profitability. It is being ensured to design and construct an automated machine capable of combining various feed ingredients and manage the mixing and blending process with ensuring of the machine can handle a wide range of feed ingredients commonly used in dairy farming. Our object is to improve the overall efficiency of feed preparation by reducing labour, time, and ingredient wastage. Also to enhance the consistency and quality of feed rations to optimize cow health, milk production,

and economic viability. The major advantages are improved feed efficiency, accurate ingredient measurement and precise blending minimize feed wastage, a balanced and nutritionally complete feed ration, promoting optimal cow health, reproduction, milk production and milk quality, less time and labour savings**.**

The machine has various improvised features to ensure the above said advantages. The supporting legs are used for supporting the machine body and the stability of the machine body during operation is ensured.When the mixer is used, concentrated feed to be mixed and pre-cut coarse feed are added through an opening at the top of the machine body, the starting motor drives the stirring shaft and the driving shaft to rotate, the driving shaft drives the material turning plate to turn the feed when rotating, the circuitous seat is driven to rotate when rotating, the second arc-shaped bulge abuts against the adjusting rod, the adjusting rod is driven to move backwards, the kneading plate is far away from the grinding plate, when the first arc-shaped bulge abuts against the adjusting rod along with the rotation, the kneading plate is close to the grinding plate, when the kneading plate is close to the grinding plate, a lug on the opposite surface of the kneading plate and the grinding plate starts to knead the feed, the coarse feed is crushed and drawn, the concentrated feed and the coarse feed are uniformly mixed, after the mixing is completed, the inserting plate is pulled through the movable rod to compress the spring, the inserting plate is separated from the interior of the machine body, the door body is pulled to turn through the handle , so that the mixed feed is discharged, and the operation of the device is completed through the above.

5. Project status at the beginning of the Year:

Ideation Level

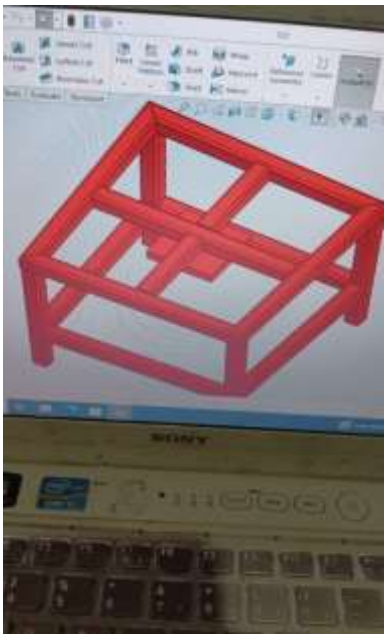
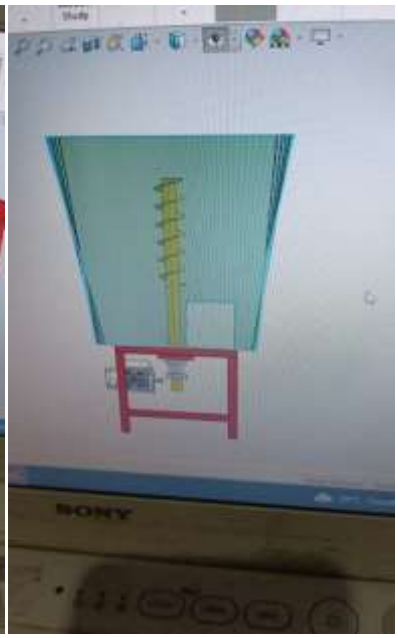
6. Interventions made:

- Support provided for detailed scope of the project such as designing and procurement.
- Provided the CAD modelling and fabrication support.
- Provided the programming and electronic items required.

7. Current status:

- All the items have been procured.
- CAD design is ready and iterations are being made.
- Fabrication has been started.

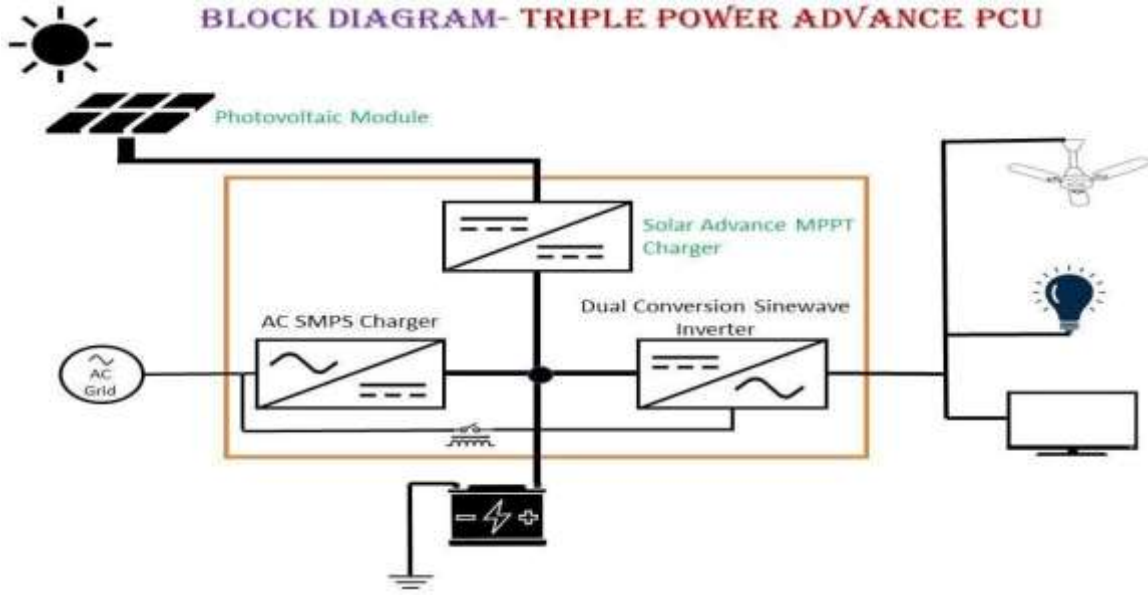
8. High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:

Project-18 :

1. **Project Title:** Triple Power Advance PCU(1KW,12V)
2. **Mentor Name :** Mr. Upendra Kumar Agarwal
3. **Student Team Name :** 1. Mr. Shubhang Mishra
   2. Mr. Aditya Rai
4. **Project Description**:

   Triple Power Advance PCU (Power Conditioning Unit) is an integrated unit consists of Solar Advance MPPT Charger, AC/Mains/Grid/DG SMPS Charger, Dual Conversion Sine wave Inverter and Output Selection and Control Algorithm. It continuously monitors Battery and Solar voltage as well as Grid and Output voltage with their currents. MPPT based solar charger extracts the maximum power from the solar panels whereby it increases the efficiency of the system. Our advance MPPT charger has multistage charging like trickle as well as boost, which gives the battery charging fast also increases the lifespan of battery. This control algorithm system saves battery power. To increase the efficiency, we are using DC-DC buck as well as isolated boost converter at Solar MPPT side. At AC grid side SMPS based charging system as well as Inverter side SMPS based inversion system. It will attain approx. 85% efficiency. Our advance MPPT charger has multistage charging like float, trickle as well as boost, which gives the battery charging fast also increases the lifespan of battery.



5. **Project** status at the beginning of the year: **Ideation Level**
6. **Interventions made :**
   - Support provided for detailed scope of the project such as designing and procurement.
   - Provided the CAD modelling and fabrication support.
   - Provided the programming and electronic items required.
7. **Current** Status:
   - All the components have been procured.
   - Under testing and modification.
   - Development of PCB for electronic component
8. **High resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project 19:

1. **Project Title** : Udaan (Made in India flight Controller for drone)
2. **Mentor Name** : Mr. Sachin Sharma
3. **Student Names** : 1) Ms. Kajal
   2) Mr. Shashwat Pandey
4. **Project Description** :

The UDAAN flight controller is the brain of the drone, which controls the motors and ESCs in the drone. It is an electronics board in which sensors, processors, communication protocols, and transmitter pins are installed. A Udaan flight controller controls every aspect of the drone. It moves the drone by changing the motors' RPM. It's a control system that inputs sensor data and directs the drone's flight. The purpose of the Udaan flight controller is to stabilize the quadcopter during flight. To do so, it receives signals from sensors and sends them to the processor, which then sends the control signal to the ESCs, which in turn instructs the ESCs to make fine adjustments to the motor rotational speeds, stabilizing the craft. When this data is processed, it is sent to the ESCs, which adjust the rotational speed of each motor to control flight orientation (yaw, right, left, up, down, backward, forward). Udaan flight controller is super easy to learn. Any beginner can learn with little or no knowledge of programming. It uses a simplified version of C/C++ language which is easily adaptable. It is an ideal board for beginners. Udaan is a plug and play electronic board with a simple and minimalistic hardware interface. It uses very inexpensive hardware. Udaan is an open-source community with many online supports available on udaan forum. Multitasking and optimization for performance is possible. It will be a Made in India flight Controller for drone for prototyping drone, RC plane's.

5. **Project status at the beginning of the year:**
   Ideation Level
6. **Intervention** Made:

- Support provided for detailed scope of the project such as designing and procurement.
- Provided the CAD modelling and fabrication support.
- Provided the programming and electronic items required.

7. **Current Status:**
   - All the components have been procured.
   - Design has been finalized and under fabrication.
   - First iterative prototype is ready.
   - Testing for different frequencies and different inputs in under process.
8. **High-Resolution pictures showing the prototype/ product along with the students andtheir mentor for each project**

Project 20:

1. **Project Title:** Vertical Mop Robot
2. **Mentor Name:** Mr. Upendra Kumar Agarwal
3. **Students Team Name:** **1.** Shubham Kumar
   2. Adarsh
4. **Project Description:**

The climbing robot solves the problems of reaching places where humans reach very difficult and the risk to human life is high, such as the glass walls of buildings which become dirty with time, Our robot is not only capable of dry and wet cleaning of glass but it can also do the dry cleaning of normal walls very efficiently. The another problem of any skyscraper building is that some kind of cracks appears on walls due to natural disasters like earthquake or climate change, which further leads to heavy damage to the buildings. This problem is solved by using a high-resolution camera mounted over it our vertical mop robot.

This model also solves the problem of painting in prone areas of a skyscraper that has high vertical walls made with glass or any other material. Our project is characterized by its unique ability to function as both a glass cleaning robot and a wired wall inspection robot using a vertical mop design. This versatility is made

possible by the removable front cleaning system, which can be easily detached when using the robot for wall inspection purposes In addition, the vertical mop robot is equipped with a real-time monitoring system that allows operators to view the progress of cleaning glass walls and conduct routine wall inspections.

5. Project Status at Beginning of the Year:

Ideation Level

6. Interventions Made:

- Support provided for detailed scope of the project such as designing and procurement.
- Provided the CAD modelling and fabrication support.
- Provided the programming and electronic items required.

7. Current Status:

- All the items have been procured.
- Program algorithm is developed and under testing for various conditions.
- Primary iterations have been conducted on trail model.
- Final fabrication is under process.

8. High resolution pictures showing the Prototype/product along with the students and their mentor for each project:

NewGen IEDC-Indian Institute of Information Technology, Allahabad

NewGen IEDC

Under the Aegis of NSTEDB, DST, Govt. of India, New Delhi

Progress Report: (Fourth Year) 2022-2023

Name of the College/Institution hosting NewGen IEDC	Indian Institute of Information Technology Allahabad		
Year of starting NewGen IEDC	2018-2019		
Name of the Head/Principal of the Institution/College	Prof. Mukul Sharad Sutaone **Director**		
Name of NewGen IEDC Coordinator	Dr. Ranjana Vyas		
Contact Details of NewGen IEDC Coordinator · **Mobile Number** · **e-Mail ID**	(M) 9405054819 (L) 05322922044 ranjana@iiita.ac.in		
Financial Details	**Sr. No.**	**Sanction Order No./ Date**	**Amount Sanctioned**
Previous Sanction Order Details	1	EDII/DST- NewGen IEDC/18-19/12 Date: 13/11/2018	Rs. 60,00,000
	2		Rs. 47,50,000
	3		Rs. 60,00,000
	4		Rs. 60,00,000

1. **Details of Activities Undertaken during the year:**

[A] To inculcate the spirit of innovation and entrepreneurship amongst S&T students -

1. **IIIT - A Alumni Workshop with CRED :** Hosted a workshop in collaboration with CRED, an Indian credit card bill payment and reward platform, for its students and faculty on 7th August, 2022. The workshop aimed to provide insights on the fintech industry and the workings of CRED.A team of 3 CRED engineers took the workshop. The CRED engineer who led the workshop was a CRED, what the company actually does and what the current status of the company is. They told about their working experience in CRED and the opportunities CRED offers to its employees and startups. The team also offered insights on the future of fintech in India and the career and entrepreneur opportunities available in the industry.
2. **B-Pitch:** A pitching competition in which participation from all the NewGen IEDC colleges all across the country will be invited.
3. **BidIt:** To learn Strategizing, Resource management, Entrepreneurship, all at the same time in a fun-filled event for Cricket enthusiasts.
4. **Conquest:** Put yourself in the shoes of the founder of a startup. Solve the problems which caused the shutdown of startups based on the case study provided.
5. **BizQuiz:** An online business quiz.
6. **Hult Prize:** The Hult Prize is an annual, year-long competition that crowd-sources ideas from university level students after challenging them to solve a pressing social issue around topics such as food security, water access, energy, and education
7. **The NewGEN Wall of Fame Showcase -** Physical Presentation with Physical Prototype Demonstration

[B] To identify, develop & commercialize students' innovative ideas

1. Students Conclave young Entrepreneurs
2. Business Model Demonstration
3. Idea Pitch for Start-Up Grant-in-aid – SHARK TANK
4. Video Pitch Submission Round (Through social media)
5. Dronathon 2.0 – A Flagship Hackathon for Industry-based Use Cases

6. Innovative Projects Demonstration by nearby School's student to inculcate the entrepreneurship culture in UP

Forthcoming Planned Activities :

7. To invited & lecture by renowned entrepreneurs for motivating the new entrepreneurs
8. Facilitation of 12 another Young Entrepreneurs by NewGen IEDC

[C] To enhance Industry-Academia interaction

1. Interaction with Germany HOF University About NewGen IEDC Scheme, Best Projects Demo
2. Demonstration of Best Project Drone Interaction with
3. Digitization in Technology Awareness week
4. Kickstart Young Talents Hunts
5. Interaction & Mentoring with Mr. Ajay Bhagwat, Founder & MD, Renu Electronics (based out of US, Europe and Singapore)
6. Alumni interaction with the students for the start up.

Forthcoming Planned Activities :

7. NewGen IEDC magazine is going to be published till Dec-23/ Jan-24.
8. Entrepreneurship Lecture in Orientation Camp: Battle of IIITA and how NewGen IEDC has already contributed and will contribute in future.

2. Deviation (shortfall) from the proposed action plan (with reasons), if any:

3. Other important highlights (new initiatives), if any

> Best Project Award received by one of the Entrepreneurs of NewGen IEDC

Anshul Dhawal was awarded as best project in event of Gyanotsav for drone designed by him -

4. **Student Projects -** Refer to ANNEXURE-A for Details of Student Projects with Prototype Photos

5. **Provide a minimum two-page case let each on the two best student projects (either prototype developed or commercialized) from the above list. The case lets should include the following**:

Best Student Project-Project - 1

I. **Mentors Name : Dr. Rahul Kala**

II. **Student team details**

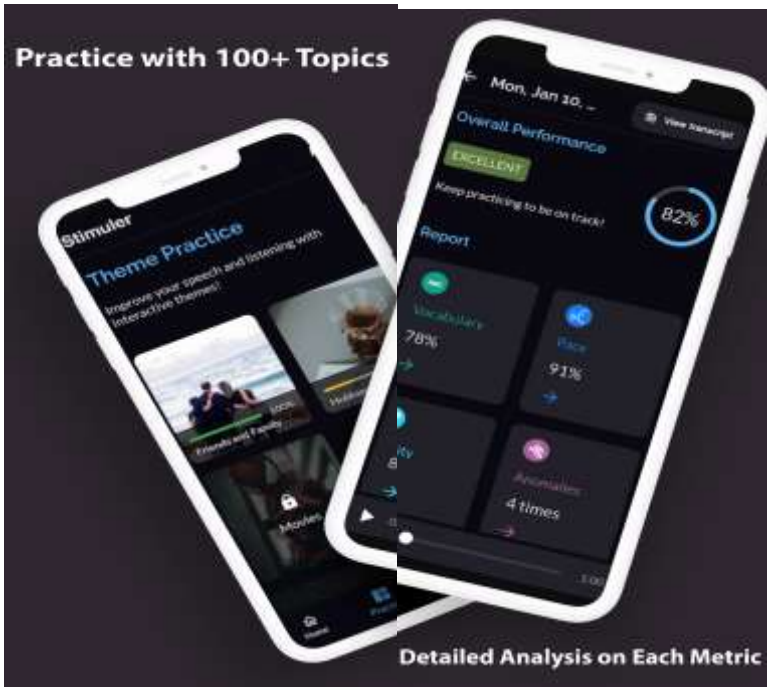
01. Akshay Akash
02. Anesh Srivastav
03. Ankit Kumar Pandey
04. Akshat Baranwal

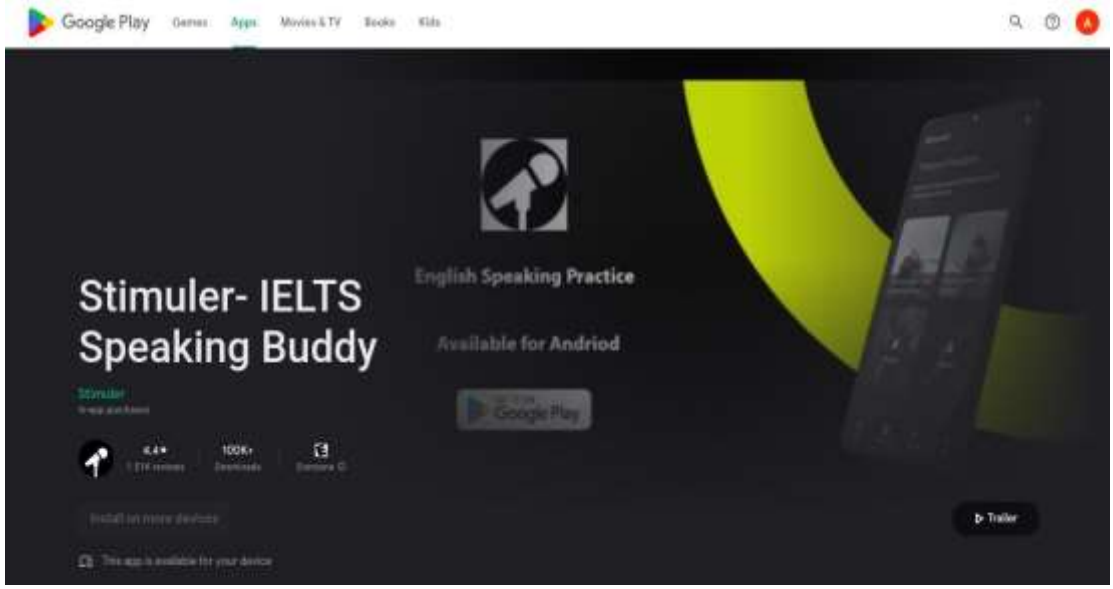
III. **Brief description of the student start-up**

1. **Name of the Company/Start-up**: Stimuler Private Limited
2. **Highlights of the Company/Start-up**: Stimuler Private Limited
3. **Product/Service :** Mobile Application
4. **Investment :** 25000$ raised so far
5. **Employment generated :** 4 paid interns
6. **Commercialized or not :** Yes, early revenue stage
7. **Impact it will create (including social impact, if any) -** In the next 2 years, we plan to eliminate the English communication barrier and thereby create better opportunities for 10 million people.
8. **Current Status of the Company/Start-up -** Currently, we are scaling the product, from speech testing to speech training with improved AI models.

9. **Establishment date of the Company/Start-up/Commercialization:** 10 March 2022
10. **Brief on the Company/Start-Up covering all the points. -** Stimuler is a speech practice and training platform to help people become confident at communicating in English. Millions of people are unable to speak confidently despite having a decent understanding of English. Stimuler combines all aspects that are needed for improving speaking skills of participants. Using AI based speech analysis algorithms and custom practice tracks, we dream of removing the barrier of English proficiency and help create better opportunities for people. Stimuler has 200k users from 200 countries.

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.





V. **Contribution of NewGen IEDC in the same -** Technical mentorship, support in co-managing academics and startup together.

VI. **Future plan -** Stimuler wants to expand their global presence and launch a video-chatbot led practice track on the app powered by latest Gen-AI technology.

VII. **Important highlights-**

- Has users from over 200 countries
- Received funding from top silicon valley VCs
- Winner of Startup India's Together 2023

Project - 2

I. Mentors Name : Dr. Rahul Kala

II. Student team details

01. Abhinav Singh
02. Sejal Thakur

III. Brief description of the student start-up -

1. **Name of the Company/Start-up**: NIRVAAN
2. **Highlights of the Company/Start-up**: NIRVAAN
3. **Product/Service :** The startup provides Online Psychotherapy with several features including selection of music, psychologist therapy, Sleep etc Our approach at Nirvaan combines psychotherapy with the specialized music. therapy We believe in treating the whole person, taking into account the mind and body. Our team of experienced therapists and music therapists work together to create personalized treatment plans for each client. Our goal is to help you achieve inner peace, balance, and healing.
4. Investment : Rs. 45000/-
5. Employment generated : 1 lakh
6. Commercialized or not : Yes
7. **Impact it will create (including social impact, if any) :** The start-up impacts the world through mental health issues, particularly anxiety and depression. Our therapy approach combines the most effective practices and concepts from psychotherapy, counseling, mindfulness, Indian philosophy, and science-based healing music. By integrating these diverse elements,

they aim to assist individuals and their loved ones in achieving greater Relief and focus in just a few Sessions.

8. **Current Status of the Company/Start-up:** Product Market fit
9. **Establishment date of the Company/Start-up/Commercialization:** 09/01/2021
10. **One paragraph on the Company/Start-Up covering all the points. -** NIRVAAN prioritizes the individuality of each client's therapy journey and recognizes that the duration of therapy and the complexities of addressing personal challenges can vary greatly. To accommodate this, NIRVAAN offers unlimited sessions to the clients. One can take as much time as needed to work through your concerns and develop new coping skills. NIRVANA's dedicated therapists are committed to support their client at every step of the way and firmly believe in a personalized approach to therapy as well as understands that everyone has unique needs and aspirations. That's why Team NIRVAAN collaborates with each client to create a customized treatment plan that aligns with their specific circumstances. NIRVANA's Psychotherapists, Psychologists and counselors are well-versed in a range of evidence-based therapies Including Psychoanalysis and psychodynamic therapies Cognitive, Behavioral, Humanistic, Integrative/holistic.

IV. Startups entrepreneurial journey from ideation to prototype or commercialization along with 2-3 high-resolution photographs.

The entrepreneurial journey of Nirvaan from ideation to commercialization has been a remarkable one. In the early stages, with limited resources, the journey began with a small team of talented designers who worked tirelessly to create the initial variation of Nirvaan. Despite the challenges, the vision and passion behind the concept attracted a diverse group of amazing individuals from across the globe, each bringing their own unique specialties and expertise to the table.

The support and involvement of these individuals with diverse backgrounds and specializations have been instrumental in shaping the growth and success of Nirvaan. Their contributions have spanned a wide range of areas, including technology, mental health, music therapy, psychology, and more. The collective collaboration and dedication from this global network of professionals have infused the startup with invaluable insights and knowledge.

This influx of expertise and support has not only enriched the development process but has also enabled the creation of a more comprehensive and impactful offering. With a multidisciplinary approach and the combined efforts of these talented individuals, Nirvaan has been able to integrate best practices and cutting-edge ideas from various fields, resulting in a more robust and effective solution for managing mental health.

V. Contribution of NewGen IEDC in the same

The initial financial support from our investors, NewGen IDC, played a pivotal role in kick starting our marketing campaigns and generating our first revenue. With their backing, we were able to allocate resources towards creating targeted advertising campaigns that helped us reach our intended audience and showcase the value of our offerings. Their investment enabled us to invest in effective marketing channels, initiate advertising campaigns, and attract the attention of potential customers. Additionally, the guidance of our mentor, Dr. Rahul Kala, has been instrumental in helping us understand the crucial concept of product-market fit. Dr. Kala's expertise and mentorship have provided us with invaluable insights into aligning our products and services with the specific needs and demands of our target market. His guidance has helped us analyze market trends, identify customer preferences, and refine our offerings to ensure maximum relevance and appeal to our intended audience.Additionally, the guidance of our mentor, Dr. Rahul Kala, has been instrumental in helping us understand the crucial concept of product-market fit. Dr. Kala's expertise and mentorship have provided us with invaluable insights into aligning our products and services with the specific needs and demands of our target market. His guidance has helped us analyze market trends, identify customer preferences, and refine our offerings to ensure maximum relevance and appeal to our intended audience**.**

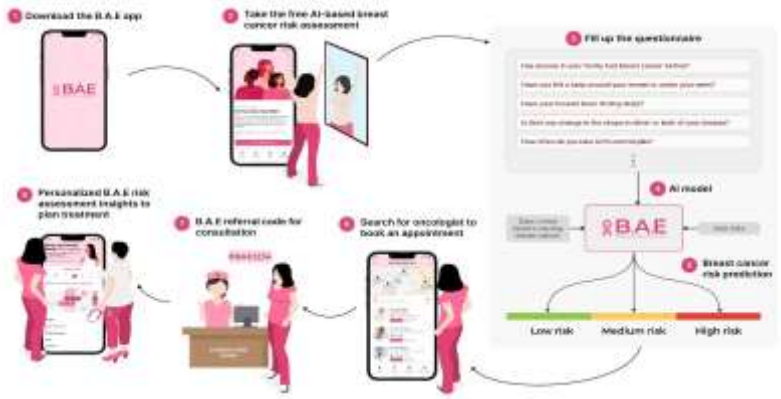
VI. Future plan - To provide our services at a wider and broad level by making aware about us to the people through publicizing our work at different possible platforms

Annexure-A

Details of Student Projects: Fourth Year

Project-01:

1. **Project Title** : Breast Cancer Awareness & Examination
2. **Mentor Name** : Dr. Ranjana Vyas
3. **Student Team Names:** Khushi Ruparel, Pusti Sheth, Girish Rajani & Manan Shah
4. **Project Description:** In India, the lack of awareness and late detection of breast cancer among women is a significant problem caused by various barriers such as poor cancer awareness, social stigma, and low affordability. To address this issue, our venture, B.A.E - Breast Cancer Awareness and Examination, offers a solution that utilizes technology to improve accessibility and affordability in cancer care. Our approach includes an AI-based risk assessment for early detection, connecting patients to doctors for treatment and care, and creating a community for wellness and support. By making B.A.E available as a pre-screening tool that women can use themselves, we aim to tackle this problem and increase the survival rate of women with breast cancer in India.
5. **Project status at the beginning of the Year:** Ideation Stage -Started target market analysis and research & Data Collection for proposed technology
6. **Interventions to be made for next stage / commercialization:** Stage 1 – prototype prepared after data collection, Exposure – Top 6 at Together 2023 (A initiative by Schulich School of Business and StartupIndia), 2nd Runner up at SmartPitch, business model competition at IITB
7. **Current status:** Focus on technological & medical research, data collection and prototype Enhancement.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-02:

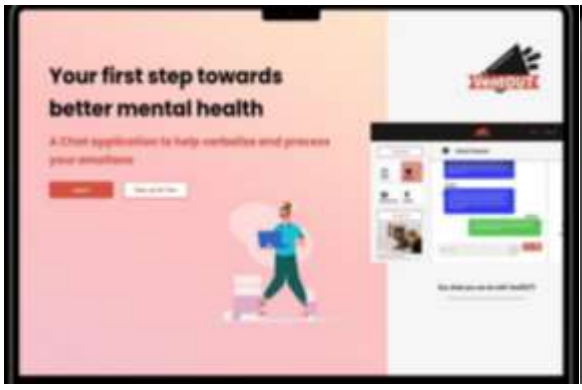
1. **Project Title** **:** VentOut
2. **Mentor Name** **:** Yet to be Decided
3. **Student Team Names:** Kush Sah
4. **Project Description:** VentOut is an anonymous chat application designed to offer individuals a safe space to vent their inner thoughts and frustrations. Users can record audio messages that are transcribed into text and posted anonymously in categorized chat rooms focused on work, school, relationships, and health. The platform maintains a positive environment by filtering out curse words. Built with React.js, Tailwind CSS, Node.js, Express, Circle CI, AssemblyAI, and Firebase, VentOut prioritizes mental health by providing a user-friendly interface and incorporating user feedback throughout the design process. It serves as a supportive community where people can release stress, seek understanding, and promote positive mental well-being.
5. **Project status at the beginning of the Year:** Successfully completed the ideation and gathered all the requirements and done all the planning.
6. **Interventions to be made for next stage / commercialization:** Successfully make an interface that allows users to vocalize their inner struggles in order to improve their mental health.

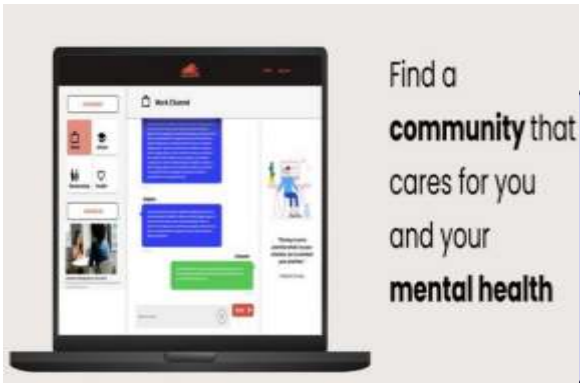
   Notifications and Reminders: Implemented a notification system to remind users to engage with the platform regularly or provide updates on their vents and responses. This can help users stay connected and engaged with the community.

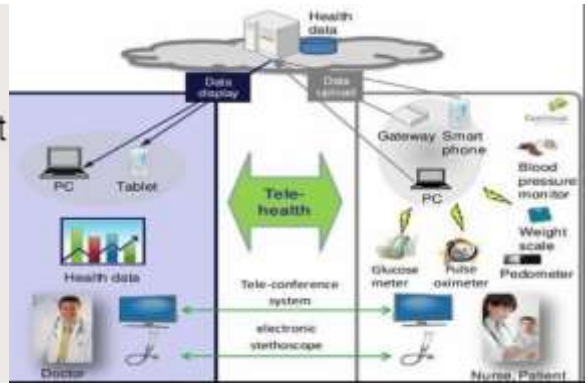
   Emotional Well-being Tracking: Included a feature that allows users to track their emotional well- being over time. This could be done through mood tracking or journaling, providing insights into their emotional patterns and progress.

   Private Messaging: Enable users to have private conversations with each other, allowing for more personalized support and interaction outside the public chat rooms.
7. **Current status: Language Localization:** Providing language localization options to cater to a broader user base, allowing users to engage with the platform in their preferred language. Building a mobile app to let users vent out on the go!

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

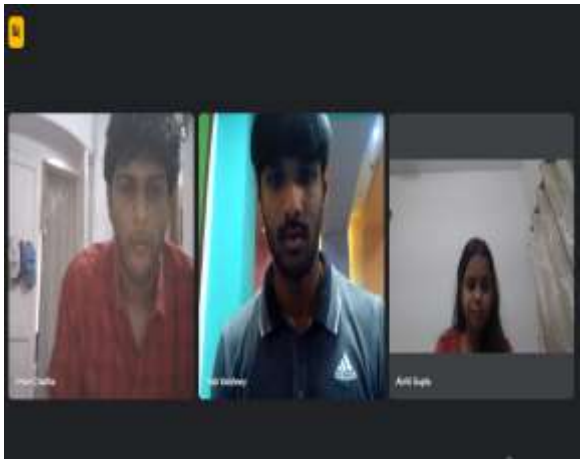


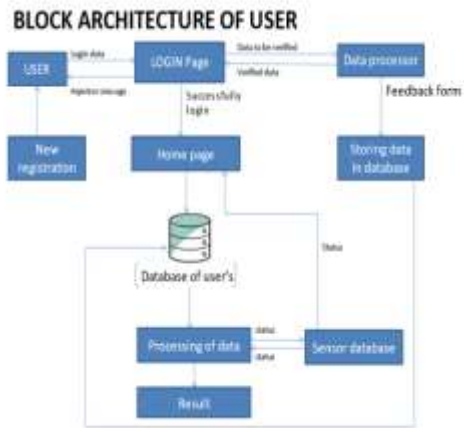




Project-03:

1. **Project Title** : Futuristic AI based Prediction Tool Solutions (FAPT)
2. **Mentor Name** : Prof. Vijaishri Tewari
3. **Student Team Names:** Yash Varshney, Akriti Gupta & Aman Chadha
4. **Project Description:** It is about providing business process solutions to organizations and connecting ends in organizations as per the requirements of the higher management. It provides tools that can fix HR issues, employee behavior, etc. as per the need. It predicts employees behaviors such as voluntary resignations, satisfaction levels etc.
5. **Project status at the beginning of the Year:** Project has been pilot tested.
6. **Interventions to be made for next stage / commercialization:** More concepts have been tested under the project.
7. **Current status:** The concepts have been converted into applications and softwares.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

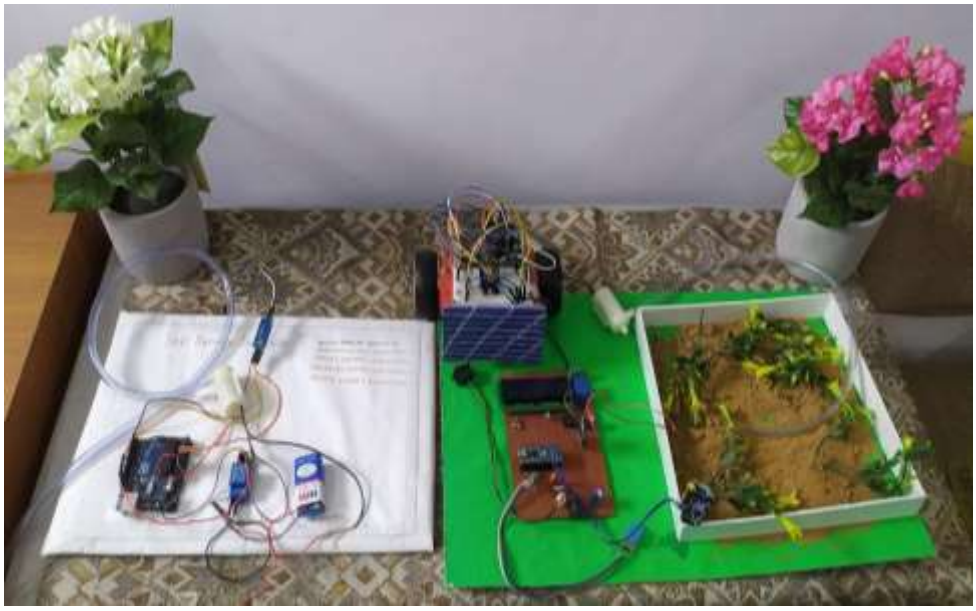




Project-04:

1. **Project Title** : Crop Yield Enhancement by Soil Sensing.
2. **Mentor Name** : Dr. Mushtaq Ahmed
3. **Student Team Names:** Anish Jangir, Saksham Bindal, Abhishek
4. **Project Description:** The project detects the soil properties using sensors and the same information can be used for farming.
5. **Project status at the beginning of the Year:** Only was an idea.
6. **Interventions to be made for next stage / commercialization:** Next stage is to test the product in real time with some additional features.

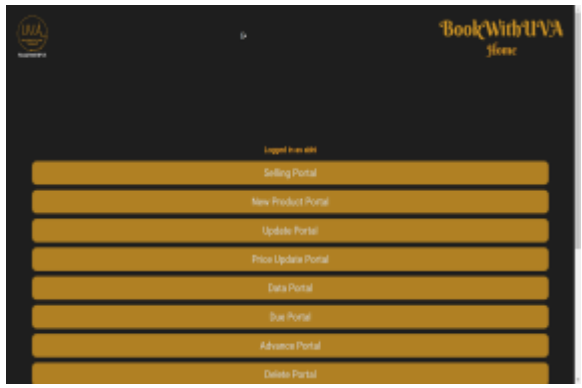
7. **Current status:** A prototype model has been developed.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-05:

1. **Project Title** **:** Book with UVA
2. **Mentor Name** **:** Mr. Sanjay Vohra
3. **Student Team Names:** Abhishek Kumar & Uttam Srivastava
4. **Project Description:** The startup provides stationary services to students at their college themselves. They have a large customer base and have already started sales.
5. **Project status at the beginning of the Year:** Implemented the idea and started sales to test the project at pilot stage, developed a team for the working, and had a small customer base among colleges in proximity.
6. **Interventions to be made for next stage / commercialization:** Aggressive scaling to a wider customer ; developing a proper delivery system; digital billing system; website indexing and increased reach through google Ads and SEO; interlinking inventory system with the website & billing system, and making arrangements for E-Books & E-Notes.
7. **Current status:** Developed self-tailored inventory management system , a website to sell the products online, started book renting & book reselling services, and increased customer base.

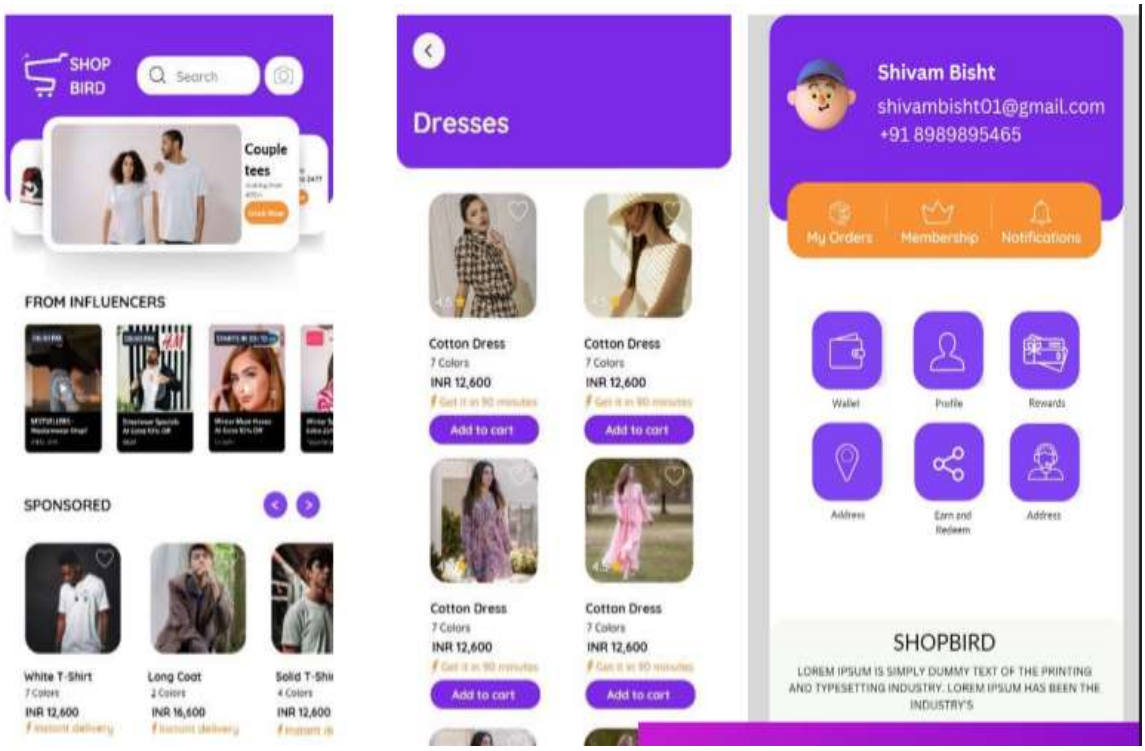
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-06:

1. **Project Title** : Seetaara
2. **Mentor Name** : Dr. Ranjana Vyas
3. **Student Team Names:** Deepak Mishra, Aditya Yadav & Adarsh Shukla
4. **Project Description:** The startup provides a marketplace for local fashion vendors with 3 hour return and delivery within hours. Seetaara is an AI based ecommerce marketplace for fashion and electronics needs, Seetaara provides fastest online shopping services of quality project with 90 min delivery and 3 hour easy & fast return at lowest possible price.

5. **Project status at the beginning of the Year:** Prototype dev·
6. **Interventions to be made for next stage / commercialization:**
7. **Current status:** Final stage testing
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-07:

1. **Project Title** : Online Ceramic Store
2. **Mentor Name** : Vijay Nayak
3. **Student Team Names:** Harshita Gupta & Sakshi Sharma
4. **Project Description:** The applicant has connections with the local arca factories and intent to put them into a self-made marketplace.
5. **Project status at the beginning of the Year:** We have just started working on the idea and now looking to explore more. We contacted many manufacturers of crockery. And we also start selling our product but on a small stage yet.
6. **Interventions to be made for next stage / commercialization:** to explore and increase the sale
7. **Current status:** small business with preliminary preparations

Project-08:

1. **Project Title** **:** Sattu Drink
2. **Mentor Name** **:**Dr. Anurika Vaish
3. **Student Team Names:** Ankit Lal, Shardul Dyundi, Ankit Kumar, Mayank Verma & Rajeev Kumar
4. **Project Description:** The team provides the drink in a liquid instead of a powder pack for easy consumption.
5. **Project status at the beginning of the Year:** Ready with MVP
6. **Interventions to be made for next stage / commercialization:**
7. **Current status:** Under Development
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-09:

1. **Project Title** **:** Ofline Club (prev Together)
2. **Mentor Name** **:**
3. **Student Team Names & Their Aadhar Number:** Shivansh Srivastava, Sakshi Gupta
4. **Project Description:** Ofline Club (prev Together) helps connect like-minded young adults, helping them find companionship to engage in activities together. It combats loneliness and boredom while promoting connections, meaningful friendships, and a more fulfilling social life.

5. **Project status at the beginning of the Year:** At beginning of year project was at ideation phase
6. **Interventions to be made for next stage / commercialization:**
7. **Current status:**We have made significant progress by creating wireframes, starting developing the frontend and backend of the app, along with this generating ideas for revenue generation and expansion strategies.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:** WireFrames □

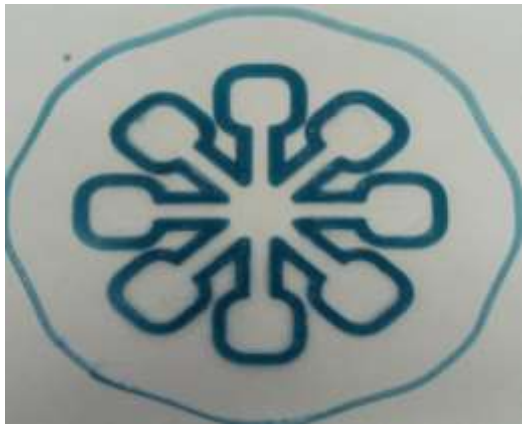
https://excalidraw.com/#room=364111630d6d08195e0f,N2fZc-Q9HgbN-ppfaceg9w PPT □

Ofline Club

Project-10:

1. **Project Title :** Microfluidic Paper Analytical Device for testing milk adulteration
2. **Mentor Name :** Dr. Amit Prabhakar
3. **Student Team Names & Their Aadhar Number:** Sonal jaiswal, Pradyumn Chowdhury, Vikram Kumar, IIIT Allahabad
4. **Project Description:** The team aims to check for milk adulteration using a microfluidic paper designed specially for the purpose, enabling a low-cost and effective solution.
5. **Project status at the beginning of the Year:** Study and development of microfluidics device·

6. **Interventions to be made for next stage / commercialization:** Troubleshooting of problem facing detection system and enclosing of compact device device
7. **Current status:**
   Developed functional microfluidics device detecting milk adulteration immobilized with all required testing comonents.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

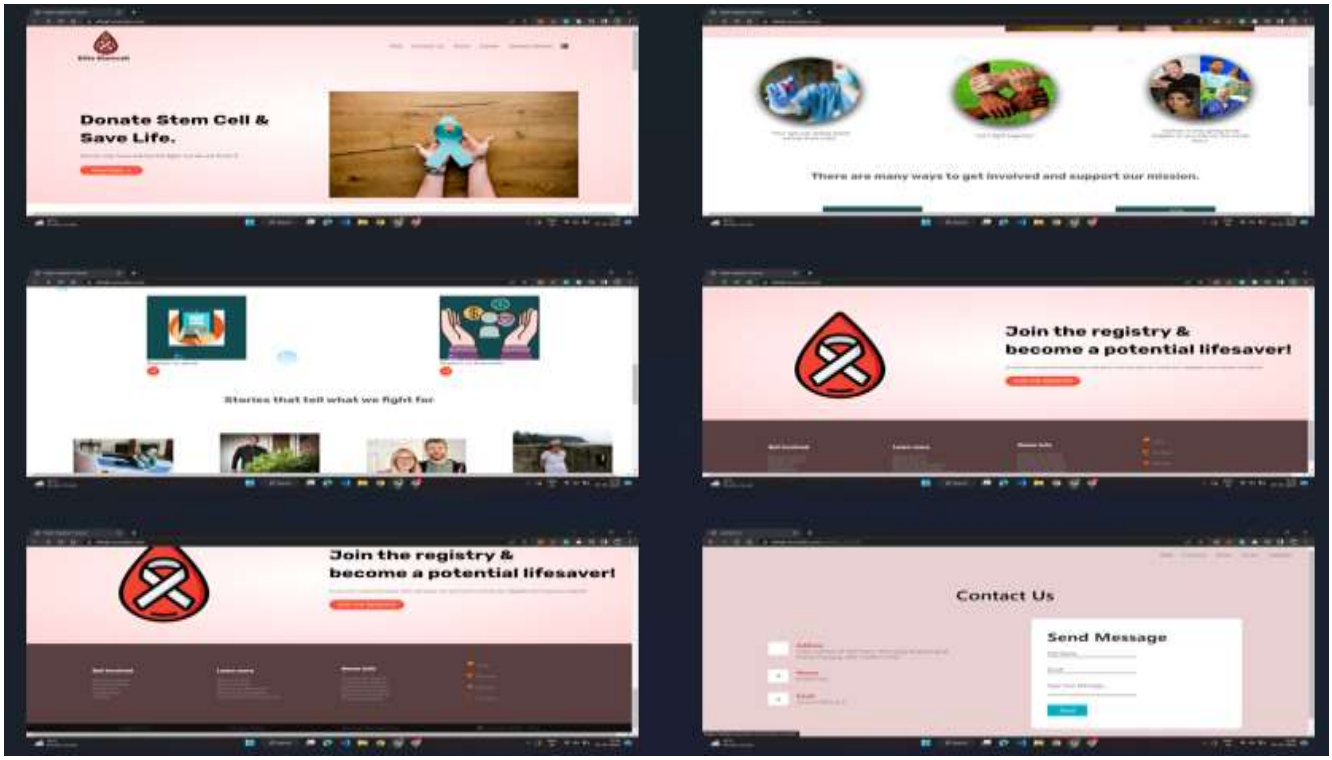


Project-11:

1. **Project Title** **:** Elite Stem-Cell
2. **Mentor Name** **:** Dr. Ranjana Vyas
3. **Student Team Names:** Javesh Lodha, Ayush Chauhan
4. **Project Description:** We collect Data and help cancer patients to have their 100% Match for stem-cell, from just a spit-test you can save life and become a part of the fight against cancer. Volunteers can register for the spit test and then his/her data will be recorded in our database. then through our Database, potential donors can be contacted for stem-cell when needed
5. **Project status at the beginning of the Year:**
   Frontend model was ready with all major components and researched about the complete stem-cell donation process and possible complications in the donation process.
6. **Interventions made:** Production-compatible responsive prototype is ready and backend authentication work and database work in process
7. **Current status:** The frontend model was ready with all major components and researched about the complete stem-cell donation process and possible complications in the donation process. then we worked on a Production-

compatible responsive prototype and backend-database work is under process.

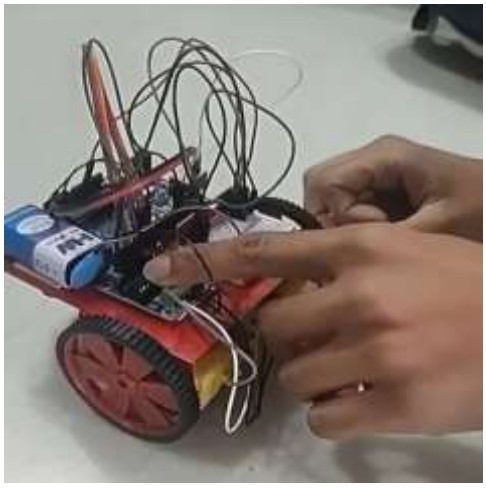
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-12:

1. **Project Title** : A Remotely Triggered Smart Surveillance Bot for Outdoor Mapping Using RGBD Camera
2. **Mentor Name** : Dr. Surya Prakash
3. **Student Team Names & Their Aadhar Number:** Yash Prajapat, Nitesh Kumar Shah
4. **Project Description:**
   - The proposed method is for making a system for a smart bot that captures the video streaming of risky, rugged, and hilly areas and sends it to the base station.
   - The base station has the capability to process this stream and identify the wanted and unwanted objects with intimation.
   - The movement and video capture angle can be remotely controlled manually through a joystick for best precision.

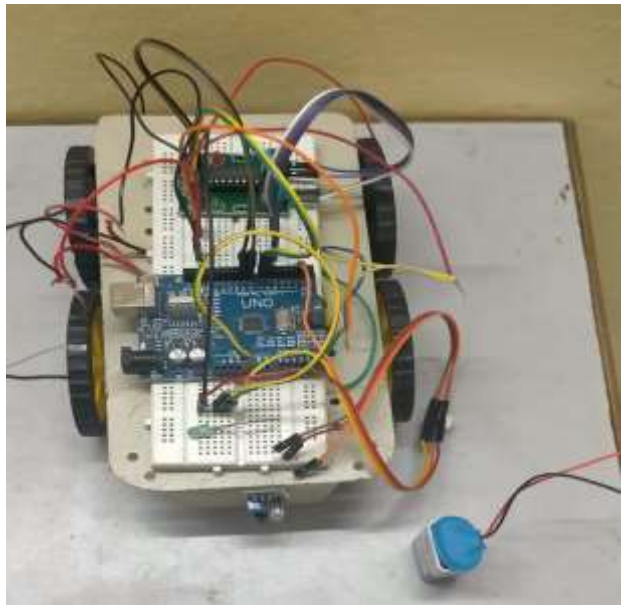
5. **Project status at the beginning of the Year:** Project is completely new and we got this idea after we just talked with the project coordinator so the project just started last month**.**
6. **Interventions to be made for next stage / commercialization:** Studying about sensors and devices to be used in the bot.
7. **Current status:** Work is being done on a personal level. Requested for Funding
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-13:

1. **Project Title** **:** A Precise and Real Time Human Following Bot with RGBD and IR Cameras
2. **Mentor Name** **:** Dr. Surya Prakash
3. **Student Team Names & Their Aadhar Number:** Shreyansh Sharma
4. **Project Description:**
   - The bot should follow the soldier and maintain a suitable distance with the use of a depth camera
   - The bot should follow the soldier's QR code on rugged and hilly surfaces, also
   - Bot continuously captures the frames and selects the QR code through the region of interest selection
   - Use an ultrasonic sensor to verify the distance between the soldier and the bot
   - If the QR code is not visible, stand up to the QR code visibility, then start the localization and calibration
   - Detect and track the human skeleton for the Kinect sensor approach

5. **Project status at the beginning of the Year:**
    - Project is completely new and we got this idea after we just talked with the army, so the project just started last month.
6. **Interventions to be made for next stage / commercialization:**
    - We have to study to make the bot and we have to design the body for the same.
    - Now we have made the sensors to be fitted on the body and want to know their capability so I just said that the project is in their development mode and we will work on it, on their sensors and study carefully.
7. **Current status:** We are working on it. We are working on its sensor parts.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project-14:

1. **Project Title :** Primary Healthcare Drone for Health Checkups and sample transportation at Remote Location
2. **Mentor Name :** Dr. Amit Prabhakar
3. **Student Team Names & Their Aadhar Number:** Priyanka Kumari, Sajal Kumar Babu, Sonal Jaiswal & Pankaj Kumar Goyal
4. **Project Description:** The team aims to use drones to measure body vitals and transport blood samples. The uniqueness is the drone providing health services rather than just transportation of samples. The team has expertise in drones and have already made some sensors. Business use case is that these drones can be used by primary healthcare providers for monitoring the

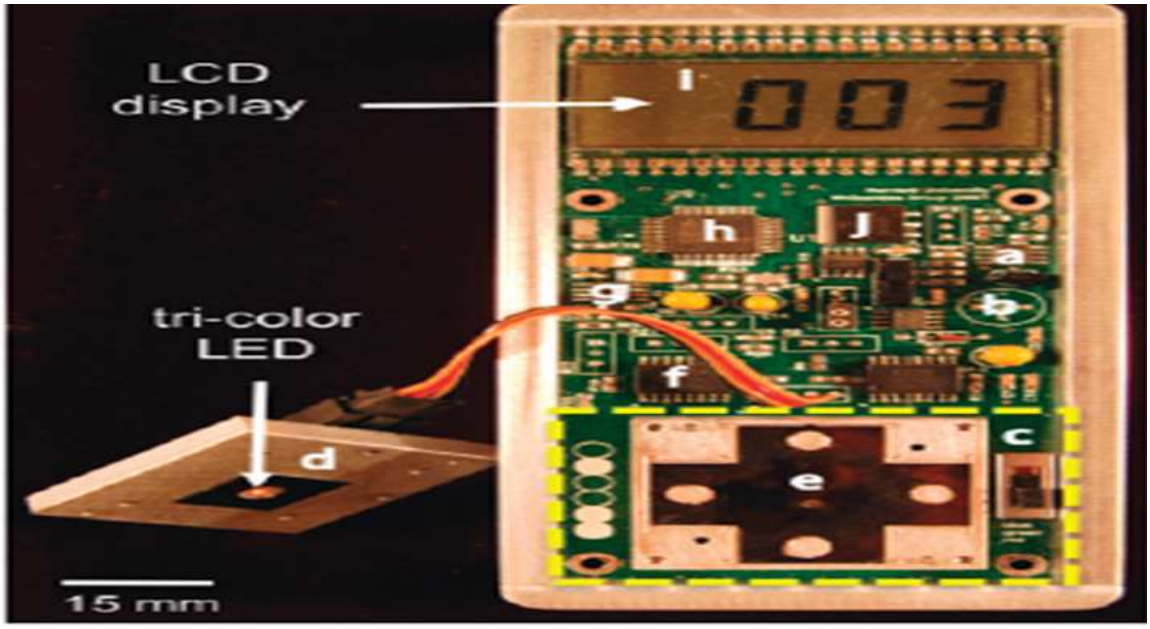
health of people located at remote locations and this can also be used by blood banks for blood transportation.

5. **Project status at the beginning of the Year:** At the beginning of the year we are at ideation stage.
6. **Interventions to be made for next stage / commercialization:** To develop prototype of drone and test it in a real time environment. After successful testing, commercialization of drones will be decided.
7. **Current status:** Complete frame of the drone has been 3D printed and development of controller and dashboard for controlling it is under way.·
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-15:

1. **Project Title :** Paper-Microfluidics technology for the Biomedical Applications and Point-of-Care devices
2. **Mentor Name :** Dr. Amit Prabhakar
3. **Student Team Names:** Sonal Jaiswal, Priyanka Kumari, Hrithik Kumar Thakur
4. **Project Description:** The team intends to detect diseases or vitals like glucose, cholesterol, or other elements in the blood. The team has an experience of similar sensors and devices.
5. **Project status at the beginning of the Year:** Literature survey for the project and the proposal for ideas had been introduced.
6. **Interventions to be made for next stage / commercialization:** Development of compact electronic detection system for compact devices.
7. **Current status:** Current status me : Paper-fluidics analyte testing reaction platform has been developed and tested with water and milk.

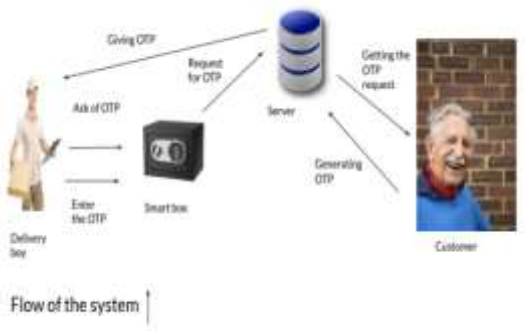
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Compact

Project-16:

1. **Project Title : SMART BOX**
2. **Mentor Name : Prof. O.P Vyas**
3. **Student Team Names & Their Aadhar Number:** Mohit Panwar, Shreyansh Sharma
4. **Project Description:** The team intends the problem of receiving parcels when the recipient is not physically present. The courier service can leave the parcel at a box which is protected by OTP and paid on a subscription mode. Security is through a camera. Appliance is operative only where society has guards nearby the box.
5. **Project status at the beginning of the Year:** At the beginning we were analyzing the market size for it.
6. **Interventions to be made for next stage / commercialization:** Development of a smart electronic safe box which will be smart enough to receive orders directly from the delivery man.
7. **Current status:** Working on the consumer and delivery man behavior, and trying to develop the internal technology for the smart box.
8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**



Project No. 17

1. **Project Title** : Design of luminescent strip sensor for onsite detection of arsenic in water
2. **Mentor Name** : Dr. Sintu Samanta (Mentor)
3. **Student Team Names:** Khyati Mahesh Joshi, Shivani Sundriyal, Oshin Pal
4. **Project Description:** Arsenic through ground water is increasingly affecting everyone with solutions either having high sensitivity or a high cost. The team has done a lot of research in liquids being now extended to solids and expects field testing soon. The team is advised to approach Government testing facilities for user understanding, undergo standardization across several labs, and approach CSIR-IITR
5. **Project status at the beginning of the Year:**
   In drinking-water supplies, arsenic poses a problem because it is toxic at low levels and is a known carcinogen. Therefore, our project aims to detect the presence of arsenic in water using a luminescent strip sensor. In this regard, we started designing a gold nanoclusters (Au NCs) based luminescent strip for Arsenic detection in water.
6. **Interventions to be made for next stage / commercialization:**
   - We have prepared the Au NCs and are trying to optimize it to estimate the different concentrations of arsenic accurately.
   - Thereafter, we will move ahead with standardization across different labs, as suggested.
   - After this, we will move ahead with the preparation of the luminescent strip.
   - Finally, we will be performing the onsite detection of Arsenic in water.
7. **Current status:** We have prepared the Au NCs, which enable us to detect arsenic in water. However, currently, we are trying to optimize to detect a range of different concentrations of Arsenic in water.

8. **High-resolution pictures showing the Prototype/product along with the students and their mentor for each project:**

Project-18:

1. **Project Title** : B Edtech.
2. **Mentor Name** : Nil
3. **Student Team Names:** Bonny Thomas K
4. **Project Description:** Team aims to create job and wealth creation and sharing. The team will provide online training with all ed-tech features using existing MOOC resources. The USP is a not-for-profit nature with a small registration fee and fitting in the mandatory university credits through online sources needed by certain universities. A chit fund model is proposed to get customers. The applicant previously started an ed-tech marketplace.
5. **Project status at the beginning of the Year:** Project was in Ideation phase
6. **Interventions to be made for next stage / commercialization:** A mobile application has to be developed, and will require funding.
7. **Current status:** About to begin Mobile application development phase.

Project are Under Progress

Project No. 19

1. **Project Title** **:** Development of Mango Fruit Roll-ups
2. **Mentor Name** **:** Prof. R. S. Verma
3. **Student Team Names & Their Aadhar Number:** Drivya (MNNIT Allahabad)
4. **Project Description:** The team aims to solve the problem of lack of nutrients through the micro- nutrient channel starting at the adolescent stage, in an exciting mode of a candy. The team will now carry pilot user testing for efficiency and ultimately launch the product.

Project No. 20

1. **Project Title:** Primary Healthcare Drone for Health Checkups and sample transportation at Remote Location
2. **Mentor Name** **:** Dr. Amit Prabhakar
3. **Student Team Names:**Priyanka Kumari, Sajal Kumar Babu, Sonal Jaiswal, Hrithik Kumar Thakur
4. **Project Description:** The team aims to use drones to measure body vitals and transport blood samples. The uniqueness is the drone providing health services rather than just transportation of samples.

   The team has expertise in drones and have already made some sensors. Business use cases need to be clarified.

Project No. 21

1. **Project Title** **:** E-commerce Sector
2. **Mentor Name** **:** Dr. Rahul Kala
3. **Student Team Names:** Sujeet Kumar Mandal, Patil Nainesh Ravindra, Parth PrasantJiniya Singal.
4. **Project Description:** The startup aims to reduce delivery time of e-commerce specially for tier-2 and tier-3 cities into hours within the same city; and further have refunds (if any) within the same day. The team has done a market survey within the Prayagraj region to attest the idea. The team is asked to fix some products that fit the uniqueness

Project-22:

1. **Project Title : NFT marketplace**
2. **Mentor Name :**
3. **Student Team Names:** Garvit Chittora
4. **Project Description:** The team intends to solve the problem that currently there are very few high charging marketplaces for creators selling using NFT.

Project-23:

1. **Project Title : Driving School Simulator**
2. **Mentor Name :**
3. **Student Team Names:** Priyanshu Jain
4. **Project Description:** The team intends to create a simulator for helping people learn driving using a Virtual Reality system, while current simulators do not use Virtual Reality or are intended for games only.

Project-24:

1. **Project Title : Medical Tourism**
2. **Mentor Name :**
3. **Student Team Names:** Pawan Kumar Chaurasiya
4. **Project Description:** The applicant intends to build a database and integrate with other similar databases to promote medical tourism in India catering to the middle and higher-middle class families in US, Europe, middle east and other countries. The applicants will include non-elite hospitals to provide budgetary rates. The applicant has not done enough market research to verify the business plan idea and does not have a business model for the idea.

Annexure-I

Details of Patent Filed, till March, 2023

01) Kuppam Engineering College, Kuppam

Patent-001: Solar powered Smart Helmet to Avoid Drunken and Drive

1. **Name of the Technology:** "Solar powered Smart Helmet to Avoid Drunken and Drive"
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Implementation of this product mandates the rider to wear helmet, because until and unless rider wear the helmet bike won't start, in turn to follow the traffic rules.
   - The reason that made rider to avoid the helmet (Excess heat inside it) is seriously viewed and come up with a better solution to attract the rider to wear helmet with best driving scenario.
   - This system helps to know the location of the vehicle for rescuing in the case of theft incidents through "SMS on Demand" service.
   - With the addition of the wireless headsets, rider can enjoy incoming calls hands free, the one important reason that made them to ignore the helmet.
   - It serves like a virtual person that sends the information of the place where they met with an accident to the ambulance rescue team. Or any other emergency situations.
   - Allows in tracking the exact location by using real time applications.
3. **Impact it will create:**
   - Reduce the accident rate due to drunken driving.
   - This gives very useful awareness in our day to day life about extra safety and security to combat road accidents while driving.
   - Especially to provide safety and security to the women's with an emergency alert system.
4. **Current Status of the Patent** **:** Abandoned U/s 21(1)
5. **Student Team details/Faculty Mentor :**

   1. Santhosh Kumar
6. **Patent Filing date** **:** 28/12/2015
7. **Patent Granted date** **:** No
8. **Patent Application Number** **:** 6985/CHE/2015

Patent-002: LOG GRAPPLE

1. **Name of the Technology** **:** "LOG GRAPPLE"
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Grapple is a hydraulically powered claw with two or more opposing levers that pinch a log or other materials, usually to lift or drag them.
   - The logging grapple used in swing yarding is not moved by hydraulics but by cables.
   - The heavy duty MultiOne log grapple is a very powerful and flexible tool used to securely grab, lift, and transport harvested logs.
   - The hydraulically powered grapple arms firmly grip the logs, securing them to the lower forks.
   - Thedesign of the grapple accommodates small logs to large tree trunks.
3. **Impact it will create:**
   - Useful attachment for fencing and forest work
   - Independent arms operated by two cylinders
   - Strong log grab, also for more professional and frequent log handling
4. **Current Status of the Patent:**
   - Design Accepted and Published, Journal No is 21/2022 and Journal Date is 27/05/2022 (Granted)
5. **Student Team details/Faculty Mentor :**

   1. P. Ajay Kumar Reddy
6. **Patent Filing date** **:** 06/09/2021 (Design)
7. **Patent Granted date** **:** Granted - 27/05/2022
8. **Patent Application Number** **:** 348948-001

Patent-003: Animal Sign Language recognition using MEMS

1. **Name of the Technology:** "Animal Sign Language recognition using MEMS"
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   Animal Sign Language recognition using Micro-Electro-Mechanical Systems (MEMS) technology is a unique and emerging field with several distinctive features:
   - Animal Sign Language recognition using MEMS enables communication between humans and non-human animals. It provides a means for humans to understand and respond to the gestures, signs, or movements

of animals, fostering a deeper connection and potentially improving animal welfare.

- MEMS technology in animal sign language recognition can detect subtle movements, gestures, or signals made by animals, even those that may be imperceptible to the human eye. This level of precision is crucial for accurately interpreting and translating animal communication.
- Unlike some other methods of animal communication research, MEMS-based recognition is typically non-invasive. It does not require the animals to wear special devices or undergo invasive procedures, ensuring that the study of animal behavior remains as natural as possible.
- MEMS sensors can capture various modalities of animal communication, such as body movements, vibrations, and sounds. This multimodal approach allows for a more comprehensive understanding of animal communication patterns and helps researchers decipher complex signals.
- MEMS-based systems can provide real-time feedback, making it possible to respond to animals' signals immediately. This is particularly valuable in situations where quick action or intervention is necessary, such as in wildlife conservation efforts or the training of service animals.

3. **Impact it will create:**
   - Animal Sign Language recognition using MEMS has applications in both research and conservation. Researchers can use the technology to study animal behavior, social interactions, and species-specific communication patterns.
   - MEMS technology bridges the gap between humans and animals, allowing for improved interaction and understanding.
   - Animal Sign Language recognition using MEMS has educational and advocacy applications. It can help raise awareness about animal intelligence, emotions, and complex communication systems, which may lead to improved animal rights and welfare efforts.
   - This field encourages collaboration between experts in animal behavior, biology, MEMS technology, and artificial intelligence. Such interdisciplinary cooperation can lead to innovative solutions and novel insights into the world of animal communication.
4. **Current Status of the Patent:**
   - Patent Filed, Disposed

5. **Student Team details/Faculty Mentor :**
   1. B. V. Chetan
   2. M. Akhil Naidu
   3. Ajay Kumar
6. **Patent Filing date** **:** 30/05/2016
7. **Patent Granted date** **:** No
8. **Patent Application Number** **:** 201641018459

Patent-004: Fuel Monitoring System

1. **Name of the Technology** **:** “Fuel Monitoring System”
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   In an aspect, a device for monitoring a fluid level and refilling in a reservoir and alerting a user is provided. The device includes: a pressure sensor to compute mechanical force/stress of the fluid remaining in the reservoir and generate an electrical signal, corresponding to the mechanical force/stress signifying a volume of the fluid in the reservoir; an ultrasonic sensor to determine the quantity of fluid available inside the reservoir with reference to the depth;a flow meter coupled to the pressure sensor and the ultrasonic sensor to compute an inflow data of the fluid into the reservoir; and; a microcontroller to collect a plurality of data and communicate to the user.
3. **Impact it will create:**
   - The combination of a pressure sensor and an ultrasonic sensor allows for a more precise determination of the fluid level in the reservoir. This accuracy ensures that users receive reliable information about the quantity of fluid remaining.
   - The use of sensors and a flow meter enables the device to provide real-time data on the inflow of fluid into the reservoir. This information is valuable for users to understand the rate of consumption and plan accordingly.
   - By continuously monitoring the fluid level and providing alerts to the user, the device helps prevent shortages. Users can be proactive in refilling the reservoir, avoiding inconveniences or interruptions in fluid supply.
   - The microcontroller's role in collecting and processing data, as well as communicating with the user, enhances the overall user experience.

Alerts and notifications can be tailored to be user-friendly and easy to understand.

- The device's ability to compute inflow data and fluid levels allows for more efficient management of the fluid resource. Users can optimize their consumption patterns based on accurate and timely information.

4. **Current Status of the Patent:** Application awaiting for Examination
5. **Student Team details/Faculty Mentor :**

   1. D. Jaya Kumar
6. **Patent Filing date** **:** 19/10/2016
7. **Patent Granted date** **:** ---
8. **Patent Application Number** **:** 201641035735

Patent-005: Compact and Effective Infant monitoring system using embedded boards

1. **Name of the Technology:** “Compact and Effective Infant monitoring system using embedded boards”
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   Every parent is busy with their career in this fast growing and challenging world, which has become terribly troublesome for them to urge sufficient time required for taking care of their babies. Sometimes it's not reasonable for them to afford a nanny. The proposed system helps the oldsters and nurses in taking care of their kid while not physical attention. The system has inbuilt alarm that indicates two major conditions - first when the mattress is wet, which is an important parameter to keep the baby in hygienic condition, second when baby does not stop crying with in a stipulated time, which intimated that baby needs attention. This system include sensors to determine if the room's temperature and humidity are adequate and also detects whether the baby is sleeping on his abdomen, since this is one of the main causes of Sudden Infant Death Syndrome (SIDS). Thus, if the baby cries, the parents will be notified via sound alarm, while a soft sound and lights will be played to soothe the baby until they arrive. This system may be mainly employed in hospitals, crèche etc.
3. **Impact it will create:**

   - In hospital settings or crèches, the system could enhance the efficiency of care and provide an extra layer of safety. It might reduce the workload on

nurses or caregivers, allowing them to focus on other aspects of childcare. The notification system ensures that timely attention is given to the baby, even in a busy environment.

- Moreover, the system's ability to detect environmental conditions like room temperature and humidity adds another layer of safety, as these factors can significantly impact a baby's comfort and health.

4. **Current Status of the Patent** **:** Abandoned U/s 21(1)
5. **Student Team details/Faculty Mentor :**
   1. R. Sandhya Rani
   2. N. Jaya Prakash
   3. J. Yashwanth
   4. N. Bhargavi
6. **Patent Filing date** **:** 15/03/2018
7. **Patent Granted date** **:** No
8. **Patent Application Number** **:** 201841009478

Patent-006: Low-cost Automatic LPG Cylinder Booking and Leakage Monitoring System

1. **Name of the Technology:** "Low-cost Automatic LPG Cylinder Booking and Leakage Monitoring System"
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The main aim of this product is to control over the accidents due to the explosion of LPG which became a threat to human life. In the existing system, LPG providers were unable to predict the daily LPG usage of their customers and customers can only able to predict the emptiness of the LPG cylinder at verge of UN flammable burner. Here we have designed a system, in this the gas sensor detects the leakage of the LPG and alert the owner about the leakage by sending information to his personal mobile and activate the alarm. In additional to this, the system continuously monitors the level of the LPG in the cylinder using load sensor and if the level is below the threshold limit the system inform them by sending information to mobile and also by the LCD display. So that the users have an idea about the max time the LPG lasts. An automatically booking of the cylinder using a BLUETOOTH module is also used in this method.

3. **Impact it will create:**
   - **Improved Safety:** The primary goal of the product is to enhance safety by detecting LPG leakage early on. By providing real-time alerts to the owner's mobile and activating an alarm, the system enables quick response measures to prevent potential accidents or explosions.
   - **Accident Prevention**: Early detection of gas leakage can prevent accidents that may result from the explosion of LPG. This can significantly reduce the risk of harm to human life and property damage.
   - **User Awareness**: Continuous monitoring of LPG levels and sending information to the user's mobile and LCD display ensures that users are informed about the status of their gas supply. This awareness allows users to plan for a refill in advance, avoiding unexpected shortages.
   - **Time Estimation**: The system's ability to estimate the maximum time the LPG will last provides users with valuable information for planning and managing their gas usage effectively.
   - **Technological Advancement**: The incorporation of sensors, mobile alerts, and Bluetooth technology reflects a high level of technological innovation in the management of LPG systems. This not only improves safety but also demonstrates the potential for technology to address critical issues.
4. **Current Status of the Patent:**
   Abandoned U/s 21(1)
5. **Student Team details/Faculty Mentor :**
   1. T. Mounika
   2. K. Praveen Kumar
   3. M. Vasanth kumar
   4. T. Sharvani
6. **Patent Filing date** **:** 13/03/2018
7. **Patent Granted date** **:** No
8. **Patent Application Number** **:** 201841009187

Patent-007: Data Hiding with different Polynomial Equations by Using Least Significant Bit Insertion Method with Stego Key

1. **Name of the Technology:** “Data Hiding with different Polynomial Equations by Using Least Significant Bit Insertion Method with Stego Key”

2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - There are many Steganography techniques available; among them the Least significant bit (LSB) insertion is a common, simple approach to embedding information in a cover image. The least significant bit (in other words, the 8th bit) of some or all of the bytes inside an image is changed to a bit of the secret message. When using a 24-bit image, a bit of each of the red, green and blue color components can be used, since they are each represented by a byte. In other words, one can store 3 bits in each pixel. If the hacker knows about the decoding technique he can easily extract all LSBs from the all bytes, and then can find out the message which was sent by the user. The aim of this project is we used the method Least Significant Bit Insertion such that the message will be embedded in the LSB of the image pixels randomly according to the stego key, so that any attacker cannot find message in an image unless he knows about the stego key. Another goal of this project is increasing the text length being inserted in the image using the stego key and the resultant image looks like the original bitmap image.
   - In this project, a data hiding scheme is developed by LSB substitution using different polynomial equations. By applying polynomial method to cover image using LSB substitution, the length of hidden messages will be increased. The difference between the single polynomial and double polynomial were described. By comparing the single and two different equations, with the use of two different polynomial equations the twice of the capacity of single equation can be inserted in a cover image. Experimental results show that the stego-image is visually indistinguishable from the original cover-image. The obtained results also show a significant improvement with respect to a previous work.
3. **Impact it will create:**
   - **Enhanced Security**: The use of Least Significant Bit (LSB) insertion with a stego key adds an additional layer of security to the hidden messages. Without knowledge of the stego key, extracting the concealed information becomes much more challenging for potential attackers.
   - **Increased Message Length:** The application of polynomial equations in LSB substitution allows for a longer message to be hidden in the cover

image. This increased capacity is valuable for users who need to transmit larger amounts of information covertly.

- **Randomized Embedding**: By embedding the message in the LSB of image pixels randomly according to the stego key, the project aims to make it more difficult for attackers to detect the hidden information. This randomized approach adds a level of unpredictability to the hiding process.
- **Visual Indistinguishability**: The claim that the stego-image is visually indistinguishable from the original cover-image is significant. This ensures that the alterations made for hiding the message do not visibly affect the quality or appearance of the image, reducing the chances of detection.
- **Capacity Improvement with Polynomial Equations**: The comparison between single and double polynomial equations suggests an increased capacity for the latter. This improvement in capacity is crucial for users who want to maximize the amount of information they can hide within an image.

4. **Current Status of the Patent:** Abandoned U/s 21(1)
5. **Student Team details/Faculty Mentor :**
   1. S. Nanda Kishor
6. **Patent Filing date** **:** 19/7/2018
7. **Patent Granted date** **:** No
8. **Patent Application Number** **:** 201841026959

Patent-008: Vocal Track Shape Analysis For South Indian Languages Using Linear Prediction Coefficient Method

1. **Name of the Technology:** “Vocal Track Shape Analysis For South Indian Languages Using Linear Prediction Coefficient Method”
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Vocal track shape analysis for South Indian languages using the Linear Prediction Coefficient (LPC) method offers a distinctive approach to speech analysis and recognition in this linguistically diverse region. Here are some of the unique aspects and advantages of this approach:
   - Vocal track shape analysis using LPC can be customized to each of these languages, preserving their unique phonetic characteristics. This allows for more accurate speech recognition and synthesis in these languages.

- LPC focuses on modeling the spectral envelope of speech signals. This is particularly valuable for South Indian languages because they often have complex phonetic structures and tonal variations that are better captured through spectral envelope analysis.
- LPC analysis can help identify and distinguish these tonal variations, which is crucial for accurate speech recognition and synthesis.
- Vocal track shape analysis using LPC can be customized and adapted to recognize and synthesize speech in these dialects, ensuring that the technology is accessible and useful across different regions.
- LPC provides detailed phonetic analysis, which is crucial for linguistic research and language preservation efforts.

3. **Impact it will create:**
   - This technology can be used for language education, helping individuals learn South Indian languages more effectively by providing accurate pronunciation guidance and feedback.
   - By facilitating the development of speech recognition and synthesis systems for South Indian languages, LPC-based analysis contributes to the preservation of linguistic and cultural heritage in the region.
4. **Current Status of the Patent:** Deemed to be withdrawn u/s 11B(4)
5. **Student Team details/Faculty Mentor :**

   1. R. Ashok Kumar Reddy
6. **Patent Filing date** **:** 29/11/2018
7. **Patent Granted date** **:** No
8. **Patent Application Number** **:** 201841044978

Patent-009: Appliance Failure Detection System”

1. **Name of the Technology:** “Appliance Failure Detection System”
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The failure detection involves the continuous monitoring for condition or working state of AC or DC appliances/loads. The working state / condition monitoring in some critical applications or normal situations play an important role in many places and automated systems. To detect the failure of appliance/load, here we propose to design a DC and AC current and voltage sensing circuits. When an appliance is in working state then it consumes more or less the rated power, with the rated current. So if an appliance gets

failed, then it still draws a few amount of current but it will be far less than the rated current of an appliance or may be nearly equals to zero depending on the type of load. Hence the current sensing circuit along with the voltage sensing circuit decides the working status of an appliance or load. For communicating the failure in any appliance or load is established by using the GSM module, and an alert SMS will be sent to the authorized personal. Apart from the appliance failure detection, a low voltage indicators and line indicators are used to detect the voltage fluctuations and domestic line status.

3. **Impact it will create:**
   - Intelligent system/mechanism that detects the failure of any kind of load or appliances, motors, machines etc. used in home, office, industry etc.
   - A low cost voltage and current sensing circuits for AC and DC loads makes easily affordable.
   - Monitors the working status of loads or appliances continuously by the use of sensing circuits. Apart from failure detection, line detection and low voltage.
4. **Current Status of the Patent:** Disposed {Abandoned U/s 9(1)}
5. **Student Team details/Faculty Mentor :**

   1. K Ravi Karthik
   2. V Harinath
6. **Patent Filing date** **:** 30/11/2018
7. **Patent Granted date** **:** No
8. **Patent Application Number** **:** 201841045229

Patent-010: Smart Garbage Level Monitoring Systems For Real Time Applications

1. **Name of the Technology:** “Smart Garbage Level Monitoring Systems For Real Time Applications”
2. **Highlights of the Technology (innovation/uniqueness etc.):** A real time garbage management system by using smart dustbins to check whether the dustbin is full or not. Hence any one can view the status of bin through app bu upi key. This is an attempt to fulfil the challenges of Swatch Bharath Abhiyan Clean India Mission and to overcome the shortage of water. This can be used in our present municipal cooperation by additionally adding the information about the status of each and every dust bin arranged so that the

concerned authority can send the garbage collection vehicle only when the dustbins are filled.

3. **Impact it will create:**
   - Smart dustbins can communicate their garbage level/status, the municipal authorities can optimize waste collection routes. Garbage collection vehicles can be sent only when the bins are full, reducing unnecessary trips and making the waste collection process more efficient.
   - The system helps in the optimal use of resources such as fuel and manpower. Waste collection vehicles can be dispatched based on the actual need, leading to cost savings and reduced environmental impact.
   - **Swachh Bharat Abhiyan Support**: The initiative aligns with the goals of Swachh Bharat Abhiyan (Clean India Mission) by introducing technology to enhance waste management. It contributes to the cleanliness and sanitation objectives set by the government.
   - **Community Engagement**: Involving citizens in the waste management process through the app and UPI key enhances community engagement. It fosters a sense of responsibility among residents and encourages them to be more mindful of their waste disposal habits.
   - **Smart City Integration**: The implementation of such a system aligns with the concept of smart cities, where technology is used to enhance the quality of urban living. It sets a precedent for incorporating innovative solutions into city infrastructure.
4. **Current Status of the Patent:**
   Deemed to be withdrawn u/s 11B(4)
5. **Student Team details/Faculty Mentor :**
   1. R. N. Mohan
   2. G. Priyanka
6. **Patent Filing date** **:** 13/12/2018
7. **Patent Granted date** **:** No
8. **Patent Application Number** **:** 201841047127

Patent-011: Computerized Point System Ideograph Bibliophile with Marginal Patronize

1. **Name of the Technology:** “Computerized Point System Ideograph Bibliophile with Marginal Patronize”

2. **Highlights of the Technology (innovation/uniqueness etc.):**

   Point system is a material composition framework utilized by a visually impaired and the outwardly debilitated. They can compose point system with the first slate and stylus or type it on a point system essayist. In this undertaking, we are building up another philosophy utilizing a Point system framework so as to peruse a message for visually impaired individuals. Computerized point system peruses are getting prominent overall step by step among the outwardly debilitated individuals. A servo engine based remote computerized point system was structured. Presently accessible servo engine based and piezoelectric based point system have a few issues with their mechanical highlights and cost separately. This is about the plan and development of a Wireless computerized point system device with settled mechanical usefulness, remote information move accessibility and much lower cost than accessible computerized point system of this sort. This proposed work guarantees right mechanical usefulness, exactness, security, quicker information move and lower cost. The learning begins at an extremely youthful age; subsequently we have focused on youngsters between the ages 3 to 6 and instill the fundamental ideas of point system in our local language Tamil/Telugu, to such an extent that they prosper later on. Also made a haptic interface with the assistance of arduino board and utilized laptops for automatic discourse acknowledgment that causes them in dynamic learning. This included learning in different trouble levels, for example, easy, intermediate, and hard which would spring.

3. **Impact it will create:**

   - **Enhanced Accessibility:** The Wireless Digital Braille System enhances accessibility for the visually impaired by providing a new and improved methodology for reading messages. This could significantly improve their ability to access information independently.
   - **Technological Advancement:** The integration of servo motor-based remote technology represents a technological advancement in the field of Braille systems. This can contribute to a broader trend of incorporating advanced technologies to improve the quality of life for individuals with visual impairments.
   - **Cost-Effective Solution**: The focus on developing a system with much lower cost than existing digital Braille systems makes this technology

more accessible to a wider range of users. Cost-effective solutions are crucial for ensuring affordability and widespread adoption, especially in regions with limited resources.

- **Educational Impact:** Targeting children between the ages of 3 to 6 for learning Braille in native languages like Tamil/Telugu is a significant educational initiative. Early exposure to Braille can lay a foundation for future academic and personal development, fostering independence and inclusion.
- **Haptic Interface and Speech Recognition**: The incorporation of a haptic interface using an Arduino board and automatic speech recognition with laptops adds additional dimensions to the learning experience. These features not only aid in active learning but also cater to different difficulty levels, promoting a more comprehensive educational experience.
- **Empowerment of Visually Impaired Individuals**: By providing a reliable, cost-effective, and technologically advanced Braille system, the project contributes to the empowerment of visually impaired individuals. Improved access to education and information enhances their overall quality of life and opportunities for personal and professional development.
- **Cultural Inclusivity**: The use of native languages (Tamil/Telugu) in teaching Braille reflects cultural inclusivity. It ensures that individuals are learning Braille in a language they are familiar with, making the learning process more effective and culturally relevant.

4. **Current Status of the Patent:** Abandoned U/s 21(1)
5. **Student Team details/Faculty Mentor :**
   1. B. P. Yogeshwari
   2. Y. Madan Mohan Reddy
   3. S. Charan
   4. E. Pavithra
6. **Patent Filing date** **:** 05/08/2019
7. **Patent Granted date** **:** No
8. **Patent Application Number** **:** 201941031640

Patent-012: An Enhanced Human Face Affirmation System Based on ELBP and SRC

1. **Name of the Technology:** "An Enhanced Human Face Affirmation System Based on ELBP and SRC"
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   This work is mainly proposed for identifying the humans in the biometric systems. This work is mainly focused on the extraction and recognition stages. An efficient method for Local Binary patterns (ELBP) has been proposed. LBP is a widely used method for texture analysis. LBP usually compares the centre pixel to its neighbour's over a fixed radius. LBP is generally sensitive to noise. In order to overcome this problem, the ELBP method had been proposed. For classification, the features of the face are related to the features of faces from the database. Here Sparse Representation is used for classification. The experimental result indicates that the proposed approach has better efficiency in face verification under noise conditions.
3. **Impact it will create:** The impact of this work will be on a global level. The work primarily focuses on security, surveillance, and biometric systems.
4. **Current Status of the Patent:** Appllication awaiting for examination
5. **Student Team details/Faculty Mentor :**
   1. N. Shaziya
   2. P. Ajay Kumar Reddy
6. **Patent Filing date** **:** 21/05/2020
7. **Patent Granted date** **:** ---
8. **Patent Application Number** **:** 202041023202

Patent-013: Method for Air Quality based Well Being Planner and Warning Technique for Metro Traffic Management System

1. **Name of the Technology:** "Method for Air Quality based Well Being Planner and Warning Technique for Metro Traffic Management System"
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - An AI-Based device that addresses the problems of poor air quality and their associated health effects on human beings
   - The system if installed at every traffic signal point, then it alerts the traffic controller about the air quality index category at every point; thereby the

traffic controller can update the air quality information and divert the traffic if the air quality is very poor at any selected points.

- The user-friendly mobile application to access the air quality information from the IoT cloud of the selected site and health risk assessment is done according to the standard regulatory guidelines set by the Environmental protection agency (EPA) and ACGIH.
- Based on the measured air pollutants concentration, the application uses an algorithm to predict the Air quality index (AQI) category and alerts the users about associated health symptoms and health advice with precautionary measures.

3. **Impact it will create:** According to the World Health Organization (WHO), approximately around 7 million people die due to air pollution worldwide every year. In addition, WHO data shows that 9 out of 10 people breathe air that exceeds WHO guideline limits containing higher concentrations of air pollutants and most of the deaths occurred in the developing countries (World Health Organization, 2014) like India, China, etc. suffering from the highest exposure to ambient air pollution.

   Hence, the Implementation of AI devices for effective monitoring, prediction, and alerting of the air quality index, category of the AQI, and their associated health impacts on human beings creates huge awareness among the citizens to safeguard themselves from poor air quality and their health issues.

   The technology can be implemented in various applications, such as;

   - Traffic management in urban areas
   - Industries
   - Public places
   - Houses etc.,
4. **Current Status of the Patent:** Awaiting Request for Examination
5. **Student Team details/Faculty Mentor :**

   1. K. Thrinesh
6. **Patent Filing date** **:** 22/10/2021
7. **Patent Granted date** **:** Not Yet Granted
8. **Patent Application Number** **:** 202121048339

Patent-014: A Method for Faster IRIS Perception with High Accuracy and Reckoning Cost Reduction

1. **Name of the Technology: "**A Method for Faster IRIS Perception with High Accuracy and Reckoning Cost Reduction**"**
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The recognition of an individual based on iris pattern is gaining more popularity due to the uniqueness of the pattern among the people. The iris enjoys a few benefits like uniqueness, dependability, high acknowledgment rate, non-contact and so on. In this work, the iris images are read from the database and also generated dataset images captured using convectional camera is used and preprocessing is performed to enhance the quality of images. Further the iris and pupil boundaries are detected using Incremental circular Hough transform and normalization which is performed by using Daugman's rubber sheet model. The desired features are extracted by 2D LogGabor filter to analyze iris images. Finally the matching between the database image and test image is performed using Hamming Distance classifier. The results are compared with other state-of-art methods and shown the accuracy when compared to be existing methods by testing on the databases.
3. **Impact it will create:**
   - **Advancements in Recognition Technology**: The use of iris patterns for individual recognition is becoming more popular due to their uniqueness. By utilizing conventional cameras to capture iris images and employing advanced techniques for preprocessing and feature extraction, this work contributes to the technological advancements in iris recognition.
   - **Enhanced Image Quality:** Preprocessing techniques are applied to enhance the quality of iris images, ensuring better accuracy in the recognition process. This can lead to more reliable and robust recognition systems.
   - **Feature Extraction with 2D LogGabor Filter:** Extracting features using the 2D LogGabor filter is a sophisticated approach. This allows for a more detailed analysis of iris images, capturing distinctive features that contribute to the uniqueness of each individual's iris pattern.
4. **Current Status of the Patent:**

   Awaiting Request for Examination

5. **Student Team details/Faculty Mentor :**
   1. D. Rachana
6. **Patent Filing date** **:** 10/01/2022
7. **Patent Granted date** **:** Not Yet Granted
8. **Patent Application Number** **:** 202221001282

Patent-015: Designing a NVIDIA based automated real time smart attendance system using face recognition

1. **Name of the Technology: "**Designing a NVIDIA based automated real time smart attendance system using face recognition**"**
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Designing a NVIDIA Based Automated Real Time Smart Attendance System using Face Recognition Comprising of NVIDIA Board (1) embed AI program in readable medium for facial detection comprising of ,Code for obtaining real time video ,Code performing face detection to initialize facial land marks, Code estimating different set of facial landmark detection with in the continuous frame of video, Code to compare detected values wherein the said AI programmed NVIDIA board (1) comprises of DBMS -Database management system.
   - NVIDIA Board (1) embed AI program in readable medium for facial detection comprising of, Code to observe real time presence of a student among group of people organized in a class and to identify unauthorized person Code for obtaining real time video.
   - NVIDIA Board (1) embed AI program in readable medium for facial detection comprising of ,Code performing Public behavior analysis in public places to identify unauthorized persons by comparing within DBMS.
   - NVIDIA Board (1) embed AI program in readable medium for facial detection comprising of, Code to segregate the people for security purpose in defense sector.
3. **Impact it will create:**
   - Efficiency in Attendance Tracking: The use of facial recognition for attendance tracking a significantly improve efficiency compared to traditional methods. Real-time ttendance tracking allows for accurate and instantaneous data on student or personnel presence.

- Enhanced Security: The system's ability to identify unauthorized individuals in a class or public place contributes to enhanced security. In defense sectors, the technology can be crucial for segregating people and ensuring security protocols are followed.
- Public Safety and Behavioral Analysis: Public behavior analysis can be a powerful tool for identifying potential threats or unauthorized individuals in public places. The system's integration with a database management system (DBMS) enhances its capability to compare detected individuals with a known database.
- Integration of AI with NVIDIA Technology: The use of NVIDIA boards for embedding AI programs suggests a high level of processing power, which is crucial for real-time video analysis. NVIDIA's GPUs are well-known for their parallel processing capabilities, making them suitable for the complex computations required in facial recognition.
- Database Management System (DBMS): The inclusion of a DBMS further enhances the system's capabilities by enabling the comparison of detected individuals with a pre-existing database. This can be essential for identifying individuals in real-time and making informed decisions based on historical data.
- Application in Defense Sector:The system's application in the defense sector for segregating people indicates potential use in high-security environments. This can contribute to perimeter security, access control, and overall defense infrastructure.
- Ethical and Privacy Considerations: The use of facial recognition technology raises ethical and privacy concerns. Proper safeguards must be in place to ensure the responsible and ethical use of the technology, especially in public spaces.
- Potential Educational Impact: In an educational setting, the system can streamline attendance tracking, allowing educators to focus more on teaching. It may also serve as a deterrent for unauthorized individuals entering educational premises.

4. **Current Status of the Patent:** Awaiting Request for Examination
5. **Student Team details/Faculty Mentor :**

   1. G. S. Mamatha
6. **Patent Filing date** **:** 02/06/2022

7. **Patent Granted date :**
8. **Patent Application Number :** 202241031600

Patent-016: A smart Solar Charge Controller System using IoT

1. **Name of the Technology: "**A smart Solar Charge Controller System using IoT**"**
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   This project showcases an efficient SCC with IoT capabilities. A charge controller prototype is created using a 10-bit PIC16F877A microcontroller, which features a flexible and sufficient I/O pin, 8 K of flash programme memory, and 356 bytes of data memory. As an incentive, the prototype includes an IoT platform that 20 transmits important data to a website for remote monitoring and control. The data is continuously transmitted to the cloud for analysis and for monitoring the PV system's status via the website or mobile apps. Additionally, these data can be used to diagnose any possible flaws with the photovoltaic system, batteries, or MPPT-SCC. Finally, a modified buck–boost converter is employed to efficiently transfer the solar panel's
3. **Impact it will create:**
   - Efficient Solar Charge Controller (SCC): The project introduces an efficient SCC using a 10-bit PIC16F877A microcontroller. This can lead to improved energy harvesting and management in solar power systems.
   - IoT Integration: The inclusion of an IoT platform enhances the capabilities of the SCC. This allows for remote monitoring and control of the solar power system. Users can access real-time data and make informed decisions about the system's performance.
   - Remote Monitoring and Control: The ability to transmit important data to a website for remote monitoring is a significant impact. This feature provides users with access to critical information about the PV system from anywhere, facilitating quick responses to any issues or changes.
   - Cloud-Based Analysis: Continuous transmission of data to the cloud enables in-depth analysis of the solar power system's performance. This can lead to better understanding, optimization, and predictive maintenance, ensuring the longevity of the system.

- Diagnosis of Flaws: The data transmitted to the cloud can be used for diagnosing potential flaws in various components of the system, such as the photovoltaic panels, batteries, or Maximum Power Point Tracking Solar Charge Controller (MPPT-SCC). Early detection of issues can prevent system failures and improve overall reliability.
- Modified Buck–Boost Converter: The use of a modified buck–boost converter contributes to the efficiency of energy transfer from the solar panel. This can lead to increased overall energy efficiency in the solar power system.

4. **Current Status of the Patent:** Awaiting Request for Examination
5. **Student Team details/Faculty Mentor :**

   1. Velappagari Sekhar
6. **Patent Filing date** **:** 28/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202241010853

Patent-017: AGRI-MOISTIOMETER

1. **Name of the Technology** : AGRI-MOISTIOMETER
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - it's a fully digital device with extended features, unlike the conventional Analog Tensiometer
   - The Unique feature of this device is that it assigns the land soil from the top surface to the bottom root zone of the crop (plant) into three sections, and then keeps track of the moisture content and the nutrients levels at four sections from the soil surface to the root zone.
   - It predicts the water holding capacity of the soil at four different sections and the length of time required for the soil to get dry at four sections. In turn, it predicts the amount of water that needs to be supplied and when to supply the water.
   - It also monitors the deficiency of major nutrients (Based on soil and Crop) and suggests the supply of essential nutrients time-to-time ensuring soil and crop health.
   - The device becomes easily affordable as the Cloud-based efficient Machine Learning (ML) algorithms are used to predict all the parameters received from the device installed at the land.

- User-friendly web or mobile application acts as an interface between the farmer and Agri-land that provides all the information predicted by the AI-Cloud.
- The application provides the complete scenario of crop and soil (four sections) status at the land and suggests when to supply the water and nutrients, and the drying state of the soil at four different sections.

3. **Impact it will create :**
   - Effective resource utilization and management: A farmer-friendly digital device predicts the water scheduling time based on soil moisture content, hence, unetimely water supply will be elimeinated by saving water.
   - Remote monitoring: User-friendly web or mobile application acts as an interface between the farmer and Agri-land that provides all the information predicted by the AI-Cloud.
   - The Soil and Crop Health Management in Agriculture will improve crop yield in a small land.
4. **Current Status of the Patent :** Filed: Under Screening and Classification
5. **Student Team details/Faculty Mentor :**
   i. Santhosh
6. **Patent Filing date** : 20th February 2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341011349

02) Ramachandra College of Engineering, Eluru

Patent-018: Aqua Sensor Kit for Checking Dissolved Oxygen in Fish Ponds

1. **Nameof theTechnology:** Aqua Sensor Kit for Checking Dissolved Oxygen in Fish Ponds
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The objective of the invention is a Aqua sensor kit for real time monitoring of dissolved oxygen level in fish ponds. 2. The objective of the invention is a Implementation of IoT technology. 3. The objective of the invention is a Optimal oxygen supply to fish ponds makes it possible to maximize utilization of the given biological possibilities 4. The objective of the invention is a Manual checking is replaced by machines which works with sensors.
3. **Impact it will create :**
   The objective of the invention is a Automatic switch on or off of the aerators depending on the required DO levelsImpactitwillcreate: Aqua farmers and aqua culture.
4. **CurrentStatusof thePatent** **:** Published
5. **Student Team details/Faculty Mentor :**
   1. N. Siva Chandana
   2. K. Saipavani
   3. M. Harshanath
   4. A. Rushi
   5. V. V. Sri Ramya
   6. P. Rani Salomi
   7. A. Daveedu Raju
6. **Patent Filing date** **:** 22/02/2019
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 201941007137

Patent-019: Advanced Portable Refrigeration Chiller

1. **Nameof theTechnology:** Advanced Portable Refrigeration Chiller
2. **Highlights of the Technology (innovation/uniqueness etc.):** This invention is a very powerfull and advanced of Every idea or ideology is developed from a problem or by a clear observation of concept, faults in existed technology or methods. In this project a advanced portable refrigeration chillers machine is developed to produce cooling effect for liquids. Major problem we are facing in refrigeration process is we have to

buy different refrigerators for different loads no one machine has the feature to operate at different loads with same configuration for cooling the liquids. As stated above existing methods to chill the liquid by 1. By dumping ice block in to water 2. By using High capacity refrigerator By dumping ice blocks in to water we will make water to drop down their temperature, but ice handling and transportation is very difficult and also cost is high, this process is not hygiene. By using high capacity refrigerator for chilling 300 litres of liquid we need to invest high investment, and also establish time is high, ultimately cost of chilled water during the period of supply is raised. To minimize the problem of cost and to develop a process with compactable, we develop a new machine which can chill 300 lit of water with less time and less cost.

3. **Impact it will Create:** This machine built with vapour compression cycle. This machine has the flexibility to chill the liquids without consideration of change in loads. For this purpose in the invention we design and develop a bulb evaporator as a attachment to refrigerator chiller in the place of regular evaporators. This refrigerator machine has flexible bulb evaporator.
4. **Current Status of the Patent** : Published
5. **Studentteamdetails**

   1. Y. Prudhvi
   2. Madhu Narayana
   3. S. Harsha Vardhan
   4. V. Lakshmana Rao

   K. Bhavanarayana
6. **Patent Filing Date** **:** 22/02/2019
7. **Patent Granted Date** **:**
8. **Patent Application Number** **:** 201921007135

Patent-020: Electric Floor Mopping Machine

1. **Nameof theTechnology** **:** Electric Floor Mopping Machine
2. **Highlights of theTechnology (innovation/uniqueness etc.):** In this invention is to provide a good quality of “electrical floor cleaning machine “ An electrical floor cleaning machine which can be used for scrubbing or for mopping or as a machine which carries out both the activity simultaneously. The components of the machine are mounted on a tripod made of Plastic and consist of a single phase AC motor coupled by a Frame for fitting the mop, along with telescopic handle having height adjustment and water container

are connected to the handle. When the machine is switched "ON" the mop will rotate we can adjust the speed by using speed Regulator. Electric supply to the machine is affected through a flexible cable carried through a hollow handle which carries a touch switch for controlling an "ON-OFF" contactor. Water for cleaning can be spayed on the floor with help of switch controlled by a operator. These devices need an electrical energy for its operation and eco friendly. In India, especially in summer, there is power crisis and most of the floor mopping machine is not used effectively due to this problem. Hence it is a need to develop low cost, as well as both wet and dry condition usage, eco friendly. This machine was mostly used for households and small scale industries. Usually in households and small scale industries floor mopping was done by manual process where electrical mopping machines are not affordable by common man hence it is not popular among the people. In cleaning process people should keep their back straight in order to prevent straining on their back.

3. **Impact it will create**: No matter how careful the person is about keeping him or her back straight elbow in grip wide and using the lower body to swing the mop around it's still a strenuous activity when performed day after day. To prevent this major problem handle can be adjusted as per usage person's height. Developed machine based on eco friendly as an innovative gadget for easily handling engineered for dry and wet cleaning, attached with a water container for spraying. Incorporation of small and powerful motor which considerably reduce the overall size and weight of the machine. Designed with maximum performance for optimized mopping and cleaning the corners which are hard to reach. Enhancement the device for effective use when a suitable battery is incorporated with existing structure of the developed machine.
4. **Current Status of the Patent** :Published
5. **Student Team details/Faculty Mentor :**
   1. M. Nikhil
   2. D. Satishkumar
   3. S. Varnikanageswari
   4. A. Mounikarajyalakshmi
   5. S. K. B. Pradeepkumar.Ch
6. **Patent Filing Date** **:** 22/02/2019

7. **Patent Granted Date :**
8. **Patent Application Number :** 201941007136

Patent-021: Integrated Head Wear and Nose Mask for workers of Jute Mill and Aqua Food Processing Industries

1. **Nameof theTechnology:** Integrated Head Wear and Nose Mask for workers of Jute Mill and Aqua Food Processing Industries
2. **Highlights of theTechnology (innovation/uniqueness etc.):** In this invention is to provide the best faculity of special persion who belongs to india, an integrated head and nose wear for jute mill workers and food processing workers in india, Andhra Pradesh region is single unit which provide both protection from dust as well as temperature. An integrated head and nose wear for jute mill workers and food processing workers in India, Andhra Pradesh. The food processing and preservation activities are done at very low temperatures even though the these work is done by the automated machinery, the initial unloading process, cleaning, loading, and some other activities use the help of unorganized workers .
3. **Impact it will Create:** India as Andhra Pradesh region generally is of high temperature region, the workers un able to tolerate low temperatures initially and suffer from various health issues.
4. **Current Status of the Patent :** Published
5. **Student Team details/Faculty Mentor :**
   1. K. Siva Sankar
   2. T. N. V. Rama Subbarao
   3. N. P. S. Pannagesh
   4. D. Likhitha
   5. K. Radhakrishna
6. **Patent Filing Date :** 22/02/2019
7. **Patent Granted Date :**
8. **Patent Application Number :** 201941007159

Patent-022: Progressive Mechanized Air Conditioner

1. **Nameof theTechnology:** Progressive Mechanized Air Conditioner
2. **Highlights of theTechnology (innovation/uniqueness etc.):** The present invention relates to the field of air conditioner and particularly relates to field of design and fabrication of air conditioner by increasing the cooling rate. This Designed fabrication reduce the ambient air temperature enter to the

condenser; it helps to causes sub cooling in condenser. Application of Air conditioner is very high but also power consumption also high. Due to this factor Air conditioner become expensive and it leads to increase co2 emissions. In general days Air Conditioner becoming a regular need appliance to sustain with high temperatures developing from environment. Designing the AC with advanced features will give more comfort but it not supports to reduce power consumption. Current trend of research is going on energy conservation. Major customers vote to Machine which save high rate of energy than compared to exist technology. In regular practice Air Conditioner heat rejection rate is influenced by environmental conditions like Temperature, Humidity, Velocity, and Pressure. By optimize the above notified parameters in air which is enter to condenser we can attain highest cooling rate.

3. **Impact it will create**: Here a sub cooling mechanism is developed to cool the temperature of refrigerant flow inside of condenser tubes than regular temperature attains in general working. This design invention helps the society to save electrical energy However, the existing AC Working is associated with the following drawbacks: Efficiency of AC will fluctuate according to environmental conditionsOutput of AC does not same at all Seasons
4. **Current Status of the Patent**: Under Examination
5. **Student Team details/Faculty Mentor :**

   1. Bhavanaryanakotte
   2. G. Uma Naveen Kumar
   3. D. Ravisai
   4. E. Novah
   5. G. Sumanth
6. **Patent Filing Date** **:** 28/08/2020
7. **Patent Granted Date** **:**
8. **Patent Application Number** **:** 202041037062

Patent-023: Monitoring and alerting device for LPG Cylinder

1. **Nameof theTechnology:** Monitoring and alerting device for LPG Cylinder
2. **Highlights of theTechnology (innovation/uniqueness etc.):** An LPG trolley equipped with a loadcell bridge is integrated into the associated electronics of the intelligent LPG monitoring system and the facilities to

communicate with the APP installed in the user"s smartphone. The monitoring system sends the SMS message to LPG booking for a new cylinder, when it gets emptied. Apart from the booking of a new cylinder, the system monitors gas leakage. And alarms the user on gas leakage detection and send an SMS to the fire department for their prompt action.

3. **Impact it will create** **:** Saves time and money
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Jagan Mohan Rao.S.
   2. K. Yasaswini
   3. S. Moulika Preethi
   4. M. Sai Krishna Mohan
   5. P. Pavan Sai
6. **Patent Filing Date** **:** 28/08/2020
7. **Patent Granted Date** **:**
8. **Patent Application Number** **:** 202041037092

Patent-024: Active helmet to monitor the safety

1. **Nameof theTechnology:** Active helmet to monitor the safety
2. **Highlights of theTechnology (innovation/uniqueness etc.):**
   Abstract A safety helmet equipped with electronics and sensors that gives information about the employee"s location, his/her health and environment conditions is designed. Further, a monitoring system that tracks the location of the employee and alarms the first-aid people or the doctor or the manager concerned to arrange immediate first-aid to save the life of the employee when he/she meets the accident or fell for illness.
3. **Impact it will create :** Safety and Health monitoring
4. **Current Statusof the Patent:** Published
5. **Student Team details/Faculty Mentor :**
   1. Jagan Mohan Rao S.
   2. N. M. V. Sai Kumar
   3. P. Satya Vani Sri
   4. M. Pooja
6. **Patent Filing Date** **:** 28/08/2020
7. **Patent Granted Date** **:**
8. **Patent Application Number** **:** 202041037091

Patent-025: Compact information and locating (CIL) Device

1. **Nameof theTechnology:** Compact information and locating (CIL) Device
2. **Highlights of theTechnology (innovation/uniqueness etc.):**

   The invention is to provide easy facility for accessing the report of the students. CIL device can detect the statistics which helps the parents and the educational institutions to refer the data without any difficulties. The complete process can be done by using a website. Q R Codes are the codes which show the details of a student. They are unique for each and every student and should be selected by the student to login into the website. Unlike the other Q. R Codes, it has geo location which allows us to identify the area of the student. There is no need to visit the academy for knowing the academics of the student instead we can get it right over in this smart scan.
3. **Impact it will create**

   At first, to open the webpage and login to the Q R Code generator to select the type of I the code, there find different icons such as attendance, results etc. When click on it to get that particular data and secondly, the location can also find out by the code, this is the main aspect that makes the invention exclusive.
4. **Current Status of the Patent** **:** Under Examination
5. **Student Team details/Faculty Mentor :**

   1. G. Hari Hara Kumar
   2. G S S V Vijay Deepak
   3. J Gowtham Sree Ram
   4. K Sai Sruthi
   5. P. Eswar Kumar
   6. Venkatesh Kondaveti
6. **Patent Filing Date** **:** 28/08/2020
7. **Patent Granted Date** **:**
8. **Patent Application Number** **:** 202041037099

Patent-026: Wireless device to detect pulse rate

1. **Nameof theTechnology:** Wireless device to detect pulse rate
2. **Highlights of theTechnology (innovation/uniqueness etc.):**
   - According to the present invention a system which continuously monitors the pulse rate of a person and notifies his family member if the condition is serious. It also requests the nearest hospital for an ambulance facility. If

person was affected when he went outside then his location will be traced using GPS tracker. The person should wear a health band this health band was connected to mobile application. Moreover, the condition of the patient regarding BP, pulse rate can be seen in a mobile application. Health band contains optimal green chip, GPS tracker, GSM.

- The present invention relates to the field of wireless device to detect pulse rate and particularly relate to health band, which is used to sense pulse and it is connected to the pulse sensing APP, if anyone effected by heart attack then automatic call goes to ambulance and his family.
- Background of the invention: These days a number of people are losing their life due to heart attack. Heart attack can occur when the flow of blood to heart is blocked. Owing to late diagnosis of heart attack we are inadequate to save the lives of many humans. Cardiovascular disease is the leading cause of deaths in the country, accounting for about a quarter of fatalities between 2016 and 2018. Global health research shows that the worry about air pollution is not unfounded because respiratory diseases are the 2nd largest killers of Indians.We suggest a system that will detect heart attack by monitoring the heart rate. For a healthy adult, ordinary heart rate is 60 to 100 bpm {beats per minute). Athlete's heart beat generally range from 70 to 80 bpm depending upon their fitness,

3. **Impact it will create :** Newborn baby's heart beat generally range from 140 bpm. If a person's heart rate is constantly over 100 beats per minute then the person is said to be having higher heart rate which is also notorious as tachyarrhythmia except Newborn baby. It can decrease the efficiency of heart by letdown the amount of blood pumped through the body can result in chest pain and lightheadedness. Generally, many existing health bands are used for when the person cycling then it monitoring heart rate, monitoring breathing, tracking calories burnt, watching cardio fitness levels, sleep tracking, silent alarm. When we observe these all bands their monitoring the data without alert the peoples just ca\cu)at)ng and displays the data.
4. **Current Status of the Patent :** Published
5. **Student Team details/Faculty Mentor :**
   1. Sudhakar P.
   2. S. Janapriya
   3. N. Indira

4. S. Divyabindu
5. V. L. Anitha

6. **Patent Filing Date** : 28/08/2020
7. **Patent Granted Date** :
8. **Patent Application Number** : 202041037098

Patent-027: Vehicle Window to control usage of Air Conditioner

1. **Nameof theTechnology:** Vehicle Window to control usage of Air Conditioner
2. **Highlights of theTechnology (innovation/uniqueness etc.):**
   The window air flow for an automobile is one of the uncontrolled and unmetered airflow system. The present invention focused on supplying metered airflow to the passengers and other who involved in it. This is very useful system even saves the fuel to little extent. The unmetered airflow causes the passenger and other stakeholder discomfort. This system avoids the discomfort and makes the passenger to get the uncontrolled airflow and make them comfort. This system has 3 segmented window arrangements and corresponding control units are provided to achieve it.
3. **Impact it will create**
   The fuel saving is achieved by the flexible window unit and with water spraying unit to get the cool air, which in turn avoid using air conditioner.The primary object of the present invention to provide metered air flow for the stakeholders who are using windows in automobiles (all vehicles). Another object of the present invention is to provide conditioned air flow and save fuel to little extend instead of using air conditioner.
4. **Current Status of the Patent :**
   Published
5. **Student Team details/Faculty Mentor :**
   1. Jarabala Ranga
   2. Mr. M. Raja Nayak
   3. Mr. Syed Abdul Mujeer
   4. V. Vignesh
   6 . Dr. Balaji D
6. **Patent Filing Date** : 04/02/2021
7. **Patent Granted Date** :
8. **Patent Application Number** :202141004809

Patent-028: Methods and Systems for Agricultural work by Smart Agreculture Field Boundary with AI & ICT

1. **Nameof theTechnology:** Methods and Systems for Agricultural work by Smart Agreculture Field Boundary with AI & ICT
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention relates to monitoring, controlling and analyzing the today's farming environment through smart devices in the agriculture field without creating any harm to human being or animals and also it will not create any environmental pollution. More specifically it relates to the agriculture land safety using loT devices with cost efficient real time surveillance.The present invention relates to the agriculture field, and more specifically to a new and useful system and method for safe the agricultural crop as well as the field through a smart boundary. The invention is based on intelligent network monitoring i.e. artificial intelligence & ICT.The present application relates to smart control of farming techniques. The world is getting larger and hungrier. Each second the world's population grows by two more people, and by 2050, food production must increase by at least 70 percent to keep pace. Unfortunately, about half of the world's food is never consumed due to inefficiencies in the harvesting, storage and delivery of crops. Even in developed nations, about 30 percent of purchased food ends up going to waste, and supply-chain inefficiencies only exacerbate the problem. Certainly, weather-related events, or the crops are destroyed by wild animals are the biggest problem in farming. Most of the times elephants are contribute a large role for the crop damage. To help the farming and protect the crops a smart boundary is essential so that the farmer may generate enough food to meet the ever-growing demands of a growing global population. For the effective farming production, manufacturing and management, the controlling and monitoring of the agriculture field plays a significant role. Most countries have opted fencing using sticks and ropes for the security measures that further leads to expensive and it is a unproductive option if the size of the land is in acres. However, the attackers may easily enter in the farms and may affect without owner's knowledge.
3. **Impact it will create:** In addition, several smart technologies have been proposed by various scientists where sensors in order to obtain the real time situation of the farm such as intruder attack, time, type of intrusion etc. the

involvement of smart technologies overcome the issues of traditional security threats however, the existing technology is not much efficient and cost specific. Further the invention used alarm systems, GSM module, motion detection, audio and video monitoring features to strengthen the security measures.

4. **Current Status of the Patent**: Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Satyabrata Dash
   2. Vadhri Suryanarayana
   3. Jarabala Ranga
   4. Dr. Subash Chandra Nath
   5. S. Jaya Lakshmi
6. **Patent Filing Date** : 24/06/2021
7. **Patent Granted Date** :
8. **Patent Application Number** : 202131028359

Patent-029: Hybrid Energy System with optimization to draw more energy

1. **Nameof theTechnology:** Hybrid Energy System with optimization to draw more energy
2. **Highlights of theTechnology (innovation/uniqueness etc.):** A hybrid energy system with optimization to draw more energy a mechanical unit (1) further comprises of spring, connecting rod with rack arrangement at both the edges, initially the spring is kept in compressed state and a smoke generator (2) is placed inside which simulated to produce the smoke thereby the compressed spring tend to expand therein the smoke is raise in pressure, this initiates the movement in the spring due to low pressure at initial stage and high pressure creates force over a mechanical unit (1), a rack and pinion unit (3) getting rotation force thereby a connecting unit (4) and which in turn a generator (5) producing green energy. The rack and pinion unit (3) getting rotation force thereby the flying object (4) is connected from the rack through the connecting unit (5) and therein the spring unit is connected which procedures the mechanical movement which is also producing green energy.
3. **Impact it will create :**
   Energy conservation
4. **Current Statusof the Patent :**
   Under examination

5. **Student Team details/Faculty Mentor :**
   1. Mr. Madupu Hemanth sai
   2. Meka Sandeep
   3. Mr. V. N. S. L. Narayana A.
   4. Mr. Saraswathula Subramanya Sarma
   5. Mr. S. K. B. Pradeepkumar Ch
6. **Patent Filing Date** : 21/06/2021
7. **Patent Granted Date** :
8. **Patent Application Number** : 202141027634

Patent-030: IOT based Electrical Appliances Control and Security System

1. **Nameof theTechnology:** IOT based Electrical Appliances Control and Security System
2. **Highlights of theTechnology (innovation/uniqueness etc.):** New inventions can be made as the Internet's speed and bandwidth improve. IoT is changing the current situation and allowing novel ideas to flourish. On the basis of the Internet of Things This paper discusses how to monitor and control electrical devices (IoT). Because lighting appliances consume a lot of electricity, it's critical to improve their efficiency and identify problems as soon as possible. Depending on the nature of the project, models are used in two ways in this work. They all use IEEE 802.11 wireless technology to connect to the same Wi-Fi network.
3. **Impact it will create** **:** Security for apliances
4. **CurrentStatusof thePatent** : Published
5. **Studentteamdetails**
   1. V. N. S. L. Narayana A.
   2. Mr. B. Ashok Kumar
   3. Mr. Jajula Suresh
   4. Mr. Narendra Bavisetti
6. **Patent Filing date** : 09/12/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141057302

Patent-031: IoT based Solar Powered Agriboat for Irrigation and Farm Monitoring

1. **Name of the Technology:** IoT based Solar Powered Agriboat for Irrigation and Farm Monitoring

2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The present invention is an IoT based solar powered agriboat for irrigation and farm monitoring, an autonomous robot is based on field parameters that is length and width. Prototype of an agricultural robot "AgroBot" is modelled for multitasking such as seeding, ploughing and harvesting with a separate irrigation system. It is a four wheeled vehicle which is controlled by an ATMEGA328 microcontroller (2) as master controller, Humidity sensor for irrigation, power supply is provided by solar panel which is eco-friendly.
3. **Impact it will create** :
   It will also help in decreasing the use of non- renewable sources of energy and will not pollute the environment. Other accessories are slaves performing specific operations. The approach is now to develop smarter machines that are intelligent enough to work in an unmodified or semi natural environment. The system derives power from solar energy through photo-voltaic cells. Hence, dependency on erratic commercial power is not required.
4. **Current Status of the Patent** **:** Published
5. **Student Team details/Faculty Mentor :**
   1. Mrs. Chsabitha
   2. Ms. S. Lakshmi Sa
   3. Mr. P. Sai Kumar
   4. Ms. N. Venkata Satya
   5. Ms. M. D. N. Bharathi
   6. Mr. P. N. V. Achuth
6. **Patent Filing date** **:** 25/08/2022:
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048466

Patent-032: Driver Anti Sleep Device

1. **Name of the Technology** : Driver Anti Sleep Device
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is a driver anti sleep device, comprise of, wherein, when data is given to the hard Arduino (2), it starts working, thereby, once the tilt sensor (3) detects the drowsiness of the driver that is closing of eye it gives signal to the buzzer (5) and therefore it alerts the person through a beep sound. The LCD (1) display the state of the driver, and convey through the GSM module

3. **Impact it will create**: This system alerts the user if he/she falls asleep at the wheel thereby, avoiding accidents and saving lives. This system is useful especially for people who travel long distances and people who are driving late at night.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. K. Raju
   2. Ms. S. Anusha
   3. Ms. T. D.Teja Sri
   4. Ms. B. Ratna Kumari
   5. Ms. P. Yamini
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048467

Patent-033: Portable Solar Powered Outdoor Air Purifier

1. **Name of the Technology** : Portable Solar Powered Outdoor Air Purifier
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is an air purifier HEPA layer and second and active carbon filter. The combination of these 2 filters leads to dual filtration using a centrifugal air force to suck large amount of air and purify it of dust particles. Now this suction fan is used to suck out air using high power centrifugal force and blowing out fresh air from the top. The system also includes an air quality sensor and display to display the current air quality.
3. **Impact it will create**: We now use a solar panel for the power supply. The panel is used to supply electricity to battery which in turn powers the motor to run the suction fan. The machine is mounted with 4 castor wheels and a handle for easy movement.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. V. N. S. R. Murthy
   2. Mr. K. Rajendra
   3. Mr. Ch. Veerendra
   4. Ms. B. Bharathirahul
   5. Mr. M. Sivaprakash
   6. Mr. P. Harish

6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048469

Patent-034: Accident Informer Device

1. **Name of the Technology** : Accident Informer Device
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The present invention is a whenever any accident occurs sensor detects and send mechanical force to at ADC by ARM using GPS, we will get particular location where accident occurs then GSM send message authorized members, 100 and 108. One best feature is whenever any authorized people give missed call to GSM at accident location then it sends message of the accident location. The GPS positioning is done in the form of latitude and longitude along with the exact location of the place by making google maps.
3. **Impact it will create**:

   It is an aspects of the present disclosure whenever any accident occurs sensor detects and send mechanical force to at ADC by ARM using GPS, we will get particular location where accident occurs then GSM send message authorized members, 100 and 108. One best feature is whenever any authorized people give missed call to GSM at accident location then it sends message of the accident location. The GPS positioning is done in the form of latitude and longitude along with the exact location of the place by making google maps.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**

   1. Ms. M. Soniya
   2. Ms. B. Yasaswini
   3. Mr. K. Tejasri Pavan Kumar
   4. Mr. P. Ram Teja
   5. Ms. T. Geetha Sai Kumari
   6. Ms. Ch. Sneha Priya
6. **Patent Filing date** **:** 25/08/2022:
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048471

Patent-035: Elephant Repellent System

1. **Name of the Technology** : Elephant Repellent System
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The present invention is an elephant repellent system, wherein, it is a system represents two main building blocks such as a multiple flame bulb based lighting system and a buzzer based sound system, therein for generating light the flame bulbs are used and for sound honey bee sound based buzzers are used with proper electrical circuit.
3. **Impact it will create** :

   The primary object of the present invention is an elephant repellent system.

   - **Summary of the invention**: It is an aspect of the present disclosure an overall goal of the invitation is to develop a low cost elephant repellent system for forest and railway department use. Complete analysis techniques to establish the foundations for a future and monitoring a guiding the elephants towards the forest with the help and permission from forest department. It also can be used by the trail loco pilots to keep the elephant away from the railway tracks in some exceptional cases. The present invention is a device represents two main building blocks such as a multiple flame bulb based lighting system and a buzzer based sound system. For generating light the flame bulbs are used and for sound honey bee sound based buzzers are used with proper electrical circuit.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**

   1. Ms. SK. Raziya
   2. Mr. P. Kasi Naga Durga Rao
   3. Ms. B. Sowmya
   4. Ms. K. Leela Vardini
6. **Patent Filing date** : 25/8/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048472

Patent-036: Smoke Detector for Tobacco Industries

1. **Name of the Technology** : Smoke Detector for Tobacco Industries
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is a smoke detector for tobacco industries, wherein, voltage that the sensor outputs changes accordingly to the smoke/ gas levels that exists in

the atmosphere, and the sensor outputs a voltage that is proportional to the concentration of smoke or gas, therein, the generation gas concentration, the greater the outputs voltage thereby, the lower gas concentration, the lower the output voltage. The installation of smoke detectors varies depending on the locality, however, some rules and guidelines for existing homes are relatively consistent throughout the developed world.

3. **Impact it will create**: Smoke detector for tobacco industries, wherein, voltage that the sensor outputs changes accordingly to the smoke/ gas levels that exists in the atmosphere, and the sensor outputs a voltage that is proportional to the concentration of smoke/gas, therein, the generation gas concentration, the greater the outputs voltage thereby, the lower gas concentration, the lower the output voltage, and wherein, the installation of smoke detectors vary depending on the locality, however, some rules and guidelines for existing homes are relatively consistent throughout the developed world.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. Ramakrishna Manda
   2. Mr. Anil Kumar Turaka
   3. Ms. P. Hemalatha
   4. Ms. M. Tulasi
   5. Mr. M. Yaswanth Nages
   6. Mr. Sk. Akram Ali
6. **Patent Filing Date** : 25/08/2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241048477

Patent-037: Mine Detecting Robot with Multi Sensors Controlled using HC-12 module

1. **Name of the Technology** : Mine Detecting Robot with Multi Sensors Controlled using HC-12 module
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is mine detecting robot with multi sensors controlled using HC-12 module, wherein, said system is controlled by Arduino controller, when the robot is connected Arduino interface by the use of HC-12 module, and Arduino electronic board makes the scanning operation purposeful, while the robot starts receiving a steering control order, it has connected with some

external sensors like humidity and temperature sensor's so we can monitor the mine exact status of temperature level and humidity level.

3. **Impact it will create**: A mine detecting robot with multi sensors controlled using HC-12 module, wherein, said system is controlled by Arduino controller, when the robot is connected Arduino interface by the use of HC-12 module, and Arduino electronic board makes the scanning operation purposeful, while the robot starts receiving a steering control order, it has connected with some external sensors like humidity and temperature sensor's so we can monitor the mine exact status of temperature level and humidity level, wherein, the robots detect a mine it will send a "Mine detected" message to the concerned persons along with the exact location of the mine detected, the mine detected message and location is sent via He-12 module and "Mine detected" message will be shown in the LCD screen present on the robot, wherein, the robot has also four ultrasonic sensors which will guide the robot according to the given conditions as per the program.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. K. J. Varma
   2. Mr. K. Abhishek
   3. Ms. P. Jaya Bhargavi
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048478

Patent-038: High-Capacity disinfectant Spraying Machine with Auto-Rectractable Hose Reel for use in Large Public

1. **Name of the Technology** : High-Capacity disinfectant Spraying Machine with Auto-Rectractable Hose Reel for use in Large Public
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is high-capacity disinfectant spraying machine with auto-retractable hose reel for use in large public spaces, wherein, high-capacity designed disinfectant spraying machine with built-in flow control and automatically retractable hose reel feature so that the fatigue of healthcare service personnel is significantly reduced and this high capacity spraying machine is also equipped with target identifying torch system to facilitate working in low-light contexts. Pump with a capacity of 6.50 LPM draws pressurized liquid

disinfectant from 100 litre capacity tank and delivers pressurized liquid to nozzle, and nozzle breaks the disinfectant fine droplets and distributes the droplets over the target surfaces at 8.5 bar pressure.

3. **Impact it will create**: A high-capacity disinfectant spraying machine with auto-retractable hose reel for use in large public spaces, wherein, high-capacity designed disinfectant spraying machine with built-in flow control and automatically retractable hose reel feature so that the fatigue of healthcare service personnel is significantly reduced and this high capacity spraying machine is also equipped with target identifying torch system to facilitate working in low-light contexts, wherein, pump with a capacity of 6.50 LPM draws pressurized liquid disinfectant from 100 litre capacity tank and delivers pressurized liquid to nozzle, and nozzle breaks the disinfectant fine droplets and distributes the droplets over the target surfaces at 8.5 bar pressure, and wherein, with one time filling of 100 litre capacity tank, the disinfectant can be sprayed to cover an area of 333 m2 (2997 sq. ft. - 250-300 ml/m2 recommended by health organization of India) with only one operator deployed in the process and time required to sanitize the m2 area is depend up on the rate of flow regulated by the operator, for example operator fixes it to 1.5 LPM flow it can sanitizes 4.5m of area.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. G. Uma Naveen Kumar
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048479

Patent-039: Under Water Hydraulic Operated Weed Cutting Machine

1. **Name of the Technology** : Under Water Hydraulic Operated Weed Cutting Machine
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The present invention is an underwater hydraulic'operated weed cutting machine, wherien, if the management valve is operated, fluid is sent to the nursing assistant from the nursing assistant mechanism and tank. Given that the pump has an ongoing output, any resistance will be overcome by an increase in fluid pressure. A pressure valve allows liquids to return to the tank if the pressure gets too high. Additionally, many management valves are

stacked non-parallel. Constant displacement pumps with minimal costs are suitable for this type of circuit. And also hydraulic gear pump is operated by using the fluid power. By using the hydraulic gear pump along with chain cutter can remove the aquatic weeds plants.

3. **Impact it will create** :

   Embodiment as advantages including underwater mechanical weed removal machine effectively rids your waterfront of certain types of vegetation that ultimately hinder your ability to traverse your lake. Creates a more conducive environment for swimming and irrigation. Effectively releases healthy nutrients back into the water that were previously trapped in the vegetation. Significantly improve the quality of the bottom of the body of water by reducing the volume of muck, sediment, and silt.

4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. Bhavanarayana. Kotte
   2. Mr. K Chandra Sekhar
   3. Mr. K. Bhargav
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048480

Patent-040: Automated Duster Chalk Powder Cleaner

1. **Name of the Technology** : Automated Duster Chalk Powder Cleaner
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The present invention is an automated duster chalk powder cleaner, wherein, said machine use does extract chalk powder dust from duster, chalk powder from duster collects by Vacuum created at suction point which is created by the vacuum pump. Collected chalk duct pass over to the turbo dust interceptor placed in the path of the suction done by the pump, due to micron size filtration. In the turbo interceptor chalk duct traps and clean air exhaust to atmosphere. The device work's based on the suction pressure. When power is supplied to the vacuum motor it creates suction pressure and this pressure used to collect the chalk powder from the duster.

3. **Impact it will create** :

   Present embodiment is these days, teachers are getting affected by respiratory diseases and skin allergies because using a chalk for long

duration. Continuous use of chalk dust also affects vision of a human being. As dust contains tiny particulates of chalk dusters are being cleaned by beating the on floor, wall or hitting dusters together which triggers above problems and causes environmental pollution. Hence, it is necessary to design the machine, which will clean chalkboard dusters and help to create dust free environment in classrooms and laboratories. This machine use do extract chalk powder dust from duster, chalk powder from duster collects by Vacuum created at suction point which is created by the vacuum pump. Collected chalk duct pass over to the turbo dust interceptor placed in the path of the suction done by the pump. Due to micron size filtration In the Turbo interceptor chalk duct traps and clean air exhaust to atmosphere. The device work's based on the suction pressure. When power is supplied to the vacuum motor it creates suction pressure and this pressure used to collect the chalk powder from the duster.

4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**

   1. Mr. K. Rama Koteswara Rao
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048481

Patent-041: Detection of Holes on the Road

1. **Name of the Technology** : Detection of Holes on the Road
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The present invention detection of holes on the road, wherein, by using Arduino Uno, ultrasonic sensor, buzzer alarm all together are connected to the power supply, thereby, ultrasonic sensor measure the distance between road and car and it is received by Arduino UNO and consider fixed distance between car and road and if the distance calculated is greater than fixed one then it detects, * It is a pot hole (X>R) * It detects as speed breaker (X
3. **Impact it will create** :

   The following specification particularly describes the invention and the manner in which it is to be performed.The embodiment is a by using Arduino Uno, Ultrasonic sensor, Buzzer alarm all together are connected to the power supply

STEP1: Ultrasonic sensor measure the distance between road and car and it is received by Arduino

STEP2: Consider fixed distance between car and road. If the distance calculated is greater than fixed one then it detects

* It is a pot hole (X>R)
* It detects as speed breaker (X<R)

STEP3: After detection it gives alarms to the vehicle driver then he/she drives slowly and the possibility of happening accident will be less

The embodiment advantages including, by using this we can store the location and the map and every time when we go through the way it will automatically alert us. Even we can use this in that roads if there are any huge rocks'on roads it will give information and we can save lives.

4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Ms. Md. Rahimunnisa
   2. Ms. V. Gayatri
   3. Ms. M. Hari Priya
   4. Ms. Kavya
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048482

Patent-042: Alerting Device During Risky Condition for Women

1. **Name of the Technology** : Alerting Device During Risky Condition for Women
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is an alerting device during risky condition for women in today's world one of the major issues is women are not feeling safe, the technology is going faster but there is no safety for women. Women are feeling most vulnerable, when they are going or traveling along on the roads buses and trains. So, women safety is important issue due to raising more crimes against women these days.
3. **Impact it will create**: The embodiment is an in today's world one of the major issues is women are not feeling safe, the technology is going faster but there is no safety for women. Women are feeling most vulnerable, when they are going or traveling along on the roads buses and trains. So, women safety is

important issue due to raising more crimes against women these days.The embodiment advantages including, it is an all-in-one system. Hence no need to carry multiple devices and GPS tracking feature tracks the user lively when you are the move are triggering the emergency button. When the battery is running low, it automatically sends the location the pre-stored contacts. This device works without internet connectivity.

4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. A. Chiranjeevi
   2. Mr. Kallam Gopala Reddy
   3. L. L. S. Maneesha
   4. B. Siva Ganga
   5. Ms. Araveeti Srilakshmi Venkata Naga Harika
   6. Ms. Kakarla Lakshmi Naga Susmitha
   7. Ms. Tammine Nineelima
   8. Mr. Namburi Prabhas
   9. Mr. Shrinivasa Reddy
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048483

Patent-043: Tool to Protect the Crops

1. **Name of the Technology** : Tool to Protect the Crops
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is a tool to protect the crops, the high-frequency and high amount sound waves are used to drive away from the animals, which cause harm to farms. Those ultrasonic sounds can repel animals or rodents (including rats, pigs, and monkeys). For repelling different animals, separate electronic circuits will be designed to produce sound waves of different frequencies. These frequencies are time-multiplexed using Arduino UNO and radiate into the air to repel animals. These signals are to be amplified using an amplification circuit. These amplified signals are given to the speaker to produce different sounds at different time intervals. However, these frequencies do not disturb the hearing ability of persons.
3. **Impact it will create**: The embodiment is crop damages inflicted by animals are one of the biggest challenges throughout the world. They can damage the

plants by feeding on plant parts or only by organization more than the field and squashing in excess of the crops. The threat posed by birds to economic crops in the farms or at storage facilities requires the deployment of an effective bird deterrent in such locations. So, the actuation of ultrasonic devices can repel hazardous animals by using the principles of bioacoustics. An animal repellent system is provided which includes a triggering means for detecting the presence of animals in a particular area and generating signals indicative thereof. Animals such as pigs, monkeys, and many others may cause Spartan damage to crops. They can damage the plants by feeding on plant parts or only by organization more than the field and squashing in excess of the crops. Therefore, animals may easily cause significant yield losses and incite additional financial problems. In order to decrease the problems or damages caused by animals to the farmer which destroys the farm, there are many ways. The ways include haunting the animals, producing the sounds manually, and using chemical compounds for repelling birds and animals; some are regulated by state and federal laws while others are untested. So, the actuation of ultrasonic devices can repel hazardous animals by using the principles of bioacoustics.

4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. B. Prasad Babu
   2. Nagavali.Saka
   3. Ms. D. Rathna Kumari
   4. Mr. Naresh Babu Kondapavuluri
   5. M. Vijaya Sudha
   6. Mr. M Sri Sai Krishna
   7. Mr. P. Ram Chowdary
   8. Mr. J. Nagababu
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048484

Patent-044: Novel Solar Panel Design for more Energy Harvesting

1. **Name of the Technology**: Novel Solar Panel Design for more Energy Harvesting
2. **Highlights of the Technology (innovation/uniqueness etc.):** A novel solar panel design for more energy harvesting discloses a solar panel, which

comprises: an upper substrate; a black lower substrate arranged opposite to the upper substrate; the battery pack string is clamped between the upper substrate and the black lower substrate and is respectively bonded with the upper substrate and the black lower substrate, and the battery pack string comprises a plurality of solar cells; the drainage strip is used for leading out electric energy generated by the solar cells, and the first ink layer is coated on the drainage strip; and the bus bar is used for connecting the drainage bar in series and is welded with the drainage bar, and a second ink layer is coated on the bus bar.

3. **Impact it will create**: The present embodiment relates to a solar panels, and discloses a solar panel, which comprises: an upper substrate; a black lower substrate arranged opposite to the upper substrate; the battery pack string is clamped between the upper substrate and the black lower substrate and is respectively bonded with the upper substrate and the black lower substrate, and the battery pack string comprises a plurality of solar cells; the drainage strip is used for leading out electric energy generated by the solar cells, and the first ink layer is coated on the drainage strip; and the bus bar is used for connecting the drainage bar in series and is welded with the drainage bar, and a second ink layer is coated on the bus bar. According to the solar panel, the first ink layer is coated on the drainage bar, the second ink layer is coated on the bus bar, the power generation efficiency of the solar panel cannot be reduced, the solar panel is easy to process, the drainage bar and the bus bar are shielded, the production cost of the solar panel cannot be increased, the appearance of the solar panel is black, and the integral attractiveness and general applicability are improved.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. Narendra Bavisetti
   2. M. Baby Bhargavi
   3. D. Santosh
   4. P. Phanindra
6. **Patent Filing date** : 30/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** :202241049423

Patent-045: Innovative Waste Management Smart Garbage Bin

1. **Name of the Technology** : Innovative Waste Management Smart Garbage Bin
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The present invention is a smart bin is built on a microcontroller - based platform Arduino Uno board which is interfaced with a GSM modem and Ultrasonic sensor and the PIR sensor will observe a person's nearby dustbin. If the motion is detected the lid of the dustbin is opened, and the servo motor activates. The ultrasonic sensor is placed at the top of the dustbin which will measure the stature of the dustbin, therein, the threshold stature is set as 10cm, and an Arduino will be programmed in such a way that when the dustbin is being filled, the remaining height from the threshold height will be displayed. The level detector consists of IR sensors that are used to detect the level of the garbage in the dustbin.
3. **Impact it will create**: An innovative waste management smart garbage bin, wherein, a smart bin is built on a microcontroller - based platform Arduino Uno board which is interfaced with a GSM modem and Ultrasonic sensor and the PFR sensor will observe a person's nearby dustbin. If the motion is detected the lid of the dustbin is opened, and the servo motor activates, and wherein, the ultrasonic sensor is placed at the top of the dustbin which will measure the stature of the dustbin, therein, the threshold stature is set as 10cm, an Arduino will be programmed in such a way that when the dustbin is being filled, the remaining height from the threshold height will be displayed, and wherein, the level detector consists of IR sensors that are used to detect the level of the garbage in the dustbin.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr.Anil Kumar Turaka
   2. Ms.Killana Charu Priyanka
   3. Ms.Adusumilli Sreelakshmi
   4. Ms. Madapati Yasawini
   5. Mr. Mendi J.V.N. Sai Santhosh Kumar
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048465

Patent-046: Floating Type Screw Conveyor

1. **Name of the Technology** : Floating Type Screw Conveyor
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The present invention is a device is developed using a floating type screw conveyor. During pandemics, sanitation plays a major role. The better sanitation of the city/town lowers the spreading of virus causing pandemics. Also minimizes the growth of mosquitoes and clogging of drains which leads to floods. To overcome the clogging the screw conveyor plays an important role. Water levels cannot be predicted in drains during different times. Proximity sensors are connected to the screw conveyor, these detect the waste materials. Whenever the low-density material reaches the floating screw conveyor it passes them to the belt conveyor and this belt conveyor passes them to the bank.
3. **Impact it will create**: To overcome the clogging the screw conveyor plays an important role. Water levels cannot be predicted in drains during different times. Proximity sensors are connected to the screw conveyor, these detect the waste materials. Whenever the low-density material reaches the floating screw conveyor it passes them to the belt conveyor and this belt conveyor passes them to the bank.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**

   1. Ms. B. Pravallika
   2. Ms. S. Anusha
   3. Ms. Y. Roshini
   4. Mr. G. Vamsi Krishna
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048468

Patent-047: PV Powered Multi-Layer Hydroponic Indoor Farming Chamber

1. **Name of the Technology** : PV Powered Multi-Layer Hydroponic Indoor Farming Chamber
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The present invention is a system monitors these parameters and operates the fans to maintain' required temperature and moisture in the chamber. The system then uses the water sensors to check level of water in the system, the

pump motors pump water into system or remove excess water from the system as and when needed. The artificial sunlight is switched on and off automatically as instructed by user to maintain proper temperature and get desired light for plant growth. The on-board water tank is used to maintain water supply and sounds a buzzer when system is out of water. An on-board controller circuit is used to run the entire setup as programmed by user. Thus, the system.provides a fully automatic method to monitor and bolster plant growth by ensuring perfect plant growth conditions as programmed by user.

3. **Impact it will create**: The intelligent indoor multi-layer hydroponic planting system comprises a multi-layer planting frame, a cloud server and a mobile device end; the multi-layer planting frame comprises a multi-layer frame body, a water tank, a water pump, a carbon dioxide gas storage tank, an air pump, a nutrient solution storage tank and a nutrient solution pump are arranged at the bottom of the multi-layer frame body, multi-layer planting plates are arranged on the upper portion of the multi-layer frame body, water supplementing grooves are formed in the planting plates, a plurality of planting baskets are arranged in the water
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Ms. Ch. K. T. S. R. Kowstubha
   2. Ms. M. Poojitha
   3. Ms. M. Bhavani
   4. Ms. M. Viharika
   5. Ms. N. J. H. Priyanka
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048470

Patent-048: Student Bus Attendance System

1. **Name of the Technology** : Student Bus Attendance System
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The present invention is a student bus attendance system; comprise of, wherein, device works on the four main components fingerprint module, GPS module, GSM module, LCD screen. When a finger is placed on the fingerprint module in device, the GPS module activates and the GSM module sends a

message to the set person phone number. The step-by-step process is displayed on the LCD screen for better usage.

3. **Impact it will create** :

   The method also includes scheduling a call back time in response to a determination that the customer service representative is not available to speak with the caller. The call back time indicates a time where the customer service representative will call the caller. The method further includes providing the call back time to the caller and receiving an availability flag from the caller at the call back time. The availability flag indicates whether the caller is available to receive a call from the customer service representative. The method also includes providing a call back signal to the customer service representative based on the availability flag. The call back signal indicates to the customer service representative whether to call the caller at the call back time".

4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Ms. Nerusu Satya Sahithi
   2. Ms. Dangeti.Mounika Sudha
   3. Mr. Akula Sri Venkata Datta Sai Raghuram
   4. Mr. Y. Nagendra Kumar
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048474

Patent-049: OZO-UV Washing Machine

1. **Name of the Technology** : OZO-UV Washing Machine
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The present invention isanozo - UV washing machine, wherein, advancement by implementing the ozone technology in washing machines. Ozone technology gives more effectiveness in washing performance, therein it removes bacteria/virus and manganese, iron, hydrogen sulphide from laundry. An ozone technology creates impact on mentioned solvents and stains of cloths and water, therein removes more dirt with less water consumption in less time.

3. **Impact it will create**: wherein, advancement by implementing the ozone technology in washing machines. Ozone technology gives more

effectiveness in washing performance, therein it removes bacteria/virus and manganese, iron, hydrogen sulphide from laundry, wherein, ozone technology creates impact on mentioned solvents and stains of cloths and water, therein removes more dirt with less water consumption in less time.

4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. M. Vimal Teja
   2. Mr. Gandikota Bhanuprakash
   3. Mr. Garapati Ratna Kumar
6. **Patent Filing date** : 05/009/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241050549

Patent-050: Low Cost Pump High Capacity Pump Intensive Shaft Pump

1. **Name of the Technology**: Low Cost Pump High Capacity Pump Intensive Shaft Pump
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention isa low cost pump high capacity pump intensive shaft pump wherein, a pump that moves fluids or sometimes slurries, by mechanical action, typically converted from electrical energy into hydraulic energy. Pumps can be classified into three major groups according to the method they use to move the fluid: direct lift, displacement, and gravity pumps thereby, pumps operate by some mechanism (typically reciprocating or rotary), and consume energy to perform mechanical work moving the fluid. Pumps operate via many energy sources, including manual operation, electricity, engines, or wind power, and come in many sizes.
3. **Impact it will create**: A water and fertilizer integrated irrigation device located below the impounding reservoir is arranged in the pump room structure body, the water and fertilizer integrated irrigation device comprises a pump body, the pump body is communicated with a water inlet of the impounding reservoir through a water inlet pipe, and the pump body pumps water to the impounding reservoir. The impounding reservoir is arranged at the top of the pump room structure main body, so that the occupied area is reduced; and on the other hand, the water pumped into the water storage pool has certain potential energy, when irrigation is needed, the water can automatically flow out only by communicating the pipeline with the water outlet, natural irrigation

can be conveniently achieved, and even if the pump body does not start to work, free irrigation can be achieved as long as the water level in the water storage pool is higher than the water outlet. Water pressure adjustment can be realized by adjusting the height of the water level in the water storage pool."

4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. B. Sudhakar Rao
   2. Mr. M. Tulasi Venkata Sai
   3. Mr. N. Ananth Kumar
   4. Mr. T. Naveen Kumar
   5. Mr. N. Rajesh
   6. Mr. N. Rushi Kumar
   7. Mr. M. Pavan Sai
6. **Patent Filing date** : Published
7. **Patent Granted date** :
8. **Patent Application Number** : 202241050550

Patent-051: MED-MITRA+: Medical Adherence through Technology

1. **Name of the Technology** : MED-MITRA+: Medical Adherence through Technology
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   A Med-Mitra+: medical adherence through technology, a USB port (1) is input for powering the device, it has a battery management unit (2) operate in both charge mode and boost mode to allow full system and battery power management, it has connected to a regulator unit (3) is a voltage output comes from a battery passed to two LDO regulators. A voltage controller unit (4) is designed to keep a microcontroller in reset until the system voltage.
3. **Impact it will create** :
   A display with buzzer (5) is to display the info along with alerting the user, thereby plurality of a buttons (6) which are a SOS button for making alert for respective person relate to the user. A data • processing with LED (7) is for connecting all the LEDs and reed sensors to acentral processing unit (CPU) (9) and the chip communicates with the microcontroller. A communication unit with sensors and clock (8) is allows the multiplexer to communicate with up to 8 I2C devices thereby aCPU (9) is governs the entire process.

4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. Uma Maheswara Rao Annavarapu
   2. Ravuri China Gopi Reddy
   3. Ms. Gundimeda Navyasree
6. **Patent Filing date** : 16/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341010352

Patent-052: Smart Ambulance

1. **Name of the Technology** : Smart Ambulance
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The present invention is a smart ambulance, wherein, working aurdino and wifi module programs. This particular project is designed for the cities with heavy traffic. Over population is one of the biggest problems in today lives. Speaking about facts, increase in the number of cars on roads. In this distance the traffic police can't hear the siren from the ambulance so he ignores this.
3. **Impact it will create** :

   The present invention relates to the field of an ambulance and particularly relates to a smart ambulance working aurdino and wifi module programs.

   Prior art to the invention: A patent document with application number "KR1020180010573", titled "Smart ambulance", describes, "The present invention provides a smart ambulance which comprises: a patient condition measuring device measuring or monitoring a condition of a patient; a medical smart device checking a condition of the patient, through which a prescription of a doctor can be displayed; and an external system terminal transmitting information with respect to a condition of the patient to a central server".

   wherein, the present invention is a smart ambulance.

   Objects of the invention: The primary object of the present invention is a smart ambulance.

   Summary of the invention: It is an aspects of the present disclosure a working aurdino and wifi module programs. This particular project is designed for the cities with heavy traffic. Over population is one of the biggest problems in today lives. Speaking about facts, increase in the number of cars on roads.

In this distance the traffic police can't hear the siren from the ambulance so he ignores.

Detailed description: The following specification particularly describes the invention and the manner in which it is to be performed.The embodiment is working aurdino and wifi module programs. This particular project is designed for the cities with heavy traffic. Over population is one of the biggest problems in today lives. Speaking about facts, increase in the number of cars on roads. In this distance the traffic police can't hear the siren from the ambulance so he ignores this.

Embodiment has advantages including an ambulance makes life easier, simple to monitor the location of ambulance, vehicle detection and tracking, provide way to ambulance and suggest the nearest hospital and optimum route.

4. **Current Status of the Patent** : Process
5. **Student Team details/Faculty Mentor :**
   1. Ms. K. Yesurani
   2. Ms. M. Lohya Sujitha
   3. Mr. P. Vamsi
   4. Mr. S. Venkat
   5. Mr. V. Chandu
6. **Patent Filing date** : 25/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048473

Patent-053: Device to Improve Student's Listening Skills

1. **Name of the Technology:** Device to Improve Student's Listening Skills
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is a device to improve student's listening skills; comprise of, wherein, device bringing silence in the classroom teachers can listen carefully to the fears, joy and problems faced by the students and guide them with proper care, as well as to mark the attendance using Motion sensor and Barcode scanner which helps to reduce man power and Data Incorrect and also to prevent the manipulation of data and to maintain accurate data of the attendance.
3. **Impact it will create**: The present invention relates to the field of a student's listening skills and particularly relates to a device to improve student's

listening skills. Prior art to the invention: A patent document with application number "IN202241028704", titled "The impact of students' utilization of social media on their ability to acquire listening and comprehension skills", describes, "Increasing numbers of people, particularly adolescents and young adults, are utilising social media as technology progresses. The goal of this study was to determine how high school students' use of social media influences their ability to comprehend what they hear. This research was undertaken at two secondary schools. It was founded on survey results. A questionnaire was used to collect data for the evaluation of the hypothesis, which was then analysed using the simple percentage and the Pearson correlation. According to the findings, students' time spent on social media impaired their ability to retain what they heard. The students wish to enhance their listening skills, but their addiction to social media makes this impossible. Even though these tools are available online, one study found that social media and internet-based listening tools can help students improve their listening skills. It was advocated as a solution that students be educated on the detrimental effects of excessive social media use. There should be a cap on the amount of time adolescents can spend on social media. Those in charge of education must offer students with the tools necessary to maintain their attention at all times. School guidance counsellors should advise students of the negative repercussions of improper use of social media".```

4. **Current Status of the Patent** : Process
5. **Student Team details/Faculty Mentor :**
   1. Mr. G. Hari Hara Kumar
   2. Mr.P. V. Kishore Kumar
   3. Mr. Ch. Venkatesh
   4. Mr. R. Siva
   5. Mr. Sunkara Kirankumar
   6. Ms. Duggirala Anusha
   7. Ms. Hari Lakshmi A. S.
   8. Ms. Simhadrisrustitha
   9. Ms. Veeramachaneni Padma Sri
6. **Patent Filing date** **:** 25/08/2022 `
7. **Patent Granted date** :
8. **Patent Application Number** : 202241048475

Patent-054: Silver Ion Technology based Human Sanitization Tunnel

1. **Name of the Technology** : Silver Ion Technology based Human Sanitization Tunnel
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The present invention is a silver ion technology based human sanitization tunnel comprises of, said tunnel uses silver ion technology is not reported to be harmful to human skin as per studies unlike the harmful sodium peroxide and related chemicals. Tunnel is a compact tunnel that consumes less space and is easy to transport. The tunnel makes use of fumigation instead of directly spraying allowing it to reach all corners of the human body. The fumigation consumes over 70% less water and chemicals than the tradition spray based tunnels. The system moreover uses human sensing to auto start and auto stop to save costs. So here by enhances the human disinfection using silver ion based human disinfection tunnel for human safe disinfection while saving water in the process.
3. **Impact it will create** :

   1) I claim, A silver ion technology based human sanitization tunnel, wherein, said tunnel makes use of fumigation instead of directly spraying allowing it to reach all corners of the human body, and the fumigation consumes over 70% less water and chemicals than the tradition spray based tunnels, and

   Wherein, the system moreover uses human sensing to auto start and auto stop to save costs and so here by enhances the human disinfection using silver ion based human disinfection tunnel for human safe disinfection while saving water in the process.

   2) The silver ion technology based human sanitization tunnel as claimed in claim 1, said device, wherein, it is easy to use, kills' viruses and bacteria, safer to human beings, as well as it consumes less water.
4. **Current Status of the Patent** : In Process
5. **Student Team details/Faculty Mentor :**

   1. Mr. J. Suresh
   2. Ms. D. Saiprasanthi
   3. Ms. M. Tanuja Sri
   4. Ms. M. Prathima
   5. Ms. N. Bhavya
   6. Mr. P. Naresh

6. **Patent Filling Date** **:** 25/08/2022
7. **Patent Granted Date** **:**
8. **Patent Application Number** : 202241048476

Patent-055: IoT based solar powered agriboat for irrigation and farm monitoring

1. **Name of the Technology:** IoT based solar powered agriboat for irrigation and farm monitoring
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is an IoT based solar powered agriboat for irrigation and farm monitoring, an autonomous robot is based on field parameters that is length and width. Prototype of an agricultural robot "AgroBot" is modelled for multitasking such as seeding, ploughing and harvesting with a separate irrigation system. It is a four wheeled vehicle which is controlled by an ATMEGA328 microcontroller (2) as master controller, Humidity sensor for irrigation, power supply is provided by solar panel which is eco-friendly to the environment. It will also help in decreasing the use of non- renewable sources of energy and will not pollute the environment. Other accessories are slaves performing specific operations. The approach is now to develop smarter machines that are intelligent enough to work in an unmodified or semi natural environment. The system derives power from solar energy through photo-voltaic cells. Hence, dependency on erratic commercial power is not required.
3. **Impact it will create** : Agriculture
4. **Current Status of the Patent** **:** Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. Ch. S. K. B. Pradeep Kumar
   2. Mrs. Chsabitha
   3. S. Lakshmi Sa
   4. P. Sai Kumar
   5. N. Venkata Satya
   6. M. D. N. Bharathi
   7. P. N. V. Achuth
6. **Patent Filing date** : 28/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 20221048466

Patent-056: Four seater Passenger Vehicle with Inbuilt Lift Jack

1. **Name of the Technology** : Four seater Passenger Vehicle with Inbuilt Lift Jack
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The aim of this work is to design and develop an inbuilt hydraulic jacking mechanism that can be operated by the driver from inside the vehicle.
   - The four-wheeler vehicle can be lift by using hydraulic system which is connects to the four sides of the chassis. By using this technique, we can attain less powerloss and simple design.
   - Instead of using jack we are using the hydraulic system to lift the vehicle. By using simple button controls to control the lifting of the vehicle.
   - The hydraulic energy can be generated by using the power of the engine with theusing of belt mechanisms.
3. **Impact it will create** : Automobile sector
4. **Current Status of the Patent** : Under Process
5. **Student Team details/Faculty Mentor :**
   1. T. Hema Vamsi Krishna
   2. M. Karthik
   3. Ch. Ravindra Babu
   4. K. V. D. S. Krishna
6. **Patent Filing date** : In process
7. **Patent Granted date** :
8. **Patent Application Number** : Under Process

Patent-057: Green House Monitoring through IoT

1. **Name of the Technology** : Green House Monitoring through IoT
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The implementation of Internet of Things (IoT) technology in greenhouse monitoring brings significant advancements to modern agriculture. By integrating smart sensors and IoT devices, farmers can create an intelligent and automated system that optimizes environmental conditions within the greenhouse. This proactive approach enhances crop health, boosts yields, and ensures sustainable and efficient farming practices.
3. **Impact it will create:**
   - Environmental Sensing: IoT-enabled sensors are strategically placed throughout the greenhouse to monitor vital parameters such as

temperature, humidity, CO2 levels, soil moisture, and light intensity. Real-time data collection provides insights into the greenhouse's microclimate, allowing farmers to fine-tune conditions to meet specific crop requirements.

- Automated Climate Control: Based on the sensor data and predefined thresholds, the IoT system automatically adjusts climate control equipment like fans, vents, heaters, and irrigation systems. This ensures that crops experience optimal growing conditions, minimizing stress and promoting healthy development.
- Water Management: IoT technology enables precise monitoring of soil moisture levels, enabling intelligent irrigation systems. By delivering water directly to the plant roots when needed, water usage is optimized, preventing overwatering and conserving resources.
- Nutrient Management: Integrating IoT devices with fertigation systems allows for precise nutrient delivery tailored to each plant's growth stage and requirements. This minimizes nutrient wastage and ensures plants receive the necessary elements for optimal development.
- Pest and Disease Monitoring: IoT sensors can detect early signs of pest infestations or diseases, enabling farmers to take immediate action to prevent widespread outbreaks. Timely intervention reduces the need for chemical treatments and safeguards plant health.
- Remote Monitoring and Control: The IoT system offers farmers remote access through smartphones or computers, allowing them to monitor the greenhouse conditions and adjust settings from anywhere. This remote control ensures prompt responses to critical situations and reduces the need for constant on-site presence.
- Data Analytics and Insights: The vast amounts of data collected from sensors are processed using advanced analytics and machine learning algorithms. This analysis provides valuable insights into crop performance, growth patterns, and environmental trends, enabling data-driven decision-making for improved productivity.
- Energy Efficiency: By intelligently managing climate control and irrigation systems, the IoT-enabled greenhouse reduces energy consumption, leading to cost savings and environmental benefits.

4. Current Status of the Patent :

Under Process

5. **Student Team details/Faculty Mentor :**
   I. M**.** Poojitha
   II. P**.** Subhakar
   III. K**.** Haripriya
   IV. K**.** Raju
6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : Under Process

Patent-058: Solar-Piezo Hybrid Power Generation Based Charging System

1. **Name of the Technology** **:** Solar-Piezo Hybrid Power Generation Based Charging System
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The use of renewable resources like the solar energy and various other clean sources of energy have been on an increase in demand in the recent years due to their ease in availability and low and cost. This project demonstrates how to use the solar energy and the kinetic energy from footsteps of people walking over piezo based footboard. The Solar Panel is used to harness the solar power. It converts the solar power into voltage, which when more than the voltage in the battery is able to charge the battery. The power available through the solar panel is sensed by an Atmega family microcontroller which it displays on the LCD.
3. **Impact it will create** : Automobile sector
   Similarly, the power generated through footsteps over Piezo Footboard is shown on the LCD. In this case, the footstep count is also displayed on the LCD along with the voltage generated by that particular footstep. In this way one can charge the battery through solar and footstep energies while simultaneously also monitoring of how much is getting generated with the use of Solar Piezo Hybrid Power Charging System
4. **Current Status of the Patent** **:** Under Process
5. **Student Team details/Faculty Mentor :**
   I. A. Bharath Kumar
   II. G. Murali
   III. P. Vasanth Kumar
   IV. Sai Prakash
   V. S. Tejaswai

6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : Under Process

Patent-059: Arduino Obstacle Avoidance Robot With Voice Control and Bluetooth Connectivity

1. **Name of the Technology** **:** Arduino Obstacle Avoidance Robot With Voice Control and Bluetooth Connectivity
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Voice-Controlled Robot: The main objective of this project is to develop an obstacle avoidance robot that can be controlled using voice commands. Users can give voice instructions to the robot for various tasks.
   - Bluetooth Connectivity: The robot utilizes Bluetooth technology to establish a communication link with an Android app. This allows users to send commands to the robot wirelessly, making it more convenient to operate.
   - Ultrasonic Sensor for Obstacle Detection: The robot is equipped with an ultrasonic sensor, which enables it to detect obstacles in its path. When an obstacle is detected, the robot notifies the user about the object's presence.
3. **Impact it will create: Agriculture**
   - Microcontroller (ATmega328P) Handling: The robot's microcontroller plays a crucial role in processing the voice commands received from the voice module. It analyzes the commands and executes the appropriate actions to control the robot's movement.
   - Servo Motor for Movement: To control the robot's movement, it is integrated with a servo motor. The microcontroller manipulates the servo motor based on the user's voice commands to navigate the robot effectively.
   - Android App Interface: The project involves creating an Android app that serves as the interface for sending voice commands to the robot. Through this app, users can easily interact with the robot and control its actions.
   - Hardware and Software Implementation: The project's hardware components, such as the ultrasonic sensor, servo motor, and Bluetooth module, have been successfully integrated into the robot. Additionally, the

software part has been implemented using the Arduino IDE module, ensuring smooth functioning of the robot's voice-controlled features.

4. **Current Status of the Patent** : In process
5. **Student Team details/Faculty Mentor :**
   I. G. Jahnavi
   II. J. Thabitha
   III. J. Ramadevi
   IV. G. Sushma
   V. M. Yasaswini Chandrika
6. **Patent Filing date** **:** In Progress
7. **Patent Granted date** : ---
8. **Patent Application Number** : In Progress

Patent-060: Automatization of Smart Trolley using RFID

1. **Name of the Technology** **:** Automatization of Smart Trolley using RFID
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Enhanced Shopping Experience: The RFID-based smart trolley system offers customers a hassle-free and convenient shopping experience by eliminating the need to wait in long queues at billing counters.
   - Time Efficiency: With the smart trolley, customers can save valuable time as the RFID technology automatically scans and adds products to their bill, streamlining the checkout process.
   - Wide Product Variety: Supermarkets and hypermarkets can offer an extensive range of products, including food, beverages, and household items, thanks to the efficient and organized RFID-based inventory management.
   - Budget-Friendly Shopping: Customers can now easily track the total cost of their purchases on a digital display attached to the smart trolley, helping them make informed decisions based on their budget.
3. **Impact it will create:**
   - Increased Footfall: The implementation of this advanced technology serves as a strategic move for supermarkets and hypermarkets, attracting more customers due to the improved shopping convenience.

- Error Reduction: The RFID system minimizes human errors during billing, ensuring accurate and precise pricing for each product, leading to greater customer satisfaction.
- Promoting Innovation: The automatization of smart trolleys reflects the supermarket industry's commitment to embracing technological advancements and enhancing customer-centric services.
- By integrating RFID technology into shopping trolleys, supermarkets and hypermarkets not only boost their efficiency and customer satisfaction but also position themselves as innovative leaders in the retail industry.

4. **Current Status of the Patent** **:** Under Process
5. **Student Team details/Faculty Mentor :**
   I. Arshiya
   II. M. Nikitha
   III. V. Hema Sri
   IV. S. Saibhanu Prakash
   V. P.R.A.D. Prasad
6. **Patent Filing date** **:** In Process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

Patent-061: Power Generated By Pizeo Electric Plates

1. **Name of the Technology** **:** Power Generated By Pizeo Electric Plates
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Piezoelectric plates or elements can be used as generators to convert mechanical energy into electrical energy.
   - When subjected to vibrations or pressure variations, these plates produce small amounts of electricity, which can be accumulated and used to power low-power devices or sensors.
   - Piezoelectric materials can be integrated into structures or wearable devices to harvest energy from ambient vibrations or movements.
3. **Impact it will create:** For example, in buildings, piezoelectric materials can be embedded in floors or walls to generate electricity from the building's vibrations.
4. **Current Status of the Patent:**
   In Process

5. **Student Team details/Faculty Mentor :**
    I. E.Raviteja
    II. Harsha vardhana Acharyalu
    III. G.Ganesh
    IV. L.Vidya
6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

Patent-062: Iot-Based Smart Office Chair to improve the productivity

1. **Name of the Technology**: Iot-Based Smart Office Chair to improve the productivity
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The idea is suggested to lessen the risk of spondylosis among office workers due to their poor posture. Any office chair may be made intelligent by adding this gadget. Two IR sensors are used by the device to detect the occupant's slouching position. All of the devices' electronics are under the control of the microcontroller.
3. **Impact it will create: Health and Safety**:
   - The device gives an audio and visual warning when the user's posture is poor while in a working state.
   - The device resets itself and monitors for poor posture for longer than 5 minutes if the user corrects their posture after receiving the notification of alert.
   - One can boost their productivity and lower their risk of developing spondylosis by using the device to rectify their bad posture.
   - IoT will likely be added in the future to track employee productivity and man hours.
4. **Current Status of the Patent** : In process
5. **Student Team details/Faculty Mentor :**
    I. Ms. S. Asharffine Ishrat
    II. Ms. P. Sowmya Sri
    III. Ms. Sk. Chandini
    IV. Ms. B. Manwitha
    V. Ms. Y. Poojitha
    VI. Mr. Hemanth Kumar

6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

Patent-063: Low-Cost Solar-Powered Insect Lure for Farm

1. **Name of the Technology:** Low-Cost Solar-Powered Insect Lure for Farm
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   It helps farmers lessen the effects of insects that damage farm fields or that impairs yield quality or quantity. The product that is currently on the market has been upgraded by the project. The light source is chosen in accordance with research on various dangerous insects in various agricultural fields to determine what band of light spectrum they often become drawn to. The solar-powered device will turn on after sunset and run for three to four hours (depending on the setting). The on-time will be chosen in order to safeguard the farmer-friendly insects. Insects drawn to the UV spectrum will fall into the funnel and perish in water stored in the collector.
3. **Impact it will create:** Future plans include the addition of IoT to monitor the gathering of insects on various farms and AI to analyze the various insects that are collected so that farmers can understand the impact of insects on farms.
4. **Current Status of the Patent** : In process
5. **Student Team details/Faculty Mentor :**
   I. T. Teja Sri
   II. Y. Roshini
   III. B. Venkata Satya Manikanta
   IV. S. Sivaranjani
   V. G. Deekshitha
   VI. K. Bhargavi Priya
6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

Patent-064: Solar-Power Electric Vehicle Charging Port

1. **Name of the Technology:** Solar-Power Electric Vehicle Charging Port
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Flexible solar EV charging and transmission expansion leads to substitution effect from PV plates.

- An electric vehicle (EV) charging port is a crucial component that allows an electric vehicle to connect to ansolar power and external source and recharge its batteries.
- EV charging ports come in different shapes, sizes, and connectors, depending on the region and the charging standard being used.
- Competition effect: Flexible EV limit business case of P2H technologies and also batteries

3. **Impact it will create:**
   - EV flexibility reduces significantly price fluctuations locally
   - Transmission expansion in contrast smoothens price fluctuations on spatial scale
   - Flexibility of EV and transmission expansion accelerates CO2 reduction
   - Main reduction in CO2 intense countries at the expense of virtuous countries
   - Regardless of distributional effects of CO2 and prices, overall positive effects stresses that strong European coordination is needed for a least cost transition Policy that increases the utilization of EV flexibility has to be put in place
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   I. Raviteja
   II. G. Ganesh
   III. Harsha vardhana Acharayalu
6. **Patent Filing date** **:** In process
7. **Patent Granted date** : **---**
8. **Patent Application Number** : In Progress

Patent-065: Low Cost 3d Filament Dehumidifier

1. **Name of the Technology** **:** Low Cost 3d Filament Dehumidifier
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - 3D printing, also known as additive manufacturing, is a method of creating a three-dimensional object layer-by-layer using a computer created design.
   - Using 3D printing, engineers can create new prototypes-even those with complex internal structures and geometries-address problems and find solutions, without ever leaving their working environments.

- Poly lactic acid (PLA) is one of the most popular materials used in desktop d printing used by engineering students.

3. **Impact it will create:**
   - PLA is an organic material that readily absorbed moister and is extremely sensitive to trace water content.
   - PLA is hygroscopic material that drawn in moister from the air, causing it to swell and become more brittle.
   - Due to this brittleness of PLA, the product has produced.
   - Also the quality of the product might be affected due to this so here is need of Dehumidifier to prevent it from absorbing moisture.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   I. S.Keerthi
   II. Saikiran
   III. Harsith
   IV. B.Gopika
   V. Bhuvana Chand Sai
   VI. K.Lalithendr
6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

Patent-066: IoT based automated crack and object identifier for Trains.

1. **Name of the Technology:** IoT based automated crack and object identifier for Trains.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - It is based on crack and object detection of train for safe railway transportation.
   - IOT based solar powered automatic crack and vehicle detection called 'crack and object identifier vehicle' send the coordinates to the station.
   - As vehicle examines the rail track with image processing method with ESP32 CAM as well as Ultrasonic sensor
3. **Impact it will create:**
   - The coordinates of the location are consigned to the station master by SMS using GSM and GPS modules.

4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   I. Saikiran
   II. Harsith
   III. B.Gopika
6. **Patent Filing date** **:** In process
7. **Patent Granted date**:
8. **Patent Application Number** : In Progress

Patent-067: Production of BIO Diesel by using seeds

1. **Name of the Technology** **:** Production of BIO Diesel by using seeds
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   This project is to find out the fuel related properties & engine related properties of coconut oil biodiesel with an additive N-butanol. This experimentation was prepared by biodiesel–diesel blends i.e., B10. The blend was prepared by mixing 85% of normal diesel & 10% of biodiesel with an additive N-butanol is 5% (B10D85N-but5). The other blend was prepared i.e., (B20D70N-but10), (B30D65N-but15).
3. **Impact it will create:** After development improved the efficiency of Bio diesel by using natural blends
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   I. T.Vamsi
   II. M.Sandeep
   III. J.Peddiswar
   IV. B.Avinash
6. **Patent Filing date** **:** In process
7. **Patent Granted date**:
8. **Patent Application Number** : In Progress

Patent-068: Nano Fluid Circulated solar Collector for Water Purification

1. **Name of the Technology:** Nano Fluid Circulated solar Collector for Water Purification
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The ever-increasing global need for energy makes it unavoidable to support the use of essential coffers. The sun is one of the most abundant and almost

indestructible energy sources in our world. The goal of this study is to Aluminium materials in order to improve or maximize the efficiency and other characteristics of the solar collector. The usage of aluminium oxide particles (Al2O3) is to improve the performance of collector. Solar collectors with a parabolic trough are physical devices with an interior covering of mirrors or reflecting materials.

3. **Impact it will create:** The collector is shaped like a concave surface. These troughs have a single axis, which means they may be rotated. These troughs have a single axis, which means they can only rotate in one direction.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   I. J.Lakshmi Prasad
   II. N.Ganesh Venkata Durga Rao
   III. G.Bhanu Prakash
   IV. G.Jayadeep
6. **Patent Filing date** **:** In process
7. **Patent Granted date** **:**
8. **Patent Application Number** : In Progress

Patent-069: Automatic Table top glass cutter

1. **Name of the Technology:** Automatic Table top glass cutter
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Even in today's era, glasses are cutting manually and through CNC machines. But cutting the glasses with manually provides dangerous to the worker or the surrounding. Also manual cutting results in errors those results in wastages of workpieces. So herein, there is an analysis of semi-automated glass cutting machine as the CNC machines are very costly.
3. **Impact it will create:**
   The semi-automated glass machine automatically cuts the glass in order to reduce the error within very less time.
4. **Current Status of the Patent:** In process
5. **Student Team details/Faculty Mentor :**
   I. Md.Gufran chowhan
   II. P.Ravindra
   III. Kare Akash
   IV. P.Mahesh

6. **Patent Filing date** **:** In process
7. **Patent Granted date** **:**
8. **Patent Application Number** : In Progress

Patent-070: Smart Wireless Luggage Bag traveller

1. **Name of the Technology** **:** Smart Wireless Luggage Bag traveler
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Bags have always been an integral part of travel life whether it may be a travel bag or a plastic bag or even leather bag every bag has its own importance and carries different functions and utility. Dragging the luggage all over the place has been done since the golden ages. Thinking of a luggage which conveys its weight, tracks its location, which follows the user automatically or manually, by the touch of the present technology to the old baggage
3. **Impact it will create:**
   it may bring out its true potential. This has motivated the project all along so that it is user-friendly and could be operated by a Smart phone.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   I. M.Poojitha
   II. S.Navya rani
   III. K.Roshini
6. **Patent Filing date** **:** In process
7. **Patent Granted date:**
8. **Patent Application Number** : In Progress

Patent-071: Design and construction of an antenna for India image capture to get Weather conditions using the live satellite

1. **Name of the Technology** **:** Design and construction of an antenna for India image capture to get Weather conditions using the live satellite
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Designed and testing the designed V dipole antenna for capturing the satellite passes especially for NOAA series. Designed and built for capturing the Satellite passes. We needed to install open-source software namely, Orbitron,

Air spy, WX to MIG, NOVA –APT for testing the V-dipole antenna along with RTL-SDR dongle.

3. **Impact it will create** : Social and Personal growth
4. **Current Status of the Patent** : In process
5. **Student Team details/Faculty Mentor :**
   I. T. S. N. Neeraja
   II. SK. Ishrat
   III. S. Keerthi
6. **Patent Filing date** : In process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

Patent-072: Solar Powered Wireless Battery Bank

1. **Name of the Technology** **:** Solar Powered Wireless Battery Bank
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   By the proposed system, the battery of an electronic device can be charged wirelessly. The proposed solar power bank integrates solar charging with efficient battery support and wireless charging to provide a multi functional unique power bank product. The device is able to self charge anywhere during day time so that he user never runs out of power. Power from solar is given as input to transmitter inductive coil, the receiver inductive coil receives the power and converts it into electric current to charge the battery.
3. **Impact it will create:**
   With the help of wireless battery charger technology, power can be supplied to the electric cars, drones, hospital's equipment, and smart phones. This device also helps to reduce the necessity of using wires.
4. **Current Status of the Patent** : In process
5. **Student Team details/Faculty Mentor :**
   I. S. Hemanth Raj
   II. M. D. N. Bharathi
   III. Ch. L. Sheetal
   IV. Ch. Jhansi
6. **Patent Filing date** : In process
7. **Patent Granted date:**
8. **Patent Application Number** : In Progress

Patent-073: Coin / Card Operated Smart RO Water ATM

1. **Name of the Technology :** Coin / Card Operated Smart RO Water ATM
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The smart water ATM serves water on coin insertion as well as Card scanning. It doesn't require user to carry cash while using this ATM. Also this smart water ATM machine has an integrated bottle dispenser that dispenses non disposable water bottles that can be used for long time. The system is developed using a controller, coin module, solenoid valve, keypad, RFID scanner and motors to develop the proposed ATM system. This allows for a smart water dispenser machine that can dispense water on demand of users.
3. **Impact it will create:**

   The machine when turned on allows user to select amount of water to be filled. User may select amount of water to be filled, once the user selects water quantity, the system displays the cost Rs.1 to Rs.5 for 100 ml to 1 Liter. After selection, system waits for water bottle to be placed in the filling section. The filling won't start/dispense until a bottle is detected in the filling panel.
4. **Current Status of the Patent** : In process
5. **Student Team details/Faculty Mentor :**
   I. G Venkateswarlu
   II. K. Pavan Kumar Raju
   III. B. S. Sahithi
   IV. Kumari
6. **Patent Filing date** : In process
7. **Patent Granted date:**
8. **Patent Application Number** : In Progress

Patent-074: Med-Mitra: A Smart Medication Management and Health Monitoring Tool

1. **Name of the Technology :** Med-Mitra: A Smart Medication Management and Health Monitoring Tool
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   A smart medication management and health monitoring tool that is simple in design and customizable that could help patients take their medications on time and in the correct doses, which can improve their health outcomes and reduce healthcare costs. The device can engage patients in their own care and help them understand the importance of adhering to their medication

regimen. The device can reduce the risk of medication errors caused by human error.

3. **Impact it will create:**
   - Help to monitor vital signs like SPO_2 and Heart rate of the patient.
   - Provides an instant (SoS) alert to emergency responders and caregivers in case of inconvenience and prevent adverse drug events.
   - The device can collect data on medication adherence and use patterns, which can be used by healthcare providers to improve patient care and medication management.
4. **Current Status of the Patent** : In process
5. **Student Team details/Faculty Mentor :**
   I. Uma Maheswara Rao Annavarapu
   II. Ravuri China Gopi Reddy
6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

03) Sasi Institute of Technology & Engineering, Tadepalligudem

Patent-075: A Novel Image Compression Model And An Operation Method Thereof For Underwater Environment

1. **Name of the Technology**: A Novel Image Compression Model And An Operation Method Thereof For Underwater Environment
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The proposed system identifies underwater objects during the search and rescue operation
3. **Impact it will create:**
   - It helps the authorities to identify victims during the accidents in water bodies
4. **Current Status of the Patent** **:** Pending
5. **Student Team details/Faculty Mentor :**
   1. N. Krishna Raju
6. **Patent Filing date** **:** 29/11/2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201941046137

Patent-076: Bullock Cart Automation

1. **Name of the Technology:** Bullock Cart Automation
2. **Highlights of the Technology (innovation/uniqueness etc.):** The proposed design it used to assist the bullock cart drivers to maintain it in the hard road conditions and to carry the load in a easy approach.
3. **Impact it will create:** It helps the farmers during the harvest season to carry the farm output to any location.
4. **Current Status of the Patent** **:** Pending
5. **Student Team details/Faculty Mentor :**

   1. R. B. Choudary
6. **Patent Filing date** **:** 22/08/2019
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 201941033895

Patent-077: Smart Parking and Vehicle Name Plate Detection

1. **Name of the Technology**: Smart Parking and Vehicle Name Plate Detection
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The system will identify the owner of the car by detecting the name plate and provide guidance to correct parking lot.
3. **Impact it will create:**
   - The proposed system will help in identifying wrong people/theifs/terrorists entering or using the car.
4. **Current Status of the Patent** : Pending
5. **Student Team details/Faculty Mentor :**

   1. D. Prasad
6. **Patent Filing date** : 31-07-2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202041029576 A

Patent-078: Prana Mask

1. **Name of the Technology**: Prana Mask
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The proposed smart mask will identify the poiseness gases around the premises and alert the user to properly wear and take precautions.

3. **Impact it will create:**
   This will help the workers in industrial environment to take care of themselves from posiness gases.
4. **Current Status of the Patent** : Pending
5. **Student Team details/Faculty Mentor :**
   1. T. J. V. Subrahmanyam
6. **Patent Filing date** : 10-10-2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202041044180 A

Patent-079: AI-based Programming for Advanced Operation and Maintainance of Waste Treatement Systems

1. **Name of the Technology**: AI-based Programming for Advanced Operation and Maintainance of Waste Treatement Systems
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The proposed system analyzes the incoming waste and action to be taken with respect treatment speed and outlet speed.
3. **Impact it will create:**
   This will help the urban societies to effectively maintain the waste treatment process in automatic environment.
4. **Current Status of the Patent** : Pending
5. **Student Team details/Faculty Mentor :**
   1. Srinadh Unnava
6. **Patent Filing date** : 24-11-2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202041051003

Patent-080: Machine Learning based Smart Transportation System with Traffic Estimation for Big Data Analytics

1. **Name of the Technology**: Machine Learning based Smart Transportation System with Traffic Estimation for Big Data Analytics
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The proposed system will identify the traffic congestion and number of vehicle entering the spot and alert the remaining traffic junction systems to take instantaneously change the traffic signal timing.

3. **Impact it will create:**
   This will help the urban societies to maintain the traffic conditions especially for emergency vehicles.
4. **Current Status of the Patent** : Pending
5. **Student Team details/Faculty Mentor :**
   1. Prasad Dumpa
6. **Patent Filing date** : 25-09-2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202041039998 A

Patent-081: Smart Agriculture Using IoT

1. **Name of the Technology:** Smart Agriculture Using IoT
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The proposed system will assist the user to maintain the farming conditions from a remote condition. This system will adopt to the majority of the crops.
3. **Impact it will create:**
   - It helps farmers to reduce the fuel cost and overall farming cost.
4. **Current Status of the Patent:** Pending
5. **Student Team details/Faculty Mentor :**
   1. G. Naveen Kishore
6. **Patent Filing date** : 16-04-2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141015525 A

Patent-082: A System and Method for Analysing Biological Effects of Molecules using Monte Carlo Method

1. **Name of the Technology:** A System and Method for Analysing Biological Effects of Molecules using Monte Carlo Method
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The proposed work identifies the usefulness of biological effects of molecules to provide safety applications for medical usage.
3. **Impact it will create:**
   - It helps in reducing critical treatment cost of cronic diseased patient.
4. **Current Status of the Patent :**
   Pending

5. **Student Team details/Faculty Mentor :**
   1. Prasad D.
6. **Patent Filing date** : 16-07-2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141031063 A

Patent-083: Deep Learning with Elephant Herd Optimization Algorithm based Cyber bullying Detection Framework for Online Social Networks

1. **Name of the Technology:** Deep Learning with Elephant Herd Optimization Algorithm based Cyber bullying Detection Framework for Online Social Networks
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The proposed algorithem will identify the cyber harrassement and theft in the social networking sites.
3. **Impact it will create:**
   - It helps for women to properly locate the bullying persons and take action.
4. **Current Status of the Patent:** Pending
5. **Student Team details/Faculty Mentor :**
   1. P. Rambabu
6. **Patent Filing date**: 14-08-2021
7. **Patent Granted date**:
8. **Patent Application Number**: 202141047510A

Patent-084: Clustering Protocol for Mobile ADHOC Networks

1. **Name of the Technology:** Clustering Protocol for Mobile ADHOC Networks
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The proposed work determines the networking speed and provice date to select the propoer routing platform and infrastructure.
3. **Impact it will create:**
   - It helps the organization to reduce the networking infrastructure cost.
4. **Current Status of the Patent:** Pending
5. **Student Team details/Faculty Mentor :**
   1. M. V. S. S. Nagendranath
6. **Patent Filing date** : 09-09-2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141040835 A

Patent-085: Droop characteristics based Power supply for Electrical Traction System

1. **Name of the Technology:** Droop characteristics based Power supply for Electrical Traction System
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The proposed technique identifies the power outages in the electrical traction system and helps in maintaining the power cost within the limits.
3. **Impact it will create:**
   - It helps in reducing the cost the power usage for large scale industries.
4. **Current Status of the Patent** **:** Pending
5. **Student Team details/Faculty Mentor :**

   1. Avagaddi Prasad
6. **Patent Filing date** : 17-09-2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141040185A

Patent-086: Intelligent Safe Home System for the Elderly People

1. **Name of the Technology:** Intelligent Safe Home System for the Elderly People
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The proposed system helps in identifying unknown persons intelligently using IoT and alert nearby people and authorities.
3. **Impact it will create:**
   - It acts as a smart assistant for safety of elderly people especially for old-age homes.
4. **Current Status of the Patent** **:**

   Pending
5. **Student Team details/Faculty Mentor :**

   1. Shaik Mohammad Rafee
6. **Patent Filing date** : 17-03-2021
7. **Patent Granted date** :
8. **Patent Application Number** : 2020104377

Patent-087: Continuous Air Quality Monitoring system based on IoT

1. **Name of the Technology:** Continuous Air Quality Monitoring system based on IoT

2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The proposed system identifies industrial environment and alert the workers to take care during the crisis.
3. **Impact it will create:**
   - It helps workers in harsh environment.
4. **Current Status of the Patent** **:** Pending
5. **Student Team details/Faculty Mentor :**

   1. P. Hemachandu
6. **Patent Filing date** : 19-02-2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141005573

Patent-088: Design of BIOINSPIRED forest chassis robots on a slope.

1. **Name of the Technology:** Design of BIOINSPIRED forest chassis robots on a slope.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - To improve the stability of forestry chassis on the slope, the proposed system is designed to make the chassis move suitably to achieve the purpose.
3. **Impact it will create:**
   - It helps the forest departments for easy surveillance.
4. **Current Status of the Patent** **:**

   Pending
5. **Student Team details/Faculty Mentor :**

   1. G. Naveen Kumar
6. **Patent Filing date** : 08-10-2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141044534

Patent-089: Embedded Systems

1. **Name of the Technology** **:** Embedded Systems
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Recording of Water level, pH value, Temperature and other paprameters.
   - Sending the data through wifi for IoT application.
   - Remote monitoring of the parameters and recoded timely bases.

- Easy to operation and maintenance for user point of view.

3. **Impact it will create:**
   - It helps to record the parameters for water tanks.
   - The recoded values are used for monitoring of data in small organizations.
   - IoT based applications are helps to remote monitoring of the water tanks.
   - Battery operated and less power consumption is major benefit for proposed device.
4. **Current Status of the Patent** **:** Pending
5. **Student Team details/Faculty Mentor :**

   1. T Venkateswara Reddy
6. **Patent Filing date** **:** 25-03-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202143256572 A

Patent-090: Embedded Systems

1. **Name of the Technology** : Embedded Systems
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Recording of all health parameters of the patient.
   - Less weight to handle and minimum maintenance.
   - Easy to making and less cost to purchase.
   - Certified material for medical equipment manufacturing process .
3. **Impact it will create:**
   - It helps to record the parameters of various patients.
   - Due to less weight any patient can carry easily.
   - Due to less cost most of the people can effort for their health.
   - Battery operated and less power consumption is major benefit for proposed device.
4. **Current Status of the Patent** **:** Pending
5. **Student Team details/Faculty Mentor :**

   1. T Prasad
6. **Patent Filing date** **: 16-03-2023**
7. **Patent Granted date** :
8. **Patent Application Number** : 2021432525632 A

Patent-091: Deep Learning

1. **Name of the Technology:** Deep Learning
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - ECG Data Acquisition to collect the data
   - High Performance Graphical Processing Unit
   - Detection of the Patterns in the ECG
3. **Impact it will create:**
   - It helps identifying the sleep pattern and its identification
   - Identifying different sleep patterns and its detection from the ECG device
   - Deep Learning techniques is used to make the diagnosis easier
4. **Current Status of the Patent** **:** Pending
5. **Student Team details/Faculty Mentor :**

   1. G Naveen Kishore
6. **Patent Filing date** **:** 21-03-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202154676572 A

Patent-092: Embedded Systems

1. **Name of the Technology:** Embedded Systems
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Farm parameters like temperature, humidity, light and soil moisture are recoded.
   - Sending the data through wifi for IoT application.
   - Remote monitoring of the parameters and recoded timely bases.
   - Easy to operation and maintenance for user point of view.
3. **Impact it will create:**
   - It helps to record the parameters for smart farming.
   - The recoded values are used for monitoring of farm and fields.
   - IoT based applications are helps to farmers for remote monitoring of the farm land.
   - Battery operated and less power consumption is major benefit for proposed device.
4. **Current Status of the Patent** **:** Pending
5. **Student Team details/Faculty Mentor :**

   1. J. L. Narayana

6. **Patent Filing date** **:** 31-03-2023
7. **Patent Granted date** :
8. **Patent Application Number** **:** 202142028654 A

04) L. J. Institute of Engineering & Technology, Ahmedabad

Patent-093: Granule Pouring and Mixing Machine

1. **Name of the Technology**: Granule Pouring and Mixing Machine
2. **Highlights of the Technology (innovation/uniqueness etc.):** The uniqueness in our project is that it is a combination of two different machine (1) Vertical plastic granule dry mixer mixing and (2) Hopper loader with an affordable cost
3. **Impact it will create:** We are giving combination of two different machines used for injection molding at an affordable cost that is appropriate to small and medium scale industries to reduce the unnecessary use of human labor
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Ritesh Barapatre
   2. Mr. Shantanu Das
   3. Mr. Ronak Maheshwari
   4. Mr. Kuldeep Joshi
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202021005297

Patent-094: TSM for Emergency Vehicles

1. **Name of the Technology:** TSM for Emergency Vehicles
2. **Highlights of the Technology (innovation/uniqueness etc.):** Using the high range Rf-Tx module for moving faster in the traffic
3. **Impact it will create:** Emergency vehicles can move faster than usual in the traffic at the signals
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Kishan Vara
   2. Mr. Kanania
   3. Mr. Nirmal Nayan
   4. Mr. Jainik Roy

6. **Patent Filing date** **:** 6th February, 2020
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202021005302

Patent-095: Herbal Formulation to Treat Mouth Ulcer

1. **Name of the Technology**: Herbal Formulation to Treat Mouth Ulcer
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   1) A formulation with a blend of herbal and synthetic ingridients.
   2) The formulation will provide protection from washing away of application from site of action due to saliva.
   3) Forming a thin oral film.
3. **Impact it will create:**
   - It will lead to fast healing of the affected site and provide a solution to a problem that affects mass in regular life. Due to good taste and ease of application will make it more acceptable. It has a property to dissolve gradually with saliva but at the same time prevent washing away by it and hence lead to fast healing.
4. **Current Status of the Patent** : Filed
5. **Student Team details/Faculty Mentor :**
   1. Ms. Aaltiya Agrawal
   2. Mr. Dhairya Gandhi
   3. Mr. Rushikumar Gondaliya
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005300

Patent-096: Creation of Compact Reservoir through Implementation of Permeable Pavement

1. **Name of the Technology**: Creation of Compact Reservoir through Implementation of Permeable Pavement
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   It infilterates the water from the pavement and through pipe mechanism the water can be collected in the storage reservoir.
3. **Impact it will create:**
   - Permeable pavement is the distinctive and functional solution to address the issues through geotechnology and sustainable engineering and

represents the construction of road design and a methodology to reduce the surface runoff, and even this design can help in the fields of structural deficiencies like water logging, potholes, and surface degradation.

4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Harshil Patel
   2. Mr. Harsh Purohit
   3. Ms. Anita Sharama
   4. Mr. Nihar Valia
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005299

Patent-097: Sustainable Transformation Methods of Solar E-Waste Management

1. **Name of the Technology**: Sustainable Transformation Methods of Solar E-Waste Management
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Despite the e-waste regulation being in place for over seven years, only less than 4% of estimated e-waste is recycled in the organised sector. This paper aims at finding sustainable methods for recycling and disposal of solar e-waste.
3. **Impact it will create:**
   - Besides environmental protection, recycling solar panels will be economically impactful as well. Some of the rare elements in photovoltaic (PV) cells like gallium and indium are being depleted from the environment over time. If we were able to recover those elements, we can conserve the limited amount available on earth and continue to use them for solar panels and other products. Furthermore, a 2016 study by the International Renewable Agency (IRENA) estimated that $15 billion could be recovere
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Ms. Nidhi Jariwala
   2. Ms. Maitri Panchasara
   3. Mr. Dhrumil Kelkar
   4. Mr. Parth Gajjar

6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005310

Patent-098: GENIUS TRASHCAN

1. **Name of the Technology**: GENIUS TRASHCAN
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   This project helps in proper waste collection management at a proper time. It finds the proper and the shortest route for the person collecting the garbage. It provides the sufficient time for the person collecting the garbage before the trash can is full. It helps in leading to green environment. It plays a major role in “SWACHH BHARAT ABHIYAN”• .
3. **Impact it will create:**
   - The main impact of our solution is on "SWACH BJARAT ABHIYAN". It leads to green environment.It helps in waste collection management.It reduces the time for collecting the waste.It reduces the foul smell and illness of people.
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Ms. Dhvani Vora
   2. Ms. Rahee Gandhi
   3. Ms. Dhruvi Kharadi
   4. Ms. Disha Bhatt
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005314

Patent-099: Automatic Raliway Gate Control with Solar Panel

1. **Name of the Technology**: Automatic Raliway Gate Control with Solar Panel
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   To reduce men power.Present project is designed using Arduino Uno microcontroller to avoid railway accidents happening at unattended railway gates, if implemented in point.
3. **Impact it will create:**
   - Using the same principle as that for gate control, we have developed a concept of automatic track switching. Considering a situation where in an

express train and a local train are travelling in opposite direction on the same track, the express train is allowed to travel on the same track and the local train has to switch on to the other track, indicator lights have been provided to avoid collision. Here the operation is performed using a servo motor.

4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Hardik Madlani
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005313

Patent-100: Wearable Intravenous Stand

1. **Name of the Technology**: Wearable Intravenous Stand
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   1. Easily wearable jacket
   2. Use the sliding device
   3. Multiple pockets in the jacket
   4. Jacket will hang anywhere
3. **Impact it will create:**
   - In the case of wearable IV the nursing staff does not have to go with patients anywhere anytime to handle IV bottle, as they can complete their more meaningful work.
   - Easily mobile and can be worn on the wheelchair so the patient can easily get mobility with an IV bottle, for e.g going to the radiology department.
   - Patients have full privacy in the restroom
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Aayush Trivedi
   2. Mr. Jaydeep Yadav
   3. Mr. Meetrajsinh Zala
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005307

Patent-101: Automatic Solar Panel Cleaning Machine

1. **Name of the Technology**: Automatic Solar Panel Cleaning Machine
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   We provide product with new technology for cleaning. It can clean the solar panels automatically without the effort human hands. Our product can consume less time for cleaning for solar panels. It can also reduce the human effort. our product used less quantity of water for cleaning. As we see in market there are many products in market which provide either wiper or brush but we provide both brushes and wipers
3. **Impact it will create:**
   - Now in India use of solar panel is more in now a days. than we provide automatic solar panel cleaning machine to help them in cleaning of solar panels.
   - Use of our product is effective for increasing the efficiency of solar panel and increasing in power generation of solar panels.
   - It can also reduces the human effort and use of water is less. it can also consume less time for cleaning.
4. **Current Status of the Patent :** Filed
5. **Student Team details/Faculty Mentor :**

   1. Mr. Kshitij Raval
   2. Mr. Karan Shinde
   3. Mr. Nishant Thakkar
   4. Mr. Parth Rathod
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005303

Patent-102: Home Automation and Security System

1. **Name of the Technology**: Home Automation and Security System
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   This system is operated in all around the world
3. **Impact it will create:**
   - Stop the theft in our house
4. **Current Status of the Patent :**

   Filed

5. **Student Team details/Faculty Mentor :**
   1. Mr. Jay Patel
   2. Mr. Prashant Patel
   3. Mr. Aayush Patel
   4. Mr. Rohit Pandya
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005304

Patent-103: Laser Printing

1. **Name of the Technology**: Laser Printing
2. **Highlights of the Technology (innovation/uniqueness etc.):** Uniqueness of this project is that machine is cost effective, accurate, time consuming
3. **Impact it will create:** Potential impact of your solution is good and it will increase in near future
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Brijesh Ladani
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005298

Patent-104: Electrical Power Theft Detection using Microprocessor

1. **Name of the Technology**: Electrical Power Theft Detection using Microprocessor
2. **Highlights of the Technology (innovation/uniqueness etc.):** Consumer cannot theft electricity. When consumer try to theft electricity then inform us.
3. **Impact it will create:** Electric city consumption is save
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Prashant Patel
   2. Mr. Jay Patel
   3. Mr. Aayush Patel
   4. Mr. Rohit Pandya
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005312

Patent-105: The Floating Bag

1. **Name of the Technology**: The Floating Bag
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   We designed a bag pack that glides up and down on a fixed frame while you walk, run, climb up the hill,. By gliding on a frame the bag tries to remain in a stationary position as long as possible. By allowing the carried load to seamlessly move up and down with respect to the person walking or running, this keeps the load at a constant height with respect to the ground. Your adventure hike will require less metabolic energy as the pack glides up and down while you walk
3. **Impact it will create:**
   - The base design has been created and in the future the frame prototype will be constructed with light weight material to reduce the cost and make it more affordable.
   - To make the frame in such a way that different types of bags can be replaced on the same frame.
   - The movement of the slider can be used to generate electricity.
4. **Current Status of the Patent :** Filed
5. **Student Team details/Faculty Mentor :**

   1. Mr. Malhar Modiya
   2. Mr. Vishesh Gurjar
   3. Mr. Kumarswamy Chillur
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005311

Patent-106: Multi Purpose Agriculture Machine

1. **Name of the Technology**: Multi Purpose Agriculture Machine
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   This arrangement helps to do the activities mentioned above in a one go. Only one man is required to do the above mentioned activities thus labour work and time is reduced. This project is basically based on helping the small scale farmers having land of 2-3 acres who cannot financially afford the labour and the machine cost. The motto is to develop a machine which is

financially cheap, easy to maintain, and user friendly. This machine doesnot requires a very compact mechanism so the far

3. **Impact it will create:**
   - The machine is designed in such a way that it operates on a single mechanism and can be easily operated by any person and the maintenance is easy to take out. The machine operates by chain and gear mechanism, which are operated by battery thus no fuel is required to run the machine and the machine is ecofriendly
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Dhruv Suthar
   2. Mr. Tarpan Prajapati
   3. Mr. Kapil Vadhavana
   4. Mr. Sheel Shah
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005316

Patent-107: Video Translator

1. **Name of the Technology**: Video Translator
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The current available software is only capable of providing transcript in one language. Our software can provide the same in multiple languages with more accuracy. It is also fast than other softwares.
3. **Impact it will create:**
   - By using the app, the users can connect to the world with more power, and gain knowledge from videos from other languages. This also helps users to communicate with different people of other native languages
4. **Current Status of the Patent :** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Dhruvil Maniar
   2. Mr. Jainil Shah
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005305

Patent-108: Wireless Gesture Controlled Car Using Arduino

1. **Name of the Technology**: Wireless Gesture Controlled Car Using Arduino
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Its project on arduino based wireless control car
3. **Impact it will create:**
   Transportation easy for handicap people
4. **Current Status of the Patent:**
   Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Hiren Parmar
   2. Mr. Anirudhasinh Mandora
   3. Mr. Piyush Patani
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005306

Patent-109: Optimization in Brake Caliper

1. **Name of the Technology**: Optimization in Brake Caliper
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Brake caliper being the heart of a braking system the whole system is build considering its size, weight and strength
3. **Impact it will create:**
   - Due to our solution there will be reduction in cost comparatively
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Vatsal Prajapati
   2. Mr. Aksh Patel
   3. Mr. Jaymin Prajapati
   4. Mr. Nikunj Sakariya
   5. Mr. Manan Patel
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005309

Patent-110: Two Wheeler Comfortable Seat

1. **Name of the Technology**: Two Wheeler Comfortable Seat
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   Uniqueness of this project is that the comfortable seat is totally adjustable and removable if you travel single so you can use that as for comfort if want to travel short ride otherwise ride with solo & pillion so you can easily remove it.
3. **Impact it will create:**
   - This project is that the comfortable seat is totally adjustable and removable if you travel single so you can use that as for comfort if want to travel short ride otherwise ride with solo and pillion so you can easily remove it and cost is very economy any middle class lower people can buy it . It is daily routine product so every one need that and interested so we can as possible as update it . So it can may help and there are many ways to earn from this product
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Mr. Adarsh Gound
   2. Mr. Karan Modi
   3. Mr. Sanket Panchal
   4. Mr. Hill Buddhadev
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005301

Patent-111: Digital Umbrella

1. **Name of the Technology**: Digital Umbrella
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The digital umbrella is specially designed for roadside winder which they are standing under the normal umbrella. in this umbrella we have added the fan USB charger, flashlight
3. **Impact it will create:**
   - The impact of solution will directly reflect on market due to there is many changes in the product it is all modified product
4. **Current Status of the Patent** **:** Filed

5. **Student Team details/Faculty Mentor :**

   1. Mr. Adib Mansuri

6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005308

Patent-112: Herbal Gel Toner

1. **Name of the Technology**: Herbal Gel Toner
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The face toner can give the even face tone in a single easy application as opposed to the market alternatives

3. **Impact it will create:**
   - The market would benefit from more alternatives and competition.
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Mr. Aayush Kubavat
   2. Ms. Khevana Joshi
   3. Ms. Niirali Kathrotiya

6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005331

Patent-113: Herbal Hair Gel

1. **Name of the Technology**: Herbal Hair Gel
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   No side effects and can be easily administered. Flax seeds help promoting hair growth and reducing hair fall. Aloe Vera helps in making the hair smooth and shiny. Neem provides anti inflammatory,anti bacterial and antifungal activity which helps in reducing dandruff

3. **Impact it will create:**
   - This product is impactful because the already available products do not cure all the problems together and they also contain some harmful chemicals. Our product can cure the problems as well as has no harmful chemicals
4. **Current Status of the Patent** **:**

   Filed

5. **Student Team details/Faculty Mentor :**
   1. Ms. Priyanshi Bhatt
   2. Ms. Vishwa Gandhi
   3. Mr. Meet Patel
   4. Ms. Smruti Patel
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005319

Patent-114: Antifungal Nail Paint

1. **Name of the Technology**: Antifungal Nail Paint
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Males also use this nail paints in their fungal infection affects on nail.. For male it is transparent in physical appearance and for females various shades of paint is available
3. **Impact it will create:**
   - Useful to coastal lived people and fungal infected peoples
4. **Current Status of the Patent :**
   Filed
5. **Student Team details/Faculty Mentor :**
   1. Ms. Vidhi Shah
   2. Mr. Maulik Parmar
   3. Mr. Sahil Desai
   4. Ms. Megha Solanki
   5. Ms. Yashvi Gajera
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005320

Patent-115: Natural Dhoop for Mosquito Repellent

1. **Name of the Technology**: Natural Dhoop for Mosquito Repellent
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Bio-based natural mosquito repellents would be preferred over chemical mosquito repellent because of their non toxicity against rashes ,swelling ,eye irritation & other serious problems to people.So,it is very effective, safe and of low cost, eco friendly

3. **Impact it will create:**
   - Our product is of low cost and very effective & do not involve any chemical ingredient in preparation...these is main advantage of our product and mainly it has non toxicity.
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Ms. Jahnavi Patel
   2. Ms. Trushti Shah
   3. Ms. Pooja Kumavat
   4. Ms. Jahanvi Patel
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005324

Patent-116: Herbal Hair Gel (Black)

1. **Name of the Technology**: Herbal Hair Gel (Black)
2. **Highlights of the Technology (innovation/uniqueness etc.):** Give instant color to the hair, and also you can style your hair. It has not any harmful chemical so no any side effects and give Color to only your white hair not any effect on black hair.
3. **Impact it will create:** This gel is mainly for young age boys who have white hair in very young age and they use hair color, dye, etc
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Ms. Khevana Joshi
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005325

Patent-117: Herbal Cough Patch

1. **Name of the Technology**: Herbal Cough Patch
2. **Highlights of the Technology (innovation/uniqueness etc.):** No side effects as ingredients are herbal and they are easily available. It is easy to administer. Ginger helps to get rid of cold, phelgm and chest pain. Honey provides soothing effect. Lemon helps in relieving congestion. Eucalyptus oil helps in providing calmness and relaxation and providing effective sleep

3. **Impact it will create:**
   - The product is impactful because it helps is relieving cough and also helps in providing effective sleep and reducing chest pain. The product is safe and easy to administer
4. **Current Status of the Patent:**
   - Filed
5. **Student Team details/Faculty Mentor :**
   1. Ms. Vishwa Gandhi
   2. Ms. Priyanshi Bhatt
   3. Mr. Meet Patel
   4. Ms. Smruti Patel
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005326

Patent-118: Addiction Breaker

1. **Name of the Technology**: Addiction Breaker
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   STOPS THE APPLICATION AFTER LIMIT ENDS On selected time range user can not open/use the application which is blocked by application
3. **Impact it will create:**
   - It Makes Impact on Usage of Addictive Applications
4. **Current Status of the Patent :** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Sahil Desai
   2. Ms. Shikha Patel
   3. Ms. Misari Desai
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005332

Patent-119: Digital Microscope

1. **Name of the Technology**: Digital Microscope
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Uniqueness of our project digi- microscope is that by using simple instrument we can observe microscopic view and can analyze various samples

3. **Impact it will create:** It is of great potential, the digi microscope can have great impact on the field of microscopic evaluation
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Dharmraj Pathak
   2. Mr. Bhavya Shah
   3. Mr. Abdulrashid Momin
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005322

Patent-120: SCARCARE Spray

1. **Name of the Technology**: SCARCARE Spray
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Foam based permeable to skin and easily applicable.
3. **Impact it will create:**
   - Marketing of new formulation is easy now a days and so,people will easily get attracted to the product because it is also an effective formulation
4. **Current Status of the Patent :** Filed
5. **Student Team details/Faculty Mentor :**
   1. Ms. Greeva Bhatt
   2. Ms. Reecha Shah
   3. Ms. Kamiya Jadeja
   4. Ms. Prachi Patel
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005328

Patent-121: Absorption of Carbon Dioxide Direct from Atmosphere

1. **Name of the Technology**: Absorption of Carbon Dioxide Direct from Atmosphere
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   In current situation company of Bill Gates names carbon Engineering they use potassium carbonate as the catalyst but the cost of the capturing carbon dioxide is high so we try to replace the catalyst to amine solution or other basic catalyst and reduce the cost of the capturing of carbon dioxide.

3. **Impact it will create:**
   - Impact of our solution is on atmosphere.with the help of capturing carbon dioxide from the atmosphere it can reduce global warming and it is also effect on environment and living things
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Meet Patel
   2. Mr. Tanmay Unagar
   3. Mr. Dhananjay Paija
   4. Mr. Darshan Bhadaniya
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005327

Patent-122: Battery Motorized Agriculture Weeder

1. **Name of the Technology**: Battery Motorized Agriculture Weeder
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   We are using hoe instead of rake as a result of which weeds are removed from the roots. We are using a motor for weeding so that it can cut weed more effectively. Because of two hoe plates it can perform the work of two farmers at a single time.
3. **Impact it will create:**
   - Time wll be saved since more number of weeds are cut in comparitvely in less time so large amount of area can be weed in less time.
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Dhairya Raval
   2. Mr. Atharv Josh
   3. Mr. Anujkumar Maurya
   4. Mr. Vishv Shah
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005330

Patent-123: Design Solution for Grocery Store

1. **Name of the Technology**: Design Solution for Grocery Store
2. **Highlights of the Technology (innovation/uniqueness etc.):** Novelty of our project is its is light in weight, It can be used in multiple application, It can be adjusted in both bike & activa. It is portable. It is very compact & can be store in small space. As compare to others it can deliver more products. It is comfortable to the delivery boy while using it. To avoid the theft the locking system is provided. Belt system is provided to avoid the falling of product, A soft material is provided to avoid scratch on the vehicle
3. **Impact it will create:** In past one delivery can be done at a time but after our solution two or more delivery can be done. As compare to others the weight of our product is less. It can be fitted in both activa & bike. It is foldable & we can pick it easily. It is low maintenance product
4. **Current Status of the Patent :** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Ayush Patel
   2. Mr. Mahir Patel
   3. Mr. Raj Shah
   4. Mr. Neel Bharadia
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005329

Patent-124: EV Now (Electric Vehicle)

1. **Name of the Technology**: EV Now (Electric Vehicle)
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   This product is use for all person and low cost price
3. **Impact it will create:** Very nice product and best look
4. **Current Status of the Patent :** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Jay Patel
   2. Mr. Dhruv Patel
   3. Mr. Dhaval Parekh
   4. Mr. Dhruv Patel
   5. Mr. Om Joshi
   6. Mr. Vishal Makwana

6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005318

Patent-125: Method to Reduce Productions of Fraudulent Documents

1. **Name of the Technology**: Method to Reduce Productions of Fraudulent Documents
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   This project will help in identifying the authenticity of education documents by providing a very fast and secure tool to access the original documents. All the universities will be provided a common platform where the can securely upload the data and the data will be made distributed using the very secure blockchain technology.It will surely work on national level if government approve and take this portal and make it government based portal.
3. **Impact it will create:**
   - Our main objective is to reduce productions of fraudulent documents, or fake degrees & diplomas and to reduce corruption by using BLOCKCHAIN Technology. No one can deny critical need of common, trusted, Certificate verification system. Such platform carries capability of becoming an excellent tool to bring transparency for lot of Business aspects which can be beyond our thoughts in the future. This platform may empower Indians, similar to RTI-ACT, to get rid of fake professionals and build
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Himanshu Saxena
   2. Mr. Jaymin Panchal
6. **Patent Filing date**: 6th February, 2020
7. **Patent Granted date**:
8. **Patent Application Number**: 202021005321

Patent-126: Multi Bags and Bottle Carry Handle

1. **Name of the Technology**: Multi Bags and Bottle Carry Handle
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Difficult to carry multiple bags during shopping.Difficult for hand fracture person and aged person who walk with stick.Also for women who carry his

child during shopping.We have combined bottle buckle hook and bike pillion holder and made a simple compatible design.

3. **Impact it will create:**
   - To reduce the effort while carrying multiple things at the same time. To make a simple yet effective design. Easy to manufacture and ready to sale. Can be use universally by any person.
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Dipen Jansari
   2. Mr. Dhruvkumar Patel
   3. Mr. Maulik Patel
   4. Mr. Bhavesh Meraiya
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005323

Patent-127: Building Information Modelling

1. **Name of the Technology**: Building Information Modelling
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Use of BIM goes beyond the planning and design phase of the project, extending throughout the building life cycle. The supporting processes of building lifecycle management includes cost management, construction management, project management, facility operation and application in green building
3. **Impact it will create:** Better planning, owner friendly model, better Co-ordination among various members associated with construction as contractors, engineers, architecture
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Ms. Dhruvi Shah
   2. Mr. Prakhar Pandya
   3. Ms. Helly Kathiriya
   4. Ms. Hima Suthar
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005350

Patent-128: Earth Wire based Communication System

1. **Name of the Technology**: Earth Wire based Communication System
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   A new method of the uni-directional communication process is showcase which provides the vast scope of its application and its corporate as well as residential use as well as in industrial sector, with the help of the idea a earth conductor/wire is used as the communication purpose if displayed with its real application to the building structure
3. **Impact it will create:**
   - A cheap Substitute of the mini uni-directional communication systems can be replaced with this idea which makes the uniqueness as well as this method do not required the extra medium of the communication process. Due to is cost-effective nature and its usage the automation industries and the related industries have a potential to create a one point control solutions to the commercial as well as residential devices
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Mr. Daksh Bathani
   2. Mr. Soham Patel
   3. Mr. Viral Vaja
   4. Mr. Iftekhar Ahmad
   5. Mr. Marlon Christie
   6. Mr. Krutarth Vaghela
   7. Mr. Shivam Garala
   8. Ms. Dhwani Jani
   9. Mr. Dhrumil Patel
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005349

Patent-129: Herbal Mosquito Repellent

1. **Name of the Technology**: Herbal Mosquito Repellent
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   Mosquito are every where now, it spread life threatening diseases like malaria, dangue, typhoid. All the formulation available in market are made up

of harmful chemicals. My product will contain only herbal ingredients which will repel mosquitoes

3. **Impact it will create:**
   - Mosquito are every where now, it spread life threatening diseases like malaria, dangue, typhoid. All the formulation available in market are made up of harmful chemicals. My product will contain only herbal ingredients which will repel mosquitoes
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Majid Sareswala
   2. Mr. Valay Thakar
   3. Mr. Majid Sareswala
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005334

Patent-130: Blood Group Identification System

1. **Name of the Technology**: Blood Group Identification System
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   It is one of the novel methods to identify and detect blood groups
3. **Impact it will create:**
   - It will revolutionize the way blood group is identified
4. **Current Status of the Patent:**
   - Filed
5. **Student Team details/Faculty Mentor :**
   1. Mavani Nisha Dineshbhai
   2. Patel Mansi Dashrathbha
   3. Ambaliya Rushita Kamleshbhai
   4. Mr. Jayesh Beladiya
   5. Dr. Shreeraj Shah
6. **Patent Filing date** : 6th February, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021005150

Patent-131: Phoenix

1. **Name of the Technology**: Phoenix
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   A multi lingual device for the visually impaired people
3. **Impact it will create:**
   - It can generate enormous employment for the visually impaired at the cash counter of retail stores
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Harsh Patel
   2. Priyam Shah
6. **Patent Filing date** : 10th May, 2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201921018747

Patent-132: Glass Concrete

1. **Name of the Technology**: Glass Concrete
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   A product that uses less concrete and still enhances the strength of the paver block
3. **Impact it will create:**
   - Recycling glass is a costly affair and if if it can be upcycled in this manner then it can impact the green house emission
4. **Current Status of the Patent:**
   - Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Yash Patel
   2. Mr. Harshad Makwana
   3. Mr. Nirmal Suthar
   4. Mr. Gaurav Mer
   5. Mr. Vansh Agrawal
   6. Mr. Sahej Tuteja
6. **Patent Filing date** : 13th December, 2019
7. **Patent Granted date** : 20-07-2021
8. **Patent Application Number** : 201921051659

Patent-133: Evacuated Tube Solar Still

1. **Name of the Technology**: Evacuated Tube Solar Still
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The uniqueness of this product is the improved efficiency while generating water from sea water
3. **Impact it will create:**
   - Numerous villages can get access to portable drinking water without supply of electricity
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Dr. Prexa Parikh
   2. Dr. N. M. Bhatt
6. **Patent Filing date** : 23rd December, 2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202121060202

Patent-134: Synthesis of a Homogeneous Depolymerization Catalyst

1. **Name of the Technology:** Synthesis of a Homogeneous Depolymerization Catalyst
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The primary objective of our invention is to lower the temperature required for polymer degradation, such as plastics and 70 biomass, through the use of our specially developed catalyst. The secondary objective is to improve and innovate upon the current methods of catalytic pyrolysis
3. **Impact it will create:**
   - The major impact it will have is the destruction of plastic waste without generation of harmful gases
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Aditya Rajeshbhai Shah
6. **Patent Filing date** **:** 08/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202321008235

Patent-135: Electronically Controlled Continuously Variable Transmission

1. **Name of the Technology**: Electronically Controlled Continuously Variable Transmission
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - One of the first CVT's in the EV segment that is highly efficient.
   - Reduced reliance on imported parts.
3. **Impact it will create:**
   - Technological enhancements in the power consumption of electrical vehicles
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Kavan Panchal
6. **Patent Filing date** : 01/06/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 20231038092

Patent-136: Asafoetida-Based Ointment for Gastric Distress

1. **Name of the Technology:** Asafoetida-Based Ointment for Gastric Distress
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This invention relates to the field of pharmaceutical formulations, specifically to a topical ointment for the treatment of gastric distress in children, utilizing a unique combination of Asafoetida powder, Eucalyptus oil, and other components to provide effective relief.
   - The use of the invention, Asafoetida ointment, involves the topical application of the ointment to alleviate gastric distress in children. The unique formulation combines the therapeutic properties of Asafoetida powder and Eucalyptus oil, along with other components, providing fast-acting relief for stomach discomfort.
   - For example, a child experiencing bloating or abdominal pain due to gastric distress may have Asafoetida ointment applied directly to the stomach area. The ointment, when massaged gently into the skin, provides soothing relief, reduces discomfort, and helps to improve the overall well-being of the child. The easy application and non-invasive nature of Asafoetida ointment make it an ideal choice for parents seeking a safe and effective treatment for their child's gastric distress symptoms
3. **Impact it will create:** Provide a cost effective solution for gastritis in children

4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. LJ Institutes of Pharmacy
6. **Patent Filing date** **:** 04/05/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202321031751

Patent-137: Nanoparticle-Based Posaconazole Formulation for Fungal Infections

1. **Name of the Technology**: Nanoparticle-Based Posaconazole Formulation for Fungal Infections
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The primary objective of this invention is to provide a Chitosan nanoparticle-based drug delivery system for targeted treatment of fungal infections, improving the effectiveness of the treatment and minimizing potential side effects.
   - Another objective of this invention is to provide a drug delivery system that can be easily administered topically through a spray, making it more convenient for patients
3. **Impact it will create:**
   - Revolutionize the treatment for fungal infections
   - Provide a cost effective solutions for the masses
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. LJ Institutes of Pharmacy
6. **Patent Filing date** **:** 03/04/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202321023945

Patent-138: Catalytic Pyrolysis System for Plastic Waste Conversion

1. **Name of the Technology:** Catalytic Pyrolysis System for Plastic Waste Conversion
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A decentralized unit for conversion of waste plastic into non hazardous waste with the help of a novel catalyst.

- The patent emphasizes on creation of the catalyst which aids the combustion of waste plastic and yet ensuring no harmful gases are produced

3. **Impact it will create:**
   - As plastic comprises of more than 50% of the waste around the globe, it's sustainable disposal is a gigantic challenge which is addressed by this innovation
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Aditya Rajeshbhai Shah
6. **Patent Filing date** **:** 03/03/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202321014473

Patent-139: An integrated culinary tool with multiple implementations

1. **Name of the Technology:** An integrated culinary tool with multiple implementations
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Present invention relates to cooking tools. The present invention is a tool to be used in the kitchen or for camping and is able to carry out multiple tasks with multiple tools that are integrated as one item.
3. **Impact it will create:**
   - drastically improve the efficiency of a person while cooking
   - Help save cost and also requires less storage space
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Salif Hasan Alvi
6. **Patent Filing date** **:** 25/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221036553

Patent-140: An integrated culinary tool with multiple implementations

1. **Name of the Technology:** An integrated culinary tool with multiple implementations
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - EPE Armour Foam: It is light in weight and flexible. It can be used multiple time by reusing and recycling. It is harmless plastic.
   - Rexine: It is used to cover the armour sheet. This turn-over pillow uses a soft leather cover to make it softer when it comes in contact with the patient's skin. The high-density cotton inner core can better help the patient to fix it. The detachable zipper design makes it easier to clean. Bed sores are not easy to heal, especially for elderly or bedridden patients. Our Turning pillow device can fix the patient's side lying, normalize blood circulation & accelerate the healing process. At the same time maintain air circulation to create a good environment for healing. Our turning pillow is easy to use, only one nursing staff can help the patient to turn over easily, & can change the diaper, changing pad, & help defecation. This patient turning device can provide comfortable support. The high-leg wedge can relieve discomfort and pressure on the knees, hips & lower back. It can also promote blood circulation, relieve swelling, pain and fatigue, and better relax. This wedge pillow is suitable for obese patients, general aesthesia and other cognitive dysfunction, limb motor dysfunction, craniotomy, spine surgery and other major patients turning over, lying in bed, etc. only one nurse attendant is required for changing the diaper and change pads, and provide comfortable support..
3. **Impact it will create:**
   - assists healthcare workers and caretakers in providing better healthcare services
   - Liberates the patient of the ordeal they have to suffer.
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Trivedi Aayush
   2. Zala Meetrajsinh
6. **Patent Filing date** **:** 13/12/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 375533-001

Patent-141: Solvent Selection Method in Liquid Chromatography

1. **Name of the Technology**: Solvent Selection Method in Liquid Chromatography.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The primary objective of this invention is to streamline and automate the process of solvent selection for High-performance liquid chromatography (HPLC) and Reversed-phase HPLC (RP-HPLC), thereby increasing efficiency and reducing human errors.
   - Another objective of this invention is to incorporate machine learning techniques, specifically the Random Forest Model and artificial neural networks, to predict the most suitable solvent based on various parameters of a given test sample, enhancing the accuracy of the solvent selection process.
   - A further objective of this invention is to create a robust memory system with various types of memories serving specific functions, such as a solvent library with a predefined database structure of all solvents used in liquid chromatography, enabling the system to learn and train for improved results over time.
   - Another objective of this invention is to develop a network management unit that provides internet access to the processor, enabling the system to fetch the SMILES format of a given CID from online databases, thereby enhancing the versatility and user-friendliness of the system.
   - A further objective of this invention is to use data from the training memory to refine the model and optimize the solvent selection results, significantly reducing the time spent on trial and error and increasing the overall effectiveness of the chromatography tests.
3. **Impact it will create**:
   - drastically improve the efficiency of an HPLC test result
4. **Current Status of the Patent**: Filed
5. **Student Team details/Faculty Mentor**:
   1. Yash Raj Singh
6. **Patent** Filing date : 12/08/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202321051617

05) Manav Rachna International University, Faridabad

Patent-142: Nano wraps

1. **Name of the Technology**: Nano wraps
2. **Highlights of the Technology (innovation/uniqueness etc.):** Biodegradable Food Wraps from waste
3. **Impact it will create:** Aid in sustainable development as the wrap is created out of banana peel and is completely bio degradable. A replacement for single use plastic.
4. **Current Status of the Patent**:
   - To be published
5. **Student team detalails**

   1. Mandeep Gulati
   2. Lakhvinder Kaur
6. **Patent Filing date** : 25.05.2018
7. **Patent Granted date** : NA
8. **Patent Application Number** : 201811019441

Patent-143: Intelligent Packaging

1. **Name of the Technology** : Intelligent Packaging
2. **Highlights of the Technology (innovation/uniqueness etc**.): Spoilage indicator packing material
3. **Impact it will create** : Food safety
4. **Current Status of the Patent** : To be Published
5. **Student Team details/Faculty Mentor :**

   1. Mandeep Gulati
   2. Lakhvinder Kaur
6. **Patent Filing date** : 25.05.2018
7. **Patent Granted date** :
8. **Patent Application Number** : 201811019442

Patent-144: Smart Switches

1. **Name of the Technology** **:** Smart Switches
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Operating a switch without touching
3. **Impact it will create:** Reduces transmission of virus as no touch technology for electric switches

4. **Current Status of the Patent:**
   - To be Published
5. **Student Team details/Faculty Mentor :**

   1. Dhruv Rohatagi
6. **Patent Filing date** : 31.08.2020
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202011037366

Patent-145: Helix Smart Labs

1. **Name of the Technology:** Helix Smart Labs
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Operating a switch without touching
3. **Impact it will create:**
   - Reduces transmission of virus as no touch technology for electric switches
4. **Current Status of the Patent** **:** Trademark received
5. **Student Team details/Faculty Mentor :**

   1. Dhruv Rohatagi
6. **Patent Filing date** **:** 06.08.2020
7. **Patent Granted date** :
8. **Patent Application Number** : 4597968

Patent-146: Li-Koff

1. **Name of the Technology**: Li-Koff
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A cell based biosensor for detection of nitrosamines.
3. **Impact it will create:**
   - Early detection of carcinogens that produce cancer of the liver and kidneys.
4. **Current Status of the Patent** **:** Process
5. **Student Team details/Faculty Mentor :**

   1. Kartik Jatwani
   2. Abhilansh Pandey
6. **Patent Filing date** : 2020/08/10
7. **Patent Granted date** : NA
8. **Patent Application Number** : TEMP/E¬1/37244/2020¬ DEL

Patent-147: Artic Innovage Private Limited

1. **Name of the Technology** : Artic Innovage Private Limited
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A one stop solution for all two wheeler related services
3. **Impact it will create** **:** Employment generation
4. **Current Status of the Patent** **:** Objected/Trademark
5. **Student Team details/Faculty Mentor :**

   1. Aman
6. **Patent Filing date** : 03/02/2022
7. **Patent Granted date** : NA
8. **Patent Application Number** : 5312266

Patent-148: Shuttle Express safety comfort convenience

1. **Name of the Technology** : Shuttle Express safety comfort convenience
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A SaaS based startup, a website with complete information for the events in corporate sector.
3. **Impact it will create:**
   - One stop solution for any corporate to conduct events.
4. **Current Status of the Patent** **:** Granted
5. **Student Team details/Faculty Mentor :**

   1. Udit Tiwari
6. **Patent Filing date** : 2020/09/15
7. **Patent Granted date** : Granted
8. **Patent Application Number** : 4658240

Patent-149: Height Adjustable Slab

1. **Name of the Technology** : Height Adjustable Slab
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A slab with adjusting height using actuators.
3. **Impact it will create:**
   - Providing comfort and ease for users due to prolong standing.
4. **Current Status of the Patent** **:** Process
5. **Student Team details/Faculty Mentor :**

   1. Ashutosh Kumar
   2. Pawan Dixit

6. **Patent Filing date** : 03/02/2022
7. **Patent Granted date** : NA
8. **Patent Application Number** : D-31-3643-2022-KOL

Patent-150: Lead-Acid Battery Cell Reconfigurable arrangement for Enhanced Battery Life

1. **Name of the Technology:** Lead-Acid Battery Cell Reconfigurable arrangement for Enhanced Battery Life
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - In a battery number of cells are there, in case any cell gets weakened/damaged then in that case battery becomes obsolete, through this technology one can replace the weakened cell with new one, rather than disposing the entire battery
3. **Impact it will create:**
   - This will be economical proposition and ecofriendly approach; Battery will have longer life.
4. **Current Status of the Patent:**
   - Published, request for examination already sent
5. **Student Team details/Faculty Mentor :**
   I. Rudra Pratap
   II. Aryan
6. **Patent Filing date** **:** 29/12/2021
7. **Patent Publication Date** : 30/06/2023
8. **Patent Granted date** **:**
9. **Patent Application Number** : 202111061504 A

Patent-151: Flexo Magnetic File Retrieval System

1. **Name of the Technology:** Flexo Magnetic File Retrieval System
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Dental surgeons are facing problems during root canaling/ dental treatment, most of the time (70%) time a portion of the file gets broken inside the tooth, and the tool used to extract the broken component, at present is very expensive (about Rs. 80,00), and being imported.
3. **Impact it will create:**
   In dental surgery it will be a revolution, it will make the treatment easy with cost savings and saving Indian exchequer.

4. **Current Status of the IP** **:** Applied for Registration
5. **Student Team details/Faculty Mentor :**
   I. Toopalle Sai Vakul
   II. Saksham Sharma
6. **Patent Filing date** **:** 25/01/2023
7. **IP Certification Date** : Awaited
8. **Patent Granted date** **:**
9. **Patent Application Number** : 202341005228

Patent-152: 2nd Life Inning – One Stop solution for all elderly needs through technology integration

1. **Name of the Technology:** 2nd Life Inning – One Stop solution for all elderly needs through technology integration
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   In India, the older age population is increasing, around 70% of elders are staying alone, as their children migrated to other cities or countries. This adds to loneliness, depression, and isolation with more health issues, 2nd lifeinning .com provides seniors the option of Community Living, helping them with door services of Physiotherapists, nurses, financial consultants, legal counselors, and tax planners at their doorstep.
3. **Impact it will create:**
   The ever-increasing senior population is a concern, this venture will help the elderly to lead a safe, secure, happy, independent healthy life
4. **Current Status of the IP** **:** Applied for Trade Mark
5. **Student Team details/Faculty Mentor :**
   I. Babita Singh
   II. Shreyansratan
6. **Patent/Trade Mark Filing date** **:** 26/05/2023
7. **IP Certification Date** : Awaited
8. **Patent Granted date**
9. **Patent Application Number** : 3662014

Patent-153: Website Building & Gaming Technology

1. **Name of the Technology:** Website Building & Gaming Technology
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Python, Android & and Swift for making action games
3. **Impact it will create:**
   - Creating revenue for the country, being an Indian product. Most of the games are of foreign origin
4. **Current Status of the IP** **:** Under Process
5. **Student Team details/Faculty Mentor :**
   I. Ayush
   II. Devanshi
6. **Patent/Trade Mark Filing date** **:** 13.05.2023
7. **IP Certification Date** :
8. **Patent Granted date** **:**
9. **Patent Application Number** : 5935197

Patent-154: Integrating technology to bridge the service provider with elders to provide them solutions to all their needs through a web porta

1. **Name of the Technology**: Integrating technology to bridge the service provider with elders to provide them solutions to all their needs through a web portal
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - All the senior citizens being integrated in a manner to provide one-stop solutions on their fingertips
3. **Impact it will create** :
   - It will pave the way for old adults to lead happy, safe, healthy, independent & dignified lives.
4. **Current Status of the Patent** : Trademark granted
5. **Student Team details/Faculty Mentor :**
   1. Babita Singh
   2. Shreyansh
6. **Trademark Filing date** : 26.05.2023
7. **Trademark Granted date** : NA
8. **Trademark Application Number** : 5953175

Patent-155: Replaceable cell in battery pack

1. **Name of the Technology** : Replaceable cell in battery pack
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Increasing shelf life by years. due to longer life & less replacement – less plastic waste will be generated totally changed design & idea gel electrolyte is used – so no risk of acid leakage easy design & maintenance can be done by the consumer
3. **Impact it will create**
   - Save wastage, economical, environmentally friendly & make battery to be used optimally and more durable in life
4. **Current Status of the Patent** : Under Process
5. **Student Team details/Faculty Mentor :**

   1. Aryan Mittal
   2. Rudra Pratap
6. **Patent Filing date** : 29.12.2021
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202111061504

Patent-156: Electromagnetic tool to extract broken bid during rootcannalaling treatment of teeth

1. **Name of the Technology** : Electromagnetic tool to extract broken bid during rootcannalaling treatment of teeth
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Disrupted technology, easy for dental surgeons, economical proposition than what is available in the marketplace
3. **Impact it will create** :
   - Import-substitute products will save the exchequer for the country, and being unique product will grab the global market.
4. **Current Status of the Patent** : Under Process
5. **Student Team details/Faculty Mentor :**

   1. T. Sai Vakul
6. **Patent Filing date** : 25.01.2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202341005228

06) B. N. M. Institute of Technology, Bengaluru

Patent-157: Method, System Apparatus for Asynchronous SOC Testing & Validation

1. **Name of the Technology:** Method, System Apparatus for Asynchronous SOC Testing & Validation
2. **Impact it will create:** SoC Testing (Manufacturing/Production test) involves screening manufactured chips for faults or random defects, reliability, functional defects and electrical characterization before volume shipment. SoC Validation is a process in which the manufactured design (chip) is tested for all functional correctness in a lab setup. This is done using the real chip assembled on a test board or a reference board along with all other components part of the system for which the chip was designed for.
3. **Current Status of the Patent** **:** Filed
4. **Student/Faculty team details** **:**
   1. Prof. Yasha Jyoti M. Shirur
   2. Dr. Veena S Chakravarthi
   3. Dr. M. S. Suresh
5. **Patent Filing Date** : 28.12.2016
6. **Patent Granted Date** : Nil
7. **Patent Application Number** : 201641022110

Patent-158: Multi Scale Flute

1. **Name of the Technology: Multi Scale Flute**
2. **Impact it will create:** The utility model discloses a curcubit flute with adjustable music scales. The flute with the adjustable music scales comproses a voice pipe composed of a main voice pipe and auxilary high pitched voice pipe and low pitched voice pipe.
3. **Current Status of the Patent :** Filed
4. **Student/Faculty team details**
   1. Nagpoojith B. R.
   2. Piyush R. Golecha
5. **Patent Filing Date** : 12.09.2018
6. **Patent Granted Date** : Nil
7. **Patent Application Number** : 201841034289

Patent-159: Balance Mate – A system and Method for Notifying Imbalance and Correction of Standing and / or sitting body posture of a user

1. **Name of the Technology:** Balance Mate – A system and Method for Notifying Imbalance and Correction of Standing and / or sitting body posture of a user
2. **Highlights of the Technology (innovation/uniqueness etc.):** Empathy towards long time ortho related issues from the employees who have the standing postures during their work period is being identified and cross checked the impact with ortho doctors about the ways to rectify ortho related future diseases through the intervention of balance mate.
3. **Impact it will create:** This project is based on weight distribution monitoring system, which is a small ankle wearable device that prevents unequal weight distribution in legs. The device consists of a skin sensitive low power vibration motor, which sends an alerting trigger signal when more pressure is exerted on one of the legs.
4. **Current Status of the Patent** : Granted
5. **Student/Faculty team details :**
   1. Brahma S. P.
   2. Keerthana Velilani
   3. Soumiya Rao T.
6. **Patent Filing Date** : 06.03.2019
7. **Patent Granted Date** : 11/04/2023
8. **Patent Application Number** : 201941008707

Patent-160: Detachable Smart Faucet Device

1. **Name of the Technology**: Detachable Smart Faucet Device
2. **Highlights of the Technology (innovation/uniqueness etc.):** Easy convertibility of available resources like existing faucet in residences / hotels / hospitals into smart faucet in no time and cost effective way is the innovation in Detachable Smart Faucet.
3. **Impact it will create:** To implement a detachable smart faucet that recognizes the presence of hand and turns on the valve for water flow. The amount of water consumed is recorded and can be analyzed by the user to monitor current usage and predict the future consumption.
4. **Current Status of the Patent :**
   Filed, published and FER status

5. **Student/Faculty team details**
   1. Dr.Jyoti RM
   2. Mrs. Sumati A.
   3. Raghavendra D. S.
   4. Rishabh Bhansali
   5. Vishnu Prasad Bhat
6. **Patent Filing Date** : 09.07.2019
7. **Patent Granted Date** : Nil
8. **Patent Application Number** : 201941027532

Patent-161: Bio degradeable SuperAbsorbent and Absorbent Article thereof

1. **Name of the Technology**: Bio degradeable SuperAbsorbent and Absorbent Article thereof
2. **Highlights of the Technology (innovation/uniqueness etc.):** The main object of Invention is to provide a superabsorbent made of natural ingredients. This invention is made from the mixture of sabja seeds and almond gum for achieving liquid absorption properties similar to those of the widely used commercially available superabsorbent material.
3. **Impact it will create:** This project deals with the fabrication of biodegradable yet functionally equal if not superior to them existing diaper garment from completely biodegradable materials. This work involves development of a new superabsorbent material to absorb large volumes of fluid.
4. **Current Status of the Patent :** Filed, published and FER status
5. **Student/Faculty team details :**
   1. Hemanth Kumar C.
   2. Dr. Jayanna B. K.
   3. Kishan K.
   4. Hariharan R. N.
   5. Karthik
6. **Patent Filing Date** : 24.07.2019
7. **Patent Granted Date** : Nil
8. **Patent Application Number** : 201941029985

Patent-162: Method and System for Photocatalytic Degradation of Organic Dyes

1. **Name of the Technology**: Method and System for Photocatalytic Degradation of Organic Dyes
2. **Highlights of the Technology (innovation/uniqueness etc.):** The uniqueness of this invention that can implement environmental friendly degradable organic dyes which is very efficient compared to other methods. The invention also uses isopropyl alchohol for photo catalytic degradation of organic dyes.
3. **Impact it will create:** The principal object of the present invention is to provide an efficient method and system for Photocatalytic Degradation of Organic Dyes. Another object of the present invention is to provide a method that can implement environment friendly Degradation of Organic Dyes and evaluate performance of Isopropyl Alcohol.
4. **Current Status of the Patent** : Filed and Granted
5. **Student/Faculty team details :**

   1. Dr. Jayanna B K
6. **Patent Filing Date** : 06.08.2019
7. **Patent Granted Date** : 27/09/2022
8. **Patent Application Number** : 20194103584

Patent-163: System and Method for Image Analysis and Summarisation

1. **Name of the Technology**: System and Method for Image Analysis and Summarisation
2. **Highlights of the Technology (innovation/uniqueness etc.):** This is the system and method for image analysis and summarization in which the image processing module can separate a valuable information such as human face and / or human figure from redundant information which as tree, wall animal, etc. by identifying the key attributes in a captured image, such as recognized facial features, primary facial expressions, identified weapons, identified crime suspects.
3. **Impact it will create:** Detect deviant behaviour in public spaces via CCTV camera and alert the security system of the organization in order to prevent mishap. To summarise the entire day's CCTV footage in order to view only the key frames without spending much time.
4. **Current Status of the Patent :**

   Filed, published and FER status

5. **Student/Faculty team details :**
   1. Dr. Sejal Santosh Nimbhorkar
   2. Raksha H.
   3. Ankitha S.
   4. Namitha G.
6. **Patent Filing Date** : 21.08.2019
7. **Patent Granted Date** :
8. **Patent Application Number** :201941033734

Patent-164: Neural Network Based Object Recognition System Using Stereo Images

1. **Name of the Technology**: Neural Network Based Object Recognition System Using Stereo Images
2. **Highlights of the Technology (innovation/uniqueness etc.):** A system for real time object recognition using stereoscopic images is disclosed in the present invention where the trained convulutional neural network uses 3D information of an object, obtained from is stereo image to recognize the object.
3. **Impact it will create:** Neural networks can analyze information the way human brain does. Algorithmic approach requires programming, whereas neural networks can work as independent entities after training.
4. **Current Status of the Patent** : Filed
5. **Student/Faculty team details**
   1. Ms. Chaitra N.
   2. Shashanka G.
   3. Tejas R. Simha
   4. Varun D. Gurjar
   5. Vishnuvardhan G.
6. **Patent Filing Date** : 06.09.2019
7. **Patent Granted Date** :
8. **Patent Application Number** : 201941036072

Patent-165: Electric Three Wheeler Vehicle (Trike)

1. **Name of the Technology**: Electric Three Wheeler Vehicle (Trike)
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention uses aesthetically pleasing design for a product and incorporates

Regenerative type of Braking System along with mechanical disk braking system. The present invention uses fuzzy logic system along with few sensors as a feedback to minimize the risk of accident by controlling the speed of motor through a micro controller on detection of an obstacle.

3. **Impact it will create:** The project deals with the design and development of 3 wheeled tadpole structured electric trike. The design involves mechanical molding, battery selection, motor selection with control circuit. AI technology is been planned to implement in software for control mechanism.
4. **Current Status of the Patent :**
   Filed, published and FER status
5. **Student/Faculty team details :**
   1. Dr. R. V. Parimala
   2. Dr. Venkatesha K.
   3. Aslesh Kumar A.
   4. Raghuveer S. Bhat
   5. Shwetha S.
   6. Alagar Krishna B.
6. **Patent Filing Date** :17.09.2019
7. **Patent Granted Date** :
8. **Patent Application Number** : 201941037512

Patent-166: Real Time Communication System for Facilitating Speech and Conversation using Natural Language Process

1. **Name of the Technology**: Real Time Communication System for Facilitating Speech and Conversation using Natural Language Process
2. **Highlights of the Technology (innovation/uniqueness etc.):** This is a speech device for capturing the speech, controlling modes of operation wherein the user can select the mode of operation either through speech of conversation method.
3. **Impact it will create**: A real time video monitoring system that will monitor the children and elderly, and also determine their vitals to provide them with necessary help. Emotion detection module would raise an alarm if the child or elderly individual is in distress. Their health report will also be automatically sent to concerned doctor so that they can track their progress.
4. **Current Status of the Patent** :
   Filed

5. **Student/Faculty team details**
   1. Dr. Chaitra N.
   2. Dr. P. A. Vijaya
6. **Patent Filing date** : 19.10.2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202041044849

Patent-167: Under Water image enhacement

1. **Name of the Technology**: Under Water image enhacement
2. **Highlights of the Technology (innovation/uniqueness etc.):** The GAN model has generator and discriminator network which compete with each other for better learning of the target image EDL (Edge difference loss) penalty, a laplace transform-based loss function is used as a feedback to the generator to update its weight. This weight helps the generator to efficiently enhance the image.
3. **Impact it will create**: A Generative Adversarial Network (GAN) based model to enhance underwater images. This helps to recover the realistic colour & appearance & other vision tasks such as classification, detection & tracking.
4. **Current Status of the Patent** **:** Patent Granted
5. **Student/Faculty team details** :
   1. Dr. Sejal Santosh Nimbhorkar
   2. Namitha S.
   3. Meghana R.
   4. Nikhitha Gururaj
6. **Patent Filing Date** : 26.06.2021
7. **Patent Granted Date** : 24.08.2021
8. **Patent Application Number** : 349135-001

Patent-168: Portable Wind Turbine

1. **Name of the Technology**: Portable Wind Turbine
2. **Highlights of the Technology (innovation/uniqueness etc.):** The novelty lies in the shape and configuration of the Portable Wind Turbine. No claim is made by virtue of this registration im respect of any mechanical or other action of any mechanism whatsoever or in respect of any mode or principle of contruction of the article.
3. **Impact it will create:** The main objective of the project is to develop microcontroller based low-cost compact ventilators that can be used in case

of emergencies and can help save lives of the patients when conventional systems are not available. The plan is to use components which are readily available in the market and use simple, yet effectively control the operation.

4. **Current Status of the Patent** : Patent granted
5. **Student/Faculty team details**
   1. Dr. Shivalingappa
   2. Dr. L. Vijayashree
   3. Omkar N. Kashyap
   4. Aditya Sunku
6. **Patent Filing Date** : 26.11.2021
7. **Patent Granted Date** : 06/01/2023
8. **Patent Application Number** : 349135-001 dated 08/09/2021

Patent-169: A Smart Yoga Instructor device for guiding and correcting Yoga posture of a user in real time

1. **Name of the Technology**: A Smart Yoga Instructor device for guiding and correcting Yoga posture of a user in real time
2. **Highlights of the Technology (innovation/uniqueness etc.):** The main object of the invention is to develop a smart yoga instructor devise that will act as a personal yoga instructor and with this pratitioners can practice yoga in their comfort zone. It is another object of the invention to develop a smart yoga instructor device whichis interactive and providing an audio guidance to perform different yoga asana correctly in real time.
3. **Impact it will create**: In an aspect the present invention relates to smart yoga instructor device for guiding and correcting posture of the user using an input device, output device, display device, image capturing device and a computer configured with a pre trained model from data sets of reference yoga asana postures with quadrant based correction mechanism in real time using deep learning. In another aspect, the present invention relates to using Smart Yoga Instructor Deice for correcting pusture in a real time.
4. **Current Status of the Patent** :
   Filed, published and FER status
5. **Student/Faculty team details :**
   1. Dr. Bindu S.
   2. Dr. Jyoti R. Munavalli
   3. Smt. Keerti Kulkarni

6. **Patent Filing Date** : 16/03/2022
7. **Patent Granted Date** :
8. **Patent Application Number** : R20224010108

Patent-170: A Smart Yoga Instructor program/code for estimating and correcting Yoga posture in real time using Python

1. **Name of the Technology**: A Smart Yoga Instructor program/code for estimating and correcting Yoga posture in real time using Python
2. **Highlights of the Technology (innovation/uniqueness etc.):** The main object of the invention is to develop a smart yoga instructor devise that will act as a personal yoga instructor and with this pratitioners can practice oga in their comfort zone. It is another object of the invention to develop a smart yoga instructor device whichis interactive and providing an audio guidance to perform different yoga asana correctly in real time.
3. **Impact it will create:** In an aspect the present invention relates to smart yoga instructor device for guiding and correcting posture of the user using an input device, output device, display device, image capturing device and a computer configured with a pre trained model from data sets of reference yoga asana postures with quadrant based correction mechanism in real time using deep learning(Python). In another aspect, the present invention relates to using Smart Yoga Instructor program code for correcting Yoga posture in a real time.
4. **Current Status** : Patent Granted
5. **Student/Faculty team details :**

1. Dr. Bindu S.
2. Dr. Jyoti R. Munavalli
3. Dr. L. Vijayashree

6. **Patent Filing Date** : 27/01/2022
7. **Patent Granted Date** : 02/02/2023
8. **Patent Application Number** : 1756/2022-CO/SW

Patent-171: Remote and real time monitoring system for people in need of special care

1. **Name of the Technology :** Remote and real time monitoring system for people in need of special care

2. **Highlights of the Technology (innovation/uniqueness etc.):** A real time video monitoring system that will monitor the children and elderly, and also determine their vitals to provide them with necessary help. Emotion detection module would raise an alarm if the child or elderly individual is in distress. Their health report will also be automatically sent to concerned doctor so that they can track their progress.
3. **Impact it will create** **:** Their health report will also be automatically sent to concerned doctor so that they can track their progress.
4. **Current Status of the Patent** **:** FER Received- 13-10-22
5. **Student Team details/Faculty Mentor :**
   1. Akshata Pramod
   2. Deeksha R
   3. Fauziah Batool I
   4. Bhoomika M U
6. **Patent Filing date** **:** 24.06.2022
7. **Patent Granted date** : -
8. **Patent Application Number** **:** 202241036267

Patent-172: An Aurdino Based Robotic Arm System Controlled by EEG Signals from the Brain

1. **Name of the Technology** **:** An Aurdino Based Robotic Arm System Controlled by EEG Signals from the Brain
2. **Impact it will create:** Controlling the brain cells using the EEG signals will help the people who have amputee hands to function normally like other people.
3. **Current Status of the Patent** **:** Filed both Provisional and Regular Patent
4. **Student Team details/Faculty Mentor :**
   I. Sushmitha M
   II. Namratha Kolkar
   III. Suman G S
5. **Patent Filing date** **:** 04.08.2022, 08.05.2023
6. **Patent Granted date** : -
7. **Patent Application Number** **:** 202241044715, R20234017898

Patent-173: Solar Smart Bench

1. **Name of the Technology:** Solar Smart Bench

2. **Highlights of the Technology (innovation/uniqueness etc.):** A stainless steel bench with an outer frame made of MS Steel and seating made with WPC (Wood Plastic Composite) along with lamination and ACP sheets for the final finishing. The bench can be dismantled into 3 parts – The solar panel structure, side support and the seating structure to enhance the portability of the bench. The assembling and disassembling of these parts cab be done easily with standard screws with are conveniently available.
3. **Impact it will create:** The Solar Smart Bench brings a note of ultra-modern design that can enhance or blend with existing landscapes. Being on the front edge of innovation, it will make a visible and functional green statement. It is a smart designed bench that enables people to charges their devices like mobile phones, laptops, etc., while relaxing on this bench. This project not only supports our PM's vision of Digital India, but will also contribute to the smart city project of our nation.
4. **Current Status of the Design Patent:** Granted on 03/02/2023
5. **Student Team details/Faculty Mentor :**
   I. Madhukeshwar S Malige
   II. Aishwarya M
   III. Gomathi S N
   IV. Hrishikesh S Bhat
6. **Patent Filing date** **:** 16.11.2022
7. **Patent Granted date** **:** 03.02.2023
8. **Patent Application Number** **:** 374232-001

Patent-174: Water Filter Cartridge using Corncob active carbon

1. **Name of the Technology :** Water Filter Cartridge using Corncob active carbon
2. **Highlights of the Technology (innovation/uniqueness etc.):** Growing corn produces a large amount of corn cobs as agricultural waste. Efficient management of corncob has become the need of the hour. Corn cob activated charcoal is used as an adsorbent because of its high mechanical strength, high porosity, rigidity, high adsorption characteristic and abundant availability. In this work a low cost biomass based water filter was designed in order to cater to the needs of potable water to all. As we know increase in population led to the contamination of water bodies which makes water unfit for drinking purpose without proper treatment. The water filters available in

the market are expensive and they are not affordable by many people. In this work, a filter media was prepared by mixing Corn cob activated charcoal and Binding agents followed by sintering to 800^0C in mafull furnace. The experiment was carried out using this filter media for the purification of the water. The So prepared filter candle showed the good filtration performance. The results obtained are within the permissible limits of the drinking water standards.

3. **Impact it will create :**

   Manufacturing Low Cost filter cartridge for producing Alkaline Water

4. **Current Status of the Patent :**

   Filed

5. **Student Team details/Faculty Mentor :**

   I. Reetha G P
   II. Jayalakshmi D G
   III. Shaik Riyaz U R Roshan
   IV. Mohammed Ishaq Sharieff

6. **Patent Filing date :** 08.01.2023
7. **Patent Granted date** : -
8. **Patent Application Number :** 202341001641

Patent-175: Solar Powered Refrigerated Vending Cart

1. **Name of the Technology :** Solar Powered Refrigerated Vending Cart
2. **Highlights of the Technology (innovation/uniqueness etc.):** This vending cart makes use of solar power for the cooling of fruits and vegetables. This will maintain an ambient temperature of 10-12º c which will increase the shelf life of fruits and vegetables by 5 days. The uniqueness of this project lies in its hybrid nature where the cart can be propelled by an electric motor of 250 w. This will assist the vendor in pushing the cart on slopes and during fully loaded conditions.
3. **Impact it will create:** This project will reduce the wastage of fruits and vegetables to a great extent. Apart from reduction of wastage, this will also improve the quality of life and earnings of the vendor. The addition of a juicer will act as an additional source of income for the vendor. Hybrid mode of propelling the cart will greatly reduce vendor fatigue and increases productivity.
4. **Current Status of the Design Patent :** Patent Granted

5. **Student Team details/Faculty Mentor :**
   I. Bhuvan J
   II. Samarth S
   III. Surya Ravishankar
   IV. Vaibhav Krishna Rao
6. **Patent Filing date** **:** 31.05.2023
7. **Patent Granted date** : 13/07/2023
8. **Patent Application Number** **:** 387348-001

07) University of Science and Technology, Ri-Bhoi

Patent-176: Development of Noble Herbal Antifungal Formulation from Selected Medicinal Plants of North East India

1. **Name of the Technology** **:** Development of Noble Herbal Antifungal Formulation from Selected Medicinal Plants of North East India
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The project targets collection, identification, extraction, analysis and in vitro study of the plant compound to analyze their antifungal activity and formulation of the product at a low cost.
3. **Impact it will create** **:**
   Natural antifungal agents are in great needed because currently used therapeutics have toxic side-effects, may interact with other drugs, and become ineffective as a result of the rapid development of fungal resistance
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   I. Hafiz Nekibur Rahman Ahmed
6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** WO2018051363A1

Patent-177: Development of novel bio-weedicide as an approach to sustainable agriculture

1. **Name of the Technology** **:** Development of novel bio-weedicide as an approach to sustainable agriculture
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Since it is bio-weedicides it won't have any kind of harmful side effects and it won't disturb the existence of other beneficial bugs, insects like honeybee

which helps in pollination and other microbials which helps in increasing the fertility of soil.

3. **Impact it will create :**

   Bio-weedicide have been identified as a significant biological control strategy. Bio-weedicide have many advantages such as clearly defined for target weeds, no side effect on beneficial plants or human health, a lack of pesticide residue build-up in the environment, and effectiveness for control of some herbicide-resistant weed biotypes.

4. **Current Status of the Patent :** In Process
5. **Student Team details/Faculty Mentor :**
   I. Madhumita Roy
6. **Patent Filing date :** 04/02/2022
7. **Patent Granted date :**
8. **Patent Application Number :** Pending

Patent-178: Supplement having Anti Diabetic & Immunity Boosting Food Supplement

1. **Name of the Technology :** Supplement having Anti Diabetic & Immunity Boosting Food Supplement
2. **Impact it will create :**
   - The product can lower the sugar level effectively and can be routinely taken for maintenance of the glucose level (consultation with the doctor is also required for specific patients).
   - Moreover this product also can be given to patients suffering from liver troubles
   - Since this product is made from the local herbs so side effects are very less.
3. **Current Status of the Patent :** In Process
4. **Student Team details/Faculty Mentor :**
   I. Arupjyoti Konwar
5. **Patent Filing date :** 04/02/2022
6. **Patent Granted date :**
7. **Patent Application Number :** CN103652703A

Patent-179: Development of Bioplastic based organic sanitary napkin - AlKlin

1. **Name of the Technology:** Development of Bioplastic based organic sanitary napkin – AlKlin
2. **Highlights of the Technology (innovation/uniqueness etc.):** The product aims at being antimicrobial, aromatic, anti-plasmodic and anti-inflammatory
3. **Impact it will create:** An organic bioplastic based sanitary napkin which can be used in both rural and urban areas focusing mainly on female health and hygiene in an eco-friendly manner without causing harm to the environment on its proper disposal.
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   I. Jilimani Nath
   II. Srijana Jaishi
6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CN209790186U

Patent-180: Development of Nutritional Aqua feed from Hostel Waste

1. **Name of the Technology:** Development of Nutritional Aqua feed from Hostel Waste
2. **Highlights of the Technology (innovation/uniqueness etc.):** To use hostel waste which include the lignin based food products, the egg shells, the chicken feathers, etc for the development of floating fish feed.
3. **Impact it will create:** The prototype developed by considering hostel waste which is economically and environmentally beneficial. It has led to the development of nutritional supplementary or regular buoyant fish feed for the aquatic animals by utilization the waste & converting them to a valuable nutritive product. The developed prototype might lead to expansion of fishery industries through sustainable way without degrading the environment.
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   1. Yashodhara Goswami
   2. Soubam Nickol Devi
6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** Pending

Patent-181: Low-cost filtration system for coal mine impacted waste using algae

1. **Name of the Technology:** Low-cost filtration system for coal mine impacted waste using algae
2. **Highlights of the Technology (innovation/uniqueness etc.):** A filtration system was developed using different materials and green algal mat bags are prepared in the form of tea bags which can remove toxic metals from the water significantly and below the permissible limit prescribed by BIS.
3. **Impact it will create:**
    - Algae are great accumulators, absorbents and adsorbents with a high selectivity for pollutants.
    - They generate high alkalinity which is essential for precipitation of heavy metals.
    - They are potentially efficient for the removal of heavy metals
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
    I. Mercillia Sangma
6. **Patent Filing date** **:** 05/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** Pending

Patent-182: Algal bio fertilizer to accelerate sustainable agriculture: A remedy for Eutrophication

1. **Name of the Technology:** Algal bio fertilizer to accelerate sustainable agriculture: A remedy for Eutrophication
2. **Highlights of the Technology (innovation/uniqueness etc.):** Develop an organic fertilizer from green algae which forms bloom in different water bodies making the Depletion of DO level in many water bodies.
3. **Impact it will create:** The use of algal bio-fertilizer provides an effective, eco-friendly and non-polluting approach in improving the productivity of crop by both nitrogen fixation and photosynthesis. Algal bio-fertilizers improve soil structure and increase yield productivity even if applied in a small area. The application of algal bio-fertilizers in plants has resulted in increase in root, shoot length with number of leaves and hence overall growth of the plant has been increased.
4. **Current Status of the Patent** **:** In Process

5. **Student Team details/Faculty Mentor :**
   1. Pushpanjali Sharma
   2. Marpe Bam
6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA41

Patent-183: Anti-viral organic hand wash and hand sanitizer with timer circuit dispenser gadget

1. **Name of the Technology:** Anti-viral organic hand wash and hand sanitizer with timer circuit dispenser gadget.
2. **Highlights of the Technology (innovation/uniqueness etc.):** A cost effective non-alcoholic anti-viral/ bacterial hand sanitiser and hand wash with an additional dispenser timer gadget so as to save water and to maintain equal time interval between sanitisation.
3. **Impact it will create:** The gadget is ultimately expected to contribute to contactless hand disinfection in public places and virus infection prevention. Additionally, it is economical and eco-friendly by decreasing waste emissions.
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   1. Pankaj Chitrakar
   2. Jakia Wahid
6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** WO02102151A1

Patent-184: Smart Urban Tree: A Road Side Air Pollution Control

1. **Name of the Technology:** Smart Urban Tree: A Road Side Air Pollution Control
2. **Highlights of the Technology (innovation/uniqueness etc.):** Fight air pollution using an artificial tree structure and different lower groups of **organisms.**
3. **Impact it will create:** Urban trees on average reduce air temperatures on summer days by 2-4˚F, although in some circumstances the cooling effect can be even larger. Trees also sequester carbon, helping to mitigate climate change.

4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   1. Anuradha Boruah
   2. Eldad Ngurienkhum Riengsete
6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA43

Patent-185: Utilization of Bio-resource and Bio-processing of Cow dung for Product Development and generating Women Empowerment through Entrepreneurship

1. **Name of the Technology:** Utilization of Bio-resource and Bio-processing of Cow dung for Product Development and generating Women Empowerment through Entrepreneurship
2. **Highlights of the Technology (innovation/uniqueness etc.):** Incense Sticks and mosquito repellent are made using cow dung, pious temple flowers, natural & non-toxic ingredients – with NO Chemicals, petrochemicals, charcoal, dyes, alcohol or pesticides
3. **Impact it will create:** The Mission of our team's innovative prototypes is to provide women entrepreneurship opportunities by aligning itself with Swachh Bharat Abhiyan, Skill India, Make in India, and Startup India by utilizing bioresources i.e. cow dung, divine flowers, and purely organic herbs.
4. **Current Status of the Patent:** In Process
5. **Student Team details/Faculty Mentor :**
   1. Sampriti Goswami
   2. Glarisa Mary Nongsiej
6. **Patent Filing date** **:** 05/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CN105454066A

Patent-186: Vehicle Classification and Speed Estimation

1. **Name of the Technology:** Vehicle Classification and Speed Estimation
2. **Highlights of the Technology (innovation/uniqueness etc.):** Computer based image processing can be a best technique for the surveillance of traffic to keep an eye on every vehicle through only a computer located area wise traffic control rooms.

3. **Impact it will create:** Implement a real-time vehicle classification and speed estimation system and apply it to videos acquired from traffic cameras installed in highways. In this approach we: a) Detect moving vehicles through background-foreground segmentation techniques. b) Compare different supervised classifiers (e.g. artificial neural networks) for vehicle classification into categories: (car, motorcycle, van, and bus/truck). c) Apply a calibration method to georeference vehicles using satellite images. d) Estimate vehicles speed per class using feature tracking and nearest neighbors algorithms.
4. **Current Status of the Patent:**
   In Process
5. **Student Team details/Faculty Mentor :**
   1. Rashanara Ahmed
   2. Anusri Baruah
6. **Patent Filing date** **:** 05/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** Pending

Patent-187: Herbal Tea

1. **Name of the Technology** **:** Herbal Tea
2. **Highlights of the Technology (innovation/uniqueness etc.):** Develop a herbal product basically as herbal tea made purely from natural plant parts.
3. **Impact it will create:** Herbal tea is a boon to mankind as it provides specific benefits-including digestion, detoxification and weight loss. Rich in antioxidants, minerals and vitamins, it not only makes your body healthy but also helps in relaxing, recovery and refreshing your mind.
4. **Current Status of the Patent:**
   In Process
5. **Student Team details/Faculty Mentor :**
   1. Shahbaaz Ahmed
   2. Arun Jerang
   3. Rony Bhowal
6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CN107647043A

Patent-188: Natural Dye using Local Herbs

1. **Name of the Technology** **:** Natural Dye using Local Herbs
2. **Highlights of the Technology (innovation/uniqueness etc.):** Develop Natural Dye basically from natural plant parts
3. **Impact it will create:** Because they come from natural sources, natural dyes are not harmful to the environment, which makes it so appealing for consumers. Natural dyes are biodegradable and disposing them doesn't cause pollution.
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   1. Md. Saeed Ahmed
   2. Rajesh Adhikary
   3. Shrutashrini Hazarika
6. **Patent Filing date:** 04/02/2022
7. **Patent Granted date:**
8. **Patent Application Number:** EP4008834A1

Patent-189: Medicinal Herb Based Immunity Booster – Documentation & Standardization of Traditional Practices

1. **Name of the Technology:** Medicinal Herb Based Immunity Booster – Documentation & Standardization of Traditional Practices
2. **Highlights of the Technology (innovation/uniqueness etc.):** The product, "Tita gura" (powdered mixture of different medicinal herbs), a medicinal herb-based immune booster having anti-inflammatory, anti-carcinogenic, anti-diarrheal, antioxidant, antimicrobial, etc. properties.
3. **Impact it will create:** The medicinal plants and herbs playing a critical role to boosting our immunity. It is also very important to consume supplements in the form of immune nutrients such as vitamin A, C, E, D, B-complex, Zinc and copper that will support your body to fight against the pathogens.
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   1. Ms. Dharitree Sonowal
   2. Aiman Nawaz
6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CN102987164A

Patent-190: Development of Herbal and Sugar-Free Chocolate For Diabetics

1. **Name of the Technology:** Development of Herbal And Sugar-Free Chocolate For Diabetics
2. **Highlights of the Technology (innovation/uniqueness etc.):** The product can be enjoyed by diabetic patients without any fear as it does not alleviate or fluctuate blood sugar levels. The ingredients added to this product are herbs, some simple, easily available materials
3. **Impact it will create:** Sugar free chocolate candy bars have more antioxidants than red wine or green tea. Chocolate contain flavonoids that is good for the heart. It thins the blood platelets and prevents clotting. In addition, flavonoids may be helpful in the prevention of cancer.
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   1. Sharvanee Borah
   2. Mobina Ahmed
6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA29

Patent-191: Formulation and Production of Prebiotic Food Supplements From Natural Resources of North East India

1. **Name of the Technology:** Formulation and Production of Prebiotic Food Supplements From Natural Resources of North East India
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   Prebiotic food supplement is a mixture of heathy fibers made from raw materials found in the North East of India. These raw materials are in the dried form
3. **Impact it will create:** Eating a diet rich in prebiotics and taking prebiotic supplements may benefit certain aspects of metabolic health, including blood sugar, cholesterol, and triglyceride levels.
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   1. Anishmita
   2. Ankita Kalita
6. **Patent Filing date** **:** 05/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CA3059259A1

Patent-192: Formulation and Development of Novel Herbal Solid Cleanser

1. **Name of the Technology:** Formulation and Development of Novel Herbal Solid Cleanser
2. **Highlights of the Technology (innovation/uniqueness etc.):** It is our effort to formulate a herbal soap using the whole fruit, leaf and flower extracts of *Dillenia indica, Calendula officinalis, Tridax procumbens* and *Cocos nucifera*. Ayurvedic cosmetics are also known as the herbal cosmetics the natural content in the herbs does not have any side effect on the human body most herbal supplement are based on several botanical ingredients with long histories of traditional or folk medicine usage.
3. **Impact it will create:** Elephant apple (*Dillenia indica*) fruit has attracted worldwide importance owing to its wide range of medicinal properties. The constituents of the fruit are known to have exhibited anti-inflammatory, wound healing, anti-burn, antifungal, antibacterial, anti-viral, anti-depressant, CNS issues, anti-tumour and anti-psoriasis properties.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**

   1. Sabrin Sultana
6. **Patent Filing date** **:** 07/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA07

Patent-193: Mushroom coagulated cheese

1. **Name of the Technology:** Mushroom coagulated cheese
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea is to make a mushroom cheese like that of “Tofu” or “Paneer’ available in the market. But unlike tofu or paneer mushroom protein and mushroom milk will be considered instead of soya protein and soya milk. So it can be easily consumed by the person with hypothyroidism and diabetic conditions along with lactose intolerant The product will contain other easily available ingredients including peas, flavor enhancing agent, preservative at a particular concentration and is cost effective in large scale production.
3. **Impact it will create:** It is high in protein so can bridge up the protein malnutrition in the developing countries. The product will have high vitamin D content and can be consumed by person with hypothyroidic conditions.
4. **Current Status of the Patent** **:** In process

5. **Student Team details/Faculty Mentor :**
   1. Indrani Laskar
6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA08

Patent-194: Flavours of North-East

1. **Name of the Technology:** Flavours of North-East
2. **Highlights of the Technology (innovation/uniqueness etc.):** We are developing a spice mix/ taste enhancer from bamboo shoot and indigenous nutritional spices of North-East India. Bamboo shoot is used as the base ingredient and spices as secondary ingredient. Spices include king chilly, aromatic ginger and many more. Since, North-East is a hub of indigenous spices known for their unique flavour and health benefits, our aim is to bring different flavours in one packet which can be conveniently used by the consumers. The formulated tastemaker is a ready-to-cook spice mix which can be easily added to any recipe, cooked for few minutes and served. The tastemaker has negligible fat and sugar content, which have the potential to attract people dealing with weight issues, diabetes and other issues.
3. **Impact it will create:** Our product gives the consumers an opportunity to experience the unique flavours of spices from North-East from the comfort of their homes. Have nutritional and therapeutic properties.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   1. Ms. Ninja Begum
   2. Pratikshya Dutta
6. **Patent Filing date** **:** 05/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA09

Patent-195: Efficient Bio Toilet Management using IoT and Graph Theory for Smart City Guwahati, India.

1. **Name of the Technology:** Efficient Bio Toilet Management using IoT and Graph Theory for Smart City Guwahati, India.
2. **Highlights of the Technology (innovation/uniqueness etc.):** an IoT based Bio toilet for Smart City Guwahati. In this proposed system, there will be

multiple Bio toilets positioned throughout the city; these Bio toilets will be set up with low cost embedded device, which helps in tracking the status of Bio toilets vacant or full along with location tracking module to get the real-time location of Bio toilets. Secondly Bio toilets are not eventually distributed so that maximum people get the benefit from the Bio toilet. So we have proposed a new method for selection of optimal locations of Bio toilets. Finally we have developed a web based application. When someone want to use toilet most of the time he gets it engaged and need to wait there about 5-10 minutes to get it free. It is boring and also hampers works. This problem can be solved without increasing the number of toilet by efficiently managing it using IoT technology. We have developed a Smart Web based application to solve this problem.

3. **Impact it will create:**
    - Our system reduce the budget of Bio toilet and also maximum number of citizens can avail the benefits of Bio toilet because the algorithm set up the Bio-toilet in proper place.
    - Our algorithm can be used in any one smart city to set up the important resources like water ATM, Set up of Waste Container in proper location through which maximum people can obtain the benefit.
    - Through our App one can find the empty bio toilet.
    - Through app one can find the shortest distance bio toilet.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**

    1. Mr. Nayeemuddin Ahmed
6. **Patent Filing date** : 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA10

Patent-196: Rapid assessment of erodibility potential of river bank from field observation

1. **Name of the Technology:** Rapid assessment of erodibility potential of river bank from field observation
2. **Highlights of the Technology (innovation/uniqueness etc.):** Novel approach to vulnerability assessment of river bank erosion. River bank erosion is a major problem in the Brahmaputra River in Assam, India. The

recurrent bank erosion has caused irreparable damage to many important places along the river in addition to other cultivable and homestead lands. Advance knowledge of erosion event for proper bank protection measures is a critical issue in river like the Brahmaputra.

3. **Impact it will create:** Novel of its kind and feasible without laboratory facility and experimental knowledge. Based on probability of erosion (from present study), proper river training work can be suggested in advance.
4. **Current Status of the Patent:** In process
5. **Student Team details/Faculty Mentor :**
   1. Lalit Saikia
6. **Patent Filing date** **:** 12/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 27/2022/CP01

Patent-197: Value Added Low GI (Glycemic Index) Bread

1. **Name of the Technology:** Value Added Low GI (Glycemic Index) Bread
2. **Highlights of the Technology (innovation/uniqueness etc.):** Low cost, Low GI, easily accessible, beneficial for all age group
3. **Impact it will create:** The glycemic index, or GI, rates foods on a scale of 1 to 100 based on how they affect your blood sugar. Low-glycemic index foods have a glycemic index value less than 55. These foods take a while to break down in your gut, resulting in a steady increase in blood sugar. Foods with a glycemic index over 70 are high on the scale and cause your blood sugar to surge and then suddenly drop. If you are managing diabetes or following certain weight-loss diets, selecting low-glycemic index breads may help keep your blood sugar under control.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   1. Dr. Mohammad Zaki Shamim
   2. Dr. Saiyyad Alamdar Husain
6. **Patent Filing date** **:** 05/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA11

Patent-198: Dietoceuticals for the Famine Neighbourhood

1. **Name of the Technology:** Dietoceuticals for the Famine Neighbourhood
2. **Highlights of the Technology (innovation/uniqueness etc.):** Our diet should always provide us with all the nutrients that we require, but in reality, that's really difficult for the deprived community. People below poverty line can't afford a healthy diet every single day resulting in malnutrition. Getting enough nutrients and doing it continuously, every single day is crucial for supporting their nutrient levels, so they can help your body's immune function properly. This is due to unemployment especially because of this pandemic where they aren't given proper income and job. This makes them more prone to such communicable diseases and also in many cases increases the chances depression, and anxiety, when they aren't able to fulfill their requirements. Therefore it is thought worthy to serve such deprived society in a cost effective manner.
3. **Impact it will create:** A product that would be served to the society suffering from shortfalls economically, socially and medically.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   1. Aditya Bora
6. **Patent Filing date** **:** 05/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA12

Patent-199: Kolakhar Antacid

1. **Name of the Technology:** Kolakhar Antacid
2. **Highlights of the Technology (innovation/uniqueness etc.):** Kolakhar, a traditionally used remedy in various situations are believed to be a magical remedy by the tribal population of the eastern region of India. Kolakhar is mainly obtained from the stem/root of the plant *Musa balbisiana*. We have formulated an antacid preparation having Kolakhar as the active pharmaceutical ingredient which have given brilliant acid neutralization results.
3. **Impact it will create:** Kolakhar has a great acid neutralizing capacity in lower doses as compared to other commercially available antacids. Withing a single Kolakhar formulation, there are several therapeutic benefits.
4. **Current Status of the Patent** **:** In process

5. **Student Team details/Faculty Mentor :**
   1. Gaurav Kumar Bhargav
6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA13

Patent-200: Rhamnolipid biosurfactant coated metal nanoparticle and its Anticancer potential against Human breast cancer cell lines

1. **Name of the Technology:** Rhamnolipid biosurfactant coated metal nanoparticle and its Anticancer potential against Human breast cancer cell lines
2. **Highlights of the Technology (innovation/uniqueness etc.):** Rhamnolipid biosurfactant was obtained from a bacterial isolate and then purified and characterized. That biosurfactant has been used for green synthesis of metal nanoparticle. During application, the new nanoparticle showed tremendous cytotoxic activity against two different cell lines of human breast cancer.
3. **Impact it will create:** The first effort where rhamnolipid biosurfactant is used for coating metal nanoparticle and for possible application against Human breast cancer cell lines.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   1. Dr. Kaustuvmani Patowary
6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date:**
8. **Patent Application Number** **:** CST 29/2019/PA14

Patent-201: Goggles for blind

1. **Name of the Technology:** Goggles for blind
2. **Highlights of the Technology (innovation/uniqueness etc.):** We tried to make a model for the blind people to use in day-to-day life. Our model comprises of an UV sonar sensor embedded in a pair of goggles, which helps to detect the waves bouncing back from an object Infront.
3. **Impact it will create:** Can act as a third eye for blind people, helpful to detect close range objects, if paired with a vision sensor then it can be helpful to detect objects Infront.
4. **Current Status of the Patent** **:** In process

5. **Student Team details/Faculty Mentor :**
   1. Gaurav Kumar Bhargav
   2. Naima Nuri
6. **Patent Filing date : 05/02/2022**
7. **Patent Granted date :**
8. **Patent Application Number :** CST 29/2019/PA15

Patent-202: Formulation and Standardization of an Antimicrobial Herbal Handwash from an ethnomedicinal plant of Assam: *Nyctanthes arbortristis*

1. **Name of the Technology:** Formulation and Standardization of an Antimicrobial Herbal Handwash from an ethnomedicinal plant of Assam: *Nyctanthes arbortristis*
2. **Highlights of the Technology (innovation/uniqueness etc.):** A naturally fragnancing antimicrobial formulation from aerial parts of Nyctanthes arbor-tristis Linn. would be developed showing absolute efficacy in an user friendly manner. Unfortunately, though, the broader utility of herbal medicine, in provisions of its extensive use in conventional healthcare is hampered by several factors that facade the intrinsic strengths of this loom. For illustration, although several herbal formulations have been shown to give advantageous effects, thorough validation of mode of action or effect is often absent. This problem is supplementarily compounded by meager quality control in preparation of the drug, paucity of information on their chemical composition, and their exploitation without sticking to its best practices as distinct by the existing standards in drug discovery and public healthcare industry. Renovating Northeastern herbal medicine from a ‘credence-based’ system to an ‘evidence-based’ one is the principal objective of our project.
3. **Impact it will create:** The aerial parts of this plant would be useful in formulating various germicidal formulations including handwash.
4. **Current Status of the Patent :** In process
5. **Student Team details/Faculty Mentor :**
   1. Aditya Bora
6. **Patent Filing date :** 05/02/2022
7. **Patent Granted date :**
8. **Patent Application Number :** CST 29/2019/PA16

Patent-203: Development of a nutraceutical formulation from selected fruits' peels of NER, India

1. **Name of the Technology:** Development of a nutraceutical formulation from selected fruits' peels of NER, India
2. **Highlights of the Technology (innovation/uniqueness etc.):** Lemon and Orange peels have been dried, and grinded into fine powder mixed with ginger and black salt. This has been packaged into 7-gram content vials and labeled well. An outreach activity of this Diphala formulation has been carried out at Jorbil Village and the feedback of the consumers have been documented. The synergistic actions of limonene, citral, citronellal and other phytoconstituents present in both the peels would aid in the development of an effective and novel formulation. Hence, in this circumstance, ethno-botanical derived food technology offers a promising starting point given their complex chemical diversities.
3. **Impact it will create:** This antiemetic Churna formulation would be beneficial for the people suffering from nausea and motionsickness and would be non-toxic.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   1. Sarfaraz Ahmed
   2. Dipankar Sarkar
6. **Patent Filing date** : 05/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA17

Patent-204: Designing of a water-resistant sustained release monoherbal formulation for anti-aging benefits.

1. **Name of the Technology:** Designing of a water-resistant sustained release monoherbal formulation for anti-aging benefits.
2. **Highlights of the Technology (innovation/uniqueness etc.):** Lipid nano carriers are spherical vesicles made up of phospholipids that have an aqueous core and can be employed as a delivery vehicle. Some studies have suggested that these carriers help active ingredients move through the stratum corneum and into the deep layers of the epidermis, where they are absorbed and needed the most. These lipid carriers are a useful tool for improving the stability of active cosmetic chemicals, increasing skin hydration

through surface adhesiveness, improving dermal bioavailability and skin targeting, and protecting skin cells from external stressors like the sun or perspiration. The polyphenols have been extracted from leaves of the plant. The phytochemicals study of the extract was done, alongside that compounds were identified by GC-MS. Different. *in-vitro* and *in- vivo* aging models will be evaluated. The sheet mask from different cloths will be studied for absorbance capacity and evaluation of sustained release of the formulation will be done.

3. **Impact it will create:**
    - Antioxidant property of the plant as it is a rich source of polyphenols.
    - Moisturizing effect of the skin stimulating the sebaceous glands to maintain the hydration.
    - Maintaining the insulation of the cutaneous layers. d. Considering the risk of heatstroke during summer seasons, this antiaging skin product would maintain a cooling sensation on application.
    - Prevention from seborrheic keratoses and actinic keratosis.
    - Balancing the tonicity of the skin blood vessels.
    - Enhanced Sun Protective Value.
    - Being a water proof product, this formulation would be resilient against water, sweat, and even tears.
    - The sustainable release of this product would allow the more advanced synthesis of collagen, thus causing more concentration of collagen layer in the dermis and inhibiting the inflammatory responses.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
    1. Bhanita Das
    2. Kamallochan Barman
6. **Patent Filing date** **:** 05/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA18

Patent-205: Formulation of herbal surfactant from the residue of Kolakhar

1. **Name of the Technology:** Formulation of herbal surfactant from the residue of Kolakhar

2. **Highlights of the Technology (innovation/uniqueness etc.):** Musa Balhisiana, a banana subtype mainly found in the eastern regions of the country, is believed to have magical remedies by the tribal population. Here, in our experiment, we have prepared "kolakhar" a traditionally used ingredient for its anti-microbial, anthelmintic. Anti-lice. Anti-oxidant & many other remedial activities. The kolakhar is mainly prepared from the root of the plant. In our experimentation, we have seen that in the midst of the preparation stage, there is a process involving maceration of kolakhar with water. During that process, we have found surfactant properties in the residual remains of the extract. Therefore, from that we hypothesize that the kolakhar residue can be used to prepare natural/herbal detergents & other commercial cleansing.
3. **Impact it will create:** As a natural surfactant. it will cause little to none brittleness on the epidermal layer of the exposed skin. Moreover, being derived from natural source, it will have no toxicity or harmful effect.
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   1. Rofiqul Islam
6. **Patent Filing date** **:** 05/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA19

Patent-206: Technologically Developed Citrus Plants (TDCPs)

1. **Name of the Technology:** Technologically Developed Citrus Plants (TDCPs)
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea is to make such a technology using easily available product which is cost effect and to produce it in large scale which will enable the farmers to get 100% germination result for citrus plants. Based on this idea TDCPs is executed using certain foliar that can be made easily in large production and can be used for germination, growth and development of the citrus plants.
3. **Impact it will create:** The technology that is used in making of TDCPs is very cost effective and the materials required tomake the foliar are easily available. This Technology gives 100% germination results and fast growth than their normal rates.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   1. Indrani Laskar

6. **Patent Filing date** **:** 04/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA20

Patent-207: GREENenv

1. **Name of the Technology:** GREENenv
2. **Highlights of the Technology (innovation/uniqueness etc.):** For the development of plastic degrading and reusing device highly heat resistant substances is used for main body part. The device is like a small box structure where plastics are inserted and degraded particles are taken out by the help of a holder. There is a small container (mould) inside where the degraded particles are collected which will help in restructuring the melted plastic.
3. **Impact it will create:**
   - Portable device which cleans environment
   - It reuses plastic in useful product
   - It will benefit the society in many ways like building up a pollution free environment, healthy environment where soils are not polluted and ready for plantation.
   - It is cost efficient.
   - It is sustainable.
   - Toxic free technique.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   1. Satabdi Das
   2. Sasanka Gautam
6. **Patent Filing date** **:** 05/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA21

Patent-208: Production of hydrogen from water under visible light assisted photocatalytic conditions: A simpler methodology.

1. **Name of the Technology:** Production of hydrogen from water under visible light assisted photocatalytic conditions: A simpler methodology.
2. **Highlights of the Technology (innovation/uniqueness etc.):** This work relates to the use of the catalytic amount of commercially available earth-

abundant metal salts together with a photosensitizer (*preferably organic photosensitizers which are eco-friendly and cost-effective*) and other additives such as dimethyl glyoxime (DMG), sodium hydroxide (NaOH), sacrificial electron donor - triethanolamine (TEOA) and different pyridine- n-oxides substituents in water: acetonitrile solvent mixtures (30 mL) (reaction medium pH =7). The mixture is stirred in the dark for ≅ 15 minutes to homogenize all mixtures and irradiated with household, white LED to the reaction mixture. Within a few minutes, the hydrogen starts to evolve which is then collected to the burette using the water displacement technique.

3. **Impact it will create:** It is a non-toxic substance that is rare for a fuel source. This means that it is friendly towards the environment and does not cause any harm or destruction to human health.
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   1. Mr. Ladapborlang Mawrie
6. **Patent Filing date** **:** 11/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA22

Patent-209: Low-cost Cultivator cum Irrigation Machine

1. **Name of the Technology**: Low-cost Cultivator cum Irrigation Machine
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Low-cost Cultivator cum Irrigation Machine is a multitasker machine, which will be very helpful for the Marginal and Small farmers in their agricultural field. The machine is planned for the marginal and small farmers specially as well as for the medium and large farmers.
3. **Impact it will create:** The Machine can solve the purposes like irrigation, tillage operation, land leveling and seed bed preparation at a time. It can be carried seed, fertilizer and water together.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   1. Saikat Majumdar
6. **Patent Filing date** : 03/01/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA23

Patent-210: Low water-usage flush system for Indian toilets

1. **Name of the Technology:** Low water-usage flush system for Indian toilets
2. **Highlights of the Technology (innovation/uniqueness etc.):** Our design of a 2.5-liter flush system for India is: the design consists of three components a moveable seat, bottom pan part and a feet slider. Our design is based on the fact that a high-pressure nozzle will able to clear the stains on the toilet pan efficiently; we are going to achieve high pressure with the help of the weight of the user. The seat and the bottom pan part form a cavity where water is stored for flushing, our design has moveable seat which has a up down motion activated by the user by pulling the feet slider with his feet, when the feet slider is slid away from the toilet by the user, it opens the holes for the flush at the bottom of the water storage part from where with the help of the weight of the user the seat is pushed down pushing the water with a high pressure so that the stains get removed utilizing less water. The cavity also acts as water tank for the flush, this in turn helps us to reduce cost as an additional flush tank is not required and production time will also be reduced. All the components of the toilet can be made with the help of ceramic by casting
3. **Impact it will create:** Ultra-low-flow toilets reduce water consumption and costs to the consumer. They contribute to preserving the environment by protecting ground water from depletion and possible contamination. Easy to use and clean.
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   1. Abu Bakr Siddiq Laskar
6. **Patent Filing date** **:** 25/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA24

Patent-211: Local extinction of Jungle Crow (*Corvus culminatus*) as an indicator of forest and climate change.

1. **Name of the Technology:** Local extinction of Jungle Crow (*Corvus culminatus*) as an indicator of forest and climate change.
2. **Highlights of the Technology (innovation/uniqueness etc.):** When forest is intact and undisturbed, an area is inhabited by Jungle Crow (*Corvus culminatus*). Once the same forest degrades (deforestation and selective

logging) and converts into human dominated landscape, the population of Jungle Crow start to decline and at certain point of time, the entire population will be replaced by House Crow (*Corvus splendens)*. Hence, local extinction of Jungle crow and its niche replacement by House Crow of an area can be used as an indicator of forest and climate change due to human interference.

3. **Impact it will create:** Indigenous way of understanding the forest degradation and impact of climate change
4. **Current Status of the Patent** **:** In Process
5. **Student Team details/Faculty Mentor :**
   1. Dr. Prabal Sarkar
6. **Patent Filing date** **:** 15/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA25

Patent-212: Iron, lead, arsenic and total petroleum hydrocarbon (TPH) removal from petroleum oily sludge by silver nanoparticle

1. **Name of the Technology:** Iron, lead, arsenic and total petroleum hydrocarbon (TPH) removal from petroleum oily sludge by silver nanoparticle
2. **Highlights of the Technology (innovation/uniqueness etc.):** The oily sludge is mixed with soil and Silver Nanoparticle in the ratio of 4:1 (w/v) and then treated for two months and it was found that the removal efficiency of this process for Iron, Lead, Arsenic and TPH is 23.1%, 5.13%, 16.77% and 54.67% respectively. The silver nanoparticles enhance the photo-oxidization of recalcitrant compounds present in oily sludge in the presence of solar radiation that helps in remediation of oily sludge.
3. **Impact it will create:** One of the promising processes for removal of heavy metals and TPH from soil contaminated with petroleum oily sludge in large scale.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   1. Dixita Phukan
   2. Dr. Anindita Bhattacharya
6. **Patent Filing date** **:** 15/02/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA26

Patent-213: Herbal Tooth Gel for Management of Gingival Bleeding & Toothache

1. **Name of the Technology:** Herbal Tooth Gel for Management of Gingival Bleeding & Toothache
2. **Highlights of the Technology (innovation/uniqueness etc.):** The management of gingival bleeding and toothache is different from the existing products which are available in the market. This herbal gel will be a mixture of plant extract which are locally available in the region. Spilanthes acmella is a medicinal plant. Popularly, it is known as toothache plant which reduces the pain associated with toothaches and can induce saliva secretion. It has multiple pharmacological actions, which include antifungal, antipyretic, local anesthetic, **antioxidant**, antimicrobial, toothache relieve and anti-inflammatory effects.
3. **Impact it will create:** Green tea extract is significantly effective in stopping bleeding of socket caused by tooth extraction and it is cheap and herbal as well.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   1. Bristi Plawan
6. **Patent Filing date** **: 05/02/2022**
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** CST 29/2019/PA27

Patent-214: Automated Solid Waste Management System for City Drainage.

1. **Name of the Technology** : Automated Solid Waste Management System for City Drainage.
2. **Highlights of the Technology (innovation/uniqueness etc**.): Technology aims to control Solid Waste in the open channel drainage system in Cities, which is one of the main cause for clogging and artificial floods.
3. **Impact it will create** : Help Municipal Authorities to keep a check on solid wastes that gets dumped in open channel drains and thus boost its effective management and control.
4. **Current Status of the Patent** : Application Made in Feb 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Sylban Sangma
   2. Bakin Sitang

6. **Patent Filing date** : Feb 2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : Responding to querry raised by MSCSTE**.**

Patent-215: Combined Effects of Antibiotics and Nutrients in Dog Biscuits for Treating Bacterial Infections

1. **Name of the Technology** : Combined Effects of Antibiotics and Nutrients in Dog Biscuits for Treating Bacterial Infections.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Ease of administering antibiotics and nutritional supplements to pets.
3. **Impact it will create** : As it is troublesome to feed pets with medicines, the product will provide ease in administration of medicines on pets.
4. **Current Status of the Patent** **:** Application Made in Feb 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Udipta Guha
   2. Jishu Das
6. **Patent Filing date** : Apr 2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : Responding to querry raised by MSCSTE.

Patent-216: Converting Organic Waste into High Value Products.

1. **Name of the Technology** : Converting Organic Waste into High Value Products.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Primarily a waste management solution with a opportunity to cater towards wealth generation.
3. **Impact it will create** : Create wealth from waste by way of creating value added products and also help manage waste in a productive form.
4. **Current Status of the Patent** : Application Made in Feb 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Jackeychan Sangma
   2. Sharmon

6. **Patent Filing date** : April, 2023
7. **Patent Granted date** :
8. **Patent Application Number** : Responding to querry raised by MSCSTE.

Patent-217: Designing water resistant sustained release mono-herbal formulation for anti ageing benefits.

1. **Name of the Technology** : Designing water resistant sustained release mono-herbal formulation for anti ageing benefits.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Based on nano carriers which are water resistant, the technology aspires to provide herbal skin care solution.
3. **Impact it will create** : Anti Ageing skin care herbal solution that is water resistant and thus expected to provide protection to skin for a longer period.
4. **Current Status of the Patent** : Application Made in April 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Riya Salam
   2. Angita Talukdar
6. **Patent Filing date** : April, 2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : Responding to querry raised by MSCSTE.

Patent-218: Green conversion of low value waste into highly sought after rhamnolipid biosurfactant. (Valorization of Egg Shell for cost effective production of rhamnolipid biosurfactant).

1. **Name of the Technology** : Green conversion of low value waste into highly sought after rhamnolipid biosurfactant. (Valorization of Egg Shell for cost effective production of rhamnolipid biosurfactant).
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Waste management and effective waste to wealth by producing cost-effective (being sourced from waste) rhamnolipid biosurfactant.
3. **Impact it will create** : Low cost and of high value as it is in demand from varius sectors ranging from pharmaceuticals to healthcare as well as petrochemicals etc.

4. **Current Status of the Patent**: Application Made in April 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Prateeti Talukdar
6. **Patent Filing date** : April, 2023
7. **Patent Granted date** :
8. **Patent Application Number** : Responding to querry raised by MSCSTE.

Patent-219: Dietoceuticals for famine neighbourhood.

1. **Name of the Technology** **:** Dietoceuticals for famine neighbourhood.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Vitamin and multi nutrient supplements for deficient population in the form of dietoceutical candies.
3. **Impact it will create** : Targeted towards addressing malnutrition among the famine population the technology aspires to create and deliver low cost supplements in the form of candies.
4. **Current Status of the Patent** :
   Application Made in April 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Sharmina Begum
   2. Lobsang Tashi
6. **Patent Filing date** : April, 2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : Responding to querry raised by MSCSTE.

Patent-220: Soil Toxicity Detector

1. **Name of the Technology** : Soil Toxicity Detector.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: IoT enabled device that is capable to detect the toxicity of soil and thus aid the process of farm management in a efficient manner.
3. **Impact it will create** : Ensure better farm management practice and also check the rampant use of pesticides etc that, otherwise causes harmful affects in consumption of such produce.
4. **Current Status of the Patent** :
   Application Made in April 23 through MSCSTE.

5. **Student Team details/Faculty Mentor :**
   1. Valiant Kro
   2. Peter G Momin
6. **Patent Filing date** : Apr 2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : Responding to querry raised by MSCSTE.

08) College of Technology & Engineering, Udaipur

Patent-221: Emery Quinoa Polihser

1. **Name of the Technology:** Emery Quinoa Polihser
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The developed quisusno polisher has two separate section i.e polisher section and separation section
3. **Impact it will create:**
   - Emery Quino Polihser is an invention for value addition to Quino be removing the bitter tasting saponins located in the outer bran layers of quinoa grains and making it palatable. This invention aims at development of mechanized continuous dry polisher fro quiona to process large quantities of grain effortless as against the traditional water washing with manual rubbing method, which is done in batches consuming lot of time and human energy
4. **Current Status of the Patent** **:** Patent Application has been filed
5. **Student Team details/Faculty Mentor :**
   1. Narendra Kumar Jain
   2. Chavan Sagar Madukar
6. **Patent Filing date** : 09.12.2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911050720

Patent-222: Multifunction Hammer with Nine Replacable Head

1. **Name of the Technology:** Multifunction Hammer with Nine Replacable Head
2. **Highlights of the Technology (innovation/uniqueness etc.):** A hammer with 9 interchangeable accessories operated by hand. It uses a spring to hold the accessories at the place.
   - Reduced Material Usage.

- Reduced overall hammer cost.
- Broad usage capability
- Portable & Customizable

3. **Impact it will create:**
   - The Product can be sold online for being able to export/ship to foreign countries. The kit can be used in countries where workers are not capable enough of buying several hammers. The kit can be exported to countries like Bhutan, Nepal, etc.
4. **Current Status of the Patent** **:** Patent Application has been filled
5. **Student Team details/Faculty Mentor :**
   1. Hardik Longaskhi
   2. Pulkit Thakuria
   3. Bheru Lal Salvi
6. **Patent Filing date** **:** 13.03.2019
7. **Patent Granted date** : Nil
8. **Patent Application Number** **:** 201911036881

Patent-223: Development of Two-Stage Dark Fermentation System for the Production of Green Hydrogen through Organic Waste

1. **Name of the Technology:** Development of Two-Stage Dark Fermentation System for the Production of Green Hydrogen through Organic Waste
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Hydrogen can be used as a clean alternative fuel instead of conventional fossil fuel in transportation sector as well as in chemical industries as a raw material for formation of many other substance like ammonia, urea etc. The production method will be Eco-friendly and utilized fuel is abundantly available renewable energy sources that are free from any types of harmful greenhouses gases. Direct conversion to electricity can also be achieved through fuel cell. This technology provides suitable environment for the fermentation of agricultural waste/waste biomass through which organic waste can be converted to clean alternative hydrogen fuel. It helps to eliminate the COD content of waste influent by proper digesting the waste streams.

3. **Impact it will create**: Organic waste will be optimally utilized as an alternate source of energy, which will not only be ecofriendly and reduce the pollution, but will also help in enhancing the hydrogen fuel collection.
4. **Current Status of the Patent** : Patent Granted
5. **Student Team details/Faculty Mentor :**
   1. Rupal Jain
   2. Naina Sachdeva
6. **Patent Filing date** : 20.04.2023
7. **Patent Granted date** : 23.08.2023
8. **Patent Application Number** : 384367-001

Patent-224: Portable Electric Rover with Foldable Seat

1. **Name of the Technology**: Portable Electric Rover with Foldable Seat
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Portable Electric Rover is a type of personal transportation that uses electric motors to mover the board. The propulsion of the vehicle is controlled via a processing unit i.e, electronic control unit. The battery sends power to the motor, which turns the wheels and propels the board forward. Riders can control their speed by using a remote control. The change of direction takes place with the help of trucks by leaning in the desired direction. The rover has a top speed of around 15mph (25km/hr), which is controlled via motor controller. The range on full charge is projected to be close to 30 miles(50km) before needing to be recharged, which varies with driving style(high speed/low speed), drive terrain(plane/slope), weight on the vehicle, etc. the rover being portable and lightweight which makes it easier to man-oeuvre it and carry it from one place to another.
3. **Impact it will create**: Organic waste will be optimally utilized as an alternate source of energy, which will not only be ecofriendly and reduce the pollution, but will also help in enhancing the hydrogen fuel collection.
4. **Current Status of the Patent**: Patent filed
5. **Student Team details/Faculty Mentor :**
   1. Pranshu Vajpayee
   2. Yogesh Tailor
   3. Sonal Rathore
   4. Vishal Rawat
   5. Kushal Kumawat

6. **Patent Filing date** : 20.09.2023
7. **Patent Granted date** : -
8. **Patent Application Number** : 395507-001

Patent-225: Portable Bio char Reactor

1. **Name of the Technology:** Portable Bio char Reactor
2. **Highlights of the Technology (innovation/uniqueness etc.):** The use of traditional method to produce biochar is increasing pollution in the environment by releasing poisonous gases (syngas's) into the environment. They have a negative impact on the environment as they are part of the greenhouse gases that trap heat and lead to depletion of the ozone layer. By using this project (low cost biochar kiln) reducing the syngas emission in environment, means less greenhouse gas production & eco-friendly this system. Hence, the biochar increases the availability of nitrogen in the soil & reduces the need of chemical fertilizer. Rapid industrialization & unsustainable development have increased greenhouse gases (GHG) which has caused changes in global climate & global warming. Production of bio-char has been proven to be a method to sequester carbon dioxide from the atmosphere. Therefore, bio-char undoubtedly is very important in creating an environmentally friendly method to mitigate the problem of GHG & control the amount of methane & nitrogen dioxide that is released from the soil.
3. **Impact it will create:** Waste management plays a significant role in sustaining the global cleanliness. Normally, they dispose the agricultural residues by using open burning method which will lead to air pollution for our environment and further lead to climate change. Offering the small farmers an option to utilize the waste by providing a biochar kiln will help them to avoid the waste generation and air pollution. Through this project, the agricultural residue will be utilized for production of biochar to improves the quality of the soil and also reduce the quantity of fertilizer used by the small farmers.
4. **Current Status of the Patent** : Patent filed
5. **Student Team details/Faculty Mentor :**
   1. Mega Ram Patel
   2. Partap Dewasi
   3. Parth Sharma
   4. Preeti Kanwar
   5. Neha Prajapat

6. **Patent Filing date** **:** 19.08.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 393094-001

Patent-226: A Waste Management and Treatment System

1. **Name of the Technology**: A Waste Management and Treatment System
2. **Highlights of the Technology (innovation/uniqueness etc.):** IOT based Smart Dustbin monitoring for Smart City is a system which will notify the corporations to empty the bins on time. This system will help in cleaning the city in better way. The work proposed here illustrates the smart waste management architecture that ensures the cleaning operators for detecting cleanliness issues in real time. Moreover, minimizing the end-to-end delay is also taken into consideration when a message is required to be sent for garbage collectors.
3. **Impact it will create:** This system will help in cleaning the city in better way. The end to end delay is also minimized with contribution to the municipal corporation at large.
4. **Current Status of the Patent** : Patent filed
5. **Student Team details/Faculty Mentor :**
   1. Priyanka Panday
   2. Surya Pratap Singh Bhati
   3. Aditya Kumawat
6. **Patent Filing date** : 02.07.2023
7. **Patent Granted date** :
8. **Patent Application Number** : CBR No. 29498

Patent-227: Solar Based In-Situ Milk Cooling Apparatus

1. **Name of the Technology:** Solar Based In-Situ Milk Cooling Apparatus
2. **Highlights of the Technology (innovation/uniqueness etc.):** The solar milk cooling system, an innovative technology to cool the milk In-situ, is entirely based on solar energy. The system will be composed of cooling chamber of 1.5mm thick AISI 304 SS plate with Poly urethane insulation, photovoltaic panels, storage batteries, an adaptive control unit, a charge controller and a refrigeration unit with an integrated fan. Cooling will be done by vapour absorption coupled with a solar panel that can harness solar radiation with help of an adaptive control unit and transfer to storage battery

connected to refrigeration unit. A set of battery will be connected to make power available for continuous cooling of milk for longer period. Raw milk having approximately temperature of about 30°C after milking will be transferred into the chiller to cool down temperature to 4°C within short period. A digital scale will also be installed at the wall of chiller to record temperature, voltage, energy.

3. **Impact it will create:** This system will help in longer preservation of the milk.
4. **Current Status of the Patent** : Patent filed
5. **Student Team details/Faculty Mentor :**
   1. Ashok Kumar
   2. Mansi Menaria
   3. Ayush Gautam
6. **Patent Filing date** : 06.09.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 394488-001

Patent-228: Manual Driven Solar Power Ice Cream Cart

1. **Name of the Technology**: Manual Driven Solar Power Ice Cream Cart
2. **Highlights of the Technology (innovation/uniqueness etc.):** Using traditional ice cream carts spoils the ice cream due to uneven cooling. Also, it is increasing environmental pollution by releasing poisonous gases into the atmosphere during ice making. They have a negative impact on the environment as they are part of the greenhouse gases that trap heat and lead to the depletion of the ozone layer. The solution lies in solar powered system. By developing a solar powered system, we are not only reducing the energy costs but also preserving our environment. This system doesn't use any of the poisonous gases so our ozone layer is safe. This system does not produce any CFCs and harmful gases so this system is eco-friendly.
3. **Impact it will create:** Solar powered ice cream thela system is the best option for street vendors storage ice cream. Generally, the ice cream consume in the clean weather timings are in between 10:00 AM to 10:00 PM. During the day, the availability of the solar radiation is higher, so solar panels get sufficient radiation to run the whole system. When the requirement of cooling is high as the availability of solar radiation is also high; hence the whole system is sufficient for cooling.
4. **Current Status of the Patent** : Patent filed

5. **Student Team details/Faculty Mentor :**
   1. Kuldeep Kumar
   2. Lokendra Singh Rathore
6. **Patent Filing date** : 05.04.2023
7. **Patent Granted date** : 20.06.2023
8. **Patent Application Number** : 383116-001

09) Dr. M. G. R. Educational & Research Institute, Chennai

Patent-229: An apparatus and method of measuring the muscle strength

1. **Name of the Technology** : An apparatus and method of measuring the muscle strength
2. **Highlights of the Technology (innovation/uniqueness etc.):** Digital Instrument to Measure the Foot Muscle Strength
3. **Impact it will create** : Easy to diagnose the foot muscles. The accuracy of the muscle strength can be calculated.
4. **Current Status of the Patent** : Granted
5. **Student Team details/Faculty Mentor :**
   1. Bharath Kumar
6. **Patent Filing date** : 13.06.2019
7. **Patent Granted date** : 21/02/2022
8. **Patent Application Number** : 201941023462

Patent-230: Thermal management system using the polysulfone nano porous memberane for batteries

1. **Name of the Technology** : Thermal management system using the polysulfone nano porous memberane for batteries
2. **Highlights of the Technology (innovation/uniqueness etc.):** Usage of Polysulfone nano particles and porous membranes in cooling batteries of electric vehicles even in ideal conditions.
3. **Impact it will create** : Reduces the Electric Vehicles fire accidents, Increases the battery life.
4. **Current Status of the Patent** : Under First Examination Report
5. **Student Team details/Faculty Mentor :**
   1. R. Logeswaran
   2. R. Babu
6. **Patent Filing date** : 04.02.2020

7. **Patent Granted date** :
8. **Patent Application Number** : 202041004809

Patent-231: Ergonomic wheelchair for gertaric care

1. **Name of the Technology** : Ergonomic wheelchair for gertaric care
2. **Highlights of the Technology (innovation/uniqueness etc.):** A wheelchair which can be easily convertible into a stretcher and it can also be used as a stair climber.
3. **Impact it will create** : It will be helpful for those who are bed-ridden. Easy for patient mobility and easy to get the patient to upper floors in houses without lift.
4. **Current Status of the Patent** : Under First Examination Report
5. **Student Team details/Faculty Mentor :**
   1. S. Sabariswaran
   2. T. Dinesh
6. **Patent Filing date** : 31.01.2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202041004364

Patent-232: Enhanced Dental X-Ray & Sensor Holder

1. **Name of the Technology** : Enhanced Dental X-Ray & Sensor Holder
2. **Highlights of the Technology (innovation/uniqueness etc.):** An adjustable strap band, a vertical extending L-shaped arm, a detachable x-ray focussing ring, and a universal dental xray film and digital sensor holding clamp.
3. **Impact it will create** : It eliminates the disadvantages of existing dental x-ray holders. Basically in dentistry, intraoral imaging technique plays an important role in the diagnosis of tooth and bone diseases.
4. **Current Status of the Patent** : Under First Examination Report
5. **Student Team details/Faculty Mentor :**
   1. Ms. K. Dhivya Dharshini
6. **Patent Filing date** : 01.12.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202041052206

Patent-233: Foot Cleaning Mat

1. **Name of the Technology** : Foot Cleaning Mat
2. **Highlights of the Technology (innovation/uniqueness etc.):** An apparatus to clean and sanitize the foot and footwear before entering into clean proximity
3. **Impact it will create** : Reduces the risk of infection through the contact of outer environment. Prevent disease spread to the children and weak immunes in their houses.
4. **Current Status of the Patent** : Design Patent applied
5. **Student Team details/Faculty Mentor :**
   1. Booja C. S.
6. **Patent Filing date** : 23.03.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 361077-001 (Ref No)

10) National Engineering College, Kovilpatti

Patent-234: Lightweight, high-strength brick with mechanical interlocking

1. **Name of the Technology**: Lightweight, high-strength brick with mechanical interlocking
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Interlocking featured bricks may bear more loads than conventional bricks with a lightweight advantage.
3. **Impact it will create**: Construction costs will be reduced for the customers along with enhanced strength
4. **Current Status of the Patent**: FER received
5. **Student Team details/Faculty Mentor :**
   1. Angammal S
   2. Nishanthi P
   3. Sharru Preethi R C
6. **Patent Filing Date** : 05-10-2018
7. **Patent Granted Date** :
8. **Patent Application Number** : 201841037689

Patent-235: Non-invasive Diabnosis Device

1. **Name of the Technology** : Non-invasive Diabnosis Device
2. **Highlights of the Technology**: Without physically harming humans, blood glucose levels can be measured in real-time
3. **Impact it will create**: Blood glucose level testing made easy and accurate
4. **Current Status of the Patent** : Patent Granted (Patent No. 500346)
5. **Student Team details/Faculty Mentor :**
   1. S. Annalakshmi
   2. M. Anugraha
   3. S. Sundar Rajan
   4. P. Ramprasath
   5. M. Vishnu
6. **Patent Filing Date** : 05-10-2018
7. **Patent Granted Date** : 17-01-2024
8. **Patent Application Number** : 201841037694

Patent-236: System and method for instinctive monitoring of hydroponic plants

1. **Name of the Technology**: System and method for instinctive monitoring of hydroponic plants
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Cultivating regional-specific vegetable crops was performed through the hydroponic methodology with several sensors and microprocessor units.
3. **Impact it will create**: Terrace garden trend can be improved to the next level
4. **Current Status of the Patent** : FER received and response submitted
5. **Student Team details/Faculty Mentor :**
   1. Arun kumar H.R
   2. Balasubramani.M
   3. Meenakshi Murugappan
6. **Patent Filing Date** : 05-10-2018
7. **Patent Granted Date** :
8. **Patent Application Number** : 201841037700

Patent-237: Smart theft prevention system using GSM and cloud

1. **Name of the Technology**: Smart theft prevention system using GSM and cloud
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Home safety system developed with intelligent features

3. **Impact it will create**: Below middle-class people can also get an intelligent featured home safety system
4. **Current Status of the Patent** : Patent Granted (Patent No. 466641)
5. **Student Team details/Faculty Mentor :**
   1. S. Prabhu
   2. P. R. Prakash
   3. R. Narain Krishna
6. **Patent Filing Date** : 05-10-2018
7. **Patent Granted Date** : 07-11-2023
8. **Patent Application Number** : 201841037699

Patent-238: Coconut grading machine

1. **Name of the Technology**: Coconut grading machine
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Coconut goodness testing is accomplished through non-destructive & acoustic vibration analysis.
3. **Impact it will create**: Low skill cottage level customers also can get a foolproof coconut testing equipment
4. **Current Status of the Patent** :
   FER received and response submitted
5. **Student Team details/Faculty Mentor :**
   1. Rahul G. S.
   2. Veera Shanthi Ram M.
6. **Patent Filing Date** : 05-10-2018
7. **Patent Granted Date** :
8. **Patent Application Number** : 201841037695

Patent-239: Smart device for blind

1. **Name of the Technology**: Smart device for blind
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Wearable computing device developed for personal safety purposes exclusively for the visually impaired people
3. **Impact it will create**: Easy to use and foolproof personal safety system which is affordable by below middle-class people also.
4. **Current Status of the Patent** :
   FER received

5. **Student Team details/Faculty Mentor :**
   1. R. Aruna
   2. A. Divya Lakshmi
   3. K. Priya Mohanavalli
6. **Patent Filing Date** : 05-10-2018
7. **Patent Granted Date** :
8. **Patent Application Number** : 201841037693

Patent-240: Water Tank Cleaning Device

1. **Name of the Technology** : Water Tank Cleaning Device
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A semi-automatic cleaning device was developed exclusively to clean overhead tanks in homes and commercial buildings
3. **Impact it will create**: This product's market volume is enormous and will become mandatory furniture in all homes.
4. **Current Status of the Patent** : Patent granted (Patent No. 487877)
5. **Student Team details/Faculty Mentor :**
   1. G. Ramaiah
   2. A. Selvakumar
   3. K. Rakesh
   4. S. Sankarakumar
   5. M. Prabukannan
6. **Patent Filing Date** : 05-10-2018
7. **Patent Granted Date** : 22.12.2023
8. **Patent Application Number** : 201841037676

Patent-241: Multipurpose Domestic Cleaner

1. **Name of the Technology**: Multipurpose Domestic Cleaner
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A compact and multi-featured cleaner was developed which can work with the help of electricity. The device was designed to be used for household applications
3. **Impact it will create**: Currently available electrically powered domestic cleaning devices are not at an affordable cost for below middle-class people. But this device will hit the market due to its functionality and cost-effectiveness.
4. **Current Status of the Pat**ent : FER received

5. **Student Team details/Faculty Mentor :**
   1. S. Shunmugasundaram
6. **Patent Filing Date** : 05-10-2018
7. **Patent Granted Date** :
8. **Patent Application Number** : 201841037690

Patent-242: A Productivity System

1. **Name of the Technology**: A Productivity System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Unique application is developed to facilitate the visually impaired people typing text in computer word processing tools.
3. **Impact it will create**: Visually impaired people also be able to use regular computer systems for text typing with some minimal modifications
4. **Current Status of the Patent** : Patent Published
5. **Student Team details/Faculty Mentor :**
   1. C. Sankavee
   2. S. Venkateshwara Packya Janeefa
   3. T. Lakshminaarayanan
   4. R. Rajalakshmanan
6. **Patent Filing Date** : 01-01-2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241000017

Patent-243: Partial Coconut Dehusker

1. **Name of the Technology** : Partial Coconut Dehusker
2. **Highlights of the Technology (innovation/uniqueness etc.)**: For increased self life of matured coconut, the outer skin will be peeled off instead of complete dehusking
3. **Impact it will create**: Export business based on matured coconut shall become easy and affordable to small scale industries also.
4. **Current Status of the Patent** : FER received
5. **Student Team details/Faculty Mentor :**
   1. Mr. R. Rajith
   2. Mr. K. Sankar Ganesh
   3. Mr. G. Ponmullai Narayanan
   4. Mr. S. Rakul
   5. Mr. P. Sarathkumar

6. **Patent Filing Date** : 11-07-2017
7. **Patent Granted Date** :
8. **Patent Application Number** : 201741024655

Patent-244: Automatic Waste Segregating Bin

1. **Name of the Technology**: Automatic Waste Segregating Bin
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A dust bin equipped with automatic features to separate the wastes based on the type of material.
3. **Impact it will create**: Waste segregation can be automated and will reduce the overall time required in the waste management process
4. **Current Status of the Patent** : FER received and response submitted
5. **Student Team details/Faculty Mentor :**
   1. K. Logeswarabalan
   2. M. Mafin Rijoe
   3. V. Nalla Selva Prakash
   4. A. Ravikumar
6. **Patent Filing Date** : 14-02-2020
7. **Patent Granted Date** :
8. **Patent Application Number** : 202041006564

Patent-245: An Apparatus for Dispensing Liquids

1. **Name of the Technology**: An Apparatus for Dispensing Liquids
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A product is developed to regulate the water supply in a specific building or home based on biometric authentication.
3. **Impact it will create**: Water consumption by an individual is appropriately organized, which will majorly reduce water wastage and ensure water availability to all individuals living in a specific space.
4. **Current Status of the Patent** : FER received and response submitted
5. **Student Team details/Faculty Mentor :**
   1. J. Junehar Kevin
   2. H. Isaimuhil
   3. S. Thanga Selvam
   4. S. A. Ashfaaq Mohamed
   5. P. Abdul Rahim

6. **Patent Filing Date** : 20-02-2020
7. **Patent Granted Date** :
8. **Patent Application Number** : 202041007309

Patent-246: An apparatus for the locomotion of visually impaired persons

1. **Name of the Technology**: An apparatus for the locomotion of visually impaired persons
2. **Highlights of the Technology (innovation/uniqueness etc.)**: An electrically operated hoverboard is developed to automatically transport visually impaired people around a closed campus.
3. **Impact it will create**: The hoverboard is programmed to operate independently and much helpful for visually impaired people to roam in a closed campus
4. **Current Status of the Patent** : FER received and response submitted
5. **Student Team details/Faculty Mentor :**
   1. S. Arjune
   2. A. Jefferson John
6. **Patent Filing Date** : 20-02-2020
7. **Patent Granted Date** :
8. **Patent Application Number** : 202041007308

Patent-247: Tractor Rear Loader

1. **Name of the Technology**: Tractor Rear Loader
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A special attachment was developed tractor, which will be brought the load lifting feature like a dozer.
3. **Impact it will create**: Ordinary tractor can be used as a load lifter with this attachment at a lower initial investment may reduce separate load lifting equipment expenses in agriculture.
4. **Current Status of the Patent** : Patent granted (Patent No. 487509)
5. **Student Team details/Faculty Mentor :**
   1. S. Rajakumar
   2. L. Karthikeyan
   3. J. David Prasannaraj
6. **Patent Filing Date** : 21-02-2020
7. **Patent Granted Date** : 22-12-2023
8. **Patent Application Number** : 202041007421

Patent-248: Solar Dryer for Agriculture Products

1. **Name of the Technology**: Solar Dryer for Agriculture Products
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Solar powered vegetable and fruit dryer cum dehumidifier was developed to preserve the items.
3. **Impact it will create**: Cultivated vegetables and fruits are season-specific. Due to demand fluctuation, vegetables are thrown away without selling many times. This product preserves the items and supplies to the demand consistently.
4. **Current Status of the Patent**: Patent Granted (Patent No. 497785)
5. **Student Team details/Faculty Mentor :**
   1. Aravind Prabaharan
   2. P. Periyanayaga Nathan
   3. K. P. Siva Sankaran
   4. R. Selva Arun
   5. S. Vishnu
6. **Patent Filing Date** : 21-02-2020
7. **Patent Granted Date** : 11-01-2024
8. **Patent Application Number** : 202041007418

Patent-249: Smart Carry-On Luggage

1. **Name of the Technology**: Smart Carry-On Luggage
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Trolly bag developed and equipped with innovative and safety features
3. **Impact it will create**: The product features facilitate the user's hassle-free travel experience.
4. **Current Status of the Patent**: FER received and response submitted
5. **Student Team details/Faculty Mentor :**
   1. S. Saranya
   2. A. Priyadharshini
6. **Patent Filing Date** : 14-02-2020
7. **Patent Granted Date** :
8. **Patent Application Number** : 202041006563

Patent-250: Device for screening hearing impairments

1. **Name of the Technology**: Device for screening hearing impairments
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Hearing impairment among people is hard to identify and measure in local medical centres. The facilities are available only in speciality hospitals. This product is developed to accurately measure the hearing impairment of an individual in a faster manner and uncomplicated procedure.
3. **Impact it will create**: Identifying hearing impairment becomes more accessible and affordable for all age groups, even in remote regions of the country.
4. **Current Status of the Patent** : FER received and response submitted
5. **Student Team details/Faculty Mentor :**
   1. M. Deepa Lakshmi
   2. M. Muthu Udhaya
   3. S. J. Nivedita
   4. M. Rama Subbu
6. **Patent Filing Date** : 14-02-2020
7. **Patent Granted Date** :
8. **Patent Application Number** : 202041006562

Patent-251: Smart Waste Collecting Bin

1. **Name of the Technology**: Smart Waste Collecting Bin
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A municipal range dustbin is developed with many intelligent features that allow the municipal waste to manage the waste collection and management process more accessible.
3. **Impact it will create**: The intelligent features include overflow alert, toxic items alert etc., will assure the cleanliness of the environment and safety of the public, respectively.
4. **Current Status of the Patent** : FER received and response submitted.
5. **Student Team details/Faculty Mentor :**
   1. X. Sahaya Joe Ralphin
   2. S. Sundar
6. **Patent Filing Date** : 21-02-2020
7. **Patent Granted Date** :
8. **Patent Application Number** : 202041007420

Patent-252: Automatic floor cleaning and mopping device

1. **Name of the Technology**: Automatic floor cleaning and mopping device
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The floor mopping robot is developed with a wet mopping feature and is affordable among lower-middle-class customers.
3. **Impact it will create**: Floor mopping robot usage among the people will be encouraged, and the same will influence the development and use of many home-automation-related products in society.
4. **Current Status of the Patent**: Patent Granted (Patent No. 488737)
5. **Student Team details/Faculty Mentor :**
   1. R. Vigneshwaran
   2. V. Jayaraman
   3. T. S. Easwar
   4. M. Ahamed Yaseer
6. **Patent Filing Date** : 20-02-2020
7. **Patent Granted Date** : 21-12-2023
8. **Patent Application Number** : 202041007307

Patent-253: An apparatus for detecting the wetness of an absorbent article

1. **Name of the Technology**: An apparatus for detecting the wetness of an absorbent article
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A product is developed to maintain and manage the hygiene of babies. The system is designed to monitor the wetness and its level in the baby's diaper through physical safety body sensors and alert the caretaker to change the diaper at the right time
3. **Impact it will create**: Health and wellness of babies are assured and maintained in the day-care centres with less effort and affordable manner.
4. **Current Status of the Patent** : FER received and response submitted
5. **Student Team details/Faculty Mentor :**
   1. A. Ramesh
   2. K. Vinothkumar
   3. S. Premkumar
6. **Patent Filing Date** : 14-02-2020
7. **Patent Granted Date** :
8. **Patent Application Number** : 202041006565

Patent-254: Smart School Bag

1. **Name of the Technology**: Smart School Bag
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A special electronic attachment was developed to be used in any school bag with unique intelligent features enabling the students to carry the books and notes based on a particular day timetable.
3. **Impact it will create**: This device will act as an intelligent assistant to school-going students & let them avoid some issues in learning. In addition, the GPS feature is helpful for parents to know the real-time location of their children.
4. **Current Status of the Patent**: FER received and response submitted.
5. **Student Team details/Faculty Mentor :**
   1. P. Naveenkumar
   2. P. Muthukumar
   3. M. Ram Prasath
6. **Patent Filing Date** : 20-02-2020
7. **Patent Granted Date** :
8. **Patent Application Number** : 202041007311

Patent-255: Gas Stove

1. **Name of the Technology**: Gas Stove
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A LPG gas stove was developed with many intelligent features enabling users to have a cooking experience like induction stoves. The innovative features include flame control, over-burning control, cooking timer, leakage protection and alerting will be helpful in fuel economy and safety aspects.
3. **Impact it will create**: excess usage of LPG can be avoided and both money and energy conserved. The safety features assure the avoidance of dangerous accidents.
4. **Current Status of the Patent**: Patent Granted (Patent No. 498056).
5. **Student Team details/Faculty Mentor :**
   1. K. Gandhi Muthu
   2. R. Arun Gomathi
   3. J. Ajay Karthick
6. **Patent Filing Date** : 14-02-2020
7. **Patent Granted Date** : 11-01-2024
8. **Patent Application Number** : 202041006561

Patent-256: A candy making machine

1. **Name of the Technology**: A candy making machine
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A region-specific product was developed to automate the preparation of peanut candy in cottage industries.
3. **Impact it will create**: The machine and its process reduce the effort of human workers and increase the production rate for meeting the demand. Direct physical involvement of the human worker is diminished, and many health issues can be avoided.
4. **Current Status of the Patent** : Patent granted (Patent No. 393303)
5. **Student Team details/Faculty Mentor :**
   1. K. R. Praveen Krishna
   2. M. Pravin
   3. M. Subramani
   4. A. Sakthi
6. **Patent Filing Date** : 20-02-2020
7. **Patent Granted Date** : 29-03-2022
8. **Patent Application Number** : 202041007310

Patent-257: A portable ophthalmic apparatus

1. **Name of the Technology**: A portable ophthalmic apparatus
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A compact & unique eye examination kit was developed to test glaucoma disease's.
3. **Impact it will create**: The device cost is very cheap compared to the existing medical instruments available for the same purpose, enabling the low scale medical centres also to afford it. Further, the expanded testing facilities in society reduce the impact of the disease to a great extent.
4. **Current Status of the Patent** : Patent Granted (Patent No. 480221).
5. **Student Team details/Faculty Mentor :**
   1. P. M. Pon Jeyan
   2. S. Praveen
   3. S. M. Rejin Sobi
   4. V. Sivaraman
6. **Patent Filing Date** : 21-02-2020
7. **Patent Granted Date** : 11-12-2023
8. **Patent Application Number** : 202041007419

Patent-258: Block without cement for paving applications

1. **Name of the Technology**: Block without cement for paving applications
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Water permeable paver blocks prepared without cement. The selling cost of a partnership is considerably cheap without compromising on the strength.
3. **Impact it will create**: The porous nature of the paver block enables the water to get into the subsoil to increase the groundwater level. Further, avoiding cement usage during bricks production will reduce the emission due to cement production and save the environment.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Bamini K. K.
   2. Hema Priyadharshini M.
   3. Jaya Prakash G.
   4. Muhammed Suhail M.
6. **Patent Filing Date** : 24-12-2021
7. **Patent Granted Date** :
8. **Patent Application Number** : 202141060652

Patent-259: An apparatus for injecting plant germinating members

1. **Name of the Technology**: An apparatus for injecting plant germinating members
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A seed injecting machine is developed to work without electricity and can simultaneously operate for different sizes of seeds.
3. **Impact it will create**: The construction and operating principle of the machine are straightforward, which will encourage its usage over low-range formers. The equipment comes with an electricity-free operating feature which will drastically reduce electrical energy usage in agriculture to maximum extent.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Sivaramakrishnan S. R.
   2. Prakash G.
   3. Dinesh Jefferson E.
   4. Nissan Prabhu N.
   5. Mohamed Meeran S.

6. **Patent Filing Date** : 24-12-2021
7. **Patent Granted Date** :
8. **Patent Application Number** : 202141060653

Patent-260: An apparatus for decluttering refuse from free-flowing garbage

1. **Name of the Technology**: An apparatus for decluttering refuse from free-flowing garbage
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A solid waste collecting system for open sewages was designed and developed based on the municipality's drainage paths. The device is designed to prevent the choking of solid wastes in the drainage junctions, thereby assuring the free flow in drainage.
3. **Impact it will create**: Choking free flow can be maintained in the open sewages, and direct physical involvement of human workers in drainages can be avoided entirely.
4. **Current Status of the Patent** : Patent Granted (Patent No. 474747)
5. **Student Team details/Faculty Mentor :**
   1. Hariharasudan V.
   2. Guruessakiraj M.
6. **Patent Filing Date** : 24-12-2021
7. **Patent Granted Date** : 29-11-2023
8. **Patent Application Number** : 202141060654

Patent-261: An apparatus for reaping of sodium chloride

1. **Name of the Technology**: An apparatus for reaping of sodium chloride
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A special attachment to the tractor is developed to efficiently harvest the salt extracted from the seawater in salt flats.
3. **Impact it will create**: The product can be attached to any tractor, and the rate of salt collection from the salt flats is comparatively high. Human workers' direct physical effort can be avoided, saving many lives from relative health issues.
4. **Current Status of the Patent**:
   Patent granted (Patent No. 427275)

5. **Student Team details/Faculty Mentor :**
   1. L. Karthikeyan
   2. V. Gowtham Sri Kumar
6. **Patent Filing Date** : 24-12-2021
7. **Patent Granted Date** : 28-03-2023
8. **Patent Application Number** : 202141060655

Patent-262: An apparatus for deriving a natural sweetener

1. **Name of the Technology**: An apparatus for deriving a natural sweetener
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A Device to prepare palm jaggery from the palm toddy is developed. The device's operating principle was planned as per the traditional procedure of the palm-jaggery-making process.
3. **Impact it will create**: The electricity-free device is well suited to be used in small palm tree fields. The device cost is low enough to be afforded by the existing palm field formers, and the production rate is higher when compared to the conventional process of preparing palm jaggery.
4. **Current Status of the Patent** : Patent granted (Patent No: 487704)
5. **Student Team details/Faculty Mentor :**
   1. A. Aakash Edwin
   2. R. Sanjay
   3. B. Venkatesh
   4. D. Vignesh
6. **Patent Filing Date** : 24-12-2021
7. **Patent Granted Date** : 22-12-2023
8. **Patent Application Number** : 202141060656

Patent-263: An apparatus for location tracking and monitoring the occupancy status of a public commuting vehicle

1. **Name of the Technology**: An apparatus for location tracking and monitoring the occupancy status of a public commuting vehicle
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A device designed to be used in public transport vehicles such as buses which can communicate about the real-time seat availability and GPS location of the bus to the general public who all wish to travel in such bus.

3. **Impact it will create**: The product can act as a smart travel assistant to the end user to facilitate them effectively plan their travel hassle-free.
4. **Current Status of the Patent**: Published
5. **Student Team details/Faculty Mentor :**
   1. B. Dharangan
   2. S. Arun Sunder
   3. B. Saravanan
6. **Patent Filing Date** : 19-1-2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241002945

Patent-264: An apparatus for the surveilling of water from a potable water source

1. **Name of the Technology**: An apparatus for the surveilling of water from a potable water source
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A water treatment plant is customized to treat the water derived from the ground or supplied from municipal sources. The water parameters are analyzed; based on that; appropriate treatments will be carried out to bring a standard defined quality.
3. **Impact it will create**: The device was planned to be installed in living houses. Hence, health issues related to water parameters can be reduced to the maximum for the people.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. K. Mohamed Hanifa Rashik
   2. SM. Syed Mohamed Althaff
   3. M. Kirthik Roson
   4. M. S. J. Kural Amuthan
6. **Patent Filing Date** : 19-1-2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241002946

Patent-265: A device for controlling the illumination level of a vehicle headlamp

1. **Name of the Technology**: A device for controlling the illumination level of a vehicle headlamp
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Depending on the type of road, a device was created to regulate the direction of a vehicle's headlamp beam (up or down).
3. **Impact it will create**: The road accidents at night are due to the opposite traffic headlamp's excess illumination. The driver's control in their vehicle headlamp is not always perfect and demands a smart device to manage the same. This device will take care of the up-beam / Down-beam changing based on opposite traffic and roadway type and assure road safety.
4. **Current Status of the Patent**:
   Published
5. **Student Team details/Faculty Mentor :**
   1. Arumugasivagnanam M
   2. Sundar S
   3. Harihara Subramanyam A
6. **Patent Filing Date** : 19-1-2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241002947

Patent-266: A device for shadowing surgical objects

1. **Name of the Technology**: A device for shadowing surgical objects
2. **Highlights of the Technology (innovation/uniqueness etc.)**:
   A system and approach are developed to monitor the surgical process in the human body to avoid unintentionally impregnating any foreign material by the medical practitioner.
3. **Impact it will create**:
   The issue of impregnating or leaving any unwanted foreign material inside a human body during surgical practices leads to deadly matters. This product will altogether avoid such problems and ensure safety during surgical procedures.
4. **Current Status of the Patent**:
   Published

5. **Student Team details/Faculty Mentor :**
   1. T. Deepika
   2. A. Ameena Shaheen
   3. K. Rini Keerthana
   4. S. K. Padma Parvathi
   5. R. Ramalakshmi
   6. P. Ganga Devi
6. **Patent Filing Date** : 14-02-2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241007606

Patent-267: A device for the surveilling of a level of intravenous fluid

1. **Name of the Technology**: A device for the surveilling of a level of intravenous fluid
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A device was developed to monitor the saline water level and communicate with the caretaker over wireless. The device has other add-on features such as body temperature, heartbeat, and blood pressure monitoring to assure patient safety during treatment.
3. **Impact it will create**: Automating such features during the treatment may let the medical practitioner effectively take care of the patient. The device is affordable and compact, enabling a single caretaker to take care of several patients simultaneously.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Melchisedec Samuel P.
   2. Stephen S. Billigraham
   3. Aasif Mohammed M. B.
   4. Sudhakar J.
6. **Patent Filing Date** : 14-02-2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241007608

Patent-268: An apparatus for slashing aquatic members having fins and grills

1. **Name of the Technology**: An apparatus for slashing aquatic members having fins and grills
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A power cutter device was developed in a customized way to cut large-size tuna fishes perfectly in a short time.
3. **Impact it will create**: The product was featured to bring a higher production rate without compromising the cutting quality, thereby increasing the user's profit in multiple ways such as reduced power consumption, reduced manual effort and reduced idle time.
4. **Current Status of the Patent**: Published
5. **Student Team details/Faculty Mentor :**
   1. G. Subhash
   2. V. Subash
   3. Sam Joebin J.
   4. Shahul Hameed E. A.
6. **Patent Filing Date** : 14-02-2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241007609

Patent-269: A tabletop apparatus for the pounding of cereal grains

1. **Name of the Technology**: A tabletop apparatus for the pounding of cereal grains
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A machine is developed to process rice paddy at a controlled level. The de-husking of the rice paddy is performed in a partial group uniformly to retain the beneficial nutrients. This partially de-husked rice paddy is called brown rice.
3. **Impact it will create**: The trend of using brown rice is aggregated worldwide to obtain nutrients without losing them. This product will support such demand excellently.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Muthu Nitish M.
   2. Muthu Krishnan M.
   3. Ganesh Arravind B.
   4. Vijaya Krishnan S.

6. **Patent Filing Date** : 14-02-2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241007607

Patent-270: A steeking and unbarring device

1. **Name of the Technology**: A steeking and unbarring device
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The technology developed an intelligent and networking-assisted locking system for doors. The locking system is accessible from any part of the world through the internet and provides foolproof security to assure safety. The locking system can be attached to any existing doors to avail of the specified security features.
3. **Impact it will create**: The enhanced safety features of the device enable the users to have hassle-free maintenance of documents/systems in a controlled space.
4. **Current Status of the Patent** **:** Published
5. **Student Team details/Faculty Mentor :**
   1. S. Sakthi Balaji
   2. V. Yogessh
   3. P. Manickavasagan
6. **Patent Filing Date** : 14-02-2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241007605

Patent-271: A device for authenticating a person

1. **Name of the Technology**: A device for authenticating a person
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A unique way of human authentication is implemented in this product. The electrocardiogram data of a person is stored and used for authenticating at the time of approach. The device can act as a generic authenticating system at any place where a significantly higher level of secured authentication is required.
3. **Impact it will create**: This device's foolproof authentication enables the users to have hassle-free maintenance of documents/systems in a controlled space.
4. **Current Status of the Patent** : Published

5. **Student Team details/Faculty Mentor :**
   1. A. Gomathi Arasu
   2. M. Ganesh Kumar
   3. P. Naveen Kumar
   4. A. Selvakumar
6. **Patent Filing Date** : 28-02-2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241010734

Patent-272: A portable apparatus for making nibbles

1. **Name of the Technology**: A portable apparatus for making nibbles
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A fully automatic multi-variety snack-making machine is designed and developed to cook fried snacks in a faster way to meet the demand
3. **Impact it will create**: The machine featured operates sequentially. Hence, cottage-level snack-making units can efficiently run their trade with less labour.
4. **Current Status of the Patent** : Patent Granted (Patent No. 497711)
5. **Student Team details/Faculty Mentor :**
   1. Venkatesh S.
   2. Hirthik Joel E.
   3. Vignesh R.
   4. Udhayakumar B.
   5. Sree Kumaran V.
6. **Patent Filing Date** : 28-02-2022
7. **Patent Granted Date** : 11-01-2024
8. **Patent Application Number** : 202241010735

Patent-273: An apparatus for surveilling air disseminating members

1. **Name of the Technology**: An apparatus for surveilling air disseminating members
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A ceiling fan regulator is developed with several intelligent features and can be installed for the existing ceiling fans. This controller is made in two variants; one is to control a single ceiling Fan with additional features that make a complete bedroom solution cost-effective. Another is a high-power controller that

contains a large number of Fans based on the factors, which conserves a lot of energy

3. **Impact it will create**: As an independent home automation device, it can provide a unique user experience and energy conservation.
4. **Current Status of the Patent** : Patent Granted (Patent No. 486794)
5. **Student Team details/Faculty Mentor :**
   1. H. Selvadevi
   2. B. Pandeeswari
   3. A. Deepika
   4. G. Mani Mekala
   5. P. Latha Nivetha
6. **Patent Filing Date** : 28-02-2022
7. **Patent Granted Date** : 28.12.2023
8. **Patent Application Number** : 202241010736

Patent-274: An apparatus for synthesizing activated carbon

1. **Name of** the Technology: An apparatus for synthesizing activated carbon
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A device is developed to prepare industrial-grade charcoal from waste woods and other non-metallic scraps. The device is very compact, and less skilled labour only required to operate the machine
3. **Impact it will create**: Charcoal production will be made as a cottage industry-level process which will meet the demand for good quality charcoal, and more employment generation will occur
4. **Current Status of the Patent**: Patent granted (Patent No. 431040)
5. **Student Team details/Faculty Mentor :**
   1. M. Pravin
   2. M. Subramani
   3. Sakthi A.
6. **Patent Filing Date** : 02-04-2022
7. **Patent Granted Date** : 03-05-2023
8. **Patent Application Number** : 202241020049

Patent-275: A Safety Gate

1. **Name of the Technology**: A Safety Gate
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A home safety system is developed to enable the user to control the gate opening and closing from any part of the world. The system also features a feature that the user can interact with the person approaching the entry gate. The physical design of the gate is customized according to the user's requirements
3. **Impact it will create**: Home safety with innovative features becomes affordable to all range of customers, which in turn will reduce the crime rates.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Poneeswari J.
   2. Sabu Verma
6. **Patent Filing Date** : 02-04-2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241020050

Patent-276: Medical Assisting Device

1. **Name of the Technology**: Medical Assisting Device
2. **Impact it will create**: A smart medical gadget is developed to act as a health care assistant for older people. The device comprises different modules to follow up on the medication schedule of an individual and monitor critical physical parameters such as blood pressure, heartbeat rate and body temperature. In case of any up normalities, the device is programmed to alert the caretaker over the internet.
3. **Current Status of the Patent** : Published
4. **Student Team details/Faculty Mentor :**
   1. T. Sugirtha Raj
   2. J. Praveen J.
   3. A. Anandh
   4. C. Bharathi
   5. K. N. Manikandan
5. **Patent Filing Date** : 02-04-2022
6. **Patent Granted Date** :
7. **Patent Application Number** : 202241027836

Patent-277: A Method for Removing Dyes from Effluents

1. **Name of the Technology**: A Method for Removing Dyes from Effluents
2. **Highlights of the Technology (innovation/uniqueness etc.)**: An innovative product cum methodology is developed based on the chemical effects of microbial matter on the dye pigments that can cause environmental pollution.
3. **Impact it will create**: This product's commercial availability will immensely help control the environmental pollution that occurs due to the dye pigment industry.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. UNK Ragavan
   2. J. Mohamed Sameer
   3. P. Lakshmanavel
   4. R. Paul Clinton
6. **Patent Filing Date** : 21-06-2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241035566

Patent-278: An apparatus for snipping of bowering members

1. **Name of the Technology**: An apparatus for snipping of bowering members
2. **Highlights of the Technology (innovation/uniqueness etc.)**: An innovative product developed to shred the waste tender coconut shells into fibrous pieces that are further used as organic fertilizers and the best potting material for terrace gardens.
3. **Impact it will create**: This product's commercial availability will immensely help produce and sell organic fertilizers for agriculture field and potting material for terrace gardens at less cost. Also, consuming the waste tender coconut shells can improve the environment's cleanliness, and mosquito aggregation will be controlled.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. S. Manoj
   2. M. Vengatesh
   3. R. P. Muthu Rahul
   4. M. Siva
6. **Patent Filing Date** : 23-07-2023

7. **Patent Granted Date** :
8. **Patent Application Number** : 202341049553

Patent-279: An Apparatus for Priming Anartefact

1. **Name of the Technology**: An Apparatus for Priming Anartefact
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A device is designed and developed to seasoning the newly purchased cricket bat to make it well suitable for playing. The work holding mechanisms in the devise are designed to hold wide variety of bats.
3. **Impact it will create**: The quality of gaming is highly depending on the quality of the sports goods. By using this product, the cricket game quality can be improved and hence the persons who are all providing this service through this novel product may turn huge turnover in the business.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. Boopathi raja P.
   2. Chidambaranathan P.
   3. Esakkimuthu S.
   4. Etraj A.
6. **Patent Filing date** : 23-07-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341049554

Patent-280: An Ethereal Tooling Apparatus

1. **Name of the Technology:** An Ethereal Tooling Apparatus
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A drone for pesticide spraying in the farm field is designed and developed. The important highlight of this product is that the device can be programmed to fly around the predefined farm field path without real-time control by the human operator.
3. **Impact it will create**: Many farmers are struggling to perform farming due to labour shortages, particularly pesticide spraying. This product is a sustainable solution for the said issue.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. T. Anandhavel

2. A. Mohammed Ibrahim Rashid

6. **Patent Filing date** : 14-08-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341054608

Patent-281: Smart Featured LPG Trolley

1. **Name of the Technology:** Smart Featured LPG Trolley
2. **Highlights of the Technology (innovation/uniqueness etc.)**: An electrically powered trolly is designed to safely move over the staircase to carry an LPG cylinder.
3. **Impact it will create**: Due to the heavy weight of the LPG cylinder, many accidents happen while lifting them along the staircases. This product can be a better solution to avoid such accidents and will be a must accessory for multistory building residential communities
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**

   1. T. Aravnd Maharajan
   2. T. David Rajkumar
   3. V. Santhosh Ram
   4. P. Deepak Kumar

6. **Patent Filing date** : 15-12-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341073798

Patent-282: Cylindrical Smokehouse Rubber Sheet Dryer

1. **1. Name of the Technology**: Cylindrical Smokehouse Rubber Sheet Dryer
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A compact, less pollutive oven-like dryer arrangement is designed and developed to dry rubber sheets. The essential highlights are that the temperature and humidity during the drying process can be maintained constantly to ensure maximum productivity.
3. **Impact it will create**: Human operators carry out the rubber sheet drying process entirely, and no automation is developed to control and maintain the process parameters. But this product has provisions to manage and maintain the influential process parameters through which we can increase productivity, thereby ensuring the maximum profit for the farmers.

4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. U. Siva
   2. S. Manivannan
   3. S. Kasiviswanathan
   4. K. Uvarani Alias Uktha
6. **Patent Filing date** : 15-12-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341073799

Patent-283: Smart Fish Tank using IOT

1. **Name of the Technology:** Smart Fish Tank using IOT
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A device to automate many activities towards maintaining an aquarium is designed and developed. The significant highlights include automating tasks such as feeding the fish at precise intervals and changing the water at necessary times, determined by monitoring real-time water conditions.
3. **Impact it will create**: The device cut-shorts the unnecessary work burdens for the pet hobbyists towards maintaining the aquarium tank. Since the device is designed by considering the pet fish's health alongside tank maintenance, the pet's life span will be increased, thereby improving the hobbyists' interest in pet keeping and making the pet hobby a joyful experience.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. T. Venu Vignesh
   2. M. Maniazhagan
   3. K. Esakkiram
   4. M. Nithish Kumar
6. **Patent Filing date** : 30-10-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341073800

Patent-284: Coconut Breaker and Milk Extractor

1. **Name of the Technology:** Coconut Breaker and Milk Extractor
2. **Highlights of the Technology (innovation/uniqueness etc.)**: In the commercial low-scale food industry, breaking a coconut and extracting milk is a tough and time-consuming task considering mass production. This novel semi-automatic device is designed with mechanisms to break the coconut perfectly and extract milk faster.
3. **Impact it will create**: This device is suitable for the small-scale food industry with fewer labourers. Using this device, users may attain maximum productivity with less wastage, thereby increasing their profit.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. Haroon Rasool K
   2. Mohammed Aboobacker Siddeeq A
   3. Nagarajan M.
   4. Saravanaganesh S.
6. **Patent Filing date** : 30-10-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341073801

Patent-285: Domestic Multipurpose Cleaner

1. **Name of the Technology:** Domestic Multipurpose Cleaner
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A compact device is designed and developed for various domestic cleaning works. Crucial parts like kitchen and washroom sinks and Western and Asian toilets demand different cleaning heads. Hence, this device can use interchangeable cleaning heads for various home cleaning operations.
3. **Impact it will create**: Domestic hygiene is essential to avoid spreading diseases. By using this device, cleaning activities can be simplified with higher-quality cleaning. Hence, the users' domestic cleanliness can be improved.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. R. Banupriya
   2. S. Suvalakshmi
   3. M. Uma Raja Selvi

6. **Patent Filing date** : 30-10-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341073802

Patent-286: Onion Peeling and Slicing Apparatus

1. **Name of the Technology:** Onion Peeling and Slicing Apparatus
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The device is easy to use and can be used to peel and slice large quantities of onion quickly. The device also has a safety guard, which protects the user from the blade. The device is easy to maintain and clean. The device is cost-effective and can be used in commercial and residential settings.
3. **Impact it will create**: Improved target operation productivity helps the user increase revenue by using this product.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. Edwinwesly A.
   2. Mathan B.
   3. Shunmuga Sundaram M.
   4. Sivaramakrishnan A.
6. **Patent Filing date** : 30-10-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341073803

11) Velammal Engineering College, Chennai

Patent-287: Solar Hybrid Desalination System

1. **Name of the Technology**: Solar Hybrid Desalination System
2. **Highlights of the Technology (innovation/uniqueness etc.):** Solar based desalination system in addition to a renewable energy source
3. **Impact it will create:** Existing solar panel will be improvised with desalination ability
4. **Current Status of the Patent:**
   - A startup company 'ILLAKANAM Private Limited' registered to commercialize this product.
   - Response to FER submitted, waiting for hearing process
5. **Student Team details/Faculty Mentor :**
   1. Mr. M. Yuvaraj

2. Dr. E. Ganapathysundaram
3. M. Thilac
4. L. Guru Prasanth
5. K. Vignesh
6. B. Nitin Raaj
7. D. Balaji

6. **Patent Filing date** **:** 01st Aug 2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201941031098

Patent-288: Self-Configured and Internet of things supportedpreventive failure Alert System

1. **Name of the Technology**: Self-Configured and Internet of things supportedpreventive failure Alert System
2. **Highlights of the Technology (innovation/uniqueness etc.)**:
   - Standalone device monitors working condition and reports deviation to the registered user.
   - Electrical and electronics appliances current status or before occurrence of failure will be notified by the device developed
   - Reduce the MTTF and MTTR
   - Reduces service time and increase lifetime of appliances.
3. **Impact it will create**:
   - All the appliances condition monitoring effectively demonstrated.
   - 24/7 monitoring of electrical appliances.
   - Avoid undesirable conditions might occur by electrical appliances.
4. **Current Status of the Patent:**
   - Published, waiting to receive First Examination Report from the patent office.
   - FORM 18, submitted
5. **Student Team details/Faculty Mentor :**

   1. Dr. J. Sathya Priya
   2. A. Abdul Rahman
   3. S. Nivedhitha
   4. M. Ranjini Marban
   5. V. Vinoja
6. **Patent Filing date** **:** 23/12/2019

7. **Patent Granted date** :
8. **Patent Application Number** **:** 201941053282

Patent-289: Energy Efficient Cooking Device

1. **Name of the Technology**: Swirl effect of gas mixture to achieve higher thermal efficiency. Highly user friendly safety device for cooking system. The present invention relates to an energy efficient cooking device or gas-stove, particularly a cooking device with an improved thermal efficiency
2. **Highlights of the Technology (innovation/uniqueness etc.)**:
   - Thermal efficiency improvement.
   - Improvement of residential time of Gas – air mixture.
   - To provide an indicator to display the residual level of fuel presence in the cylinder attached with cooking-device or gas stove.
3. **Impact it will create**:
   Tested in Industry. New material used for burner to create flame less effect.
4. **Current Status of the Patent:**
   - Published and received First Examination Report from the patent office. Startup registration in Progress
   - Patent Published
5. **Student Team details/Faculty Mentor :**
   1. Dr. S.Baskara Sethupathy
   2. Ramaiyah
   3. Akilesh Vishnu
   4. Chandrakanth
   5. Gowtham
   6. Tamil Selvan
6. **Patent Filing Date** **:** 22/04/2020
7. **Patent Granted Date** :
8. **Patent Application Number** **:** 202041017257

Patent-290: Self-Configured and internet of things supported calories and workout balancing system

1. **Name of the Technology**: Self-Configured and internet of things supported calories and workout balancing system
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The present invention relates to an intelligent calories and workout balancing system,

more particularly machine learning and internet of things supported calories from food intake followed by calories burning through physical activity monitoring system which facilitates the issue of information about the unburned and/or over burned calories in real time. The wearable and standalone calorie and workout balancing system as claimed in claim 1, the said wearable and standalone device [100] is directed to provide a method of providing accurate calorie intake and expenditure information, comprising steps of: providing an image captured using a camera device [104] interfaced with a wearable and standalone device [100]; providing data augmentation [400] considering data collected from the camera [401] and also repository of food calorie records [402]; providing pre-processing analysis [500] to convert an image to array [501], remove noisy and irrelevant information [502], and label encoding [503]; providing architecture and modelling [600] to identify the better resultant classified information [601] with minimum loss [603]; and providing validation and evaluation information [700] considering the delivery mechanisms of internet of things [701] and text [702] constituted information.

3. **Impact it will create**:

   No similar inventions are available in the market.

4. **Current Status of the Patent:**
   - Published and awaiting for First Examination Report from the patent office.
   - Start-up registration in Progress.
   - Patent is Published
5. **Student Team details/Faculty Mentor :**

   1. Dr. Vinayagam
6. **Patent Filing date** **:** 08/11/2019
7. **Patent Granted date** :
8. **Patent Application Number** **:** 201941045569

Patent-291: Augmented reality and internet of things supported monitoring system

1. **Name of the Technology**: Augmented reality and internet of things supported monitoring system
2. **Highlights of the Technology (innovation/uniqueness etc.)**:

   The present invention relates to an indoor location and ambient parameters aware, more particularly augmented reality and internet of things supported

virtual mapping of environment through deploying wireless embedded sensing modules which facilitate the forwarding of information about present location along with ambient parameters. An intelligent augmented reality and internet of things supported environmental monitoring system, said system and method of providing remote parameters comprising steps of: providing sensory information acquired by the sensing devices [102] to the computational unit [101] assembled in each wireless sensing module [100]; providing processed sensory information to the nearby wireless coordinating module [200]; providing machine learning algorithm constituted localization resultant information to the remote internet server [300]; and providing acquired sensory parameters along with location information on the mobile phone device [400].

3. **Impact it will create**:

   No similar inventions are available in the market.

4. **Current Status of the Patent:**
   - Published and waiting for First Examination Report from the patent office.
   - Startup registration in Progress.
   - Patent is Published
5. **Student Team details/Faculty Mentor :**

   1. Dr. Maryjoans
6. **Patent Filing date** **:** 15/11/2019
7. **Patent Granted date** :
8. **Patent Application Number** **:** 201941046721

Patent-292: Autonomous and Reconfigurable Therapeutic aid system

1. **Name of the Technology**: Autonomous and Reconfigurable Therapeutic aid system
2. **Highlights of the Technology (innovation/uniqueness etc.)**:

   The present invention relates to an autonomous therapeutic aid system, more particularly machine learning and internet of things supported muscle strain activity followed by physical exercises including rehabilitation procedures recommended by physiotherapists and yoga therapists in real time. The autonomous and reconfigurable therapeutic aid system as claimed in claim 1 provided fully functional module configured by the therapists according to the requirement of an user prior to use, said system and method comprising

steps of: providing muscle strain data captured while performing an exercise; providing machine learning to ascertain the impact of an exercise being performed; providing prescription in the form of configuration to be processed by the therapists; and providing the impact analysis and alert message directly to the interactive wearable therapeutic aid system.

3. **Impact it will create**:
   - No similar inventions are available in the market.
4. **Current Status of the Patent:**
   - Published and waiting for First Examination Report from the patent office.
   - Startup registration in Progress.
   - Patent is Published
5. **Student Team details/Faculty Mentor :**

   1. Mr. Ravikumar
6. **Patent Filing date** **:** 20/02/2020
7. **Patent Granted date** :
8. **Patent Application Number** **:** 202041007339

Patent-293: Remote Meeting Assistive Device

1. **Name of the Technology**: Remote Meeting Assistive Device
2. **Highlights of the Technology (innovation/uniqueness etc.)**:

   Analyze online participant's involvement at remote through standalone device. Also supports different participants through Braille interface, language selection and act as assistive device for paralyzed patients by predicting eye stroke.
3. **Impact it will create**:

   A device capable of supporting different participants including disabilities with respect to language selection, Braille interface and eye stroke capture of paralyzed to know their inconvenience.
4. **Current Status of the Patent:**
   - Patent Provisional filed.
   - Patent is Under Examination
5. **Student Team details/Faculty Mentor :**

   1. Dr. J. Sathya Priya
   2. C. Pavithra
   3. Jayaraj Tharika

4. A. Pepinpersia
5. V. Krithika

6. **Patent Filing date** **:** 03/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** **:** 202241031997

Patent-294: Smart Helmet (Intelligent Head protecting safety helmet)

1. **Name of the Technology:** Smart Helmet (Intelligent Head protecting safety helmet)
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Voice operated helmet, active cooling system in helmet, and solar powered helmets.
3. **Impact it will create:**
   - Self powered helmet will operated by voice controlled. So it will reduce the accidents.
4. **Current Status of the Patent:** Waiting for FER
5. **Student Team details/Faculty Mentor :**

   1. Mr. M. Yuvaraj
   2. Dr. E. Ganapathysundaram
   3. Mr. A. R. Sathiyan
   4. Mr. Ananth Sai

6. **Patent Filing date** : 03rd Aug 2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141034855

Patent-295: Hand – Held Braille device and methods translating media and text contents into Braille character thereof.

1. **Name of the Technology:** Hand held Braille device
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Braille device will convert the image, documents and voice note into Braille language.
3. **Impact it will create:**
   - Text & picture will transfer into Braille language.
4. **Current Status of the Patent:**
   - A startup company 'V-Bind Innovation Private Limited' registered to commercialize this product.

- Waiting for FER

5. **Student Team details/Faculty Mentor :**

   1. Dr. E. Ganapathysundaram
   2. N. Pradeep Kumar
   3. S. Praveen Kumar
   4. M. Murali Krishnan

6. **Patent Filing date** : 03rd Aug 2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141034861

Patent-296: "Autonomous gesture controlled surveillance drone System and Methods providing safety thereof"

1. **Name of the Technology:** Autonomous gesture controlled surveillance drone System and Methods providing safety thereof"
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention herein relates to an autonomous gesture controlled aerial vehicle referred as drone configured to fly not limited only with remote controlled pilot, but the movement of user to be monitored, more particularly artificial intelligence supported positioning and gesture recognition system embodied unmanned aerial vehicle with an alert notification mechanism enabled with mobile 10 application user interface, in real-time.
3. **Impact it will create:** It is relevant and required to utilize the technology of UAV for the safety of human, especially woman and it should be capable of recognizing the abnormal events which threaten the safety, an alert notification issued, autonomously.
4. **Current Status of the Patent:**
   - A startup company 'HATSUTECH Private Limited' applied to commercialize this product.
   - Complete specification filed on 7th June 2022
5. **Student Team details/Faculty Mentor :**

   1. Dr. S. Gunasundari

6. **Patent Filing date** : 07th June 2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202141025773

Patent-297: Automated Dosa Cooking Machine and Methods of Cooking Dosa Thereof.

1. **Name of the Technology**: Automated Dosa making machine.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - No human intervention but single button initiated,
   - Dosa varieties are also proposed to make with the same machine.
   - Comprises a plurality of appropriate containers attached within said Dosa making machine to store batter and other essential consumables.
3. **Impact it will create**:
   - Modern kitchen with lesser human interface.
4. **Current Status of the Patent**:
   - Complete Patent Filed. Faculty startup registration in Progress.
   - Waiting for Publication
5. **Student Team details/Faculty Mentor :**

   1. Dr. S. Baskara Sethupathy
   2. Ananth Sai Shankar
   3. Sathiyan
   4. Vishnuprasad
6. **Patent Filing date** : 08/05/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141020911

Patent-298: "Automated ventilator and methods of controlling flow rates thereof"

1. **Name of the Technology:** "Automated ventilator and methods of controlling flow rates thereof"
2. **Highlights of the Technology (innovation/uniqueness etc.):** This Proposed Design can be implemented in any hospital with slight modifications, also it can able to control multiple BVM bags/ Oxygen valves remotely with limited Doctors.
3. **Impact it will create:** This proposed project is much more effective than the existing automated ventilators available in the market, which is actuated by a stepper motor, which loses its efficiency due to mechanical damage and frictional loss.
4. **Current Status of the Patent:**
   - Planned to knowledge transfer with Velammal Hospitsl, Madurai..

- Complete specification filed on 28th July 2022

5. **Student Team details/Faculty Mentor :**

   1. Mr. D. Dineshbabu
   2. Dr. S. Satish Kumar
   3. Dr. M. Deepak Kumar
   4. Mr. A. John Leonard

6. **Patent Filing date** **:** 28th July 2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241043158.

Patent-299: Self Sustainable E-Boat

1. **Name of the Technology:** Self Sustainable Electric Boat
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Nozzle Pipe Micro Turbine (NPMT), Confined Air Turbine Generator (CATG) and Solar Panel. These are the technologies adopt to generate the electricity power to operate the boat in self sustainable mode.
3. **Impact it will create:**
   - Boat Rider / Fisherman can able to run the boat without any external power sources.
4. **Current Status of the Patent:**
   - Patent -Complete specification was filed and waiting for publication results
   - Document is under preparation for the startup company in the name of 'PP-AVC Enterprises' to commercialize this product.
   - Publication report awaiting for
5. **Student Team details/Faculty Mentor :/ Faculty Mentor**
   1. Mr. V.Chandran
6. **Patent Filing date** : 06st June 2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241032368

Patent-300: "Electronic Watchdog based burglary alert system"

1. **Name of the Technology:** "Electronic Watchdog based burglary alert system
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention herein relates to an electronic security system, particularly an electronic watchdog-based home or office or similar premises safe system,

more particularly an intruder alert system to prevent burglaries, in real-time efficiently. Various environmental sounds around the monitoring region are captured using an embedded system device, and the environmental sounds are compared with trained sound models using a machine learning algorithm located in the embedded device. If any malicious sounds are detected, an alert is sent to the client using LoRa communication technology. In-node processing is used to make a decision about abnormal activity related to theft based on environmental sound. The system based on edge computing makes the decision without the need for any backend network infrastructure and the system is appropriate in areas where proper infrastructure is not possible. The device is portable, battery-powered, and simple to use even for those with little technical knowledge.

3. **Impact it will create:** The primary object of the present invention is to protect the home and belongings in the event of burglary. To prevent burglaries by alerting the appropriate authorities if any unusual activity detected. To classify the sounds as normal and unusual sounds. Invention is to implement said surveillance system in remote areas with limited infrastructure.
4. **Current Status of the Patent:**
   - Complete specification filed on 04th July 2022
5. **Student Team details/Faculty Mentor :**

   1. V. Rengarajan
6. **Patent Filing date** **:** 04th July 2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202141030030

Patent-301: Autonomous water surface cleaning machine and methods of removing floatable waste

1. **Name of the Technology:** Autonomous water surface cleaning machine
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention herein relates to an autonomous water surface cleaning movable machine, more particularly the autonomous floatable solid waste cleaning machine provisioned as a battery operated, wirelessly monitored, and controlled using a mobile phone, autonomous navigation enabled, and assembled with appropriate sensory interfaces to identify the obstacles in the navigation path along with water depth measurement.

3. **Impact it will create:** Despite environmental regulations that protect the quality of streams, lakes, and wetlands, solid waste in the form of trash, litter, and garbage often ends up in these surface waters. Because surface waters collect in low-lying areas, anything that is dropped or blown into a watershed can eventually reach a drainageway. In urban areas, trash and litter often are transported by stormwater runoff. In both urban and rural areas, these items sometimes are illegally dumped directly into a waterbody or wetland, or deposited along riverbanks or lakeshores. Cleaning of solid wastes, especially floating garbage in a water body, sea, and river and pond considered important as a step to preserve the better eco system. Floating garbage prevented the sun light and nutrient gases to flow to the depth of water and impacted on the natural diversity.
4. **Current Status of the Patent:**
   - Complete specification patent filed. Start-up to be established in September for commercialization
   - Complete Specification submitted, waiting for publication
5. **Student Team details/Faculty Mentor :**
   1. Dr. M. Deepak Kumar
   2. Sathya Narayanan P.
   3. Sathiya Narayanan S.
   4. Mohan Raj R.
   5. Vimalraj A. T.
6. **Patent Filing date** **:** 15-03-2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141010783

Patent-302: Artificial Intelligence Embodied Drone and methods of spraying relevant Chemical thereof

1. **Name of the Technology**: Artificial Intelligence Embodied Drone and methods of spraying relevant Chemical thereof.
2. **Highlights of the Technology (innovation/uniqueness etc.):** This project aims to achieve mainly the development of artificial intelligent based pesticide spraying agro-drone for Mango farms with an Autonomous Spraying and Maneuvering system, particularly fitted to a Unmanned Aerial Vehicle system which utilizes Propulsion System within a Hexacopter Frame Setup. More particularly, the present invention relates to an Agricultural Multipurpose

Unmanned Aerial Vehicle system, which Performs Takeoff, Hovering, Cruising, Landing and any other operations using a Specially Guided Autonomous Path Planning System in the process within a Machine Planner Configured with Ground Station and Flight Controller to Precisely Markup the Geo Coordinates for Various Applications such as Spraying, Disease history Library, Yield Library, Health Parametrics Data etc.

3. **Impact it will create**: The primary object of the present invention is to provide a pesticide and or fertilizer spraying drone, especially suitable for tall trees orchard, in real-time, and to prevent the farmers manually climbing the trees to spray chemicals and protect them from respiratory diseases, skin allergies and occurrence of accidents. Also, the work enables the drone to reach an optimum height to spray pesticides even in the top of the trees which are specifically affected by the pests. Artificial intelligence-based algorithm is used to recognize the kind of diseases and/or pests occurred in the trees considering image data-set acquired in real-time.
4. **Current Status of the Patent** :
   Complete specification of the Patent filed
5. **Students team details/Faculty Mentor**
   1. Mr. S. Praveen Kumar
   2. Mr. V. Magesh
   3. Mr. T. Ramakrishnan
   4. Dr. M. Arockia Jaswin
6. **Patent Filing date** : 03/08/2021
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202141034869

Patent-303: Autonomous Unmanned Aerial Vehicle with Vertical Take-off and Landing Mechanism

1. **Name of the Technology:** Autonomous Unmanned Aerial Vehicle with Vertical Takeoff and Landing Mechanism
2. **Highlights of the Technology (innovation/uniqueness etc.):** Vertical Takeoff Landing based delivery system to provide medical care and resolve the problems based on healthcare emergency aid.
3. **Impact it will create:**
   - Autonomous based Effective delivery system (Drug, Food etc.,) during disaster time.

4. **Current Status of the Patent:**
   - A startup company 'VBIND Innovations Private Limited' registered to commercialize this product.
   - Complete Specification submitted, waiting for publication
5. **Student Team details/Faculty Mentor :**
   1. Dr. A. Lakshmi Sangeetha
   2. Mr. S. Praveen Kumar
   3. Mr. R. Akash
   4. Mr. S. Jay Ganesh
   5. Mr. H. Rajagopal
6. **Patent Filing date** **:** 15/03/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141010779

Patent-304: Autonomous accident alert system and methods of informing thereof

1. **Name of the Technology:** Autonomous accident alert system and methods of informing thereof
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention herein relates to an autonomous reporting and/or alerting system to inform the occurrence of an accident to the vehicle installed with, more particularly an immediate recognition of occurrence of an accident and inform the concerned along with location information to facilitate earlier recovery.
3. **Impact it will create:** The present invention can be applied in various vehicles to understand the present status of vehicle along with user information and location details. The system enabled the user to prevent unauthorized access of the vehicle, condition of the driver whether he felt drowsiness while driving, occurrence of an accident, accident location and current state of the user who met the accident to the concerned authority.
   - Said alert system informs the concerned authority when it detected an unauthorized access of the vehicle.
   - Said alert system configured to detect the user state, whether he felt drowsiness while driving.
   - Said alert system detects the occurrence of an accident.
   - Said system informs the concerned authority/paramedical team about the location where the accident occurred.

- Said aerial vehicle informs the present status of the user who met the accident.

4. **Current Status of the Patent:**
   - Relevant company is being explored for possible technology transfer.
   - Complete Specification submitted, waiting for publication
5. **Student Team details/Faculty Mentor :**

   1. Dr. Thilagam
6. **Patent Filing date** **:** 04/06/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141024852

Patent-305: Autonomous bike Monitoring system and methods of confirming safety to rider and bike thereof

1. **Name of the Technology:** Autonomous bike Monitoring system and methods of confirming safety to rider and bike thereof
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention herein relates to an autonomous vehicle monitoring system wherein vehicle more particularly refers a bike or two-wheeler, more particularly an assistive system provisioned with a plurality of sensory interfaces to deliver essential information related to both safety of a rider and also the bike, in real-time efficiently.
3. **Impact it will create:**

   The present invention can be applied to perform bike monitoring activities either for an individual bike rider or a commercial rental based services.
   - Said bike monitoring system confirmed the safety of the rider and security to the bike.
   - Said bike monitoring system enabled to track the location information.
   - Said system configured as a standalone module and can be reconfigured on the basis of the requirements of the user.
   - Said system made as a plug and play module and attached to an existing bike without requiring any additional interfaces.
   - Said system enabled with detailed analysis of historic data.
   - Said system provisioned to alert the concerned authority when it detected an unauthorized access and/or occurrence of an accident.
4. **Current Status of the Patent:** Relevant company is being explored for

possible technology transfer. Patent is Published

5. **Student Team details/Faculty Mentor :**

   1. Ms. Shankari

6. **Patent Filing date** **:** 19/06/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141027476

Patent-306: Three-Dimensional Obstacle Avoidance Andautomatic Manoeuvring System

1. **Name of the Technology:** Three-Dimensional Obstacle Avoidance Andautomatic Manoeuvring System
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention herein belongs to an unmanned aerial vehicle or drone system, particularly an unmanned aerial vehicle embodied with three-dimensional obstacle avoidance and manoeuvring or manoeuvring system, more particularly collection of its position and navigation data for exploring in global positioning system (GPS) deprived regions, in real-time accurately.
3. **Impact it will create:**
   - Said aerial vehicle featured with an obstacle avoidance mechanism to prevent collision with the obstacles while flying.
   - Said aerial vehicle can be used in GPS deprived regions, where GPS is not accurate.
   - Said aerial vehicle automatically detects the obstacle and prevents it from the accident.
   - Said aerial vehicle made as a highly portable due its small size.
   - Said aerial vehicle observed with a zero-emission and eco-friendly product.
   - Said aerial vehicle comprises of a battery and charging module.
   - Said aerial vehicle comprises of an autonomously flying ability without a human operator involvement.
4. **Current Status of the Patent:** Relevant company is being explored for possible technology transfer.
5. **Student Team details/Faculty Mentor :**

   1. Mr. Vinayagam

6. **Patent Filing date** **:** 05/07/2021

7. **Patent Granted date** :
8. **Patent Application Number** : 202141030104

Patent-307: Sustainable package container and methods of improving shelf-time of food items thereof

1. **Name of the Technology**: Sustainable package container and methods of improving shelf-time of food items thereof
2. **Highlights of the Technology (innovation/uniqueness etc.):** This product aims at producing innovative sustainable boxes that protect crops from unfavorable conditions in the granaries and during transportation. The sustainable box incorporates the following five layers with their significant usage, a longevity layer, an antimicrobial layer, a rodent repellent layer, a rugged layer, and a super hydrophobic layer. Each layer is produced from agro-waste like rice husk, plant extracts, corn, and rice starch.
3. **Impact it will create**:
   The sustainable box will improve the livelihood of farmers and consumers. It reduces the environmental impact and protects the important natural resources for future generations.
4. **Current Status of the Patent**: Provisional Patent filed
5. **Students team details/Faculty Mentor**
   1. Ananth Sai Shankar V.
   2. Sathiyan A. R.
   3. Dhanalakshmi P.
   4. Dr.Ganapathy Sundaram E.
   5. Dr. Suresh S.
6. **Patent Filing date** : 30/11/2021
7. **Patent Granted date** : -
8. **Patent Application Number** : 202141055321

Patent-308: Assembly of Fuel Cell Membrane and Methods of Synthesizing Thereof

1. **Name of the Technology:** Assembly of Fuel Cell Membrane and Methods of Synthesizing Thereof
2. **Highlights of the Technology (innovation/uniqueness etc.):** Pd based alloy obtained by employing low current through galvanostatic pulsed electrodeposition technique exhibit dendritic structure. This unique structure will enhance the catalytic activity at the electrodes and thereby enhance the

hydrogen evolution. Choice of rGO will resist oxidation & degradation owing to its hydrophobicity and also as the alloys were supported on to the rGO dealloying can be reduced in a great extent. Hence this work focuses on incorporating the significant behavior of both Pd based alloy and rGO into a single catalytic material. Pulsed electrodeposited method using a galvanostatic power supply will be followed for the deposition of Pd-Ni nanoparticles and incorporated the rGO by using the sonication method. **Hence Pt free PEM for fuel cell with Pd and rGO based electrocatalyst was fabricated.**

3. **Impact it will create:** Over the last two decades, energy needs have increased dramatically, especially because of the transportation and industry sectors. This led to the crucial need for developing alternative green energy source or energy conversion including water splitting, fuel cells, metal-air batteries and so on. To meet this demand researchers have involved in developing and commercializing the fuel cell technology. The huge challenge in the commercialization of proton electron membrane fuel cells (PEMFC) technology is the cost and availability of catalyst used over the MEA. **Cost and efficiency of the fuel cell can be improvised by replacing Pt free Pd based PEM.**
4. **Current Status of the Patent:** Working on the PEM membrane Pd based alloy obtained by employing low current through galvanostatic pulsed electrodeposition technique exhibit dendritic structure. Pulsed electrodeposited method using a galvanostatic power supply will be followed for the deposition of Pd-Ni nanoparticles and incorporated the rGO by using the sonication method. The formed Pd-Ni/rGO composite will be coated onto the polymer electrolyte membrane. This PdNi/rGO composite PEM will be fused into a fuel cell.
5. **Student Team details/Faculty Mentor :**
   1. Dr. S. Shahil Kirupavathy
   2. Dr. T. A. Revathy
   3. Mr. Ananth Sai Shankar V
   4. Mr. R. Sathiyan
6. **Patent Filing date** **:** 14th April 2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241022256

Patent-309: Recycling waste textile materials and method of making new textile material

1. **Name of the Technology:** Fabrigator – A machine to convert scrap textile into New textile material
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present innovation herein belongs to a recycling machine, particularly related to textile recycling, more particularly a compact setup considered to produce a quality yarn from used clothes that can be used to make new clothes.
3. **Impact it will create:**

   Global clothing production has quadrupled since the 2000s and will double in the next 5 years. Conventional techniques of recycling clothes are inefficient for such a large textile wastage. It would take 50,000 years just to deal with just one week's worth of waste from the market. Landfill sites pose a threat to the environment and water supplies. When it rains, water drains through the discarded clothes and picks up hazardous chemicals and bleaches. This water turns out to be toxic. Government of India Banned import and sales Second-hand Clothes since 1994. All clothing has a useful second life. The necessary steps in the textile recycling process involve the donation, collection, sorting, blending, making fine threads with shoddy fibers and processing of textiles, and then subsequent transportation to end users as brand new garments. We are creating a revolution by developing a potential machine for recycling old textiles into new textiles and garments.
4. **Current Status of the Patent:**
   - Provisional patent filed. Start-up to be established in September for commercialization
   - Complete Specification to be filed in November 2022
5. **Student Team details/Faculty Mentor :**

   1. Dr. M. Deepak Kumar
   2. Ananth Sai Shankar V.
   3. Gowtham Shankar K.
   4. Ajith S.
6. **Patent Filing date** **:** 14-05-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241028072

Patent-310: Autonomous robotic device and method of localizing and reaching acoustic source thereof

1. **Name of the Technology**: Autonomous robotic device and method of localizing and reaching acoustic source thereof
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The present innovation herein belongs to a robotic device, particularly relates to an autonomous network enabled holonomic drive robotic device, more particularly a method of localizing and reaching out an acoustic source, autonomously.
3. **Impact it will create:**
   - Accidental falls are one of the greater dangers to elders at home. The robot is equipped with 3 cardioid microphones capable of performing Acoustic Triangulation i.e determining the location of the source of a sound just by observing the sound waves. This allows the bot to detect any accidents just by the noise of distress or falling articles and be able to triangulate the location of the incident just by listening to the audio feed, allowing the bot to autonomously navigate to the possible person in distress.
4. **Current Status of the Patent** **:** Applied for patent
5. **Student Team details/Faculty Mentor :**
   1. Mr. K. R. Rakhul
   2. Mr. K. Sundar
   3. Mrs. R. Amirthavalli
6. **Patent Filing date** **:** 08 June 2023
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202341039133

Patent-311: Remote-Controlled Subaquatic Vehicle for Enhanced Aquarium Inspection and Maintenance

1. **Name of the Technology:** Remote-Controlled Subaquatic Vehicle for Enhanced Aquarium Inspection and Maintenance
2. **Highlights of the Technology (innovation/uniqueness etc.):** AQUABOT an advanced subaquatic drone designed to transform the world of aquarium maintenance. With a mission to protect aquatic life and simplify maintenance for aquarists, AQUABOT boasts cutting-edge features. Equipped with a

precise sensory unit, it monitors pH levels, water temperature, and turbidity, ensuring optimal aquarium conditions. With a robust design capable of operating at depths of up to 30 meters and withstanding pressures of 4 to 5 bars, it is built for aquarium environments. It detects early fish abnormalities, preventing loss, and employs image processing to identify tank cracks, saving aquatic life. Plus, it enhances safety by tracking and following aquarists during maintenance.

3. **Impact it will create:** AQUABOT is set to safeguard the aquarium care, ensuring healthier aquatic ecosystems and simplifying maintenance for aquarists. By proactively monitoring environmental parameters, detecting fish abnormalities, and preventing tank damage, it will reduce aquatic life loss, conserve water, and enhance safety during maintenance tasks, making a significant positive impact on both the aquarium industry and the preservation of aquatic ecosystems.
4. **Current Status of the Patent:**

   Patent filed. Start-up to be established in December for commercialization
5. **Student Team details/Faculty Mentor :**
   1. Dr. C. Murukesh
   2. Dr. S. Mary Joans
   3. Mr. K. Radhakrishnan
   4. Yokesh J.
   5. Dhanalakshmi P.
   6. Faheem Jinna S.
   7. Harini G. N.
   8. Ananth Sai Shankar V.
6. **Patent Filing date** **:** 04-10-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341066441

12) Sphoorthy Engineering College, Hyderabad

Patent-312: An Integrated Design and Implementation of Fpga Based Health Monitoring System

1. **Name of the Technology:** An Integrated Design and Implementation of Fpga Based Health Monitoring System
2. **Highlights of the Technology (innovation/uniqueness etc.):** This innovation creates a Monitoring system for all the patients present in a Ward/CPU. It gives the status of all the patients in a glimpse.
3. **Impact it will create:** It eases the way to identify the most critical Patient and about the current situation f the Patients.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**
   1. G. Gnaneshwar
   2. G. Vamsi Prasad Reddy
   3. B. S. Sravya
   4. Mallepalli Navya
6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031432

Patent-313: Community-Based Home Security For Independent Houses Using Iot With Enhanced Version

1. **Name of the Technology:** Community-Based Home Security For Independent Houses Using Iot With Enhanced Version
2. **Highlights of the Technology (innovation/uniqueness etc):** Creating IoT based Switches to Automatcally control and Monitor any Electrical Appliances.
3. **Impact it will create:**
   This Innovation reduces the amount of Usage of Electricity by avoiding the unnecessary power consumption based on the sensor network
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**
   1. Yamini
   2. K.Rohit
   3. A. Shiva Reddy

4. M. Krishna

6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202241031417

Patent-314: Design & Implementation of E-Suit for Parking of Vehicles under Abnormal/Emergency Condition

1. **Name of the Technology:** Design & Implementation of E-Suit for Parking of Vehicles under Abnormal/Emergency Condition
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This is a Portable Car cover made to protect the Car Body in any Parking Area.
3. **Impact it will create:**
   - It will increase the security and Protection of your vehicles.
4. **Current Status of the Patent:**
   - Published
5. **Student Team details/Faculty Mentor :**

   1. Karthik N.
   2. A. Priyanka
   3. P. Kavya Reddy
   4. D. Sravani

6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031424

Patent-315: Design and implementation of a Smart Mailbox for letters and mails to provide delivery of letters intimation via IOT

1. **Name of the Technology:** Design and implementation of a Smart Mailbox for letters and mails to provide delivery of letters intimation via IOT
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This project is aIoT based box with OTP based oening and closing which allows to collect the parcel and Lock it.
3. **Impact it will create:**
   - It will provide the Security of parcels being dropped at your door
4. **Current Status of the Patent:**
   - Published

5. **Student Team details/Faculty Mentor :**
   1. Geethika
   2. Aishwarya
   3. Sai Pratyusha
   4. Swapna
6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031447

Patent-316: Design and implementation of way map for finding the exact location of the bus custom based

1. **Name of the Technology:** Design and implementation of way map for finding the exact location of the bus custom based
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - It is a Tracking and Monitoring system for all kinds of Vehicles especially designed for Logistics transport
3. **Impact it will create:**
   - It provides the LogisticTransport monitoring and reduces the of goods during transpot.
4. **Current Status of the Patent:**
   - Published
5. **Student Team details/Faculty Mentor :**
   1. A. Likitha
   2. K. Ramesh Kumar
   3. A. Sreenitha
6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031449

Patent-317: Design of a remote-controlled drone cum car based prototype innovative technology for future using pixhawk flight controller

1. **Name of the Technology:** Design of a remote-controlled drone cum car based prototype innovative technology for future using pixhawk flight controller

2. **Highlights of the Technology (innovation/uniqueness etc.):** Servo control Tilt mechanism along with profiled Propellers to delever the product at the doorstep.
3. **Impact it will create:**
   - This project can become the initiation for drone delivery at door step as it can move on land also fly.
4. **Current Status of the Patent:**
   - Published
5. **Student Team details/Faculty Mentor :**
   1. P. Pranathi
   2. K. Bhargav
   3. Soumya
6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031433

Patent-318: Development of a driven based cutter for mulberry plant no increase the productivity of the silkworm

1. **Name of the Technology:** Development of a driven based cutter for mulberry plant no increase the productivity of the silkworm
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Mullbery cutting system
3. **Impact it will create:**
   - It will reduce the Manual hardwork,Cost and time involved in it.
4. **Current Status of the Patent:**
   - Published
5. **Student Team details/Faculty Mentor :**
   1. Ch. Swami
   2. Shivaramamurthi
   3. Saikiran Reddy
6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031436

Patent-319: Low cost convertible wheel chair cum stretcher for patients and physically handicapped people

1. **Name of the Technology:** Low cost convertible wheel chair cum stretcher for patients and physically handicapped people
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Wheelchair to Hospital Bed Convertion electrically Powered .
3. **Impact it will create:**
   - It will reduce the more injuries to patient transferring him from streture to beds and other treatment utilities.
4. **Current Status of the Patent:**
   - Published
5. **Student Team details/Faculty Mentor :**

   1. K. Abhishek Prathap Sing
   2. Kommid Navya Sai
   3. Rishikar Rao
6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031428

Patent-320: Low cost traditional agriculture spray based on pressure

1. **Name of the Technology:** Low cost traditional agriculture spray based on pressure
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Dynamical movement pressuring the pesticide to get Sprayed.
3. **Impact it will create:**
   - This will remove the burden of Farners Carrying the pesticide Sprayers at their backs.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**

   1. K. Narendra
   2. T. Kalyan Kumar
   3. K. Praveen
6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031422

Patent-321: Power management system based autonomous grass cutter robot system using solar power technology

1. **Name of the Technology:** Power management system based autonomous grass cutter robot system using solar power technology
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Automated Grass cutting Robot for a given Surface Area.
3. **Impact it will create:**
   - It will reduce the no.of People deployed for Grass cutting Operation in Lawns and Grounds.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**

   1. Visla Krishna
   2. L. Praveen Kumar
   3. P. Sai Teja Varma
6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031444

Patent-322: Raspberry PI based smart kitchen safety system with alert system

1. **Name of the Technology:** Raspberry PI based smart kitchen safety system with alert system
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - An Automated Gas Cut-off Knob replacing the original knob with mproved safety ans associated with IoT technology to safeguard Gas rlated Accidents
3. **Impact it will create:**
   - It will reduce the Number of Gas Cylinder Accidents and Increase Safety
4. **Current Status of the Patent** **:** Published
5. **Student Team details/Faculty Mentor :**

   1. V. Naga Sai Durga
   2. C. Sathish Kumar
   3. Hrudayanath
6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031426

Patent-323: Novel method & NBSP; of an intelligent technology to compensate the problems by fuel cost for automobiles by using compressed air

1. **Name of the Technology:** Novel method & NBSP; of an intelligent technology to compensate the problems by fuel cost for automobiles by using compressed air
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Compressed air car works with natural Air and provides motion to the Vehicle.
3. **Impact it will create:**
   - It will reduce the use of Crude oils and also Pollution
4. **Current Status of the Patent:**
   - Published
5. **Student Team details/Faculty Mentor :**
   1. Swetha
   2. Bhanu
   3. Ramya
   4. Pranay
6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031443

Patent-324: Design and Implementation of an Ultra-Efficient Long-Range Electric Bike with Embedded Ultra Capacity

1. **Name of the Technology:** Design and Implementation of an Ultra-Efficient Long-Range Electric Bike with Embedded Ultra Capacity
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Electric Bike powered by Hub Motors and self charging capability.
3. **Impact it will create:**
   - It will be the most cost-effective transport for customers.
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. V. Vinay Kumar
   2. V. Harsha vardhan
   3. M. G. Santhosh Kumar
   4. Polishetti Harish

6. **Patent Filing date** **:** 07/8/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341059574

Patent-325: Cognizant peddestrian protection in smart urban environments: A multisensory IoT approach to real

1. **Name of the Technology:** Cognizant peddestrian protection in smart urban environments: A multisensory IoT approach to real
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This project uses a line of sight sensor network at the signals which alert the vehicle driver crossing the signal and doesn't allow him to cross the position
3. **Impact it will create:**
   - It will implement the traffic rules perfectly and traffic regulates perfectly with this.
4. **Current Status of the Patent:**
   - Filed
5. **Student Team details/Faculty Mentor :**
   1. G. Sai Charan
   2. A. Vedanthkumar Reddy
   3. Ch. Ganesh Reddy
   4. D. Venkata Krishna
6. **Patent Filing date** **:** 07/07/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341059582

Patent-326: Precision traffic control advance road safety through zone specific speed regulation

1. **Name of the Technology:** Precision traffic control advance road safety through zone specific speed regulation
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This is a project where speed of the vehicle gets automatically controlled when they enter specific zones and cannot increase speed of the Vehicle in that particular Zone.With the latest advancements in the EV technology this can very much happen with use of tags and readers (ex: School zone, Hospital Zone)

3. **Impact it will create:**
   - It will safe guard the road accedints at Specific zones and regions.
4. **Current Status of the Patent:**
   - Filed
5. **Student Team details/Faculty Mentor :**

   1. S. Madhuri Reddy
   2. C. Naveen Kumar
   3. Burgula Prathik
   4. A. Archita
6. **Patent Filing date** **:** 07/07/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341059590

Patent-327: Intelligent IoT-Embedded system for real time driver alertness monitoring and intervention using SEN

1. **Name of the Technology:** Intelligent IoT-Embedded system for real time driver alertness monitoring and intervention using SEN
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This alerting driver seat consists of vibrating Motors on the front and bottom side of the seat alerting the driver in a frequency not allowing him to sleep.
3. **Impact it will create:**
   - It will reduce the road accidents caused especially in the late nights and early Mornings.
4. **Current Status of the Patent:**
   - Filed
5. **Student Team details/Faculty Mentor :**

   1. V. Harideep
   2. K. Srujan Kumar
6. **Patent Filing date** **:**
7. **Patent Granted date** :
8. **Patent Application Number** : 202341059583

Patent-328: Management of Fresh Water Parameters using the Nanyatha Device

1. **Name of the Technology**: Management of Fresh Water Parameters using the Nanyatha Device
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This project is a community-based water purity / drinkability measurement device along with valve control unit system to allow / disallow the water to that community homes.
3. **Impact it will create:**

   It is mainly used at water storage tank, chemical treatment plantand community storage spots for checking the drinkability of water which will make sure that people are dinking a safe and healthy water.
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**

   1. Akkala Venkata Sai Pranav Simha Reddy
   2. Goli Sai Kaushik Reddy
   3. Konduru Sai Kumar
   4. Tangalla Dinesh Kumar Reddy
6. **Patent Filing date** **:** 28/12/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141061153

Patent-329: AI-Based Human less Virus Sanitization Robot in Private Places Like Gatherings, Malls

1. **Name of the Technology:** AI-Based Human less Virus Sanitization Robot in Private Places Like Gatherings, Malls
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   This an Autonomous Robot which sprays the sanitizer without humans entering in to the virus infected areas .
3. **Impact it will create:** This will protect the humans from entering in to the infected space and Sanitize the space completely.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**

   1. Geethika Agarwal
   2. M. Srini Reddy
   3. A.Siva Sai Teja Reddy
   4. Priyanshu Sethi

6. **Patent Filing date** **:** 28/12/2021
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202141061151

Patent-330: Electric power cut system based on advanced sensor

1. **Name of the Technology:** Electric power cut system based on advanced sensor
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Intelligent Switching circuit for Electric Power rails
3. **Impact it will create:**
   - It will reduce the no.of Deaths due to electric shocks on Road because of Broken electric Wires.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**
   1. Voruganti Sai Harshith
   2. Gorre Pravalika
   3. Yeadaguri Venkata Jeshwanth Kumar Reddy
6. **Patent Filing date** **:** 28/12/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141061155

Patent-331: Medical Assistance Box-Smart Medic Drawer Unit

1. **Name of the Technology:** Medical Assistance Box-Smart Medic Drawer Unit
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Automated Medicine dispensing box with alarm and time setting features
3. **Impact it will create:**
   - It will take care of the elderly people daily medicines.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**
   1. Koyya Jayamalavika
   2. Bondili Jyothi
   3. Chilkamari Prathyusha
6. **Patent Filing date** **:** 28/12/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141061154

Patent-332: Smart Handheld Device System for Overhead Water Tank Cleaning

1. **Name of the Technology:** Smart Handheld Device System for Overhead Water Tank Cleaning
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A handheld Over head Tank Cleaning System with a motor and battery powered with different cleaning brush attachement system.
3. **Impact it will create:**
   - It will reduce the difficulty of every households cleanng their Tanks.
4. **Current Status of the Patent:**
   - Published
5. **Student Team details/Faculty Mentor :**

   1. Kotapati Prathysh
6. **Patent Filing date** **:** 28/12/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141061152

Patent-333: RFID based smart cart for shopping malls using internet of things

1. **Name of the Technology:** RFID based smart cart for shopping malls using internet of things
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This project is designed to reduce the queue at the billing station in the shopping malls. The major novelty lies at the Error checking mechanism which is the difference between billed weight and cart Items Weight .This is Billing at the cart model.
3. **Impact it will create:** It will reduce time and effort of people standing in long queues for billing at shopping malls (ex: Dmart).
4. **Current Status of the Patent:**
   - Filed
5. **Student Team details/Faculty Mentor :**

   1. K. Pranav Sarma
   2. K. Nanda Gopal
   3. Konnagula Srikanth
6. **Patent Filing date** **:** 07/07/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341059571

Patent-334: License plate recognition using IoT: Enhancing vehicle security and surveillance

1. **Name of the Technology:** License plate recognition using IoT: Enhancing vehicle security and surveillance
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This is a OCr based Machine learning technique used to read he physical number plate and operate on the gate opening , security and survelliance of a Transport Organization.
3. **Impact it will create:**
   - It will automate the process by eliminating certain procedures of Logistics Loading check in Transportation sector.
4. **Current Status of the Patent:**
   - Filed
5. **Student Team details/Faculty Mentor :**

   1. N.Sanjana reddy
   2. B. Neha Latha Reddy
6. **Patent Filing date** **:** 07/07/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341059580

Patent-335: Novel Method & NBSP; of an Intelligent Technology to Compensate the problems by Fuel Cost for Automobiles by using compressed air

1. **Name of the Technology:** Novel Method & NBSP; of an Intelligent Technology to Compensate the problems by Fuel Cost for Automobiles by using compressed air
2. **Current Status of the Patent:**
   - Published
3. **Student Team details/Faculty Mentor :**

   1. Poloju Lohithaksha
   2. Gaddi Pavan Kalyan
4. **Patent Filing date** : 01-06-20222
5. **Patent Granted date** :
6. **Patent Application Number** : 202241031443

Patent-336: Robotic mechanical motor mounted automatic wire cutting mechanism tool

1. **Name of the Technology**: Automatic Wire Cutting Machine
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   This project cuts the wire with desired quantity and Length Automatically as per the required cable lengths and quantity with respect to desired inputs.
3. **Impact it will create:**
   It will reduce the Physical Work of Cable Manufacturers and assocate Electrical Workers.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**
   1. Pranathi Reddy S.
   2. Manogna Sree D.
   3. Vaishnavi K.
   4. Sathwika Reddy G.
6. **Patent Filing date** : 01-06-20222
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202241031415

Patent-337: Artificial Intelligence based grocery Shopping Pickup Lift Robot using Internet of Technology

1. **Name of the Technology**: Artificial Intelligence based grocery Shopping Pickup Lift Robot using Internet of Technology
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A lifting mechanism for daily goods, Grocery and parcel collection for Multi storey Buildings.
3. **Impact it will create:** It will reduce the Knee related issues especially for Women in every house.
4. **Current Status of the Patent** **:** Published
5. **Student Team details/Faculty Mentor :**
   1. Y. Jeshwanth Kumar Reddy
   2. Abhinav Sikharam
6. **Patent Filing date** : 01-06-20222
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031423

Patent-338: Convenient method to reduce the noise effects on statoscope using bluetooth wireless technology

1. **Name of the Technology**: Convenient method to reduce the noise effects on statoscope using bluetooth wireless technology
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Audio amplification circuit and Wireless communication
3. **Impact it will create:**
   - It will reduce the contact OP check up system and makes it contact less.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**

   1. V. Sai Harshith
   2. G. Pravallika
6. **Patent Filing date** **:** 01-06-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031427

Patent-339: Real time speech device for deaf and dumb people using sign language via wireless connectivity

1. **Name of the Technology:** Real time speech device for deaf and dumb people using sign language via wireless connectivity
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Morse to text and speech converter device
3. **Impact it will create:** It can make many differently disabled people to communicate with each other.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**

   1. U. Sathwik
6. **Patent Filing date** **:** 01-06-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031389

Patent-340: Low-Cost Intelligent Face Shield and Social Distancing Device

1. **Name of the Technology:** Protective Face shield for Municipal Workers
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Design of the mask and Automatic gas detection alert and oxygen supply system. Received MSME grant for the same.

3. **Impact it will create:** It will provide safety to all the Muncipal Workers. No deaths to the Workers dealing with Waste Management.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**

   1. Sushant Tiwari
6. **Patent Filing date** : 01-06-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031392

Patent-341: Door to Door waste Collection Tracking system

1. **Name of the Technology:** Door to Door waste Collection Tracking system
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   A software system with Pictorial and Graphical representation of Waste collection Data(Time, Loaction, Date attendance)
3. **Impact it will create:** It will change our society into clean and green society.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**

   1. Geetika Agarwal
6. **Patent Filing date** **:** 01-06-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031397

Patent-342: Food Serving Robot

1. **Name of the Technology:** Food Serving Robot
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Semi automated Robot with controlled Linear motion to serve food directly on to the center of the Table with voice characterization.
3. **Impact it will create:**
   - It will change the way Food is served in the restaurants.
4. **Current Status of the Patent:**
   - Published
5. **Student Team details/Faculty Mentor :**

   1. T. P. Tejaswini
   2. B. Manisha
   3. P. Sahithi
   4. A. Jayasimha

6. **Patent Filing date** **:** 01-06-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031412

Patent-343: Enhancing electric bike safety& efficiency through advanced IoT-Enabled Embedded Systems: A V2X base

1. **Name of the Technology:** Enhancing electric bike safety& efficiency through advanced IoT- Enabled Embedded Systems: A V2X base
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This is an Electric Bi cycle with paddling Rechargeable circuit.
3. **Impact it will create:** It can be used for Local Commute
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Mishika Agarwal
   2. Hansika Reddy
   3. K. Srikanth
6. **Patent Filing date** **:**
7. **Patent Granted date** :
8. **Patent Application Number** : 202341059579

Patent-344: Wearable Methodology to Detect the Breast Cancer in Women using Internet of Things

1. **Name of the Technology** **:** Wearable Methodology to Detect the Breast Cancer in Women using Internet of Things
2. **Highlights of the Technology (innovation/uniqueness etc.):** Using sensor based wearable technology to identify the symptoms breast cancer in a Woman. Mostly used during the Clinical Examination by the Doctors.
3. **Impact it will create:**
   - Use of this can avoid the X-ray Scanning which prevents the high frequency radiations entering the body.
4. **Current Status of the Patent** : Filled
5. **Student Team details/Faculty Mentor :**
   1. P. Jessica
   2. G. Abhinav Charan
   3. G. Bhuvana Sri
   4. Md. Amer Khan

6. **Patent Filing date** : June, 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341046214

Patent-345: Cloud Integrated Drone Technology to Manage the Gas Emissions and Stored in a Database for Real-Time

1. **Name of the Technology** : Cloud Integrated Drone Technology to Manage the Gas Emissions and Stored in a Database for Real-Time.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Drone integrated with a sensor network to monitor the pollution level i.e about different gases being emitted by the Industries. Usually used in Industrial area to control the Industrial Emissions as per GOI norms.The importance in this project is it measures the Emiited gas that is in the Air.
3. **Impact it will create:**
   - If the Monitoring systems being deployed and used by the government regularly, it helps in maintaining the industrial emission levels constantly.
4. **Current Status of the Patent** : Filled
5. **Student Team details/Faculty Mentor :**
   1. Swapnil Shinde
   2. Kkshitij Singh Thakur
   3. Mohammed Naseruddin Ruman
   4. Aqib Nazer Mohammed
6. **Patent Filing date** : June 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341046230

Patent-346: Internet of Things Based Energy Consuming Monitoring System for Household Appliances using Renewable energy Source.

1. **Name of the Technology** : Internet of Things Based Energy Consuming Monitoring System for Household Appliances using Renewable energy Source.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This is an IoT and an Android app based integrated system which monitors the energy usage of each Appliance and also guides the user with the feedback of rewenable energy based on the usage(Time and Energy).For example , if your using a fan and it is posered by Solar

Energy, based on the solar energy generation, power available and Power Consumption it will alert the user about the duration it can be ON with High Speed ,Low Speed thus helping reduce the power consumption.

3. **Impact it will create:**
   - It will help the user know about his Electricity consumption,So that he can optimize the usage therby saving the Power of the Country and its requirement and indirectly pollution.
4. **Current Status of the Patent** : Filled
5. **Student Team details/Faculty Mentor :**
   1. S. Shreyas
   2. T. Sai Kumar Goud
   3. Harshitha.C
   4. Nikhil .C
6. **Patent Filing date** : June, 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341046233

Patent-347: Electrical Device based Home Security System using IR Diode and Solenoid Lock

1. **Name of the Technology** : Electrical Device based Home Security System using IR Diode and Solenoid Lock
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This idea comes from a moto to develop un hackable Key and Lock system.This system Consists of a varied IR beam which varies with the key push pattern and activates the Solenoid to open and close the Door unit.
3. **Impact it will create:**
   - Safe and secure Home locking System
4. **Current Status of the Patent** : Filled
5. **Student Team details/Faculty Mentor :**
   1. K. Prathyush
6. **Patent Filing date** : June 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341047521

Patent-348: Organic Shiitake Mushroom Yield Enhancement Using Sensor Hub

1. **Name of the Technology** : Organic Shiitake Mushroom Yield Enhancement Using Sensor Hub
2. **Highlights of the Technology (innovation/uniqueness etc.):** This project works in emulating the Growth parameters of the Mushoorm in a Green House Environment. creating an Artificial Environment and Controlling the variables like Light, Co2, Oxygen and live streaming camera to understand the growth and control the variables. There by increasing the Yield of Mushoorm grown.
3. **Impact it will create:** It will allow the yield of Mushroom to increase therby decreasing the losses in mushroom production.
4. **Current Status of the Patent** : Filled
5. **Student Team details/Faculty Mentor :**
   1. K. Tanusha
   2. V. Poojitha
   3. P. Shreya
   4. T. Sravani
6. **Patent Filing date** : June, 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341047527

Patent-349: Bluetooth controlled Autism Jacket for Children

1. **Name of the Technology** : Bluetooth controlled Autism Jacket for Children
2. **Highlights of the Technology (innovation/uniqueness etc.):** This Project conisits of a sensor feedback system connected with a DC air pump network embedded in a Jacket.When the Autistic people react unusually, this system helps to read the vitals and blow the jacket with air which creates a Hug feeling/ secured feeling and calm their vital to become normal.
3. **Impact it will create:** It will help the autistic people to be in a normal sense and feel secure.
4. **Current Status of the Patent** : Filled
5. **Student Team details/Faculty Mentor :**
   1. M. Umadevi
   2. Sushant Kumar
   3. B. Shashi Varun
   4. P. V. V. S. Murthy

6. **Patent Filing date** : June 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341047550

Patent-350: Advanced Integrated System for Crop Production Harvesting System using Rain sensors

1. **Name of the Technology** : Advanced Integrated System for Crop Production Harvesting System using Rain sensors.
2. **Highlights of the Technology (innovation/uniqueness etc.):** This system consists of a foldable, portable solar drying unit along with a motorized roller rolled with a waterproof cloth which when detects the Rainfall from a feedback from the sensor covers the entire harvested crop finishing a cuboid structure and protecting the crop from being wet and washed away by rain.
3. **Impact it will create:**
   - It will create an impact in farmers protecting Harvested crop.
4. **Current Status of the Patent** **:** Filled
5. **Student Team details/Faculty Mentor :**

   1. Y. Geetha Madhuri
   2. K. Chandana
   3. K. Eshvitha
   4. B. Harshitha
6. **Patent Filing date** : June 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341047552

Patent-351: Solar panel powered controlled electric mini vehicle using automatic and manual mode of operations

1. **Name of the Technology**: Solar panel powered controlled electric mini vehicle using automatic and manual mode of operations
2. **Highlights of the Technology (innovation/uniqueness etc.):** This project is designed to solve the Car battery charging on the go and most useful in our country with hot Climate.
3. **Impact it will create:**
   - It will make Electric Vehicles more Efficient.
4. **Current Status of the Patent**:

   Published

5. **Student Team details/Faculty Mentor :**
   1. Sribhashyam Sravya
   2. P. Anil Kumar
   3. Pola. Poojitha
6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031399

Patent-352: A sensing and robotics fusion for maximizing chilli yield with unprecedented efficiency

1. **Name of the Technology:** A sensing and robotics fusion for maximizing chilli yield with unprecedented efficiency
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   This project uses a xy axis with griping and cutting methodologies on a robot to Harvest the Mirchi allowing the mirchi plants to yield for the second time.
3. **Impact it will create:**
   - This will decrease the labour requirement and harvest the large areas of Farm with minimum number of Labour required only for operating the Robot.
4. **Current Status of the Patent:** Filled
5. **Student Team details/Faculty Mentor :**
   1. M.Sri Lakshmi Priya
   2. M.Saketh
6. **Patent Filing date** **:** 08/07/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341059584

13) GLA University, Mathura

Patent-353: Tredmill Electric Cycle

1. **Name of the Technology** : Tredmill Electric Cycle
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - E-Bicycle combined with treadmill
3. **Impact it will create** :
   - Promoting health awareness and environment
4. **Current Status of the Patent** :
   Patent Granted

5. **Student Team details/Faculty Mentor :**
   1. Sachin Singh Sengar
   2. Himanshu Mishra
   3. Karanjeet Singh Randhawa
   4. Gaurav Verma
   5. Ravi Kumar Shukla
   6. Tejas Singh
6. **Patent Filing date** : 16.07.2018
7. **Patent Granted date** : 361044 Date: 12/03/2021
8. **Patent Application Number** : 201811026312

Patent-354: Finger Print Padlock

1. **Name of the Technology**: Finger Print Padlock
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Biometric Based Personal Security device
3. **Impact** it will create: More enhanced security feature
4. **Current** Status of the Patent: Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Aditya Pandey
   2. Shubham Srivastav
6. **Patent Filing date** **:** 05.09.2018
7. **Patent Granted date** **:**
8. **Patent Application Number** : 201811033283

Patent-355: Weight Automatic Cut key (Wac key)

1. **Name of the Technology**: Weight Automatic Cut key (Wac key)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Weight based ignition cut off system
3. **Impact it will create**: Adding child security in vehicle
4. **Current Status of the Patent**: Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Toshit Jain
   2. Prateek Vashitha
   3. Aman Kr Upadhyay
6. **Patent Filing Date** : 17.12.2019
7. **Patent Granted Date** : NA
8. **Patent Application Number** : 201911052366

Patent-356: An Adapter Based on Thermoelectric Genertor (Portable Power Generator)

1. **Name of the Technology**: An Adapter Based on Thermoelectric Genertor (Portable Power Generator)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Portable Power Genrator to power PADs
3. **Impact it will create**:
   Can power & recharge small gadgets
4. **Current Status of the Patent**: Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Muhib Khan
   2. Shreya Vardhan Singh
6. **Patent Filing Date** : 07.03.2019
7. **Patent Granted Date** : NA
8. **Patent Application Number** : 201911008894

Patent-357: Fire Fighting Drone

1. **Name of the Technology**: Fire Fighting Drone
2. **Highlights of the Technology (innovation/uniqueness etc**.):
   Fire Extinguisher Drone
3. **Impact it will create**: Saving life of fire fighter
4. **Current Status of the Patent**: Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Prashant Prajapati
   2. Pushpendra Singh Chauhan
   3. Hariom Bhardwaj
   4. Sujit Kumar Yadav
6. **Patent Filing date** : 17.12.2019
7. **Patent Granted date** : NA
8. **Patent Application Number** : 201911052235

Patent-358: Automatic Toilet Seat with Auto Flush

1. **Name of the Technology**: Automatic Toilet Seat with Auto Flush
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Hygine Awareness
3. **Impact it will create**: More awareness towards personal hygiene
4. **Current Status of the Patent** : Grant

5. **Student Team details/Faculty Mentor :**
   1. Ayush Goswami
   2. Shubham Agrwal
   3. Kapil Sharma
6. **Patent Filing date** : 17.12.2019
7. **Patent Granted date** : 371263 Date 06.07.2021
8. **Patent Application Number** : 201911052367

Patent-359: Smart Bird (Petrol Bike into Hybrid Bike)

1. **Name of the Technology**: Smart Bird (Petrol Bike into Hybrid Bike)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Hybrid Electric cum petrol bike
3. **Impact it will create**: Converting present vehicle to electric
4. **Current Status of the Patent** : Grant
5. **Student Team details/Faculty Mentor :**
   1. Akash Jain
   2. Amit Chaturvedi
   3. Chirag Rajpoot
   4. Harsh varshney
   5. Deepak Pal
   6. Sunil Sharma
6. **Patent Filing date** : 17.12.2019
7. **Patent Granted date** : 357023 Date 29.01.2021
8. **Patent Application Number** : 201911052235

Patent-360: Water Purification System (Distillation Based Water Purification System)

1. **Name of the Technology**: Water Purification System (Distillation Based Water Purification System)
2. **Highlights of the Technology (innovation/uniqueness etc.):** Highly efficient Purification system saving water upto 70%
3. **Impact it will create**: Saving water wastage in normal RO system
4. **Current Status of the Patent** : Grant
5. **Student Team details/Faculty Mentor :**
   1. Kaustubh Srivastava
6. **Patent Filing date** : 17.12.2019

7. **Patent Granted date** : 353518 Date 11.12.2020
8. **Patent Application Number** : 201911052368

Patent-361: Vacuum Flushing System

1. **Name of the Technology**: Vacuum Flushing System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Flushing system in toilet with air only
3. **Impact it will create**: Saving lakhs of litres of water wastage
4. **Current Status of the Patent**:
   Disposed
5. **Student Team details/Faculty Mentor :**
   1. Anamika Pandey
   2. Nikhil Sharma
6. **Patent Filing date** : 07.12.2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911050613

Patent-362: Automatic Bicycle Supporters

1. **Name of the Technology**: Automatic Bicycle Supporters
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Autodetected stand on bicycle
3. **Impact it will create**: Will support young kids falling of bicycle & thereby saving any injuries in kids
4. **Current Status of the Patent** :
   Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Chitranshu Saxena
   2. Prajjwal Chaurasia
   3. Anurag Singh
   4. Himanshu Senger
   5. Trivendra Sengar
6. **Patent Filing date** : 17.12.2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911052234

Patent-363: Under Water Robot (Under water RoboticVehicle)

1. **Name of the Technology**: Under Water Robot (Under water RoboticVehicle)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Robot design especially for under-water survilliance
3. **Impact it will create**: Can be used for rescue mission or expedition mission and also for defence purpose
4. **Current Status of the Patent** : Grant
5. **Student Team details/Faculty Mentor :**
   1. Himanshu Baghel
   2. Mudit Sehgal
6. **Patent Filing date** : 19.12.2019.
7. **Patent Granted date** : 355581 Date 11.01.2021
8. **Patent Application Number** : 201911052868

Patent-364: Fire Fighting Robot

1. **Name of the Technology**: Fire Fighting Robot
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Robot design to exitiguish fire
3. **Impact it will create**: Increase capacity of any firefighting mission or rescue operation
4. **Current Status of the Patent** : Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Abhinav Bansal
   2. Ram Chandra Dixit
   3. Abhinav Mishra
6. **Patent Filing date** : 17.12.2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911052233

Patent-365: Smart Vegetable Cutter

1. **Name of the Technology:** Smart Vegetable Cutter
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Device can cut different type of vegetable at high speed
3. **Impact it will create**: Helping cook and chefs to cut vegetable with lesser human efforts in less time
4. **Current Status of the Patent** : Grant

5. **Student Team details/Faculty Mentor :**
   1. Himanshu Goyal
   2. Raghav Agrawal
6. **Patent Filing date** : 28.12.2019.
7. **Patent Granted date** : 359133 Date 23.02.2021
8. **Patent Application Number** : 201911054346

Patent-366: Eco Gap Filler

1. **Name of the Technology:** Eco Gap Filler
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Adhesive from non-biodegradable foam
3. **Impact it will create**: A novel adhesive prepared by recycling of non-biodegradable Styrofoam for sticking various surfaces
4. **Current Status of the Patent** : Grant
5. **Student Team details/Faculty Mentor :**
   1. Raghav Rohatgi
6. **Patent Filing date** : 28.12.2019
7. **Patent Granted date** : 352171 Date 25.11.2020
8. **Patent Application Number** : 201911054344

Patent-367: I-COS (Ignition Cut off System)

1. **Name of the Technology:** I-COS (Ignition Cut off System)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Vehicle Ignition cut off system based on different parameter
3. **Impact it will create**: Will prevent theft of motorcycles
4. **Current Status of the Patent** : Grant
5. **Student Team details/Faculty Mentor :**
   1. Rajat Yadav
6. **Patent Filing date** : 28.12.2019.
7. **Patent Granted date** : 354941 Date 31.12.2020
8. **Patent Application Number** : 201911054343

Patent-368: Optimized Inbuilt Pneumatic Jack

1. **Name of the Technology**: Optimized Inbuilt Pneumatic Jack
2. **Highlights of the Technology (innovation/uniqueness etc.)**: An inbuilt jack in all four wheels of the vehicle with control at dashboard

3. **Impact it will create**: Can assist car driver to change tyre without help of mechanic
4. **Current Status of the Patent** : Disposed
5. **Student Team details/Faculty Mentor :**
   1. Kaushal K Bhardwaj
   2. Aditya Bharadwaj
   3. Bipin Chaudhary
   4. Subhankar Das
6. **Patent Filing date** : 12.02.2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011006106

Patent-369: RF Harvesting (Energy Harvesting (Mobile)

1. **Name of the Technology:** RF Harvesting (Energy Harvesting (Mobile)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Utilizing mobile radiation to harvest for creating electricity
3. **Impact it will create**: It will be revolutionary technology which will not only save electricity but recycle radiation of mobile devices
4. **Current Status of the Patent** : Disposed
5. **Student Team details/Faculty Mentor :**
   1. Rohit Yadav
   2. Sakshi Agrawal
6. **Patent Filing date** : 30.03.2020.
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202011014385

Patent-370: Smart Car Ignition System

1. **Name of the Technology:** Smart Car Ignition System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Smart ignition system that will check different parameters such as seatbelt, door close, face detection age detection.
3. **Impact it will create**: Improve more careful & aware driving habits
4. **Current Status of the Patent** : Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Puja
6. **Patent Filing date** : 17.06.2020

7. **Patent Granted date** :
8. **Patent Application Number** : 202011025401

Patent-371: SI Phase Locator

1. **Name of the Technology**: SI Phase Locator
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Testing Device to check current without cutting wire
3. **Impact it will create**: Can prevent person from electric shock
4. **Current Status of the Patent** : Disposed
5. **Student Team details/Faculty Mentor :**
   1. Suzanne Sharma
6. **Patent Filing date** : 22.07.2020.
7. **Patent Granted date** :
8. **Patent Application Number** : 202011031305

Patent-372: Solar Dryer/Distiller

1. **Name of the Technology**: Solar Dryer/Distiller
2. **Highlights of the Technology (innovation/uniqueness etc**.): Agriculture Dryer designed using Solar
3. **Impact it will create**: Reduce the income losses of farmer
4. **Current Status of the Patent** : Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Amitesh Kumar Pandey
   2. Ajit Singh
6. **Patent Filing date** : 01-08-2020
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202011033079

Patent-373: Eye Blink Detector System (An Eye Blink Detector System to Prevent Accidents)

1. **Name of the Technology**: Eye Blink Detector System (An Eye Blink Detector System to Prevent Accidents)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Detecting driving sleeping by detecting eye blink
3. **Impact it will create** : Preventing accident
4. **Current Status of the Patent** : Published

5. **Student Team details/Faculty Mentor :**
   1. Sumit Singh
   2. Kushagra Singh
6. **Patent Filing date** : 20.10.2020
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202011045687

Patent-374: Mobile Ambulance

1. **Name of the Technology**: Mobile Ambulance
2. **Highlights of the Technology (innovation/uniqueness etc.)**: This project will convert any two-wheeler into mobile ambulance
3. **Impact it will create**: High reach of emergency medical facility
4. **Current Status of the Patent**: Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Abhinav Mishra
   2. Gaurang Khanna
6. **Patent Filing date** : 10.04.2020
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202011015677

Patent-375: Solar Dryer/Distiller (Force Solar Dryer with phase changing material

1. **Name of the Technology**: Solar Dryer/Distiller (Force Solar Dryer with phase changing material
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Solar Dryer with Phase changing material
3. **Impact it will create**:
   Helping farmer and saving losses
4. **Current Status of the Patent**:
   Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Chandrakesh Singh
   2. Ashu Kumar Verma
6. **Patent Filing date** : 17-06-2020
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202011025402

Patent-376: Butter Ghee Separator

1. **Name of the Technology**: Butter Ghee Separator
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Prototype involve mixing, heating and separation steps together in single apparatus
3. **Impact it will create**: With Single apparatus one can perform 3-operations
4. **Current Status of the Patent** : Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Sonia Singh
   2. Manisha Sharma
   3. Sudhanshu Dubey
6. **Patent Filing date: 15.07.2020**
7. **Patent Granted date: NA**
8. **Patent Application Number: 202011030132**

Patent-377: Flying Unmanned Robotic Arm (FURA)

1. **Name of the Technology**: Flying Unmanned Robotic Arm (FURA)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Integrating drone with robotic arm
3. **Impact it will create**: Future technology to repair aircraft in air only
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Himashu Senger
   2. Himanshu Maheshwari
   3. Himanshu
   4. Prakhar Singh
   5. Trivendra Sengar
6. **Patent Filing date** : 10-11-2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011049040

Patent-378: Suryoday (Suryauday)

1. **Name of the Technology:** Suryoday (Suryauday)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Creating illumination device to provide sunlight in home
3. **Impact it will create**: Reducing light consumption in daytime
4. **Current Status of the Patent** : Under Examination

5. **Student Team details/Faculty Mentor :**
   1. Pushpendra Sharma
   2. Raghav Rohatgi
6. **Patent Filing date** : 27.11.2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011051812

Patent-379: EFI-Cycle (Chainless Bicycle) (A Rack and Pinion Driven Cycle)

1. **Name of the Technology:** EFI-Cycle (Chainless Bicycle) (A Rack and Pinion Driven Cycle)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: New Mechanism for Driving cycle without chain
3. **Impact it will create**: Saving less human effort to drive cycle
4. **Current Status of the Patent** : Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Himanshu Upadhyay
   2. Anand Saraswat
6. **Patent Filing date** : 27.11.2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011051630

Patent-380: An Alert System for Safe Driving during Fog" (Fog Detection Radar System)

1. **Name of the Technology:** An Alert System for Safe Driving during Fog" (Fog Detection Radar System)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Radar System to detect obstacle during fog. Assisting driver during driving in fog
3. **Impact it will create**: Preventing accident during fog
4. **Current Status of the Patent** : Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Tarun Chaudhary
   2. Trivendra Singh
   3. Chirag Varshney
6. **Patent Filing date** : 27.11.2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011051631

Patent-381: Kavach Pendant (Pendent Kawach)

1. **Name of the Technology**: Kavach Pendant (Pendent Kawach)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Social Distancing Device
3. **Impact it will create**: Alerting people to keep 2-meter distance during COVID
4. **Current Status of the Patent** : Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Ayan Chowdhary
6. **Patent Filing date** : 30.11.2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011052133

Patent-382: Solar Energy Assisted Stair Chair (SEA-SC)

1. **Name of the Technology**: Solar Energy Assisted Stair Chair (SEA-SC)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Chair designed for disabled person which can help them in climbing stair
3. **Impact it will create**: Helping disabled person
4. **Current Status of the Patent** : Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Akash Gupta
6. **Patent Filing date** : 30.11.2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011052134

Patent-383: Multi Pedel Driving Vehicle (MPDV)

1. **Name of the Technology**: Multi Pedel Driving Vehicle (MPDV)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Human Powered Vehicle with long distance range
3. **Impact it will create**: Sustainable environment by creating long distance human powered vehicle
4. **Current Status of the Patent** : Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Chandrakesh Singh
   2. Ashu Kumar Verma
6. **Patent Filing date** : 15-02-2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202111005101

Patent-384: Automatic Indexing Machine: Retrofitting in Conventional milling machine

1. **Name of the Technology**: Automatic Indexing Machine: Retrofitting in Conventional milling machine
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Retrofitted milling machine
3. **Impact it will create**: Replacing manual indexing setup with automatic indexing setup
4. **Current Status of the Patent** :
   Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Aman Singh
   2. Tapan Chahar
   3. Aditi Upreti
6. **Patent Filing date** : 18-03-2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202111011477

Patent-385: Herbal Formulation of Cow Dung Ash Modified Powder use as Antibacterial, Antifungal and Oxygen Scarcity Environment and their process off

1. **Name of the Technology:** Herbal Formulation of Cow Dung Ash Modified Powder use as Antibacterial, Antifungal and Oxygen Scarcity Environment and their process off
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Helpful in oxygen scarcity condition, non-carcinogenic, antibacterial, antifungal, antibiotic properties, maintains pH of the body and having a soothing fragrance as well.
3. **Impact it will create**: The herbal formulation has been prepared specially for the children to get rid from diaper rashes and for adults use as well and it can be used as a cosmetic powder to get rid from pimples and acne and can improve skin tone. In normal talcum powder carcinogenic compound asbestos are there which causes ovarian cancer if it is applied on intimate area in female children and lung cancer also when it is inhaled. In this formulation all the components are herbal and chemical free so it is safe to use and beneficial for mankind.
4. **Current Status of the Patent** : Published

5. **Student Team details/Faculty Mentor :**
   1. Ayushi Sharma
6. **Patent Filing date** : 20-06-2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011027116

Patent-386: Low Brake Pressure Cutoff System

1. **Name of the Technology:** Low Brake Pressure Cutoff System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Accidental prevention technique to cut off engine
3. **Impact it will create**: Preventing accidents and thus saving life
4. **Current Status of the Patent** : Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Tushar Gupta
   2. Abhishek Raghav
6. **Patent Filing date** : 06.11.2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202111050863

Patent-387: Advance Drip Irrigation System (ADIT)

1. **Name of the Technology:** Advance Drip Irrigation System (ADIT)
2. **Highlights of the Technology (innovation/uniqueness etc**.): New way of Drip Irrigation ensuring high cultivation
3. **Impact it will create**: More efficient Drip Irrigation
4. **Current Status of the Patent** : Grant
5. **Student Team details/Faculty Mentor :**
   1. Mayank Bhugra
6. **Patent Filing date** : 06.11.2021
7. **Patent Granted date** : 423062 Dated 24/02/23
8. **Patent Application Number** : 202111050415

Patent-388: The Smart Home Model (An Embedded System for Smart Home)

1. **Name of the Technology**: The Smart Home Model (An Embedded System for Smart Home)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Smart IoT enabled home

3. **Impact it will create**: Enabling IOT in home electronics devices, making smart home
4. **Current Status of the Patent** : Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Saksham Sabhani
   2. Sanskar Gupta
   3. Tushar Goswami
6. **Patent Filing date** : 06.11.2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202111050414

Patent-389: Nirbhaya App (System to send Emergency Distress Signal)

1. **Name of the Technology**: Nirbhaya App (System to send Emergency Distress Signal)
2. **Highlights of the Technology (innovation/uniqueness etc**.): Women Safety application
3. **Impact it will create** : Safety of working women
4. **Current Status of the Patent** **:** Under Examination
5. **Student Team details/Faculty Mentor :**
   1. Harshit Dixit
   2. Manish Kumar
6. **Patent Filing date** : 16.04.2021
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202111016309

14) Univeristy of Kashmir, Kashmir

No Patent Filled

15) Indian Institute of Technology (IIT), Guwahati

Patent-390: A novel processing technique for the development of machining free acetabular cup from ultra-high molecular weight polyethylene powder to be used in total hip replacement surgeries

1. **Name of the Technology:** A novel processing technique for the development of machining free acetabular cup from ultra-high molecular weight polyethylene powder to be used in total hip replacement surgeries
2. **Highlights of the Technology (innovation/uniqueness etc.):** A novel processing technique is developed for manufacture of acetabular cup from ultra-high molecular weight polyethylene powder to be used in total hip replacement surgeries without machining
3. **Impact it will create:**
   Useful for patients with hip problems and needs hip replacement surgeries
4. **Current Status of the Patent:** Granted
5. **Student Team details/Faculty Mentor :**
   1. Ashirbad Jana
6. **Patent Filing date** **:** 06/08/2019
7. **Patent Granted date** : Granted; 379704
8. **Patent Application Number** : 201931031886

Patent-391: A modular reciprocating gait orthosis for rehabilitation and walking aid for paraplegic patients

1. **Name of the Technology:** A modular reciprocating gait orthosis for rehabilitation and walking aid for paraplegic patients
2. **Highlights of the Technology (innovation/uniqueness etc.):** Many people are physically impaired and cannot use their legs or have very limited or unbalanced use of their legs; leading to restricted self-powered mobility. They have to rely on using a wheelchair, use stiff leg braces with crutches, or use a walking frame which completely surrounds a user. Patients having lower-limb paralysis can benefit from the proposed Reciprocating Gait Orthosis (RGO) of this invention.
3. **Impact it will create:**
   This orthopaedic device will assist / help / aid physically impaired individuals to walk. Specifically, patients having lower-limb paralysis can benefit from the proposed invention.
4. **Current Status of the Patent:** Filed, under examination

5. **Student Team details/Faculty Mentor :**
   1. Sasibhushan Yengala
   2. Nikhil Kumar Singh
   3. M. Muthupalaniappan
6. **Patent Filing date** **:** 12/03/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202131010431

Patent-392: Bistable compliant gripper for pipe climbing robot

1. **Name of the Technology:** Bistable compliant gripper for pipe climbing robot
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The design and fabrication of compliant pipe crawler to navigate pipe bends
3. **Impact it will create:**
   A robot for navigating pipe is fabricated. Useful for detecting defects in pipes.
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Saurav Dutta
   2. Santosh Kumar
   3. Samarth K
   4. Sanchit Sharma
6. **Patent Filing date** **:** 28/08/2020
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202031037108

Patent-393: Device for evaporation and recovery of organic solvents using simple labwares

1. **Name of the Technology:** Device for evaporation and recovery of organic solvents using simple labwares
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The design and fabrication of compliant pipe crawler to navigate pipe bends
3. **Impact it will create:**
   - Simple method to fabricate a lab scale model is developed at affordable cost
4. **Current Status of the Patent** **:**
   Granted

5. **Student Team details/Faculty Mentor :**
   1. S. Sanjana
   2. Manish Gupta
   3. Heeramoni Boro
6. **Patent Filing date** **:** 4 February, 2022
7. **Patent Granted date** **:** Granted; 416769 (04.01.2023)
8. **Patent Application Number** **:** 202131005168

Patent-394: Sachet/ Pouch cutting and squeezing apparatus

1. **Name of the Technology:** Sachet/ Pouch cutting and squeezing apparatus
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   A sachet/pouch cutting and squeezing apparatus is designed and fabricated for implementation in manufacturing industry
3. **Impact it will create:**
   A simple and easy to implement device for cutting and squeezing sachet/pouch in manufacturing industry
4. **Current Status of the Patent** **:** Granted
5. **Student Team details/Faculty Mentor :**
   1. Gurdeep Singh
   2. Abhishek Singh
6. **Patent Filing date** **:** 25-5-2022
7. **Patent Granted date** **:** Granted; 415999 (29.12.2022)
8. **Patent Application Number** **:** 202231030090

Patent-395: A Versatile Standing cum sitting device for rehabilitation and standing aid for paraplegic patients

1. **Name of the Technology:** A Versatile Standing cum sitting device for rehabilitation and standing aid for paraplegic patients
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   A versatile standing cum sitting device for rehabilitation and standing aid for paraplegic Patients
3. **Impact it will create:**
   To provide a walking aid device for lower limb paralyzed children and adult
   To make the design user-friendly and sleek.
4. **Current Status of the Patent:**
   Filed

5. **Student Team details/Faculty Mentor :**

   1. Nikhil Kumar Singh

6. **Patent Filing date** : 25.06.2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202131028647

Patent-396: Ergonomic pineapple harvester (design patent)

1. **Name of the Technology:** Ergonomic pineapple harvester (design patent)
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The technology is meant for small farmers and assist them during manual pineapple picking in northeast India
3. **Impact it will create:**
   - Farmers will be able to use the unique handheld, affordable device for easy picking of pineapple in NE India.
4. **Current Status of the Patent** **:** Issued
5. **Student Team details/Faculty Mentor :**

   1. Hijam Jithen Singh

6. **Patent Filing date** **:** 13-07-2021
7. **Patent Granted date** :
8. **Patent Application Number** : 346195-001

Patent-397: Floating device for aquatic crop (design patent)

1. **Name of the Technology:** Floating device for aquatic crop (design patent)
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Useful for aquatic irrigation and affordable for aquatic farmer and others
3. **Impact it will create:**
   - Farmers will be able to use the unique handheld, affordable device for easy aquatic agriculture in NE India.
4. **Current Status of the Patent:**
   - Issued
5. **Student Team details/Faculty Mentor :**

   1. Gurdeep Singh

6. **Patent Filing date** **:** 27-09-2021
7. **Patent Granted date** :
8. **Patent Application Number** : 350209-001

Patent-398: Floating device for aquatic crop

1. **Name of the Technology:** Floating device for aquatic crop
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Useful for aquatic irrigation and affordable for aquatic farmer and others
3. **Impact it will create:**
   - Farmers will be able to use the unique handheld, affordable device for easy aquatic agriculture in NE India.
4. **Current Status of the Patent:**
   - In review
5. **Student Team details/Faculty Mentor :**

   1. Hijam Jithen Singh
   2. Gurdeep Singh
6. **Patent Filing date** **:** 12/10/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202231058384

Patent-399: Inter Cum Intra Row Paddy Weeder for Wetland Cultivation

1. **Name of the Technology:** Inter Cum Intra Row Paddy Weeder for Wetland Cultivation
2. **Highlights of the Technology (innovation/uniqueness etc.):** The paddy weeder which are available in the market are of inter row type. That is, they are used to operate only between the rows leaving the weeds unweeded between the plants. The current machine will be designed and developed to perform operations meant for inter cum intra-row power operated paddy weeder. Actual work field situation will be tested.
3. **Impact it will create:** Assam which has the largest cultivable plain land in North-East India but power consumption for mechanization is 0.993 kW/ha which is also still below the national average. Indigenous technology has to be geared up to provide sustainability to agriculture among the north eastern states. Farmers will be able to use the unique machine which is also affordable for easy paddy weeding in NE India.
4. **Current Status of the Patent** **:** In review
5. **Student Team details/Faculty Mentor :**

   1. Sapunii Sebastian
   2. Debanjan Mukherjee

6. **Patent Filing date** : 17/05/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202331034628 A

Patent-400: Systems for enhancing the surface quality of additively manufactured parts through chemical vapor SM

1. **Name of the Technology:** Systems for enhancing the surface quality of additively manufactured parts through chemical vapor SM
2. **Highlights of the Technology (innovation/uniqueness etc.):** An invisible aligner is a tooth brace used for curing malocclusions and temporomandibular defects. It is an excellent option compared to conventional tooth braces made of wires. The technology is focused on developing an experimental setup to perform surface finishing operations on the invisible aligners manufactured through Fused deposition modeling.
3. **Impact it will create:** The project's final output is a fully developed experimental setup that can serve as a remarkable achievement in the field of surface finishing of the invisible aligners. The project's impact (both in terms of its methodology and outcome) is expected to be significant as it will directly address one of the major challenges in the field of surface finishing operation. Industries concerned with the implants can be a potential market as the product offers an economical and efficient system for the cost-efficient invisialigners.
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Atul Singh Rajput
   2. Ambrish Singh
6. **Patent Filing date** **:** 18.07.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202331048237

Patent-401: Smart nanophotocatalyst for azide-alkyne cycloaddition and hetero-selective glaser coupling reactions

1. **Name of the Technology:** Smart nanophotocatalyst for azide-alkyne cycloaddition and hetero-selective glaser coupling reactions
2. **Highlights of the Technology (innovation/uniqueness etc.):** The primary object of the present invention is the development of smart nanophotocatalyst and its synthetic utility in green solvent. The technology overcomes the

shortcomings of utilizing environmental hazardous organic solvents and longer reaction time for treatments in

3. **Impact it will create:**
   The invented catalytic process has extensive application in industries for energy-efficient and cheap synthesis of 1,4-disubstituted and 1, 4, 5-trisubstituted triazoles and unsymmetrical 1,3- diyenes which have significant applications in medicine/material science/ optoelectronics/polymer sectors.
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Sayantan Sinha
   2. Aniket Banerjee
   3. Mediboyana Hemanshu
   4. Sinchini Barman
6. **Patent Filing date** **:** 22/02/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202231009433

Patent-402: Near Infrared (NIR-I) PEROVSKITE-QUANTUM DOT (BAGQD) as fluorescent sensor for live-cell imaging and photocatalytic disinfection of pathogenic bacteria without regrowth

1. **Name of the Technology:** Near Infrared (NIR-I) PEROVSKITE-QUANTUM DOT (BAGQD) as fluorescent sensor for live-cell imaging and photocatalytic disinfection of pathogenic bacteria without regrowth
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention relates to the development of perovskite nanomaterial BagQD showcasing ‘Sense & Shoot’ property toward bacterial pathogens.
3. **Impact it will create:** This sophisticated design of new BagQD nano-photocatalyst opens a new avenue for further exploiting BagQD as an alternative to antibiotics mediated treatment/therapy and other broad-spectrum disinfection applications.
4. **Current Status of the Patent** **:** Filed, Application not yet published
5. **Student Team details/Faculty Mentor :**
   1. Sayantan Sinha
   2. Aniket Banerjee
   3. Mediboyana Hemanshu
   4. Sinchini Barman

6. **Patent Filing date** **:** 09/04/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202231021372

16) Marwadi University, Rajkot

Patent-403: Solar Collector

1. **Name of the Technology:** Solar Collector
2. **Highlights of the Technology (innovation/uniqueness etc.):** Solar Collector innovative Designed Intend to reduce the heat losses from absorber tube by providing a cut on the upper portion of the tube. Absorber Tube have direct heat losses of consent rated heat in the tube this cut portion. The cut portion plate is Welded with low thermal heat losses plates
3. **Current Status of the Patent:**
   Design Is Published on 23-04-2021 (Journal Date)
4. **Student Team details/Faculty Mentor :**
   1. Dr. Karan Motwani
   2. Dr. Nikhil Chotai
   3. Dr. Jatinkumar Patel
   4. Mr. Gaurav Vithalani
   5. Mr. Akhil Sidpara
   6. Mr. Mihir Thakar
5. **Patent Filing Date** **:** 18-12-2019
6. **Patent Published Date** : 23-04-2021
7. **Patent Granted Date** : 13/04/2021
8. **Patent Application Number** : 324828-001

Patent-404: A device to measure shell permeability during Investment Casting process

1. **Name of the Technology**: A device to measure shell permeability during Investment Casting process.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The device measures the permeability of the shell being used in investment casting process. Permeability is a critical parameter of the shell and overall quality of the product depends upon error free shell. The said device is an Internet of Things enabled device with advanced sensors to measure the parameters

accurately for the required process. The device will be able to reduce the material consumption as well as it can improve the overall product quality.

3. **Impact it will create**: - Designed equipment measures the permeability in the investment casting process
4. **Current Status of the Patent** : Patent Published.
5. **Student Team details/Faculty Mentor :**
   1. Mr. Mahek Rathod
   2. Mr. Pinal Kantesariya
6. **Patent Filing Date** : 05-01-2020
7. **Patent Published Date** : 24-06-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 202021018663

Patent-405: Design and working of a Saw tooth met surface solar absorber based on graphene monolayer sheet

1. **Name of the Technology**: Design and working of a Saw tooth met surface solar absorber based on graphene monolayer sheet.
2. **Highlights of the Technology (innovation/uniqueness etc.):** This invention illustrates the design and working of a thin graphene met surface based composite layer absorber to absorb incoming electromagnetic radiation in Near Infrared Region. This graphene met surface based solar absorber provides with artful articulated geometries & sizes with edge adjustment options along with proximity positioning for achieving broadband absorption in Infrared region. More importantly absorption frequency can be dynamically controlled by varying nanostructure parameters and by sheet of graphene when exhibits tremendous application value in this field. Here by using, one graphene based broad band absorber it will serve the task of multiple absorber therefore overall size of device is also reduced, so miniaturization of device is possible by this approach with feature of configurability
3. **Impact it will create**: - It defines novel working process of saw tooth met surface solar absorber on grapheme monolayer sheet.
4. **Current Status of the Patent**: Application Awaiting Examination.
5. **Student Team details/Faculty Mentor :/Faculty Mentor**
   1. Dr. Shobit Patel
   2. Dr. Rajendrasinh Jadeja

3. Mr. Shreyas Charola
4. Ms. Juveriya Parmar
5. Mr. Mayurkumar Ladumor
6. Dr. Yogeshwar Kosta

6. **Patent Filing Date** : 28-02-2020
7. **Patent Granted Date** :
8. **Patent Application Number** :202021008481

Patent-406: Flexural Displacement Measuring Device

1. **Name of the Technology:** Flexural Displacement Measuring Device
2. **Highlights of the Technology (innovation/uniqueness etc.):** Deflection, in structural engineering terms, refers to the movement of a beam or node from its original position due to the force and load being applied to the member. It Can Occur for external applied loads from the weight of the structure itself, and the force of gravity in which this applies. It can occur in beams, trusses, frames and basically any other structure.
3. **Impact it will create**: It prevents the unique design of the flexural displacement device
4. **Current Status of the Patent:**
   Design Is Published on 05-02-2021 (Journal Date)
5. **Student Team details/Faculty Mentor :**
   1. Mr. Rinkesh Makwana
   2. Dr. Ankur Bhogayata
   3. Dr. Nikhil Chotai
6. **Patent Filing Date** **:** 03-10-2020
7. **Patent Published Date** **:** 05-02-2021
8. **Patent Granted Date** : 27/01/2021
9. **Patent Application Number** **:** 336655-001

Patent-407: A printing Apparatus using Solar Lithography technique

1. **Name of the Technology:** A printing Apparatus using Solar Lithography technique
2. **Highlights** of the Technology (innovation/uniqueness etc.): This invention relates to the field of **electronics** engineering more particularly Stereolithographic and Direct Light Printing. Here an apparatus is designed for printing where the UV light of a desired wavelength is obtained from the

sun directly in the form of solar radiation. The polymerization will be carried out in a reaction chamber with high efficacy and then followed by a 3-dimensional printing of desired polymer in the presence of sunlight. In addition, the machine for deposition is also operated with the help of the PV solar power.

3. **Impact** it will create: the machine for deposition is also operated with the help of the PV solar power.
4. **Current Status of the Patent**: Published
5. **Student Team details/Faculty Mentor :**
   1. Dr. Sarang Pandey
   2. Dr. Ritesh Palkar
   3. Dr. Yogesh Jani
   4. Dr. Pravin Bhalerao
   5. Mr. Pratik Munjani
6. **Patent Filing Date** **:** 27-04-2021
7. **Patent Published Date** **:** 11-11-2022
8. **Patent Granted Date** :
9. **Patent Application Number** **:** 202121020749

Patent-408: Wavelet Domain Based Adaptive Line Enhancement (WD-ALE) with a Controlled Delay for Noise Cancellation in Phonocardiogram Recording

1. **Name of the Technology**: Wavelet Domain Based Adaptive Line Enhancement (WD-ALE) with a Controlled Delay for Noise Cancellation in Phonocardiogram Recording
2. **Highlights** of the Technology (innovation/uniqueness etc.): Background/ambient noise elimination is one of the most significant tasks for heart sound/phonocardiogram (PCG) analysis-based diagnosis of cardiovascular disease. Given the diagnostic value of PCG in assessing several cardiac disordered and cardiac condition monitoring it is extremely important to detect non-cardiac sounds during PCG recording. We propose a wavelet decomposition based adaptive line enhancer (WDALE) for denoising the phonocardiograms in which step size is controlled with the periodic nature of the signals. A suitable shift or delay in adaptive line enhancement is estimated using the ratio of singular values of the embedded matrix constructed via the selected window in the phonocardiogram. This estimated delay is in fact the time period of a heartbeat. A fast conversion of the

learning curve can be achieved when a wavelet decomposed signal is passed through weights in the adaptive phase with least-mean-square (LMS). Wavelet domain based least mean square subjects to faster convergence due to orthogonal components of the input signals which result through wavelet decomposition. Cardiac sounds contaminated with environmental high frequency and stationary signals are efficiently separated/suppressed from meaningful cardiac sound with a significant accuracy. The proposed adaptive filter is tested with some cardiac sound with SNR more than dB.

3. **Impact it will create**:
   Improves the signal strength
4. **Current Status of the Patent** :
   Published
5. **Student Team details/Faculty Mentor :**
   1. Dr. Dinesh Kumar
   2. Dr. Rajendrasinh Jadeja
   3. Dr. Damodharan Palaniappan
   4. Dr. M. Thurai Pandian
6. **Patent Filing Date** : 24-09-2021
7. **Patent Published Date** : 04/02/2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 202241003252

Patent-409: IoT Enabled temperature monitoring device for melting furnace

1. **Name of the Technology**: IoT Enabled temperature monitoring device for melting furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Device is an Internet of Things Enabled temperature monitoring system for the melting furnace. Described design is very unique and innovative as it can be fitted inside any type of melting furnace irrespective of manufacturer and type of furnace. It will be helpful to fetch the real-time data which can be further utilized to improve the efficiency of the furnace and reduce the product defects.
3. **Impact it will create**: -
   It measures the temperature of a melting furnace and send it to a device.
4. **Current Status of the Patent**:
   Designs Published on 19-11-2021 (Journal Date)

5. **Student Team details/Faculty Mentor :**
   1. Dr Amit Sata
   2. Mr Pinal Kantesariya
   3. Mr Philip Gajera
   4. Mr Mahek Rathod
   5. Mr Kevin Virpariya
6. **Patent Filing Date** : 20-09-2021
7. **Patent Published Date** : 19-11-2021
8. **Patent Granted Date** :
9. **Patent Application Number** : 349855-001

Patent-410: Monitoring Device for Hydraulic Wax Injection Machine

1. **Name of the Technology**: Monitoring Device for Hydraulic Wax Injection Machine
2. **Highlights of the Technology (innovation/uniqueness etc.):** The device is a monitoring system for the hydraulic wax injection machine. It can be utilized to measure up to 4 temperature, part count of the machine and dwell time of the injection. It greatly improves the machine efficiency, reduces defects, and reduces machine idle time.
3. **Impact it will create**:
   The device monitors different parameters in was injection machine.
4. **Current Status of the Patent**:
   At Technical Examination of Amended Application(FER generated on 29/10/2021)
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Pinal Kantesariya
   3. Mr. Philip Gajera
   4. Mr. Mahek Rathod
   5. Mr. Kevin Virpariya
6. **Patent Filing Date** : 24-09-2021
7. **Patent Published Date** **:**
8. **Patent Granted Date** :
9. **Patent Application Number** : 350111-001

Patent-411: Intelligent Inspection Device for Metal Casting

1. **Name of the Technology**: Intelligent Inspection Device for Metal Casting
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Device is an inspection system for the metal casting products. It inspects the dimensions of the product, presence of defect, and identification of the defect. It can be utilized in the quality assurance department of metal casting foundries. The device uses Artificial intelligence and Machine learning. It can greatly reduce the time to measure the dimension as well as it can accurately predict the type of defects present apart.
3. **Impact it will create**: Automatic Inspection device to monitor and inspect the metal casting.
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 29/11/2021)
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Nabhan Yousef
   3. Mr. Tahir Thasaria
   4. Mr. Pinal Kantesariya
   5. Mr. Philip Gajera
6. **Patent Filing Date** : 25-10-2021
7. **Patent Published Date** : 24-3-2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 351954-001

Patent-412: Internet of Thing enabled Bottom Pouring resistance Melting Furnace

1. **Name of the Technology**: Internet of Thing enabled Bottom Pouring resistance Melting Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** We Have Invented a new design of an INTERNET OF THINGS ENABLEDERTICAL CENTRIFUGAL CASTING SETUP as outlined in the following specifications. The Claimed design of the INTERNET OF THINGS ENABLED VERTICALCENTRIFUGALCASTING EXPERIMENTAL SETUP has an arrangement to hold different metallic mold in the range of aspect ratio (ratio of diameter to height of mold) from 1 to 2.25; to rotate the mold fitted with setup in the range of 10-500 revolutions per minute (rpm) using single phase

(AC) Induction Motor with power rating of 3 horsepower. The Setup Is Equipped with one rotary encoder, an Analog to Digital Converter (MAX6675) and microcontroller (NodeMCU-ESP8266) to acquire real time data related to rotation mold fitted with setup, and stream it to server through internet. It helps user to monitor the rotation of mold fitted with setup using smart device from anywhere across globe.

3. **Impact it will create**: It helps user to monitor the rotation of mold fitted with setup using smart device from anywhere across globe.
4. **Current Status of the Patent**: Application Accepted, Certificate of Design not Generated.
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Dhaval Anadkat
6. **Patent Filing Date** : 22-10-2021
7. **Patent Published Date** : 13-01-2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 351953-001

Patent-413: Internet of Things Enabled vertical centrifugal casting setup

1. **Name of the Technology**: Internet of Things Enabled vertical centrifugal casting setup
2. **Highlights of the Technology (innovation/uniqueness etc.):** We have invented a new design fan INTERNET OFTHINGSENABLEDBOTTOM POURINGRESISTANCEMELTING FURNACE as out lined in the following specifications. The Claimed design of the INTERNET OF THINGS ENABLED BOTTOM POURING RESISTANCE MELTING FURNACE consists of an arrangement for melting of small capacity of metal/alloy (upto2 kg of Aluminum alloys) using principle of resistance heating, pouring molten metal/alloy from the bottom of furnace. The furnace is equipped with two temperature sensors(K-Type thermocouple), an Analog to Digital Converter (MAX6675)and microcontroller (NodeMCU-ESP8266)to acquire real time data related to temperature (from two different locations inside the furnace), and stream it to server through internet. It helps user to monitor the process of melting furnace using smart device from anywhere across globe. The furnace has also mobility (up to20 feet on predefined track) to reach out at

each pouring station/location to maintain high level of safety during performance of experiments at laboratory level.

3. **Impact it will create**: Smart Bottom Pouring Furnace
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 29/11/2021
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Dhaval Anadkat
6. **Patent Filing Date** : 22-10-2021
7. **Patent Published Date** : 27/01/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 351952-001

Patent-414: High-Speed Slurry Mixer for Investment Casting

1. **Name of the Technology**: High-Speed Slurry Mixer for Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Device is a system to prepare ceramic slurry used in investment casting. The devils den Internet of Things Enabled with the star feedback system. It will be able to prepare the said ceramic slurry based on specified proportions. It uses sensor to measure the current state, actuator system to allow the proportion of required elements, and feedback system. It will greatly improve the quality of slurry alongside the standardization of the process.
3. **Impact it will create**: Uniform mixing of slurry at High Speed
4. **Current Status of the Patent**: Designs Published on 25-02-2022 (Journal Date)
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit V Sata
   2. Mr. Pinal Kantesariya
   3. Mr. Philip Gajera
   4. Mr. Khush Ladani
   5. Mr. Yash Davra
6. **Patent Filing Date** : 28-12-2021
7. **Patent Published Date** : 25-02-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 355604-001

Patent-415: Permeability Measurement Device for Investment Casting

1. **Name of the Technology**: Permeability Measurement Device for Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Device measures the permeability of an Investment Casting Shell. The design of the system involves design according to the Industrial Standards Of Investment Casting Institute, USA and human centered design. The Device will be able to sustain industrial environments as it will be easy to use for the operator. The device will be able to reduce the material consumption has well as it can improve the overall product quality.
3. **Impact it will create**: Unique device to measure system generated permeability.
4. **Current Status of the Patent:** Design Accepted and Published. Journal Date is 15/04/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Pinal Kantesariya
   3. Mr. Philip Gajera
   4. Mr. Mahek Rathod
   5. Mr. Kevin Virpariya
6. **Patent Filing Date** : 17-01-2022
7. **Patent Published Date** : 15-04-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 356835-001

Patent-416: Viscosity and PH Measurement Device for Investment Casting

1. **Name of the Technology**: Viscosity and PH Measurement Device for Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Device is Internet of Things Enabled Viscosity and pH measurement device for the investment casting process. The device can measure viscosity from any type of cup used for the higher viscosity fluids. The Device Is Able to measure the viscosity, pH and specific gravity of the ceramic slurry from one device. It will greatly help in terms of the health of slurry and improve the overall standards of the ceramic slurry.
3. **Impact it will create**: System generated values of PH and Viscocity

4. **Current Status of the Patent**: Application Accepted, Certificate of Design not generated.
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Pinal Kantesariya
   3. Mr. Philip Gajera
   4. Mr. Mahek Rathod
   5. Mr. Kevin Virpariya
6. **Patent Filing Date** : 17-01-2022
7. **Patent Published Date** : 13-01-2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 356843-001

Patent-417: Tele-operated Smart Transportation Vehicle

1. **Name of the Technology**: Tele-operated Smart Transportation Vehicle
2. **Highlights of the Technology (innovation/uniqueness etc.):** We have invented a new design of a Tele Operated Smart Transportation Vehicle as outlined in the following specifications. The Claimed design of the Tele Operated Smart Transportation Vehicle consists of an arrangement to deliver medicines or food sor other products without contamination at desired location through remote controller using Global Positioning System Operated using internet. The Vehicle is designed to carry a weight of 60kg, and has two separate spaces each for carrying medicines or foods and other products. Boat Storage Spaces Are Equipped with ultraviolet light of wavelength in the range of 207-222 Nano meters to avoid contamination. Storage Space for medicines or food has a special arrangement of cooling systems to prevent contamination during the delivery period. The vehicle will have modes of operation including manual and automatic mode
3. **Impact it will create**: Tele-operated Smart Transportation Vehicle
4. **Current Status of the Patent**: Design accepted and published, Certificate received of Patent Granted
5. **Student Team details/Faculty Mentor :**
   1. Mr. Chandrasinh Parmar
   2. Mr. Viraj Shekhada
6. **Patent Filing Date** : 08-02-2022
7. **Patent Published Date** : 15-04-2022

8. **Patent Granted Date** : 11/04/2022
9. **Patent Application Number** : 358078-001

Patent-418: Metal Mouthpiece with Twin Openings for Concrete Additive Printing Head.

1. **Name of the Technology**: Metal Mouthpiece with Twin Openings for Concrete Additive Printing Head.
2. **Highlights of the Technology (innovation/uniqueness etc.):**

This design proposes a twin-opening mouthpiece for additive printing of concrete mixtures to be attached at the extruding nozzle or funnel of the main hopper containing concrete mix. The assembly of the hopper, funnel, and mouthpiece forms a printing head for the additive printing of concrete. The conventional additive concrete manufacturing process comprises the printing head with a mouthpiece for the extrusion and laying the mix as per the drawing. With the conventional method, the printing head has to move repetitively on the same track for making a hollow wall-like element. This time of printing may be reduced using an innovative twin-headed mouthpiece.

3. **Impact it will create:** The conventional additive concrete manufacturing process comprises the printing head with a mouthpiece for the extrusion and laying the mix as per the drawing. With the conventional method
4. **Current Status of the Patent**: Application Accepted, Certificate of Design Generated.
5. **Student Team details/Faculty Mentor :**
   1. Dr. Ankur Bhogayata
   2. Dr. Tarak Vora
   3. Mr. Vivek Patel
   4. Dr. Nikunj Rachchh
   5. Dr. Amit Ved
6. **Patent Filing Date** : 22-03-2022
7. **Patent Published Date** : - 30-05-2022
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 361038-001

Patent-419: Automated Motion of Apron

1. **Name of the Technology**: Automated Motion Of Apron
2. **Highlights of the Technology (innovation/uniqueness etc.):** AUTOMA is an acronym that stands for Automatic Motion of Apron. Products Goal is to provide automation manually operated LATHE machine. Not only we are targeting automation but also the safety features as well. For longer time it is difficult to operate LATHE that too when the product to be develop discomplex. Through automation we can improve upon this problem as well as we can improve the machining quality. We are going to use stepper motors for the automated movement and limit switch for safety purposes.
3. **Impact it will create**: Apron Mechanism for Semi-Automatic Transmission in Machine Tools
4. **Current Status of the Patent** : Application abandoned
5. **Student Team details/Faculty Mentor :**
   1. Mr. Jenil Panara
   2. Mr. Rushabh Sarsavadia
   3. Mr. PrashantUjeniya
   4. Mr. Khush Ladani
   5. Mr. Yash Davra
6. **Patent Filing Date** : 22-03-2022
7. **Patent Published Date** **:**
8. **Patent Granted Date** :
9. **Patent Application Number** : 361039-001

Patent-420: Metamaterial Loaded Multiple Input and Multiple Output Antenna Structure

1. **Name of the Technology**: Metamaterial Loaded Multiple Input and Multiple Output Antenna Structure
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Claimed design of the **METAMATERIAL LOADED MULTIPLE INPUT AND MULTIPLE OUTPUT ANTENNA STRUCTUREs presented**. MIMO antenna technology is a wireless communication system that employs multiple an tenn is available the transmitter and receiver sides. The Isolation between different antenna elements is attained by the metamaterial-loaded strips between two MIMO elements. The Substrate Of presented MIMO antenna designusingtheFR4epoxy. The dielectric constant of FR4is4.4. Thelow-

costFR4epoxyhelpsfor the mass production of the MIMO antenna structure. The Patch and ground layers are made of copper material. The Key benefits of MIMO systems increased data throughput and dependability without the need for more power and bandwidth. The MIMO system has better data rate due to the spatial multiplexing approach and higher dependability due to the diversity strategy.

3. **Impact it will create**: Varial able input and output received and transmitted
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 23/2022 and Journal Date is 10/06/2022.
5. **Student Team details/Faculty Mentor :**
   1. Mr. Sunil Lavadiya
   2. Mr. Vishal Sorathiya
   3. Mr. Shobhit Patel
   4. Ms. Kavan Dave
6. **Patent Filing Date** : 22-03-2022
7. **Patent Published Date** : 10-06-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 361040-001

Patent-421: Borophene Based Light AbsorberStructure for Photonics Applications

1. **Name of the Technology**: Borophene Based Light AbsorberStructure for Photonics Applications
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Claimed design of the **BOROPHENE BASED LIGHT ABSORBER STRUCTURE FOR PHOTONICS APPLICATIONS** provides the idea of arranging the metal-borophene-semiconductor layers for trapping the light for visible, infrared and UV rays. As per the broad literature survey available in the market, borophene,a two-dimensional material, can be formed on metal surfaces like Silver, Gold, Copper. However, the extraction of a single-layered structure requires a very complex fabrication process. This Design provides a unique layered structure idea to overcome that fabrication complexity. We have identified forming boropheneonthe silver substrate, which is easy to fabricate. On the top of the borophene layer, a Silica/Silicon substrate was placed to avoid the oxidation of borophene. In This Layered structure, the light signal can be trapped by the Magnesium Fluoride (MgF2). This design is formed based on layered structure of Silver-Borophene-Silica-MgF2-Silver. The

Proposed light absorber structure design will help design the basic building block of optoelectronics circuits. Furthermore, the altered structure will help design optical structures such as light absorber, polarizer, and biosensor.

3. **Impact it will create**: It will help design the basic building block of optoelectronics circuits
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 25/05/2022)
5. **Student Team details/Faculty Mentor :**
   1. Mr. Vishal Sorathiya
   2. Mr. Sunil Lavadiya
6. **Patent Filing Date** : 22-03-2022
7. **Patent Published Date** **:**
8. **Patent Granted Date** :
9. **Patent Application Number** : 361041-001

Patent-422: Inside Out Turned Wooden Table Lamp

1. **Name of the Technology**: Inside Out Turned Wooden Table Lamp
2. **Highlights** of the Technology (innovation/uniqueness etc.):
   The claimed design of the Inside Out Turned Wooden Table Lamp consists of an arrangement to provide source of light that stands on a table, desk and side table of bed etc. The table lamp is 3:8 in length- diameter aspect ratio and it is equipped with 5W high illumination LED light. It serves the purpose of illumination for reading as well as luminescence during night. It is tumed on CNC Lathe using the inside out tuming method. Teak wood comprises closed grained hardwood with natural texture.
3. **Impact it will create:** It serves the purpose of illumination for reading as well as luminescence during night.
4. **Current Status of the IPR**: Design Accepted and Published, Journal No is 32/2022 and Journal Date is 12/08/2022
5. **Student Team details/Faculty Mentor :**
   1. Mr. Vivek Patel
6. **Patent Filing Date** : 22-03-2022
7. **Patent Published Date** : 12-08-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 361042-001

Patent-423: Multi-Purpose Wooden Stand for Cell phone and Tablet

1. **Name of the Technology**: Multi-Purpose Wooden Stand for Cell phone and Tablet
2. **Highlights** of the Technology (innovation/uniqueness etc.):
   Multi-Purpose Wooden Stand for Cell phone and Tablet consists of an arrangement to suppon various sizes of cell phone and tabl€s. The stand supports cell phone and tablet size in range of5-l I inches, and weight in the range of 100-200 gm. The stand also designed in such a way that it can support both positions (portrait and landscape) of cell phone and tablets for betler visualization.
3. **Impact it will create:** it can support both positions (portrait and landscape) of cell phone and tablets for betler visualization
4. **Current Status of the IPR**: Design Accepted and Published, Journal No is 23/2022 and Journal Date is 10/06/2022
5. **Student Team details/Faculty Mentor :**
   1. Mr. Vivek Patel
6. **Patent Filing Date** : 22-03-2022
7. **Patent Published Date** : 10-06-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 361043-001

Patent-424: Smart Attachment Module for Visually Impaired People

1. **Name of the Technology**: Smart Attachment Module for Visually Impaired People
2. **Highlights of the Technology (innovation/uniqueness etc.):** Smart blind stick for blind people
3. **Impact** it will create: -
4. **Current Status of the IPR**: Design Accepted and Published, Journal No is 39/2022 and Journal Date is 30/09/2022
5. **Student Team details/Faculty Mentor :**
   1. Mr. Chandrasinh Parmar
   2. Mr. Krupal Jivrajani
   3. Mr. Bhavik kalpesh
   4. Mr. Mahek Rathod
6. **Patent Filing Date** : 22-03-202
7. **Patent Published Date** : 30-09-2022

8. **Patent Granted Date** :
9. **Patent Application Number** : 361044-001

Patent-425: Tracking Mechanism for Parabolic Trough Collector

1. **Name of the Technology**: Tracking Mechanism for Parabolic Trough Collector
2. **Highlights of the Technology (innovation/uniqueness etc.):**A new innovative tracking system brings new solution the field efficient solar parabolic trough collectors. This IPR helps Industrial sector where ever250ºHigh temperatures required for process heating of fluid
3. **Impact it will create**: Solar Radiation tracking mechanism**.**
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 01/2023 and Journal Date is 06/01/2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Harshraj Dangar
   2. Mr. Kotak Sumeetkumar
   3. Dr. Nikhi lChotai
   4. Dr. Karan Motawani
   5. Dr. Ramdevsinh Zala
   6. Mr. Smit Bhalodia
   7. Mr. Kuldeep Bhojani
   8. Mr. Rushabh Joshi
   9. Mr. Bhavin Umraniya
6. **Patent Filing Date** : 22-03-2022
7. **Patent Published Date** : 06-01-2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 361045-001

Patent-426: Dome Shaped Fresnel Lenses System

1. **Name of the Technology**: Dome Shaped Fresnel Lenses System
2. **Highlights of the Technology (innovation/uniqueness etc.):** Invented a new design of a **DOME SHAPED FRESNEL LENSES SYSTEM**, as outlined in the following specification. The claimed design of the **DOME SHAPED FRESNEL LENSES SYSTEM** is made to maximize the solar radiation concentration by arrangement of Fresnel lenses. Fresnel lens arrangement concentrates almost direct solar rays on cut tubes and reduces the heat

losses tall. Even cut tube system reduces the Effect Thermal/radiation losses at bottom.

3. **Impact** it will create: - **Maximize collection of solar radiation**
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 29/04/2022)
5. **Student Team details/Faculty Mentor :**
   1. Ms. Saroj Hudda
   2. Dr. Karan motwani
   3. Dr. Nikhil Chotai
   4. Dr. Nikunj Rachchh
   5. Mr. Kuldeep Bhojani
6. **Patent Filing Date** : 22-03-2022
7. **Patent Published Date** **:**
8. **Patent Granted Date** :
9. **Patent Application Number** : 361046-001

Patent-427: Solar Powered Electric Two-Wheeler

1. **Name of the Technology**: Solar Powered Electric Two-Wheeler
2. **Highlights of the Technology (innovation/uniqueness etc.):** Invented a new design of a **SOLAR POWERED ELECTRIC TWO WHEELER**, as outlined in the following specification. The claimed design of the **SOLAR POWERED ELECTRIC TWO WHEELER** is made to manage the power source from nonrenewable source– solar energy. Flower win shape helps to grab the enough energy to source the power requirements for the two wheeler, which is almost capable to charge the battery to run the vehicle for a full daytime for common day activity
3. **Impact it will create**: Fuel less Two Wheeler
4. **Current Status of the Patent**: Application Accepted, Certificate design is not generated
5. **Student Team details/Faculty Mentor :**
   1. Mr. Jatin Raiyani
   2. Dr. Nikhil Chotai
   3. Dr. Pinank Patel
   4. Dr. Karan Motawani
   5. Mr. Hetav Samani

6. Mr. Siddharth Siddhapura
7. Mr. Agravat Meet
8. Mr. Ghelesh Madariya

6. **Patent Filing Date** : 22-03-2022
7. **Patent Published Date** : 20-01-2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 361047-001

Patent-428: An Inspection System for Detection of Cracks on Concrete Structures Using AI Mobile Robot

1. **Name of the Technology**: An Inspection System for Detection of Cracks on Concrete Structures Using AI Mobile Robot
2. **Highlights of the Technology (innovation/uniqueness etc.):** Artificial intelligence based Inspection Device for crack detection in the concrete structure.
3. **Impact it will create**: Crack detection by AI enabled Mobile Robot
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. PranavanS
   2. Dr. VaideviC
   3. Mr. Daxini Bhavik
   4. Mr. LingeshwaranN
   5. Dr. Alagu Thillaivanan
   6. Mr. Jyothishya Brahma ChariKanneganti
6. **Patent Filing Date** : ---
7. **Patent Published Date** : ---
8. **Patent Granted Date** : ---
9. **Patent Application Number** : ---

Patent-429: Intelligent Inspection System for Metal Casting

1. **Name of the Technology**: Intelligent Inspection System for Metal Casting
2. **Highlights** of the Technology (innovation/uniqueness etc.): The device is an inspection system for the metal casting products. It inspects the dimension of the product, presence of defect, and identification of the defect. It can be utilized in a quality assurance department of metal casting foundries. The device uses Artificial intelligence and Machine learning. It can greatly reduce

the time to measure the dimension as well as it can accurately predict the types of defects present in a part.

3. **Impact it will create:** Automatic Inspection device to monitor and inspect the metal casting
4. **Current Status of the Patent** : Published
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Philip Gajera
   3. Mr. Pinal Kantesariy
6. **Patent Filing Date** : 10-08-2021
7. **Patent Published Date** **:**
8. **Patent Granted Date** :
9. **Patent Application Number** : 26029/2021-CO/SW

Patent-430: Multi-Purpose Load Frame

1. **Name of the Technology**: Multi-Purpose Load Frame
2. **Highlights** of the Technology (innovation/uniqueness etc.): Design of the Multi-Purpose Load Frame has requirement of testing various types of reinforced concrete elements like beam, slab, arch, manhole cuff, beam-column joint, home pipe etc. These elements are tested before their use to get the confidence over the product or design by checking their safety and behavioral aspects. These elements haye difference in dimensions, loading capacity a-s well as their loading conditions. Loading frames for testing of individual elements are made by various designers for their required testing conditions like point load, two-point load, multiple point load, uniformly distributed load or for torsion but they are one on one basis. Idea came into our mind to design and fab. Irate a novel Multi-Purpose Load Frame which can test all the element of almost all the readily available size of elements for all the required loading conditions. All the testing and research laboratories do require this type of frame. This proposed design will provide similar acute results by saving the cost & space by having only one frame compare to too many.
3. **Impact it will create:** Multi-Purpose Load Frame which can test all the element of almost all the readily available size of elements for all the required loading conditions.

4. **Current Status of the Patent**: Application Accepted, Certificate of Design not generated.
5. **Student Team details/Faculty Mentor :**
   1. Dr Tarak Vora
   2. Dr Ankur Bhogayata
6. **Patent Filing Date** : 28-04-2022
7. **Patent Published Date** **:**
8. **Patent Granted Date** :
9. **Patent Application Number** : 363465-001

Patent-431: Handrail Testing Device

1. **Name of the Technology**: Handrail Testing Device
2. **Highlights** of the Technology (innovation/uniqueness etc.):
   Hand Rait Testing Device has requirement in modem er4 development in infrastructures are growing rapidly and with increase in infrastructure we have to keep safety in our rind. In that safety concem, hand rail is one Of the major safety element that is neglected from the beginning in commercial as well as residential buildings to check its safety aspects. Safety check is made mandatory at many oflhe construction sites now a days in India. No standard testing equipment is available which caters to different site conditions as well as the size of the hand rail itself. New idea is to develop handrail equipment with is modular in its kind to shift anl .where by de-assembling and can be assembled and installed for any of the site conditions with higher accuracy. It will give surety regarding safe use of handrails in residential, commercial etc, buildings. It will also give more business opportunity to the manufacturer of handrails in lerms of quality assurance by providing on site testing along with supply offhand rails.
3. **Impact it will create:** It will give surety regarding safe use of handrails in residential, commercial etc, building
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 38/2022 and Journal Date is 23/09/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr Tarak Vora
   2. Prof Chirag Asodariya
   3. Mr Mahaveer Thakkar
6. **Patent Filing Date** : 28-04-2022

7. **Patent Published Date** **:** 23-09-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 363466-001

Patent-432: Hydrophobic Trap without siphon and with air-tight Non Return Valve

1. **Name of the Technology**: Hydrophobic Trap without siphon and with air-tight Non Return Valve
2. **Highlights of the Technology (innovation/uniqueness etc.):** Hydrophobic Trap without Sipiion & with Air-Tight Non Return Valve has an arrangement to directly flush the excreta or any sludge incused at bathroom or toilet. The current design has the inclination of trap in the range of 250-400 ensures smooth flushing without symphonic action unlike the conventional design of & trap that required huge quantity of water. Further, the material is coated with hydrophobic coating for the entire trap. Additionally, it is equipped with air-tight non-rectum valve whose diameter matches with the pipe with accuracy of j0.lmm, the valve has non-corrosive 330 grade stainless steel spring this will seal the bad odor. This unique design will solve the problem of huge quantity of water required for flushing & save approximately 60o10 of water.
3. **Impact it will create:** arrangement to directly flush the excreta or any sludge incused at bathroom
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 30.06.22)
5. **Student Team details/Faculty Mentor :**
   1. Dr. Siddharth Shah
   2. Mr. Dhyey Mehta
6. **Patent Filing Date** **:** 28-04-2022
7. **Patent Published Date** **:**
8. **Patent Granted Date** :
9. **Patent Application Number** **:** 363467-001

Patent-433: Photovoltaic Masonary Block

1. **Name of the Technology:** Photovoltaic Masonary Block
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A brick is designed in such a manner that it can hold small module of solar. A brick is used to construct a wall.
3. **Impact it will create**: It uses walls to hold module of solar panel to generate electricity.

4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 38/2022 and Journal Date is 23/09/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr Ankur Bhogayata
   2. Mr Vivek Patel
6. **Patent Filing Date** **:** 28-04-2022
7. **Patent Published Date** **:** 23.09.2022
8. **Patent Granted Date** :
9. **Patent Application Number** **:** 363468-001

Patent-434: Soil Reinforcement using recycled rubber tires

1. **Name of the Technology:** Soil Reinforcement using recycled rubber tires
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Soil Reinforcement Using Recycled Rubber Tires reduces a tremendous amount of tire waste in our landfills, increases the soil bearing capacity, and improves tile subgrade layer in highway concoction. In meaning the use of vehicles has generated many waste tires and recycling of waste tires is a global issue. A sustainable way to use recycled rubber tires with limited processes in civil engineering construction. The recycled rubber tires are being used as soil Reinforcement instead of standard geo synthetic reinforcement. The tires are managed in such a way that it acts as a reinforcement in the soil. The tires are arranged in two layers. In the first layer the tires are arranged in a two-by-two matrix form. In the second layer, the tires are arranged in a two-by-one matrix form which is placed at the middle center directly above the first layer. The same arrangement can be repeated as per the requirements in the field of construction. The arrangement of tires is very close and well connected with each other by means of fasteners.
3. **Impact it will create**: The recycled rubber tires are being used as soil Reinforcement instead of standard geo synthetic reinforcement
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 29/06/2022)
5. **Student Team details/Faculty Mentor :**
   1. Mr Yashwantsinh Zala
6. **Patent Filing Date** **:** 28-04-2022
7. **Patent Published Date** **:**

8. **Patent Granted Date** :
9. **Patent Application Number** **:** 363469

Patent-435: Penetration Device for measuring hardness of Wax

1. **Name of the Technology**: Penetration Device for measuring hardness of Wax
2. **Highlights of the Technology (innovation/uniqueness etc**.): MEASURING HARDNESS OF WAX consists of an arrangement to measure the vertical penetration caused by Standard needle in industrial wax. This measurement further helps in ginning an idea about hardness of indusial wax Used in investment casting process. This device is specifically designed to acquire real time data related to measurement of penetration through sensor & data acquisition system, and streams the acquired data to sewer using interment. This Device is designed as per guidelines of investment casting institute - USA.
3. **Impact it will create**: This device is specifically designed to acquire real time data related to measurement of penetration through sensor & data
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 41/2022 and Journal Date is 14/10/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr Amit Sata
   2. Mr Mahek Rathod
   3. Mr Kevin Virpariya
   4. Mr Pinal Kantesariya
   5. Mr Philip Gajera
6. **Patent Filing Date** : 28-04-2022
7. **Patent Published Date** : 14-10-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 363470-001

Patent-436: Sensory Function Evaluation Device

1. **Name of the Technology:** Sensory Function Evaluation Device
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Sensory function Evaluation Device is used to measure three sensations which are pressure, temperate and vibration. Main features of all the sensation measure in a single unit. This is a cost effective handheld device mainly helps in measuring subjective as well as objective values

3. **Impact it will create**: This device will be mainly used to measure three sensations which are pressure, temperate and vibration.
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 08/07/2022)
5. **Student Team details/Faculty Mentor :**
   1. Dr Ashish Kakkad
   2. Ms Bhakti Desai
6. **Patent Filing Date** : 28-04-2022
7. **Patent Published Date** :
8. **Patent Granted Date** :
9. **Patent Application Number** : 363471-001

Patent-437: Biofeedback Instrument for Pelvic Floor Muscles

1. **Name of the Technology**: Biofeedback Instrument for Pelvic Floor Muscles
2. **Highlights of the Technology (innovation/uniqueness etc.)**: the Biofeedback Instrument for Pelvic Floor Muscles has semo through which Measurements regarding pelvic floor strength can be measured. The Instrument will measure the amount of force and Display on the screen along with light indicator. It indicates green light when patient is perfuming appropriate construction.
3. **Impact it will create**: The Instrument will measure the amount of force and Display on the screen along with light indicator.
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 23/05/2022)
5. **Student Team details/Faculty Mentor :**
   1. Dr Ashish Kakkad
   2. Ms Himani Dave
6. **Patent Filing Date** : 29-04-2022
7. **Patent Published Date** :
8. **Patent Granted Date** :
9. **Patent Application Number** : 363472-001

Patent-438: Digital Cervical Pressure Analyser

1. **Name of the Technology:** Digital Cervical Pressure Analyser
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Digital Cervical Pressure Analyser has 4 electrodes situated within, which are force pressure electrodes situated over each side of designed cervical collar which can be womb on neck. Sensors are placed over rigid bars over each side & have concave polymer designed bars which can be utilized for appropriate setting according to contour over human neck. This collar will have inside Velcro straps to get attached to the neck region. It will have charging unit & USB connections given inside: which can be attached to handheld or wrist belt type tie able small display to provide real time values of cervical muscle stranger The machine also has Bluetooth/ WIFI connectivity, which can be utilized for real time data to be generated on mobile phones & computers & provide storage too in the google drive for pre & post evaluation
3. **Impact it will create:** which can be utilized for appropriate setting according to contour over human neck
4. **Current Status of the Patent**: Examination Report has been Generated, Case is waiting for Examination Report Reply (FER generated on 20/06/2022)
5. **Student Team details/Faculty Mentor :**
   1. Dr Ashish Kakkad
   2. Ms Kinjal Bagthariya
6. **Patent Filing Date** : 29-04-2022
7. **Patent Published Date** :
8. **Patent Granted Date** :
9. **Patent Application Number** : 363473-001

Patent-439: Multipurpose Wrist and Hand Device

1. **Name of the Technology**: Multipurpose Wrist and Hand Device
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Multipurpose Wrist and Hand Device has 3 fixed stimulating points where electrodes allow individual stimulation to different muscles. A glove will be used for support covering forearm and hand. Work station for different tasks is demonstrated Design will be lighter **in weight then other available robotic devices.**
3. **Impact it will create**: Light weight Multipurpose Wrist and Hand Device

4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 30/06/2022)
5. **Student Team details/Faculty Mentor :**
   1. Dr Ashish Kakkad
   2. Ms Nidhi Dhanesha
6. **Patent Filing Date** : 29-04-2022
7. **Patent Published Date** :
8. **Patent Granted Date** :
9. **Patent Application Number** : 363474-001

Patent-440: Antibacterial and Antiviral Nano Mask

1. **Name of the Technology**: Antibacterial and Antiviral Nano Mask
2. **Highlights of the Technology (innovation/uniqueness etc.)**:The Antibacterial and Antiviral Nano Mask made up of cotton fabric with high tensile strength coated with a nanoparticle layer. The anti-bacterial and antiviral mask has very strong Bactericidal and veridical activity as it contains copper oxide nanoparticles (CuONPs) synthesized using green Chemistry. CuONPs have been successfully synthesized using Sativa seed extract. Various characterization Techniques were used to study CuONPs morphology, structure and mechanical properties.
3. **Impact it will create**: The anti-bacterial and antiviral mask has very strong Bactericidal and veridical activity
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 48/2022 and Journal Date is 02/12/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr. Sejal Shah
6. **Patent Filing Date** : 23-06-2022
7. **Patent Published Date** : 02-12-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 366639-001

Patent-441: Energy Efficient Pressure Cooker

1. **Name of the Technology:** Energy Efficient Pressure Cooker
2. **Highlights of the Technology (innovation/uniqueness etc.):** The EMRGY EFFICIENT PRESSURE COOKER is to reuse steam coming from the safety

valve in efficient way. Flexible insulation on the outer surface of the pressure cooker helps to reduce the released heat from pressure cooker. These two methods will reduce cooking time and fuel consumption. In built blender is attached inside the pressure cooker which can help to bland the food kept in the cooker.

3. **Impact it will create:** The pressure cooker helps to reduce the released heat from pressure cooker
4. **Current Status of the Patent**: Application Accepted, Certificate of Design not Generated
5. **Student Team details/Faculty Mentor :**
   1. Dr. Karan Motwani
   2. Dr. Nikhil Chotai
   3. Dr. Ramdevsinh Jhala
   4. Mr. Harit Bhatt
   5. Mr. Mohit Asnani
6. **Patent Filing Date** : 23-06-2022
7. **Patent Published Date** : 02-12-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 366640-001

Patent-442: Self-Interlocking Paver Blocks with Bottom Inverted Waffle Type Gap for Anchorage

1. **Name of the Technology:** Self-Interlocking Paver Blocks with Bottom Inverted Waffle Type Gap for Anchorage
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   This design proposes a square-shaped paver block consisting of the innovative self-interlocking design of the members to provide a better internal grip between the units when placed on the ground best suitable for any type of traffic conditions. In addition, the design of the paver block consists of a highly innovative and first-of-its-kind provision of the inverted waffle type gap at the bottom surface of the paver block, to improve the on-ground in-plane stability of the blocks to resist the lateral movements.

   The conventional paver blocks are available in several designs and shapes, however, they do not consist of a self-inter-locking system or geometrical mechanism. Moreover, none of the designs consists of an inverted waffle like

the gap at the bottom surface and therefore do not provide in-plane grip which is necessary for a better ground anchorage.

The proposed design of the paver block consists of a special square-shaped extruded and intruded provision of the paver block similar to the tongue and groove joint. Each member will have a provision of the bottom groove as the inverted waffle type depression again in a square shape in the center of the element.

When the paver block is placed on the sand bed, the waffle gap will get filled with the sand and therefore it will work as the additional anchorage for the block on the ground. Conventionally, the paver blocks get displaced frequently due to the lateral disturbance and bottom unevenness or unstable sand beds.

The proposed innovation in the design of the paver block will reduce the risk of the lateral displacement of the blocks and improve the internal friction and stability due to the innovative tongue and grooved joint mechanism.

The design can get utilized for making conventional concrete paver blocks or any modern eco-friendly material without any changes in the shape and design. The self-interlocking bottom waffled paver block is shown in Appendix-A with seven different views.

3. **Impact it will create**: The proposed innovation in the design of the paver block will reduce the risk of the lateral displacement of the blocks and improve the internal friction and stability due to the innovative tongue and grooved joint mechanism.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 21/2023 and Journal Date is 26/05/2023
5. **Student Team details/Faculty Mentor :**
   1. Dr. Ankur Bhogayata
   2. Mr. Jay Pandya
   3. Mr. Ravi Modi
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 26-05-2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 371073-001

Patent-443: Smart Oxygen Concentrator

1. **Name of the Technology**: Smart Oxygen Concentrator
2. **Highlights of the Technology (innovation/uniqueness etc.): SMART OXYGEN CONCENTRATOR** consists of an arrangement to generate pure oxygen as per guidelines provided by World Health Organization (WHO). The smart oxygen concentrator has facility to provide pure oxygen to two patients at the same time. It also has provision to provide real time monitoring of flow of oxygen supplied to patients as well as doctors and paramedical staff. The flow of oxygen can also be tuned based on requirements of patient through internet. Detailed report on consumption of oxygen per patient can also be generated through interfacing with oxygen concentrator.
3. **Impact it will create**: The smart oxygen concentrator has facility to provide pure oxygen to two patients at the same time.
4. **Current Status of the IPR**: Design Accepted and Published, Journal No is 51/2022 and Journal Date is 23/12/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Ms. Pragati Trambadiya
   3. Ms. Varsha Chauhan
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 23-12-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 371074-001

Patent-444: Die and Punch for Making Powder Metallurgical Tool Bit

1. **Name of the Technology**: Die and Punch for Making Powder Metallurgical Tool Bit
2. **Highlights of the Technology (innovation/uniqueness etc.): DIE AND PUNCH FOR MAKING POWDER METALLURGICAL TOOL BIT** consists of an arrangement to make tool bit used for machining purpose using powder of Aluminum Oxide and Copper. This die and punch are made of tool steel and have sufficient strength to withstand against load of 20 ton with elastic deformation of only 5 micron
3. **Impact it will create:** it consists of an arrangement to make tool bit used for machining purpose using powder of Aluminum Oxide and Copper.

4. **Current Status of the IPR**: Design Accepted and Published, Journal No is 51/2022 and Journal Date is 23/12/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Ms. Pragati Trambadiya
   3. Ms. Varsha Chauhan
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 23-12-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 371075-001

Patent-445: Measurement of Tyre Stiffness using Load Deflection

1. **Name of the Technology:** Measurement of Tyre Stiffness using Load Deflection
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Measurement of Tyre Stiffness Using Load Deflection has a wooden frame with a metal slider and a center wooden block for mounting the tyre. It has a large pan for adding weight on top of the center block. To measure the deflection, scale has been attached to the wooden frame, and the pointer is attached to the center block. A taper spindle is provided on a central wooden block which can accommodate tyres of various sizes in human-powered vehicles.
3. **Impact it will create**: To measure the deflection, scale has been attached to the wooden frame, and the pointer is attached to the center block
4. **Current Status of the Patent**: Application Under Process(waiting for Technical Examination)
5. **Student Team details/Faculty Mentor :**
   1. Mr. Jatin Raiyani
   2. Mr. Jay Chhatbar
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 20-01-2023
8. **Patent Granted Date** **:**
9. **Patent Application Number** : 371076-001

Patent-446: Biometric Processing System for Vehicle Ignition

1. **Name of the Technology:** Biometric Processing System for Vehicle Ignition
2. **Highlights of the Technology (innovation/uniqueness etc.): The BIOMETRIC PROCESSING SYSTEM FOR VEHICLE IGNITION** is a system design which comprises of the facility to use an individual's biometrics to unlock the vehicle as well as to start the ignition of the system. This system is designed to provide advanced security and lower the number of thefts occurring of automobile vehicles as well as for the ease and up gradation of the technology in the vehicles. The system is equipped with one fingerprint module (R307) which scans, collects and enrolls the image of a human fingerprint (stores up to 127 HD fingerprints), a microcontroller board (Arduino Uno) which is the brain of the system and authenticates the fingerprint image stored by the module and initiates a success or failure accordingly, a Relay module (5V) which acts as a gateway for the current to flow and connecting wires which helps the current/power to flow to create a closed loop and to start the ignition system of the vehicle instead of conventional lock & key method It helps user to have more advanced extra security than that provided by the manufacturing company.
3. **Impact it will create**: It helps user to have more advanced extra security than that provided by the manufacturing company.
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 30/11/2022)
5. **Student Team details/Faculty Mentor :**
   1. Mr. Nikunj Maheta
   2. Mr. Vivek Pathak
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** :
8. **Patent Granted Date** :
9. **Patent Application Number** : 371077-001

Patent-447: Front Knuckle for all Terrain Vehicle

1. **Name of the Technology**: Front Knuckle for all Terrain Vehicle
2. **Highlights of the Technology (innovation/uniqueness etc.):** A customized front knuckle has been designed which is light in weight and can handle good impact load.

3. **Impact it will create**: Useful for all terrain vehicle.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 02/2023 and Journal Date is 13-01-2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Jatin Raiyani
   2. Mr. Jay Chhatbar
   3. Dr. Amit Sata
   4. Dr. Nikunj Rachchh
   5. Dr. Pinank Patel
   6. Dr. Nikhil Chotai
   7. Dr. Bhavesh Kanabar
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 13-01-2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 371078-001

Patent-448: Portable Soil Monitoring Module for Intelligent Irrigation System

1. **Name of the Technology**: Portable Soil Monitoring Module for Intelligent Irrigation System
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The Portable Soil Monitoring Module for Intelligent Irrigation System has a portable soil monitoring module for the irrigation system is shown here. The moisture, humidity, and temperature sensors are mounted inside the detachable lower part of the metallic module open from the bottom, which measures the soil's data. The solar panel is mounted on the upper detachable module made from plastic, which is utilized to charge the battery and provide the electrical energy for the operation of the entire module. The upper module has a LED indicators showing the status of connectivity with the host system and power. Antenna is mounted in the top detachable module will be utilized for communication with the host system. The middle module contains the microcontroller, which transmits the data from sensors to the host system, which will be further utilized for control of the intelligent irrigation system.
3. **Impact it will create**: The intelligent irrigation system.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 51/2022 and Journal Date is 23/12/2022

5. **Student Team details/Faculty Mentor :**
   1. Mr. Uvesh Sipai
   2. Dr. Tapankumar Trivedi
   3. Dr. Rajendrasinh Jadeja
   4. Mr. Deep Makwana
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 23-12-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 371079-001

Patent-449: Multicolor Ink Refilling Station for Markers

1. **Name of the Technology:** Multicolor Ink Refilling Station for Markers
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The Multicolor Ink Refilling Station for Markers has a multicolor ink refilling system for markers. Station has multiple ink containers inside the station with the pumping mechanism. Each container has an individual pumping system for the individual operation. For different colors, the individual push button is mounted on the front panel. The interactive display is indicating the message for easy use. LED indicators are indicating the operation of refilling. At the bottom of the front panel, the needle nozzle is mounted for easy refilling of ink in the marker. By pressing the push button switch, the ink pumps out from the container to the needle. The entire operation is carried out by the embedded controller. With the help of this controller every time the same amount of ink will be poured into the marker through a needle nozzle without spreading out/ or spilling out. Every type of refilled marker will be filled out by using this multicolor station.
3. **Impact it will create**: With the help of this controller every time the same amount of ink will be poured into the marker through a needle nozzle without spreading out/ or spilling out.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 04/2023 and Journal Date is 27/01/2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Uvesh Sipai
   2. Mr. Vatsalkumar Patel
   3. Mr. Nirav Tolia
   4. Dr. Rajendrasinh Jadeja

5. Mr. Vishal Kanjariya
6. Mr. Kabir Makrani

6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 27/01/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 371080-001

Patent-450: Portable Disease Detection Container with Attached Camera and Ventilation Fans for Embedded Computing Boards.

1. **Name of the Technology**: Portable Disease Detection Container with Attached Camera and Ventilation Fans for Embedded Computing Boards.
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Portable Disease detection container with attached camera and ventilation fans for Embedded Computing Boards has a Portable disease detection toolbox for Covid and Pneumonia is shown here. The camera connected to the toolbox may Catch the lighted X-Ray image and transmit it to the Embedded Computing Board along with a battery housed within the toolbox for analysis. This portable toolbox with an attached camera may be easily and quickly transported to any remote area and used to analyse the X-ray image for disease identification. In order to prevent the Embedded Computing Boards from overheating during image analysis, two fans are mounted to the toolbox in order to maintain air circulation and prevent overheating.
3. **Impact it will create**: This portable toolbox with an attached camera may be easily and quickly transported to any remote area and used to analyse the X-ray image for disease identification.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 01/2023 and Journal Date is 06/01/2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Munidra Lunagaria
   2. Dr. Vijay Katkar
   3. Dr. Krunal Vaghela
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 06/01/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 371081-001

Patent-451: Compact Three in one Headphone

1. **Name of the Technology**: Compact Three in one Headphone
2. **Highlights of the Technology (innovation/uniqueness etc.):** The COMPACT THREE IN ONE HEADPHONE consists of an arrangement to connect with source of sound through wired or wireless mode. This design has also an arrangement to accommodate earbuds that can be fitted into the designed compact headphone itself using magnetism.
3. **Impact it will create:** small Bluetooth enabled headphone that easily accommodates inside ears of user
4. **Current Status of the Patent:** Design Accepted and Published, Journal No is 03/2023 and Journal Date is 20/01/2023
5. **Student Team details/Faculty Mentor :**
   1. Ms. Anjali Chauhan
   2. Ms. Mirali Chauhan
   3. Mr. Dhairya Thakkar
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 20-01-2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 371082-001

Patent-452: Smart All In One Charger and Power Bank

1. **Name of the Technology**: Smart All In One Charger and Power Bank
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Smart All in One Charger and Power Bank is an adapter which can also work as a power bank as well as a wireless charger. The power bank charges itself when we use the adapter to charge the phone and later on it can be used as a power bank. The device is ergonomically designed in such a manner that it facilitates to charge the devices like iPad, tablets, smartphones and other smart gadgets like smart watches, headphones, earbuds and wireless speakers. Also, it has the capacity to charge multiple devices at a same time.
3. **Impact it will create**: Smart All in One Charger and Power Bank
4. **Current Status of the Patent**: Examination Report has been Generated, Online Reply Document Received(FER generated on 26/10/2022)
5. **Student Team details/Faculty Mentor :**
   1. Mr. Sahil Pandya
   2. Mr. Paras Rughani

6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** :
8. **Patent Granted Date** :
9. **Patent Application Number** : 371083-001

Patent-453: Real-time biofeedback device for quadriceps lag

1. **Name of the Technology**: Real-time biofeedback device for quadriceps lag
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Real-time biofeedback device for quadriceps lag has ability to capture real- time data with WIFI module which is more efficient and stable compared to old Bluetooth technology. Hence, this device can be operated and assessed by patient himself/herself in real time for measurement of active range of motion of knee joint.
3. **Impact it will create**: biofeedback device for quadriceps lag has ability to capture real- time data with WIFI module
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 52/2022 and Journal Date is 30-12-2022
5. **Student Team details/Faculty Mentor :**
   1. Ms. Kumari Sapna
   2. Mr. Ashish Dhirajlal Kakkad
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 30-12-2022
8. **Patent Granted Date** :
9. **Patent Application Number** : 371386-001

Patent-454: Manual Plant Cutter

1. **Name of the Technology**: Manual Plant Cutter
2. **Highlights of the Technology (innovation/uniqueness etc.):** the Manual Plant Cutter will work by the following principles. It will be pushed by the user like any other normal trolley and the cutter will be controlled by the brake like system on the handle. By pressing the brakes the cutter will close and open hence performing the operation of cutting. The flowers which are cut will be collected on the back side of the trolley. In this design worker will trim the plant manual with the help of machine. In a machine at top we are having the brake of machine by holding the brake the side cutter will cut the plant. And

the cut plant will lay in space of the upperpart. So they can move the cut plant easily.

3. **Impact it will create:** In this design worker will trim the plant manual with the help of machine
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 12/2023 and Journal Date is 24/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Jill Padariya
   2. Naresh Solanki
   3. Shruti Pithva
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 24/03/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 376867-001

Patent-455: Pulsera

1. **Name of the Technology**: Pulsera
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Pulsera has a number of sensors which are eligible for detection of heart beat, crash detection and button for sending help as well as emergency signals. Pulsera for doctors also contains a sensor which is designed to detect the influence of alcohol in them.
3. **Impact it will create**: Pulsera for doctors also contains a sensor which is designed to detect the influence of alcohol in them.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Chandrasinh Parmar
   2. Mann Desai
   3. Aniket Patel
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 376868-001

Patent-456: Agriculture Machine of Seed Sower, Weeder and Water Sprayer

1. **Name of the Technology**: Agriculture Machine of Seed Sower, Weeder and Water Sprayer
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Agriculture Machine of Seed Sower, Weeder and Water Sprayer has conventional seeding operation takes more time and more labor. The seed feed rate is more but the time required for the total operation is more and the total cost is increased due to labor, hiring of equipment. The conventional seed sowing machine is less efficient, time consuming. To meet the future food demands, the farmers have to implement the new techniques which will not affect the soil texture but will increase the overall crop production. In this design the seed will be locate in machine at top ad pesticides will be sprayed automate in machine and after pesticides sprayed and crops are ready to weed.
3. **Impact it will create**: The seed feed rate is more but the time required for the total operation is more and the total cost is increased due to labor, hiring of equipment
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Chandrasinh Parmar
   2. Jay Pipaliya
   3. Yash Kothari
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 376869-001

Patent-457: Pesticides Blower

1. **Name of the Technology**: Pesticides Blower
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Pesticides Blower is easy to carry and it will reduce the effort and time of the farmer. We can carry easily anywhere in farm. It's battery is easy to charge. It is used to sprinkle fertilizer easily. The bottle have capacity to store pesticides around 1kg. We can sprinkle all types of pesticides.
3. **Impact it will create**: It is used to sprinkle fertilizer easily.

4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Chandrasinh Parmar
   2. Sojitra Hetvi
   3. Janak Pariya
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 376870-001

Patent-458: Fruit Plucker

1. **Name of the Technology**: Fruit Plucker
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Fruit Plucker has light weight and easy to carry anywhere features. It has also the small storage attached along with the Fruit Plucker stick. We can store some amount of the fruits while cutting the fruits. It is operated at the bottom side of the stick just by pressing the figger.
3. **Impact it will create**: The Fruit Plucker has light weight and easy to carry anywhere features
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Chandrasinh Parmar
   2. Harshil Thummar
   3. Michael Zerihun Bahiru
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 376871-001

Patent-459: Gesture Chair

1. **Name of the Technology:** Gesture Chair
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Gesture Chair is used in hospitals. This is used for disabled patient and person. The Gesture Chair detects the user and starts an automatically, and you console

it with your movements and provide two buckets & a roof and stability like a bed. The goal of Gesture Chair is to provide stability, sensing, performance. This Gesture Chair is foldable and the roof is detachable.

3. **Impact it will create**: This is used for disabled patient and person**.**
4. **Current Status of the Patent**: Examination Report has been Generated, Online Reply Document Recived(FER generated on 27/02/2023)
5. **Student Team details/Faculty Mentor :**
   1. Kashyap Pathak
   2. Vatsal Ramani
   3. Naresh Solanki
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 27/02/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 377101-001

Patent-460: Biometric Scanner

1. **Name of the Technology**: Biometric Scanner
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Biometric Scanner it is easy to use. The users can easily scan biometric data with the biometric scanner. This is made in such a way to improve the security of confidential area. You can do it out while standing. It is designed to expand several biometric functions in surveillance system.
3. **Impact it will create**: It is designed to expand several biometric functions in surveillance system.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 09/2023 and Journal Date is 03/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Dr. Arjav Bavarva
   2. Pratham Buddhadev
   3. Pushti Depani
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 03/03/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 376872-001

Patent-461: RFID Based Payment System

1. **Name of the Technology**: RFID Based Payment System
2. **Highlights of the Technology (innovation/uniqueness etc**.): The RFID Based Payment System has light weight and easy to carry anywhere features. It also has the small storage attached along with the Payment System. We can store some amount of the money in the RFID card and we can scan it whenever we need.
3. **Impact it will create**: The RFID Based Payment System has light weight and easy to carry anywhere features
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Chandrasinh Parmar
   2. Mr. Dharmendrasinh Zala
   3. Mr. Kaushal Faldu
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 376873-001

Patent-462: Hand Plough

1. **Name of the Technology**: Hand Plough
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Hand Plough has a lightweight and easy-to-carry-anywhere feature The design of hand plough is used to plant seeds in farms. The device consists of four parts that includes Plough, Seeds Storage tank, Lever to Control seed flow, and Roller to put back the sand and level it.
3. **Impact it will create**: The Hand Plough has a lightweight and easy-to-carry-anywhere feature
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dr. Amit sata
   2. Kelvi Barochiya
   3. Heet Zalavadiya
6. **Patent Filing Date** : 05/01/2023

7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 376874-001

Patent-463: Face Recognition System for Transportation.

1. **Name of the Technology:** Face Recognition System for Transportation.
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Face Recognition System for Transportation that allows users to attach screen, camera, two Flash light, Fingerprint, on-off switch. The device can be attached easily in transportation vehicle that contains display size is slim, two flashlight to detect the face of users even during the night and a biometric Sensor to recognize users.
3. **Impact it will create**: Detect the face of users even during the night and a biometric Sensor to recognize users
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 09/2023 and Journal Date is 03/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dr R B Jadeja
   2. Nishit Dudakiya
   3. Charmi Gangani
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 03/03/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 377102-001

Patent-464: Food Waste Compost

1. **Name of the Technology**: Food Waste Compost.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The Food Waste Compost is a device to produce compost using food waste which is kept in the upper compartment and a tube is kept in between next compartment where the compost is produced. It also has the holes for fresh air which is required for good circulation. An extra pipe is kept for maintaining the moisture during the process.
3. **Impact it will create**: its device to produce compost using food waste which is kept in the upper compartment and a tube is kept in between next compartment where the compost is produced.

4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 12/2023 and Journal Date is 24/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Chandrasinh Parmar
   2. Mayurdhvajsinh Jadeja
   3. Binti Bhatt
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 24/03/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 377103-001

Patent-465: E-Waste Categorizer System

1. **Name of the Technology**: E-Waste Categorizer System
2. **Highlights of the Technology (innovation/uniqueness etc**.): The E Waste Categorizer System ease to categorize the electronic waste according to three categories that includes batteries, recyclable waste and the circuit wastes. The aim of the design is to categorize the e waste by identifying the object with the help of Image processing.
3. **Impact it will create**: The aim of the design is to categorize the e waste by identifying the object with the help of Image processing.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 10/2023 and Journal Date is 10/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Rakesh Oza
   2. Khevana Purohit
   3. Vasu Savjani
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 10/03/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 377104-001

Patent-466: Letter Counting Letter Box

1. **Name of the Technology:** Letter Counting Letter Box
2. **Highlights of the Technology (innovation/uniqueness etc.):** The letter counting letter box has a counter that counts the number of letters when the user inserts a letter into the box. The letters are counted using a sensor

installed in the letter box. It has a display at the back side of the box that displays the count of the letters. The counter automatically resets when the user removes the letters. The display works on the power of a solar panel installed at the top of the letter box. There is a provision to install a battery as a backup

3. **Impact it will create**: It works on the power of a solar panel installed at the top of the letter box Current Status of the Patent: Design Accepted and Published, Journal No is 23/2023 and Journal Date is 09/06/2023
4. **Student Team details/Faculty Mentor :**
   1. Dhruvi Dobariya
   2. Vasu Bhalodi
   3. Dhanrajsinh Parmar
5. **Patent Filing Date** : 10/01/2023
6. **Patent Published Date** : 09/06/2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 377105-001

Patent-467: Floor Cleaner

1. **Name of the Technology**: Floor Cleaner
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Floor Cleaner has a sweeper in front of the product with a small dust collector in which dust can be contained and a spinning mop al the bottom side by which the floor can be cleaned properly. There is a compartment in which user can keep the water tank for the mop.
3. **Impact it will create**: smart floor cleaner
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 12/2023 and Journal Date is 24/03/2023
5. **Student Team details/Faculty Mentor :**
   Mr. Vijay Dubey
   Renish Surani
   Harmy Adroja
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 24/03/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 377106-001

Patent-468: Smart Dustbin

1. **Name of the Technology**: Smart Dustbin
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Smart Dustbin has features like it will open automatically when someone comes near to the dustbin and there will be two lights on the front side of the dustbin which will indicate the level of dustbin which is filled. Red light will indicate that the dustbin is almost full and the green light will indicate that significant amount of the dustbin is empty. There is also an additional fancy feature where the smiley or sad face will be displayed in the LCD display below the LED lights.
3. **Impact it will create**: when someone comes near to the dustbin and there will be two lights on the front side of the dustbin which will indicate the level of dustbin which is filled. Red light will indicate that the dustbin is almost full and the green light will indicate that significant amount of the dustbin is empty
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof Dr. R B Jadeja
   2. Belvinraja Nadar
   3. Harsh Jolapara
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** :
9. **Patent Application Number** : 377107-001

Patent-469: Lady Armour

1. **Name of the Technology**: Lady Armour
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The LADY ARMOUR provides features such as SOS emergency alerts and also has GPS to track down the location and has standard diameter of l5-15 cm which is adjustable by the hook provided and it has glossy body which makes it look elegant and attractive.
3. **Impact it will create**: The LADY ARMOUR provides features such as SOS emergency alerts and also has GPS to track down the location
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 12/2023 and Journal Date is 24/03/2023

5. **Student Team details/Faculty Mentor :**
   1. Mr. Vivek Patel
   2. Prachi Bhatt
   3. Kinjal Jadav
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 24/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 377108-001

Patent-470: Grass Cutter

1. **Name of the Technology**: Grass Cutter
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Grass Cutter is going to help cut the unwanted grass from the roots, the model has a T shaped structure and contains a roller at the end of the design. It has 6 blades attached to it and it will be attached in a cross way. We can easily move as par the requirement from the middle point of the product.
3. **Impact it will create**: Smart Grass Cutter
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 13/2023 and Journal Date is 31/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dr. R L Jhala
   2. Neer Gosrani
   3. Neel Agola
6. **Patent Filing Date** : 31/03/2023
7. **Patent Published Date** : 16/01/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 377506-001

Patent-471: Intelligent Bottle

1. **Name of the Technology**: Intelligent Bottle
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Hydrobit is our finest creation that would enable you with intelligent features and make your life healthy & purified. Our Hydro bit smart bottle eliminates approx. 99.9% of Bacteria and other microorganisms by using certified UVC rays.

   Integrated sensors help you to monitor your health, and water intake time all

with its bottle Display & deep integration with the Mobile application and it keeps you hydrated.

3. **Impact it will create**: Smart Water Bottle
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Aditya Pandya
   2. Darshan Mulchandani
   3. Shivani Abhani
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 377507-001

Patent-472: Queue Length Analyser System

1. **Name of the Technology**: Queue Length Analyser System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Queue Length Analyser System has a wide angle camera module and a processing unit. This module is ceiling mounted and has a cubical shape. The module will capture image data and produce an analysis of the number of people standing in a queue with the help of machine leaning algorithm. The system will display the Analyzed, result on a screen and then the customer can review it and can opt the quickest queue counter.
3. **Impact it will create**: The module will capture image data and produce an analysis of the number of people standing in a queue with the help of machine leaning algorithm.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 09/2023 and Journal Date is 03/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dr. Amit Sata
   2. Kush Jadav
   3. Prunthil Kheni
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 03/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377508-001

Patent-473: Insoiled Groundnut Collector

1. **Name of the Technology**: Insoiled Groundnut Collector
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Insoiled Groundnut Collector which is an autonomous vehicle that contains a box to carry a battery and other motor drivers. The vehicle has 4 wheels for proper balancing. It has sieve for extracting groundnuts from soil. It has grey color storage container which is attached at the back of the vehicle.
3. **Impact it will create**: Smart Groundnut Collector
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dr. R L Jhala
   2. Shruti Nathavani
   3. Janvi Busa
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377509-001

Patent-474: Medicine Vending Machine

1. **Name of the Technology**: Medicine Vending Machine
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Medicine Vending Machine helps users to collect their medicines during requirements with the help of the vending machine. System is equipped with a speaker to assist the user to understand any medicines or any system malfunctions. The disorders are shown on a display screen that is affixed to this vending machine. The sorting of medicines for each disease are then shown for user selection, and the system will then dispense the medicine.
3. **Impact it will create**: it helps users to collect their medicines during requirements with the help of the vending machine. System is equipped with a speaker to assist the user to understand any medicines
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**
   1. Ms.Sunera Kargarthara
   2. Ruturajsinh Parmar

3. Devang Gohil

6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377485-001

Patent-475: Core Gloves

1. **Name of the Technology**: Core Gloves
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Core Gloves has the safety pads all over the palm covering with it, from that it can prevent injuries while lifting weights by air pressure and can give more strength to push it to the extreme extent, it can also prevent sweat in hand it has been Fabricated using m microfiber inside the gloves and upper side, we are applying semi I-leather m arterial. We are using Accelerometer for tracking the person's calories. Let’s available for different size and it's designed for male as well 3s Female.
3. **Impact it will create**: it can prevent injuries while lifting weights by air pressure and can give more strength to push it to the extreme extent
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**

   1. Huzefa Dhankot
   2. Dhairya Satani
   3. Mr. Naresh Solanki

6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377486-001

Patent-476: RFID Based Food Management System

1. **Name of the Technology**: RFID Based Food Management System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The RFID based food management system is having a RFID band which will have unique Identity and that identity will be scanned by RFID scanner. The scanner will save that data as logs and that log will used further for analysis in terms of no. of times it has been scanned by scanner.

3. **Impact it will create**: Smart Scan by RFID Scanner
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 29/03/2023)
5. **Student Team details/Faculty Mentor :**
   1. Ms. Foram Rajdev
   2. Krunal Trivedi
   3. Digvijay Chavda
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377487-001

Patent-477: Luggage Trolley

1. **Name of the Technology**: Luggage Trolley
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Luggage Trolley includes one foldable hanger to hang coat and grill to put extra luggage whenever there is requirement. The base grill has functionality to adjust itself to extend or shrink the base also an adjustable wood plate to carry some extra luggage.
3. **Impact it will create**: A Smart Luggage Trolley
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 12/2023 and Journal Date is 24/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Sunil Lavadiya
   2. Prem Acharya
   3. Nand Thaker
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 24/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377488-001

Patent-478: NetCharge Sync

1. **Name of the Technology**: NetCharge Sync
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The NetCharge Sync allows you to access cellular networks by inserting a SIM

card and provides additional USB ports, a 3.5mm jack, and a micro-SD card reader for connecting devices to your computer. It is compact and easy to use, simply plugging into a free USB port on your computer. It also has an internal battery that can be used as a power Backup. This device is a convenient way to increase the number of available USB ports on your computer.

3. **Impact it will create**: It allows you to access cellular networks by inserting a SIM card and provides additional USB ports, a 3.5mm jack, and a micro-SD card reader for connecting devices to your computer
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Dr. Arjav Bavarva
   2. Prayag Sheth
   3. Tapan Khokhariya
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377489-001

Patent-479: Automatic Stretcher

1. **Name of the Technology**: Automatic Stretcher
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Automatic Stretcher has an automatic mechanism that take the stretcher to the room which path has been selected by the user and the path will be displayed in the screen till the destination arrives. It also has a camera and a siren which rings when the camera detects that there is a person or object in the front of the stretcher. Size of display will be 6x6 inch.
3. **Impact it will create**: Automatic mechanism that take the stretcher to the room
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Vishal Kanzariya
   2. Brijesh Limbani
   3. Harsh Sapara

6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377490-001

Patent-480: Harvesting invisible high voltage from sky

1. **Name of the Technology**: Harvesting invisible high voltage from sky
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Harvesting invisible high voltage from atmosphere using drone include an electrode which is made of metal. That metal electrode we have to put on our acrylic plate which is hanging using ted fisher wire attach with drone, the main goal is to collect the energy from the atmosphere.
3. **Impact it will create**: The main goal is to collect the energy from the atmosphere.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dr. Amit Sata
   2. Shubham Solanki
   3. Priyank Sadhu
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377491-001

Patent-481: Smart Eye Sensing Glass

1. **Name of the Technology**: Smart Eye Sensing Glass
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Smart eye sensing glass. The eye, e blink sensor is mounted on left and right side which is covered in glasses and positioned in a way so that it lines up with the user's eye. The eye blink sensor gives an output HIGH signal when the sensor detects a blink that is when the user closes their eyes. When the users'e1e blink continuously then it is good but if the user’s eye not blinking continuously to 10 sec to 20 sec according to this it will give an alert and start ringing.
3. **Impact it will create**: The Smart Eye Sensing Glass

4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 13/2023 and Journal Date is 31/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Chandrasinh Parmar
   2. Parth Parmar
   3. Jean Patrick
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 31/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377492-001

Patent-482: Traffic Clearance for Emergency Vehicles

1. **Name of the Technology**: Traffic Clearance for Emergency Vehicles
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Tratfic Clearance for Emergency Vehicles has very useful functionalities; the device is in a shape of a box, which will installed in Emergency Vehicles. In addition, miniature version of same box with installed in traffic signals. Both type of boxes with have vents to cool circuit inside Boxes, also the box of vehicle will have 2 charging ports which-will charge the batteries of the device and the Tablet/mobile mounted on the box. The box inside the traffic signal with communicate with traffic lights after receiving the inputs from the server.
3. **Impact it will create**: A smart miniature traffic clearance for emergency vehicles
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 27/02/2023)
5. **Student Team details/Faculty Mentor :**
   1. Mr. Vivek Patel
   2. Mr. Chirag Visani
   3. Mr. Kunal Raval
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377493-001

Patent-483: Women Safety Keychain

1. **Name of the Technology**: Women Safety Keychain
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Women Safety Keychain is a handy gadget which can be carried anywhere easily. Location data is shared to assigned contacts when alert button is activated by pressing it two times. Further by pressing it three times a Warning that there is a threat is delivered. In the evenings, the torch feature is also usable.
3. **Impact it will create**: Smart keychain for safety purpose.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Krisha Khandhedia
   2. Sarth Odedara
   3. Vishal Kanzariya
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377494-001

Patent-484: Wrapping Machine

1. **Name of the Technology**: Wrapping Machine
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Wrapping Machine has been used in pipes of air conditioning is very long pipes Wrapping Protection of Goods from Damage, Dust and Moisture, improved Safety, Saves Time, Saves on Film Cost, Faster Packaging, Efficient Product Wrapping, Increased Productivity, improved inventory Control.
3. **Impact it will create**: The Wrapping Machine has been used in pipes of air conditioning is very long pipes Wrapping Protection of Goods from Damage, Dust and Moisture, improved Safety
4. **Current Status of the Patent**: Examination Report has been Generated, Online Reply Document Received (FER generated on 17/02/2023)
5. **Student Team details/Faculty Mentor :**
   1. Umang Parmar
   2. Sagar Machhoya
   3. Vishal Kanzariya

6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377495-001

Patent-485: Pit Detector

1. **Name of the Technology**: Pit Detector
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Pit Digger consists of a manually operated easily portable device for digging pits in any type of soil with optimum efforts and time. This device is useful for creating cylindrical spaces for direct and easy plantation from nursery. Pits of depth up to 450 mm and nearly 200 mm diameter can be easily made with clean operation using aforesaid device. The helix angle for the blade of the digger is kept around 20o for comfortable removal of soil. The rack angle of the sharp edge of the blade was kept about 45o for comfortable cutting action. The pointed edge provided at bottom helps vertical movement of digger in soil. This can comfortably be used for mass plantation in residential and commercial applications.
3. **Impact it will create**: This device is useful for creating cylindrical spaces for direct and easy plantation from nursery
4. **Current Status of the Patent:** Design Accepted and Published, Journal No is 13/2023 and Journal Date is 31/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Akshit Chauhan
   2. Mr. Naresh Solanki
   3. Mr. Vishal Kanzariya
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 31/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377496-001

Patent-486: Smart Shopping Trolley

1. **Name of the Technology**: Smart Shopping Trolley
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Smart Shopping Trolley In this, we used two trolleys in one. The upper trolley can be moved left to right and up and down, and it can be locked. The down trolley is not movable. This trolley has a single handle with a break button for

controlling the trolley. A rubber bush was used to prevent noise one trolley collided with another. When the lower trolley is full, then we can use the upper trolley. Items occasionally fall off, but this trolley has no such chances because it has an upper trolley.

3. **Impact it will create**: The Smart Shopping Trolley In this, we used two trolleys in one
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 19/2023 and Journal Date is 12/05/2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Mitesh Solanki
   2. Krupali Rathod
   3. Darshan Gohel
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 12/05/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377497-001

Patent-487: Women Safety Spray

1. **Name of the Technology**: Women Safety Spray
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Women Safety Spray is a gadget contains of a bottle that has a knife, knuckle Puncture and also contains paper spray and there will be two buttons respectively one for the opening of The knife and the other one for opening the knuckle puncture and there will also be a spray nozzle for the Pepper spray.
3. **Impact it will create**: Smart spray for women safety propose
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Kavan Dave
   2. Meghnaba Jadeja
   3. Vishwa Patel
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377498-001

Patent-488: Nail Trimmer

1. **Name of the Technology**: Nail Trimmer
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Nail Trimmer is a revolutionary product in the cosmetic industry aiming to improve the nail cutting experience. The nail trimmer is designed in a pocket friendly cuboidal box equipped with LED lights, a powerful magnifier glass and a unique silicon spacing with auto-fit capabilities to inject the finger in the nail trimmer. The design targets to improvise the nail cutting and trimming experience by magnifying the nail and projecting adequate lights for better vision while cutting nails- This product will also benefit its user by not spreading the nails while cutting them instead, it will collect it and store it inside them which the user can clean it after the use also a special socket for keeping nail cutters so the users don't lose them! The Nail Trimmer can be used by people of any age group making it highly versatile and can be used as a great product for the cosmetic service industries.
3. **Impact it will create**: It's a revolutionary product in the cosmetic industry aiming to improve the nail cutting experience
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 13/2023 and Journal Date is 31/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Aditya Pandya
   2. Amit Padhiyar
   3. Vishal Kanzariya
6. **Patent Filing Date** : 31/03/2023
7. **Patent Published Date** : 16/01/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377499-001

Patent-489: Lizard Trap

1. **Name of the Technology**: Lizard Trap
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Lizard Trap is purely mechanical, chemical-free and harmless. The trap is 100 mm in diameter and 140 mm in height. It can capture lizards up to 120 mm in length. The unique design of the trap ensures that the lizard can't return easily after entering the same. The device can be prepared with matching

design of wall and can be easily mounted on the wall with the help of holes provided on back of it.

3. **Impact it will create**: The unique design of the trap ensures that the lizard can't return easily after entering the same
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 10/2023 and Journal Date is 10/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Dr. Nikunj V. Rachchh
   2. Prof. (Dr.) Sandeep Sancheti
   3. Mr. Jignesh D. Jani
   4. Dr. Pinank A. Patel
   5. Mr. Ashok N. Khambhayta
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 10/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377500-001

Patent-490: Detachable Lizard Trap

1. **Name of the Technology**: Detachable Lizard Trap
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Detachable Lizard trap is purely mechanical, chemical free and harmless. The Trap is of 100 mm diameter and 180 mm in overall height. Upper part and lower part are of 90mm height each and designed to ensure press fit between them. Both parts are easily detachable so as to remove captured lizards. A ring is inbuilt in the lower part to prevent the prey insects from leaving the trap this trap can capture lizards up to size of 150 mm.
3. **Impact it will create**: This trap can capture lizards up to size of 150 mm
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 10/2023 and Journal Date is 10/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Dr. Pinank A. Patel
   2. Prof. (Dr.) Sandeep Sancheti
   3. Mr. Jignesh D. Jani
   4. Dr. Nikunj V. Rachchh
   5. Mr. Sanjoy S. Dasgupta
6. **Patent Filing Date** : 16/01/2023

7. **Patent Published Date** : 10/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377501-001

Patent-491: Pit Digger

1. **Name of the Technology**: Pit Digger
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Pit Digger consists of a manually operated easily portable device for digging pits in any type of soil with optimum efforts and time. This device is useful for creating cylindrical spaces for direct and easy plantation from nursery. Pits of depth up to 450 mm and nearly 200 mm diameter can be easily made with clean operation using aforesaid device. The helix angle for the blade of the digger is kept around 20o for comfortable removal of soil. The rack angle of the sharp edge of the blade was kept about 45o for comfortable cutting action. The pointed edge provided at bottom helps vertical movement of digger in soil. This can comfortably be used for mass plantation in residential and commercial applications.
3. **Impact it will create**: This device is useful for creating cylindrical spaces for direct and easy plantation from nursery
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 23/02/2023)
5. **Student Team details/Faculty Mentor :**
   1. Prof. (Dr.) Sandeep Sancheti
   2. Dr. Nikunj V. Rachchh
   3. Dr. Pinank A. Patel
   4. Mr. Raghuvirsinh M. Parmar
   5. Mr. Govind S. Patil
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377502-001

Patent-492: Handheld Portable Multimeter cum Ossiloscope with Mobile Connectivity

1. **Name of the Technology**: Handheld Portable Multimeter cum Ossiloscope with Mobile Connectivity
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Handheld Portable Multimeter cum Oscilloscope with Mobile Connectivity is a portable handheld measurement device. The device can work as a multimeter, ossilloscope and component tester. The mobile application and device connect with ease wirelessly and measure a variety of parameters. These include voltage, current, and resistance. Furthermore, it offers continuity and diode checking. It operates independently without a mobile application thanks to the display that is built within the module. A USB C port on the gadget can be used to replenish its rechargeable battery. Near the tip, there is a white LED ring that aids in measurement in low light. The secondary probe for measurement can be connected to a port at the bottom. An extra slot-like structure is provided for winding the secondary probe wire. The device is powered by a sliding switch, and a push-button switch is included for mode selection. The claimed device is perfect for use in electrical, electronic, automotive, and many other applications.
3. **Impact it will create**: The device can work as a multimeter, oscilloscope and component tester.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 10/2023 and Journal Date is 10/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Uvesh A. Sipai
   2. Vatsalkumar Patel
   3. Nirav Tolia
   4. Dr. Rajendrasinh Jadeja
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 10/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377503-001

Patent-493: Detachable Module for Community Dustbin Monitoring and Tracking

1. **Name of the Technology**: Detachable Module for Community Dustbin Monitoring and Tracking
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Detachable Module for community dustbin Monitoring and Tracking which can be used for active tracking and monitoring the community dustbin it is detachable and may be fitted on to any common trash can with-out the need for-any modifications. The module has a level sensor for continuously checking-the amount of garbage in the trash container. i gas sensors is attached to keep an eye on the gases created by the trash for any potential nasty smelt. For actively tracking the location of the rash can, the device incorporates a GPS module. With the aid of CPRS module, all the data is transmitted to a cloud app for active monitoring by the control administrator. Order to save energy, the module will intermittently activate, transfer data to the cloud, and then go into sleep mode. Module is powered by a removable battery.
3. **Impact it will create**: Detachable Module for community dustbin Monitoring and Tracking which can be used for active tracking and monitoring the community dustbin
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 10/2023 and Journal Date is 10/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Uvesh A. Sipai
   2. Vishal Kanzariya
   3. Dr. Rajendrasinh Jadeja
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 10/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377504-001

Patent-494: Laptop Charging Adaptor and Power Bank

1. **Name of the Technology**: Laptop Charging Adaptor and Power Bank
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The Laptop Charging Adaptor and Power Bank is a combo device. The proposed device has a C6 male power cord to connect with the utility supply. Universal USB Type A and Type C port is provided to power multiple devices simultaneously. These ports are capable of delivering high power output

suitable for laptop charging, mobile charging and powering other electronic gadgets also. Both the charger and the battery cells are within the device. It will simultaneously charge the internal battery and deliver power to any connected devices when a utility supply is available. When the utility's AC power is unavailable, the device's internally charged battery will supply power to any connected devices. A display for the SoC status of the internal cell and other pertinent metrics is located at the top of the device. To show the status of charging, there are indicator LEDs close to the USB Type A and Type C ports. For safety and protection, over voltage, over current, and thermal protection are incorporated.

3. **Impact it will create**: When the utility's AC power is unavailable, the device's internally charged battery will supply power to any connected devices.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 19/2023 and Journal Date is 12/05/2023
5. **Student Team details/Faculty Mentor :**
   1. Uvesh A. Sipai
   2. Vatsalkumar Patel
   3. Nirav Tolia
   4. Dr. Rajendrasinh Jadeja
6. **Patent Filing Date** : 13/02/2023
7. **Patent Published Date** : 12/05/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 379179-001

Patent-495: Composite Insulator for Electrical Distribution Network

1. **Name of the Technology**: Composite Insulator for Electrical Distribution Network
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Composite Insulator for Electrical Distribution Network used to provide mechanical support and electrical isolation to overhead conductors. One of the reasons for the non-reliable performance of outdoor insulators is the frequent contamination flashover. When the energized contaminated outdoor insulators are wetted, there is a flow of leakage current on its surface which may develop flashover conditions. The optimization is based on finding the minimum leakage current on the surface under polluted conditions compared to the available design without increasing the amount of the material used. If

the leakage current can be reduced then the chances of the flashover can be reduced. The optimization has been done under the guideline of international standards which is on the selection and dimensioning of the composite insulator. This insulator contains three parts: Fibre Reinforced Plastic rod, metal end fittings and polymeric housing. In this work, the distance between two housing and their angle has been changed to achieve the minimum leakage current.

3. **Impact it will create**: Composite Insulator for Electrical Distribution Network used to provide mechanical support and electrical isolation to overhead conductors
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 19/2023 and Journal Date is 12/05/2023
5. **Student Team details/Faculty Mentor :**
   1. Dr. Krishna Patel
   2. Uvesh A. Sipai
   3. Dr. Rajendrasinh Jadeja
6. **Patent Filing Date** : 13/02/2023
7. **Patent Published Date** : 12/05/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 379180-001

Patent-496: Head for Printable Concrete

1. **Name of the Technology**: Head for Printable Concrete
2. **Highlights of the Technology (innovation/uniqueness etc**.): The HEAD FOR PRINTABLE CONCRETE proposes a vertically placed cylindrical shaped container. The container consists of top, middle and bottom segments. Top segment consists the mounting facility for the central vertical conveyor screw, and four small sized hoppers opening inside the container from top for pouring the concrete mixture. The middle segment is a cylinder for storage and supply of the concrete and the bottom segment contains a conical opening narrowed done at the bottom with opening for releasing the concrete mixture. The innovative parts of the design are (a) Easy poring of concrete without contacting the moving parts of the head (b) Options for purring one or more different materials in the head container as and when needed and (c) The head can be fit and removed easily within the printer Moreover, the design innovatively offers the mounting / placement as a static

component or as the part of the moving components of the printer such as the robotic arms. The innovatively placed four concrete pouring hoppers offers pouring, mixing and adding four different materials at one time. The design is highly required when there is a need to use multiple types of material in making a concrete mixture containing varying properties, characteristics and ingredients

3. **Impact it will create**: Easy poring of concrete without contacting the moving parts of the head.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 19/2023 and Journal Date is 12/05/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. (Dr.) Ankur C. Bhogayata
   2. Mr. Jay V. Pandya
6. **Patent Filing Date** : 13/02/2023
7. **Patent Published Date** : 12/05/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 379178-001

Patent-497: Cylindrical Friction Stir Welding (FSW) Tool Pin with Threads & Flats

1. **Name of the Technology**: Cylindrical Friction Stir Welding (FSW) Tool Pin with Threads & Flats
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Cylindrical Friction Stir Welding (FSW) Tool Pin with Threads & Flats is used to join plates with the help of FSW process. In which, tool shoulder diameter to tool pin Diameter ratio is recommended to kept as 3. Additionally, tool pin length must be kept 0.1 - 0.2 mm lesser than the thickness of the material to be welded. Threads onto the tool pin facilitate higher surface are4 which leads to more Frictional heat, better material mixing along the weld joint and higher tensile strength. Flats onto tool pin results into high cr pulsating stirring action, finer grain size, higher hardness and tensile strength
3. **Impact it will create**:
   For more Frictional heat, better material mixing along the weld joint and higher tensile strength
4. **Current Status of the Patent**: Examination Report has been Generated , Case is Waiting for Examination Report Reply (FER generated on 11/04/2023)

5. **Student Team details/Faculty Mentor :**
   1. Gaurang Rajendraprasad Joshi
   2. Nikunj Rameshkumar Maheta
   3. Jay Harshadrai Chhatbar
   4. Vivek Jayantbhai Pathak
6. **Patent Filing Date** : 13/02/2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 379182-001

Patent-498: Electric Two-Wheeler with Battery Mounting Under the Floor Panel

1. **Name of the Technology**: Electric Two-Wheeler with Battery Mounting Under the Floor Panel
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Electric Two-Wheeler with Battery Mounting under the Floor Panel is sleek and modem design while providing efficient and eco-friendly transportation. This innovative approach battery placement helps to keep the center of gravity low, enhancing the stability and handling of the bike. This will lead to increased durability of the bike, as the weight of the battery is evenly distributed and supported by the frame. Additionally, the placement of the battery under the floor panel frees up valuable storage space for the rider.
3. **Impact it will create**: This will lead to increased durability of the bike, as the weight of the battery is evenly distributed and supported by the frame
4. **Current Status of the Patent**: Examination Report has been Generated , Case is Waiting for Examination Report Reply (FER generated on 11/04/2023)
5. **Student Team details/Faculty Mentor :**
   1. Uvesh A. Sipai
   2. Dr. Amit Ved
   3. Bewketu Kehali
   4. Anuragsinh Revar
6. **Patent Filing Date** : 13/02/2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 379181-001

Patent-499: Viscosity Measurement System For Investment Casting

1. **Name of the Technology**: Viscosity Measurement System For Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc.)**: This system is develop to control viscosity of slurry through internet, and in turn using fundamentals of Industrial Internet of Things (IIoT). This system facilitates user to interact with viscosity measurement machine using internet, perform testing, and streaming the data to cloud-based server.
3. **Impact it will create**: This application will be useful for more than 600 industrial investment casting foundries located at various foundry clusters of India.
4. **Current Status of the Patent**: Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   Dr. Amit Sata
   Mr. Mahek Rathod
6. **Patent Filing Date** : 15-09-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 19369/2022-CO/SW

Patent-500: Weighted Criteria Approach Based Complexity Computation System for Investment Casting

1. **Name of the Technology**: Weighted Criteria Approach Based Complexity Computation System for Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The development of weighted criteria approach based complexity computation system helps in early stage estimation of complexity involved in manufacturing industrial component using investment casting process. This will help investment casting foundry man to make decision about making an industrial casting using investment casting process. It will also provide a better insight to designer about impact of any parameter on overall complexity index, and helps in better design for investment casting.
3. **Impact it will create**: This will help investment casting foundry man to make decision about making an industrial casting using investment casting process.
4. **Current Status of the Patent**:
   Re-Scrutiny

5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Nikunj Mehta
6. **Patent Filing Date** : 15-09-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 19367/2022-CO/SW

Patent-501: Permeability Measurement System For Investment Casting

1. **Name of the Technology**: Permeability Measurement System For Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc.)**: This system is develop to control hot/cold permeability measurement machine through internet, and in turn using fundamentals of Industrial Internet of Things (IIoT). This system facilitates user to interact with permeability machine using internet, perform testing, and streaming the data to cloud-based server.
3. **Impact it will create**: This application will be useful for more than 600 industrial investment casting foundries located at various foundry clusters of India.
4. **Current Status of the Patent**: Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Mahek Rathod
6. **Patent Filing Date** : 15-09-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 19370/2022-CO/SW

Patent-502: Analytical Hierarchy Process Based Complexity Computation System for Investment Casting

1. **Name of the Technology**: Analytical Hierarchy Process Based Complexity Computation System For Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The development of an analytical hierarchy process (AHP) based complexity computation system assist investment casting foundry men in making decisions regarding whether to produce an industrial casting using the

investment casting process. It can also provide designers with valuable insights into the impact of various parameters on the overall complexity index, enabling them to improve the design for investment casting.

3. **Impact it will create**: it's computation system assist investment casting foundry men in making decisions regarding whether to produce an industrial casting using the investment casting process.
4. **Current Status of the Patent**:
   Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Nikunj Mehta
6. **Patent Filing Date** : 15-09-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 19366/2022-CO/SW

Patent-503: Smart Foundry

1. **Name of the Technology**: Smart Foundry
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   This is android based application to connect physical equipment including vertical centrifugal casting and melting furnace for demonstrating application of IoT in the field of foundry engineering. This application facilitates real time monitoring as well as controlling of foundry equipment through android based smart device through internet.
3. **Impact it will create**: This application will demonstrate application of IoT in the domain of foundry engineering. This is one of its kind that connect physical foundry equipment with internet.
4. **Current Status of the Patent**: Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Nikunj Mehta
6. **Patent Filing Date** : 15-09-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 19368/2022-CO/SW

Patent-504: Analysis and Prediction of Placement of Engineering Students using Machine Learning

1. **Name of the Technology**: Analysis and Prediction of Placement of Engineering Students using Machine Learning
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Higher Educational Institutes in India is facing challenges in terms of employability. Lots of students are taking admission in professional courses, but in Higher Education Institutes does not have the system to analysis the data of students. Keeping this mass into consideration large amount of data need to be analyses with Right technology tool. Using traditional method analysis process is confusing and Time consuming at times. With the advancements in technology Artificial Intelligence And Machine Learning techniques can be used to train machine in such a way that They can predict the outcome as per the desired performance in less time and efforts. The scope of this project is to train Machine Learning model using student's Educational data and perform analysis using Machine Learning. We are going to Propose Algorithms such as SVD, Collaborative filtering NFM and RBM. This work Will useful for the Higher Educational Institutes to summarize student's academic performance.
3. **Impact it will create**: Programming Language Used for Development of Work
4. **Current Status of the Patent**: Re Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Rajendrasinh B Jadeja
   2. Mr. Akshay Ranpariya
   3. Mr. Vishwarajsinh Jadeja
6. **Patent Filing Date** : 09-11-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 23081/2022-CO/SW

Patent-505: Udaan Model of Effective Pedagogy for the diversified leaners in engineering education

1. **Name of the Technology**: Udaan Model of Effective Pedagogy for the diversified leaners in engineering education

2. **Highlights of the Technology (innovation/uniqueness etc.)**: The proposed model of pedagogy exhibits the step by step methodology may be adapted to Catering the learners' diversity in the engineering programs. The model is prepared from the feedbacks received from the teachers having real time experiences and come across the Challenges of catering the learners' diversity in terms of the national and international Students of different countries attending the academic sessions together.
3. **Impact it will create**: The proposed model is designed to resolve issues of how to use appropriate pedagogies in a systematic approach.
4. **Current Status of the Patent**:
   Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Rajendrasinh B Jadeja
   2. Dr. Ankur Bhogayata
6. **Patent Filing Date** : 15-11-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 23498/2022-CO/L

Patent-506: Inter - Relationship of objective of pedagogy and academic success in the diversified classroom

1. **Name of the Technology**: Inter - Relationship of objective of pedagogy and academic success in the diversified classroom
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The diagram illustrates the inter-dependency and correlation of the objectives of the Pedagogical practices in a leaners' diversity in a class room. The model includes the major Objectives to be achieved from the pedagogical practices, especially in a diversified classRoom.
3. **Impact it will create**: The proposed model and design illustrates clearly that how the entire network of the pedagogies, methods, learners' response and academic excellence are interconnected
4. **Current Status of the Patent**: Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Rajendrasinh B Jadeja
   2. Dr. Ankur Bhogayata
6. **Patent Filing Date** : 15-11-2022

7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 23500/2022-CO/L

Patent-507: Pathfinding Adventure

1. **Name of the Technology**: Pathfinding Adventure
2. **Highlights of the Technology (innovation/uniqueness etc**.): Introducing the Pathfinding Adventure game, an exciting and effective educational tool that Uses Pygame to teach graph theory. This game makes learning fun and engaging by Including interactive checkpoints and rewarding players for correct answers. It replaces Traditional teaching methods and helps us save resources by reducing the need for paper- Based materials. By playing the Pathfinding Adventure game, students not only develop a Solid understanding of graph theory but also learn to appreciate the importance of Sustainability in education.
3. **Impact it will create**: Its exciting and effective educational tool that uses Pygame to teach graph theory**.**
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Aryavardhan Deepak Sharma
   2. Prof. Foram Chandarana
   3. Darshan Ashvinbhai Padia
   4. Mustafa Juzarbhai Bharma
6. **Patent Filing Date** : 13-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 6606/2023-CO/SW

Patent-508: Prob-AI Gaming

1. **Name of the Technology:** Prob-AI Gaming
2. **Highlights of the Technology (innovation/uniqueness etc**.): Our Python project consists of a Thkinter GUI for a Rock-Paper-Scissors game, integration with the ChatGPT API , and a calculator with probability functions. The GUI enhances the gaming experience by providing a user-friendly interface for selecting moves. The ChatGPT API adds intelligent question-answering capabilities, allowing users to obtain accurate and informative

responses. Additionally, the calculator performs factorial, combination, and permutation calculations, making it a valuable tool for probability-related tasks. Together, these components create an engaging and versatile Python project suitable for various applications.

3. **Impact it will create**: these components create an engaging and versatile Python project suitable for various applications
4. **Current Status of the Patent**: Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Mustafa Juzar Bharmal
   2. Prof. Foram Chandarana
   3. Yash Vara
6. **Patent Filing Date** : 13-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 6600/2023-CO/SW

Patent-509: YouTube Transcript Summarizer

1. **Name of the Technology**: YouTube Transcript Summarizer
2. **Highlights of the Technology (innovation/uniqueness etc**.): An enormous number of videos are shared daily on the Internet, making it challenging to find relevant information due to misleading tactics. YouTube transcript summariser is an interesting project where summarising transcripts of videos automatically allows us to quickly look out for the important patterns in the video and helps us save time and effort to go through the whole content of the video.
3. **Impact it will create**: It helps us save time and effort to go through the whole content of the video.
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dhruvi Kothari
   2. Prof. Foram Chandarana
   3. Vrajkumar Pithwa
6. **Patent Filing Date** : 13-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** **: --**
9. **Patent Application Number** : 6606/2023-CO/SW

Patent-510: Graphical Representation of Graph Theory

1. **Name of the Technology:** Graphical Representation of Graph Theory
2. **Highlights of the Technology (innovation/uniqueness etc**.): The PHP project on Graph Theory is designed to create an engaging and Interactive learning environment for students. It includes quizzes and certificates to Enhance the learning experience. Additionally, the project offers efficient management Tools for professors, allowing them to easily manage quizzes, track student progress, and View scores. This comprehensive system promotes effective learning and streamlined Administration in the field of Graph Theory.
3. **Impact it will create**: Interactive learning environment for students
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   Prince Kakkad
   Prof. Foram Chandarana
6. **Patent Filing Date** : 22-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 7611/2023-CO/SW

Patent-511: Fuzzy Analytical Process Based Complexity Computation System for Investment Casting

1. **Name of the Technology**: Fuzzy Analytical Process Based Complexity Computation System for Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc**.): Productivity enhancement of casting process by optimizing the casting process parameters has been a primary focus area of many researchers. It includes optimization of various process parameters in the design phase, through various DOE techniques and simulation software. There have been major shortcomings in these approaches, wherein the data for casting defects in real time were not considered. Real-time investigation of casting failure for several process parameters is a challenge for the foundry industry. Analytical hierarchical process is a decision support technique through which a hierarchical structural model could be generated. There is subjectivity in the retrieval decision because the primary input of the AHP approach was the opinion of industry experts or practitioners. Additionally, this approach

considers the validity of the data with constraints on inconsistency. However, there would be an impact on the accuracy of the data and the results if there was a significant amount of uncertainty and doubt, while making a judgement. This has resulted in the development of fuzzy analytic hierarchy process, an analytic hierarchy process (AHP) approach created with fuzzy logic theory. In this context, this study used a hierarchical model that focuses on the casting failure in industries, and accordingly, the model was tested for various process parameters. The outcome of the study provided the priority ranking of the process parameters for various casting failure, in real time through which the critical process parameters were identified in the order.

3. **Impact it will create:** This has resulted in the development of fuzzy analytic hierarchy process, an analytic hierarchy process (AHP) approach created with fuzzy logic theory
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Nikunj Maheta
6. **Patent Filing Date** : 29-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 8375/2023-CO/SW

Patent-512: Telecom Architecture

1. **Name of the Technology**: Telecom Architecture
2. **Highlights of the Technology (innovation/uniqueness etc**.): In this project, I have implemented Algorithm, which is used to find the shortest path between any source and destination in Graph Theory. I have built a hardware model that demonstrates the actual network and allows users To interact with the network by pressing the switches attached to each node of The graph. When a switch is pressed, the implemented Algorithm on The Arduino Mega finds the shortest route and illuminates the edges Connecting the selected source and destination. This model provides a fun and Interactive way to learn about Algorithm and its functioning. Additionally, this project incorporates concepts from Graph Theory, software And hardware programming, as well as digital electronics.

3. **Impact it will create:** It is used to find the shortest path between any source and destination in Graph Theory
4. **Current Status of the Patent**: In Progress
5. **Student Team details/Faculty Mentor :**
   1. Shashank Bagda
   2. Prof. Foram Chandarana
6. **Patent Filing Date** : 29-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 8416/2023-CO/SW

Patent-513: RFID Based Payment System

1. **Name of the Technology:** RFID Based Payment System
2. **Highlights of the Technology (innovation/uniqueness etc.):** RFID, or radio frequency identification, is a type of technology that sends information between a tag to a scanner. The scanner, or reader, emits radio waves that pick up signals from nearby items with RFID tags, which also send out radio waves. With its ability to store and send huge amounts of data, RFID technology has been implemented in a number of sectors, including health care and the military, in a variety of applications.
3. **Impact it will create**: Easy for payment system.
4. **Current Status of the Patent**: Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dharmendrasinh D. Zala
   2. Prof. Chandrasinh D. Parmar
   3. Mr. Kaushal Faldu
6. **Patent Filing Date** : 29-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 8406/2023-CO/SW

Patent-514: Colorograph

1. **Name of the Technology**: Colorograph
2. **Highlights of the Technology (innovation/uniqueness etc**.): Using Android Studio and Java platform we have developed “Colorograph” game for

which we used graph coloring techniques of graph theory. Total 120 levels are designed of different levels using various structures of graphs.

3. **Impact it will create**: “Colorograph” game for which we used graph coloring techniques of graph theory.
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Devan Tusharbhai Bhensdadiya
   2. Jatin Arvindbhai Sojitra
   3. Prof. Foram Chandarana
6. **Patent Filing Date** : 13-03-2023
7. **Patent Granted Date** : --
8. **Patent Application Number** : 6607/2023-CO/SW

Patent-515: Finding Beauty Ratio of a Human Face

1. **Name of the Technology**: Finding Beauty Ratio of a Human Face
2. **Highlights of the Technology (innovation/uniqueness etc**.): A unique Beauty Ratio finder which is used to get the coordinates of the human face and then performs necessary calculations for ideal sample it takes three sample pictures and the Average of all of three photos will out resultantly output.
3. **Impact it will create**: It gives details related to beautification
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Devan Tusharbhai Bhensdadiya
   2. Jatin Arvindbhai Sojitra
   3. Prof. Foram Chandarana
6. **Patent Filing Date** : 13-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 6607/2023-CO/SW

17) Jawaharlal Nehru National College of Engineering, Shimoga

Patent-516: Conversion of Fuel Powered Car into Economical Electric Car with Manual Gearing System

1. **Name of the Technology:** Conversion of Fuel Powered Car into Economical Electric Car with Manual Gearing System

2. **Highlights of the Technology (innovation/uniqueness etc):** Conversion of fuel powered car into economical electric car is the proposed invention. The electric car provides feasible solution in the form of eco-friendly and user friendly, which allows the people to drive this electric car comfortably as same as that of existing fuel powered car. This electric car is in stable condition during its forward and reverse propulsion while taking left or right overturn.
3. **Impact it will create:** An endeavour is made in this invention to modify the existing fuel powered car into electric car by considering the compatible economic status of the people. It is an innovative endeavour to overcome the financial difficulties and/or problems faced by the average level people while purchasing a new electric car. Many automobile companies are manufacturing electric cars in the current scenario are expensive and thereby making it difficult for the people of average level to purchase the new electric cars. In this invention, an attempt is made by applying the technological knowledge to convert the existing fuel powered car into novel economical electric car.
4. **Current Status of the Patent:** FER Issued
5. **Student Team details/Faculty Mentor :**
   1. Sathvik S.
   2. Kevin Abhishek D. T.
   3. Karthik Shetty
   4. Manohar H. S.
6. **Patent Filing date** **:** 26/05/2023
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202341027281 -A

Patent-517: Monitoring of Cross Breeding of plants using IoT

1. **Name of the Technology** : Monitoring of Cross Breeding of plants using IoT
2. **Highlights of the Technology (innovation/uniqueness etc.):** Traditional way of doing farming is cultivating of plants of same species. Here we are cross breeding the same plants of different species and monitoring their growth closely. To monitor the growth a robot is designed which will monitor the growth of the plants as human cannot monitor it in this busy schedule. Robot is designed using IoT concept. It will also check plant is affected by some common disease by using image processing concept. This information is sent to the farmer.

3. **Impact it will create**: Farmer can grow plants from cross breeding, to monitor it, a robot is designed making use of IoT concept. The farmers will know about the common disease the plants have caught.
4. **Current Status of the Patent** : Application Filed
5. **Student team details/Faculty Mentor :**
   1. Tasmiya Mansoor
   2. Mohammed Faizan Ahamad
   3. Vivek Srinivasan
   4. Varshini B. R.
6. **Patent Filing date** : 29/6/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341043589

Patent-518: Intelligent Vaccine Alert System using Artificial Intelligence and Internet of Things Technologies

1. **Name of the technology:** Intelligent Vaccine Alert System using Artificial Intelligence and Internet of Things Technologies
2. **Highlights of the technology/Uniqueness:** There has been a significant improvement in the economic status and population health in India in the past few years. However, the child survival rate is not improving by standards. “The mortal rate for children aged five and younger currently stands at 66 per thousand live births, compared to 34 per thousand live births in the Philippines-a country with roughly the same per capita gross domestic product”. The increased death rate in India particularly in rural areas is due to non-availability of vaccine stock. Poor government policies can make vaccine monitoring less efficient. Even if IT enabled systems are provided usage may not be enabled for lack of training skills and knowledge. Low-quality vaccine may explain a shortage of trained personal to manage the program at both the national and state levels; Hence a unique system is proposed to undertake innovations in vaccines, disease surveillance, vaccine procurement, and effective vaccine management; the absence of good data on disease burden to inform vaccination priorities.
3. **Impact it will create:** An intelligent vaccine alert system has been developed that operates at various levels. The dosage given by each staff is recorded and immediately sent to concerned authorities when there is an abnormality. Stock of vaccine based on QR Code is developed which informs the various

authorities on reaching various thresholds. It also considers rural place where it is deployed most like power issues, internet etc using batch processing, offline processing and power optimization modules with sensors. Vaccine analytics system is developed that can help in proper distribution of vaccines to where it is really needed. Vaccines must be stored in proper temperature or else it may lead to some side effects. The intelligent vaccine alert system developed using AI with deep learning techniques to validate the operating temperature accuracy suitable for the vaccine and check expiry date effectives on the same. Android based Apps are developed to enable details of vaccines used for nurse, managers, and others. Role based access is provided for different users of the App and details of vaccine stock and dosage can be observed in the App.

4. **Current Status:** FER Issued. Currently being made as product, checking for commercialization.
5. **Student Team Details/Faculty Mentor :**
   1. Zaheer Abbas
   2. Mohammed Moin Mirza
   3. Nandini.S. Bhat
   4. Kavana M. Gowda
   5. Shambhavi M.
6. **Patent Filing Date** **:** 13-04-2023
7. **Patent Publication Date** **:** 05-05-2023
8. **Patent Granted Date** **:**
9. **Patent Application Number** **:** 202341027467

Patent-519: Compact air quality predictor using artificial intelligence and internet of things technologies

1. **Name of the technology:** Compact air quality predictor using artificial intelligence and internet of things technologies
2. **Highlights of the technology/Uniqueness:** Air pollution is a big cause for many diseases and health hazards. Hence continuous monitoring and prediction of severity levels is a big and an active challenge. In this project, we propose to acquire the air data using IoT device and sensors. The data acquired will be analysed using Machine Learning techniques and severity classes can be predicted. Smart notifications are automatically sent to appropriate entities when severity level is critical. A smart air quality product

which is compact has been developed to monitor the air eminence in industrial and urban areas. This tool monitors the quality of air of our environment and identify the content of different gases present in air or area around us. The cause of pollution and which gaseous element is impacting on the same is being displayed. Further this product helps to determine present conditions and trends: and provide an early-warning system that air quality standards may be exceeded if control measures are not taken. Monitoring is required for the development and validation of multiple source air pollution models that predict climatological frequency distributions of concentrations using Machine Learning technologies.

3. **Impact it will create:** The models are used in the preparation of various land-use scenarios for industry, transportation, and power generation. The tool also helps to simulate the effects of various land-use strategies on air quality. Dose-response investigations require various kinds of air quality data, to relate to the effects like health effects (epidemiological studies, vegetation effects, soiling of materials, corrosion of metals etc. In each case, the quality of the air in the immediate vicinity of receptors is important, rather than the general pollution levels in a city. A study of both episodic extremes and long-term means is done in this work to study dose-response relations. For regulatory control (surveillance monitoring). Where air quality standards exist, control agencies and citizens' groups need information on the concentrations of the substances specified in the regulations.
4. **Current status:**

   FER Issued currently being made as product, checking for commercialization
5. **Student Team Details/Faculty Mentor :**
   1. Nidhishree M. P.
   2. Chetana Prabhu H.
   3. Smruthi K. S.
   4. Ananya V. Bhatt
6. **Patent Filing Date** **:** 13-04-2023
7. **Patent Granted Date** :
8. **Patent Application Number** **:** 202341027464

Patent-520: Development of Heat exchanger by Using of Solar water heater for cooking purpose

1. **Name of the Technology:** Development of Heat exchanger by Using of Solar water heater for cooking purpose.
2. **Highlights of the Technology (innovation/uniqueness etc):** In most of the cooking activities, LPG is used as a fuel. The Cost of this fuel is rising daily and their contribution to global warming is increasing at a rapid rate and cause adverse environmental effects. Many researchers have worked out the environmental effects of fossil fuels and health effects of inefficient stoves and concluded that use of renewable energy resources should be promoted to reduce the environmental effects. Cooking is the prime requirement for people all over the world. It accounts for a major share of energy consumption in developing countries. Solar energy is contributing major energy requirements of the world's population particularly in developing countries. Among the different energy end uses, energy for cooking is one of the basic and dominant end uses in developing countries. There are number of solar energy-based cooking appliances has been design, developed and tested for various applications across the globe. Solar water heaters are commercially available economical gadgets for water heating. Usage of water from solar heater system reduces the LPG requirement for cooking and addresses other limitations of solar cooking.
3. **Impact it will create:**
   - Brings sustainability and efficient use of solar energy in our household cookers.
   - Provides an alternative method of cooking and reduce the use of conventional sources of energy.
   - Reduction in fuel cost and environmental burden.
4. **Current Status of the Patent:**
   - Patent application 202341027280 A is filed, and FER issued.
5. **Student Team details/Faculty Mentor :**

   1. Tarun Kumar S.
   2. Vishwaradhya Prasadimath
   3. Vittal Amarnath Kathare
   4. Vedashree N. Gowda
6. **Patent Filing date** **:** 13/04/2023

7. **Patent Granted date** :
8. **Patent Application Number** : 202341027280

Patent-521: Solar Panel for Multiple farming in the same field using IoT

1. **Name of the Technology:** Solar Panel for Multiple farming in the same field using IoT
2. **Highlights of the Technology (innovation/uniqueness etc.):** Farming is the backbone of the Indian economy, nowadays farmers are cultivating multiple crops in the same field this lead to the concept of multiple farms. Two or more different crops need to be taken care of by watering, and applying fertilizer this requires more manual work. For the pumping of water, more electricity is required and farmers cannot pay huge amounts for electricity bill. Here a solar panel is designed such that it will rotate towards the sunlight to capture more energy than a static solar panel by using the light sensor. Humidity sensors are used to check the moisture content of the soil, if the moisture content reaches less than the threshold the water is automatically pumped to the plants. Soli is first tested to check the defects present in it, which is compensated by the fertilizer this is also pumped automatically every its needed.
3. **Impact it will create:** Farmer can make use of rotating solar panels for storing more solar energy and use the same for automatic monitoring of the plants when they require water and fertilizer to be sprayed. Farmers need not depend on electricity and save money spending on electricity bills.
4. **Current Status of the Patent:** Filing of the Patent is done
5. **Student Team details/Faculty Mentor :**
   1. Ruchitha P Sarji
   2. Nandan Telekar K
   3. Sathwik Pai
   4. Shaziya Nikhath Khanum
6. **Patent Filing date** : 22/7/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341048938

Patent-522: Multi-Functional Mechanism of Robotic Arm

1. **Name of the Technology:** Multi-Functional Mechanism of Robotic Arm
2. **Highlights of the Technology (innovation/uniqueness etc):** The multi-functional mechanism of robotic arm relates to the field of building a prototype

of a multifunctional tactical robot which can do dedicated as well as general purpose works. This 4-axis robotic arm capable of doing multiple tasks such as pick & place, writing and drawing.

3. **Impact it will create:**

   The multi-functional mechanism is focused on the development of a multifunctional robot. It is always necessary to coordinate multiple robots or multiple works of a single multifunctional robot. This coordination is always a challenging job and proper operation of an integrated robotic system depends mostly on this part. Because a multifunctional robot that can work assigned tasks synchronously, it saves time and cost and at the same time works are done more efficiently.
4. **Current Status of the Patent:** Patent filed
5. **Student Team details/Faculty Mentor :**
   1. Abhisheka M
   2. Johnson Babu Y
   3. Anish G Prakash
   4. Syed Adnan Kashif
6. **Patent Filing date** **:** 22/7/2023
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202341046010

Patent-523: Design Optimization of Areca Nut Dehusking Machine for Improved Efficiency and High Production Rate

1. **Name of the Technology**: Design Optimization of Areca Nut Dehusking Machine for Improved Efficiency and High Production Rate
2. **Highlights of the Technology (innovation/uniqueness etc):**

   The main objective of the proposed invention is to develop a novel areca nut dehusking machine that will give good results compare to dehusking by manual methods using knifes and other existing instruments and/or machines.
3. **Impact it will create:**

   Improved efficiency and high production rate of dehusking processing of areca nut.
4. **Current Status of the Patent:** Patent application 202341046009 is filed in Indian Patent Office – Design Optimization of Areca Nut Dehusking Machine for Improved Efficiency and High Production Rate

5. **Student Team details/Faculty Mentor :**
   1. Rahul M. P.
   2. Rahul N.
   3. Sumukh Raj
   4. Preetham D.
6. **Patent Filing date** **:** 22/7/2023
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202341046009

Patent-524: Fabrication of Areca Plate Machine using Swing Mechanism

1. **Name of the Technology:** Fabrication of Areca Plate Machine using Swing Mechanism
2. **Highlights of the Technology (innovation/uniqueness etc):**
   Areca plates, also known as betel nut plates, are biodegradable plates made from the areca palm tree's leaves. These plates are eco-friendly and are an excellent substitute for plastic and paper plates, which are not biodegradable. The process of making these plates is time-consuming and requires a lot of labor. However, with the advancement in technology, areca plate machines have been developed, which make the process much faster and efficient. This project report aims to discuss the preparation of an areca plate machine, which can produce plates on a commercial scale.
3. **Impact it will create:** The preparation of an areca plate machine is a complex process that involves several steps, such as design, procurement of materials, fabrication, assembly, and testing. The machine's design is based on the user's requirements, and the machine should be cost-effective, environmentally friendly, and easy to operate and maintain. The total cost of preparing the machine may vary depending on the design and availability of materials. However, the use of proposed areca plate machine using swing mechanism can significantly increase the efficiency and speed of areca plate production, making it a viable business option.
4. **Current Status of the Patent:** Patent Filed and Waiting for Publication
5. **Student Team details/Faculty Mentor :**
   1. Rahul M. P.
   2. Rahul N.
   3. Sumukh Raj
   4. Preetham D.

6. **Patent Filing date** **:** 22/7/2023
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202341045852

Patent-525: Pre-Tempering of Areca sheath in Controlled Environment. A cooling and fogging system can be used to control the humidity and moisture levels of areca sheath in a controlled environment.

1. **Name of the Technology:** Pre-Tempering of Areca sheath in Controlled Environment. A cooling and fogging system can be used to control the humidity and moisture levels of areca sheath in a controlled environment.
2. **Highlights of the Technology (innovation/uniqueness etc):** The storage of areca sheath requires a controlled environment to maintain the quality of the sheath. High humidity and moisture levels can cause spoilage and fungal growth on the sheaths. A cooling and fogging system can be used to control the humidity and moisture levels of areca sheath in a controlled environment.
3. **Impact it will create:** The cooling and fogging system is effective in controlling the humidity and moisture levels of areca leaves in the controlled environment. The system maintains the desired temperature and humidity levels, which prevents fungal growth and spoilage of the leaves. This cooling system provides desired flexibility of areca sheath which makes comfortable for the workers who handles it. Reduction of water usage, Power consumption, Labour and cycle time.
4. **Current Status of the Patent** **:** Patent Filed and Awaiting for Publication
5. **Student Team details/Faculty Mentor :**
   1. Rahul M. P.
   2. Rahul N.
   3. Sumukh Raj
   4. Preetham D.
6. **Patent Filing date** **:** 22/7/2023
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202341045855

Patent-526: AGrowW – An intelligent Precision Farming toolkit for farmers

1. **Name of the technology**: AGrowW – An intelligent Precision Farming toolkit for farmers
2. **Highlights of the technology/Uniqueness**: Precision Agriculture (PA) is a management approach that uses information technology to improve quality

and production. Internet of Things (IoT) has opened up a suitable solution for smart farming and agriculture, however, it remains a dream till the connectivity is not reached to rural areas. Because of these cultivating techniques the seasonal climatic conditions are also being changed against the fundamental assets like soil, water and air which lead to insecurity of food. The advanced technology to be used for crop selection, yield prediction, weather prediction, fertilizer selection, water irrigation and soil management. Hence we propose and devise a novel smart sensing technology that allows farmers to remotely monitor their fields in real-time and take immediate action to protect their crops, utilizing online cloud services and a dashboard. The use of smart sensors, software, and artificial intelligence will transform the agricultural industry. Combination of sensors and sensor connected hardware will bring into the necessary plant data to raise crop production and accept disease-free large yield crop varieties to keep rate with the rising requirement for food. Sensors used in precision farming are known as farming sensors. These farming or agriculture sensors offer data which help farmers to observe and optimize crops by adapting to changes in the ecological situation. These sensors are fixed on weather stations, drones and robots used in the farming engineering. They can be controlled using mobile apps particularly developed for the function. Based on wireless connection they can be guarded straight using Wi-Fi or using cellular towers with cellular frequencies with the help of mobile app

3. **Impact it will create:** Farming and agriculture are the basis of human life which gives food, grains, and other raw materials. Technology holds a tremendous role in increasing production and decreasing extra manpower. Agriculture in India is largely depending on monsoon. As a result, year by year food grains production goes up and down. The issues facing by the agricultural sector in India is agricultural machines, workers, crop selection, weather, unawareness of modern technologies and water irrigation. A significant issue in planning of agricultural requirements and production purposes is the perfect yield estimation for the numerous crops involved in the planning. In recent years there has occurred a fall in agricultural production mainly due to fall in the output of non-food articles, the systems and techniques of farming and the marketing of agricultural products. To resolve the above all agri-technology and precision farming, also termed as

digital agriculture, have arisen as new scientific field that use data intense approaches to drive agricultural productivity while minimizing its environmental impact.

4. **Current status**: Implemented as prototype. Currently being made as product, checking for commercialization.
5. **Student Team details/Faculty Mentor :**
   1. Varsha A. S.
   2. Shantika T. Hegde
   3. Tanisha G. Hosur
   4. Sofiya Sarah Asif
6. **Patent** Filing Date : 12-07-2023
7. **Patent** Granted Date :
8. **Patent** Application Number : 202341046946

Patent-527: AI Emosense-Depression Detection and Face Recognition based Attendance System Using Emotional Artificial Intelligence and Machine Learning

1. **Name of the technology**: AI Emosense-Depression Detection and Face Recognition based Attendance System Using Emotional Artificial Intelligence and Machine Learning
2. **Highlights of the technology/Uniqueness**: AI has been expanding its horizon and face recognition with deep learning techniques can be augmented with emotion recognition as well. Sometimes, students feel really sad and overwhelmed by their school work and other responsibilities. They might feel like they can't keep up or that they are not good enough. When these feelings last for a long time, it's called depression. Depression can make it hard for students to do their school work, be with friends and family, or even get out of bed in the morning. When students are feeling really sad and hopeless, they might think about hurting themselves or ending their lives. This is called suicide. It's important to know that suicide is preventable and there are people who can help. It's important to take care of our mental health, just like we take care of our physical health. If you ever feel sad or overwhelmed, it's important to talk to someone you trust and get help. One way to prevent suicide is to detect if someone is feeling sad and hopeless, which can be a sign of depression. One way to do this is by using a CCTV camera and AI and ML technology to analyze the person's facial expression, body language, and speech patterns. Depression is a mental health condition

that affects a significant portion of the population. It is characterized by feelings of sadness, hopelessness, and a lack of interest in activities. Emotional AI and ML can be used to detect depression by analyzing a person's speech, text, or image data to identify patterns that are indicative of the condition. This approach can be particularly useful in identifying depression in individuals who may be unwilling or unable to self-report their symptoms. Image analysis can also be used to detect depression. For example, face based expression recognition can be used to identify changes in a person's facial expression that may indicate the presence of depression. Additionally, body language analysis can be used to identify changes in a person's posture, gait, and other physical cues that may indicate the presence of depression. Hence we design an Emotional AI and ML system that can be a powerful tool in detecting depression and avoiding possible hazards. It's always advisable to consult with a mental health professional if you suspect that you or someone you know may be struggling with depression.

3. **Impact it will create**: Attendance through a camera using AI and ML is a modern approach to monitoring and tracking attendance in various settings such as schools, offices, and manufacturing facilities. It uses computer vision techniques and machine learning algorithms to automatically detect and identify individuals in an image or video captured by the camera. The process typically involves training the system on a dataset of labelled images of the individuals who will be taking attendance. This training data can include images of the individual's face, iris, or fingerprints, depending on the specific approach used. Once the system is trained, it can then use this knowledge to recognize these individuals in new images captured by the camera. When an individual is recognized, the system can log their attendance in a database or other record-keeping system. This can be done in real-time, allowing for immediate tracking of attendance, or it can be done at a later time for batch processing. Using AI and ML for attendance tracking can offer many benefits such as increased accuracy, reduced human error, and improved efficiency. However, it's also important to consider privacy and security concerns when implementing such system.
4. **Current status:** Implemented as prototype. Currently being made as product, checking for commercialization.

5. **Student Team details/Faculty Mentor :**
   1. Deshmanth A
   2. Srujan Y S
   3. Hithesh K
   4. Shabarish B L
   5. Sathwik P
6. **Patent Filing Date** : 08-08-2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341053225

Patent-528: Swasthya – A cognitive AI application for querying and analysing Electronic Health Record to provide effective patient engagement

1. **Name of the technology:** Swasthya – A cognitive AI application for querying and analysing Electronic Health Record to provide effective patient engagement
2. **Highlights of the technology/Uniqueness:** Physicians spend a lot of time inputting the how and the why of what's happening to their patients into chart notes. These notes aren't easily extractable in ways the data can be analyzed by a computer. When the doctor sits down with you, and documents your visit in a case note, those narratives go into the electronic health record systems (EHRs) and get stored as free text. `Huge volumes of unstructured patient data are input into EHRs on a daily basis, but it's hard for a computer to help physicians aggregate that critical data. Structured data like claims or CCDAs / FHIR APIs may help determine disease burden, but gives us a limited view of the actual patient record. Big data analytics in healthcare shows that up to 80 percent of healthcare documentation is unstructured, and therefore goes largely unutilized, since mining and extraction of this data is challenging and resource intensive. Without NLP technology, that data is not in a usable format for modern computer-based algorithms to extract. In this project, we propose a novel healthcare natural language processing that will use specialized engines capable of scrubbing large sets of unstructured health data to discover previously missed or improperly coded patient conditions. Natural language processing medical records using machine-learned algorithms can uncover disease that may not have been previously coded, a key feature for making HCC disease discoveries.

3. **Impact it will create:** An EHR system is an information system that helps to collect individuals' health information from birth to death so that it can be registered, certified, and shared in different places by healthcare providers. Natural language processing (NLP) is the ability for computers to understand the latest human speech terms and text. It's used in current technology to support spam email privacy, personal voice assistants and language translation applications. `The adoption of natural language processing in healthcare is rising because of its recognized potential to search, analyze and interpret mammoth amounts of patient datasets. Using advanced medical algorithms, machine learning in healthcare and NLP technology services have the potential to harness relevant insights and concepts from data that was previously considered buried in text form. NLP in healthcare media can accurately give voice to the unstructured data of the healthcare universe, giving incredible insight into understanding quality, improving methods, and better results for patients.
4. **Current status:** Implemented as prototype. Currently being made as product, checking for commercialization.
5. **Student Team details/Faculty Mentor :**
   1. Pratham K Gujjar
   2. H. M. Satvik
   3. Nithinkumar S. N.
   4. Apoorva D.
   5. Saishri B. L.
6. **Patent Filing Date** **:** 12-07-2023
7. **Patent Granted Date** **:**
8. **Patent Application Number** **:** 202341046942

Patent-529: Cato Smart Locks Enabled By Artificial Intelligence and Internet of Things (AIoT)

1. **Name of the technology:** Cato Smart Locks Enabled By Artificial Intelligence and Internet of Things (AIoT)
2. **Highlights of the technology/Uniqueness:** Smart Door Lock System leverages the use of IoT and application of smartphone communication technology to open or close the door locks remotely through authentication. Several examples of digital door lock systems have already existed, such as camera-based door security systems, doors with digital keypads for password

authentication, fingerprint detection, smart card, and proximity or location detection. Smart locks provide users the ability for locking and unlocking their door without a key, without geographical restrictions, as well as distribute virtual keys to visitors. In this project we propose to design an IoT-enabled locks equipped with Artificial Intelligence algorithms to provide keyless entry devices, allow users to access doors remotely, through a smartphone or other Internet connection compatible devices. In the broadest definition, a sensor is a device, module, or a sub-system whose purpose is to detect motion or changes in its surroundings and send the information to other electronics, mostly a computer processor. More than one such sensors can be manufactured as micro sensors using Micro- Electromechanical System (MEMS) technology. MEMS is a miniature machine that has both electronic and mechanical components. They usually consist of a central unit in the form of integrated chip like microprocessors, that processes data and several components that interact with the surroundings.

3. **Impact it will create:** The Internet of things (IoT) describes physical objects or groups of physical objects that are embedded with sensors, detectors, processing capabilities and other technologies that connect and interchange data with other devices and systems over the internet or other communications networks. Enhancing home security using smart home can be done in a number of ways, including installation of smart, customized door lock with the use of IoT technology. In apartments or complexes, for an owner having many keys for each and every apartment, car or gate he owns, maintaining entry to authorised persons only is a problem. If the keys are in case lost, along with the costs involved in fabrication, duplication and distribution of keys, security issues are still present.
4. **Current status:** Implemented as prototype. Currently being made as product, checking for commercialization.
5. **Student Team details/Faculty Mentor :**
   1. J. K. Kruthi
   2. Brinda P.
   3. Ayesha Siddiqa
   4. Yogeshwari M.
   5. Syeda Hurrain Fathima
6. **Patent Filing Date** **:** 12-07-2023

7. **Patent Granted Date** :
8. **Patent Application Number** : 202341046940

18) Datta Meghe Institute of Medical Sciences, Wardha

Patent-530: Knee valgus / varus dynamic deformity measurement tool.

1. **Name of the Technology** : Knee valgus / varus dynamic deformity measurement tool.
2. **Highlights of the Technology (innovation/uniqueness etc.):** Device to accurately measure Knee valgus / varus dynamic deformity in clinical settings
3. **Impact it will create** :
   - Simple and cost-effective device
   - Reliable and efficient device for treatment of the Musculo skeletal disorders
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor**:
   1. Deshpande Sanjay V.
6. **Patent Filing date** : 14/09/2019
7. **Patent Granted date** : 08/11/2021
8. **Patent Application Number** : 201921037088

Patent-531: An apparatus for facilitating ultrasound based soft tissue mobilization probe

1. **Name of the Technology** : An apparatus for facilitating ultrasound based soft tissue mobilization probe
2. **Highlights of the Technology (innovation/uniqueness etc.):** an ultrasound and instruments assisted soft tissue mobilization tools for maximal effects on pain reduction with deep heating properties of ultrasound to reduce pain effectively by reducing spam, breaking adhesions, promoting tissue healing, inflammation reduction, reducing trigger points
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Filed
5. **Student team details/ Faculty Mentor:**
   1. Dr. Waqar Naqvi
   2. Dr. Laukik Vaidya

6. **Patent Filing date** : 09/03/2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021038065

Patent-532: Dhara Device For Treating Musculoskeletal Disorders

1. **Name of the Technology** :Dhara Device For Treating Musculoskeletal Disorders
2. **Highlights of the Technology (innovation/uniqueness etc.):** automated Dhara Device for treatment and ayurvedic procedures
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Filed
5. **Student team details/Faculty Mentor:**
   1. Devendra Shahare
   2. Vaishali Kuchewar
6. **Patent Filing date** : 10/6/2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021043329

Patent-533: Apparatus for treating sleep disorder

1. **Name of the Technology** : Apparatus for treating sleep disorder
2. **Highlights of the Technology (innovation/uniqueness etc.):** an apparatus for treating sleep disorders. The apparatus can include a hollow plate, a bulge member, and an orifice. The hollow plate can be defined by an upper portion and a lower portion with the lower portion connected and being co-extensive with the upper portion.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Filed
5. **Student team details/Faculty Mentor:**
   1. Dr. Vikram Belkhode
   2. Dr. Sharayu Nimonkar
6. **Patent Filing date** : 7/7/2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021028726

Patent-534: A device fir dilation of the cervix

1. **Name of the Technology** : A device fir dilation of the cervix
2. **Highlights of the Technology (innovation/uniqueness etc.):** Device to assist the dilation of cervix in specific conditions where in the surgical intervention can be differed.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Filed
5. **Student team details/Faculty Mentor:**
   1. Jaiswal Arpita
   2. Khedkar Sandip Sudhakarrao
6. **Patent Filing date** : 12/10/2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021053746

Patent-535: Improved Jig Apparatus For Fibula Free-Flap Surgery And Mandibular Reconstruction

1. **Name of the Technology** : Improved Jig Apparatus For Fibula Free-Flap Surgery And Mandibular Reconstruction
2. **Highlights of the Technology (innovation/uniqueness etc.):** an improved adjustable surgical jig apparatus for fibula free-flap surgery and mandibular reconstruction
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Member:**
   1. Megha Kulkarn
   2. Dr. Sandeep Dahake
6. **Patent Filing date** : 12/17/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202123053886

Patent-536: A device for prevention of bed soar

1. **Name of the Technology** : A device for prevention of bed soar
2. **Highlights of the Technology (innovation/uniqueness etc.):** Device to assist the non amubaltory patients by frequently chaning the position and reducinfg the occurance of bead soars
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for management of bead soars
4. **Current Status of the Patent** : Ready For Publication
5. **Student team details/Faculty Mentor**
   1. Himanshu Suresh Dhandre
   2. Dushyant Bawiskar
6. **Patent Filing date** : 08/03/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202121034833

Patent-537: Forceps for iris claw lenses

1. **Name of the Technology** : Forceps for iris claw lenses
2. **Highlights of the Technology (innovation/uniqueness etc.):** a forceps for applying an iris-claw lens. The forceps can include a first forceps body, a second forceps body, and a lens-receptacle. The first forceps body can have a first handle at a head end and a first arm at a tail end, the first handle being connected to the first arm at an angle. The lens-receptacle is configured to releasably hold a lens therein.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Dr. Deepika Singhal
   2. Dr. Deepak Saxena
6. **Patent Filing date** : 06/04/2021
7. **Patent Granted date** : 10/06/2021
8. **Patent Application Number** : 2021103117

Patent-538: Apparatus for treating sleep disorder

1. **Name of the Technology** : Apparatus for treating sleep disorder
2. **Highlights of the Technology (innovation/uniqueness etc.):** an apparatus for treating sleep disorders. The apparatus can include a hollow plate, a bulge member, and an orifice. The hollow plate can be defined by an upper portion and a lower portion with the lower portion connected and being co-extensive with the upper portion.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Dr. Vikram Belkhode
   2. Dr. Sharayu Nimonkar
6. **Patent Filing date** : 06/04/2021
7. **Patent Granted date** : 10/06/2021
8. **Patent Application Number** : 2021103112

Patent-539: An apparatus for facilitating ultrasound based soft tissue mobilization probe

1. **Name of the Technology** : An apparatus for facilitating ultrasound based soft tissue mobilization probe
2. **Highlights of the Technology (innovation/uniqueness etc.):** an ultrasound and instruments assisted soft tissue mobilization tools for maximal effects on pain reduction with deep heating properties of ultrasound to reduce pain effectively by reducing spam, breaking adhesions, promoting tissue healing, inflammation reduction, reducing trigger points
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor**
   1. Dr. Waqar Naqvi
   2. Dr. Laukik Vaidya
6. **Patent Filing date** : 06/04/2021

7. **Patent Granted date** : 10/06/2021
8. **Patent Application Number** : 2021103109

Patent-540: An apparatus to hold crown during crown manipulations

1. **Name of the Technology** : An apparatus to hold crown during crown manipulations
2. **Highlights of the Technology (innovation/uniqueness etc.):** an apparatus to hold crown firmly during crown manipulations. The object of the proposed invention is to provide an apparatus to hold crown firmly during crown manipulations so that it could not jerk while operating on it
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Fulzele Punit
   2. Adakane Rakesh Datta
6. **Patent Filing date** : 06/04/2021
7. **Patent Granted date** : 04/20/2022
8. **Patent Application Number** : 2021103111

Patent-541: An apparatus for stretching hamstring muscles

1. **Name of the Technology** : An apparatus for stretching hamstring muscles
2. **Highlights of the Technology (innovation/uniqueness etc.):** • an unique exercise apparatus with the help of mechanization and more specifically to a portable hamstring muscles stretching exerciser.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment of the musculo skeletal disorders
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Irshad Quarashi
   2. Khedkar Sandip Sudhakarrao
6. **Patent Filing date** : 06/03/2021
7. **Patent Granted date** : 07/09/2021
8. **Patent Application Number** : 2021103076

Patent-542: An IoT based Portable Vaccine Cold Carrier

1. **Name of the Technology** : An IoT based Portable Vaccine Cold Carrier
2. **Highlights of the Technology (innovation/uniqueness etc.):** IOT based Portable Vaccine Carrier to maintain the supply chain for vaccines and other temperature sensitive medicines.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Shilpa Bavankule
   2. Gadiane Abhay
6. **Patent Filing date** : 03/19/2021
7. **Patent Granted date** : 04/28/2021
8. **Patent Application Number** : 2021101427

Patent-543: A Device For Dilation of The Cervix

1. **Name of the Technology** : A Device For Dilation of The Cervix
2. **Highlights of the Technology (innovation/uniqueness etc.):** Device to assist the dilation of cervix in specific conditions where in the surgical intervention can be differed.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details**
   1. Khedkar Sandip Sudhakarrao
   2. Jaiswal Arpita
6. **Patent Filing date** : 19/03/2021
7. **Patent Granted date** : 28/04/2021
8. **Patent Application Number** : 2021101426

Patent-544: An apparatus for stretching hamstring muscles

1. **Name of the Technology** : An apparatus for stretching hamstring muscles
2. **Highlights of the Technology (innovation/uniqueness etc.):** An unique exercise apparatus with the help of mechanization and more specifically to a portable hamstring muscles stretching exerciser.

3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment of the musculo skeletal disorders
4. **Current Status of the Patent** : Awaiting Examination
5. **Student team details/Faculty Mentor:**
   1. Qureshi Irshad
   2. Sandip Sudhakarrao Khedkar
6. **Patent Filing date** : 12/09/2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021053747

Patent-545: Solar Powered, Temperature Controlled Pocket Size Cold Box Vaccine Carrier

1. **Name of the Technology** : Solar Powered, Temperature Controlled Pocket Size Cold Box Vaccine Carrier
2. **Highlights of the Technology (innovation/uniqueness etc.):** IOT based Portable Vaccine Carrier to maintain the supply chain for vaccines and other temperature sensitive medicines.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent** : FER Issued
5. **Student team details/Faculty Mentor:**
   1. Gaidhane Shilpa
   2. Gaidhane Abhay
6. **Patent Filing date** : 12/09/2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202021053618

Patent-546: Dhara Device For Treating Musculoskeletal Disorders

1. **Name of the Technology** : Dhara Device For Treating Musculoskeletal Disorders
2. **Highlights of the Technology (innovation/uniqueness etc.):** automated Dhara Device for treatment and ayurvedic procedures
3. **Impact it will create** :
   - simple and cost-effective device

- reliable and efficient device for treatment

4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Devendra Shahare
   2. Vaishali Kuchewar
6. **Patent Filing date** : 10/06/2020
7. **Patent Granted date** : 01/12/2022
8. **Patent Application Number** : 202021043329

Patent-547: An apparatus for facilitating ultrasound based soft tissue mobilization probe

1. **Name of the Technology** : An apparatus for facilitating ultrasound based soft tissue mobilization probe
2. **Highlights of the Technology (innovation/uniqueness etc.):** an ultrasound and instruments assisted soft tissue mobilization tools for maximal effects on pain reduction with deep heating properties of ultrasound to reduce pain effectively by reducing spam, breaking adhesions, promoting tissue healing, inflammation reduction, reducing trigger points
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Dr. Waqar Naqvi
   2. Dr. Laukik Vaidya
6. **Patent Filing date** : 09/03/2020
7. **Patent Granted date** : 10/20/2021
8. **Patent Application Number** : 202021038065

Patent-548: Forceps for iris claw lenses

1. **Name of the Technology** : Forceps for iris claw lenses
2. **Highlights of the Technology (innovation/uniqueness etc.):** a forceps for applying an iris-claw lens. The forceps can include a first forceps body, a second forceps body, and a lens-receptacle. The first forceps body can have a first handle at a head end and a first arm at a tail end, the first handle being

connected to the first arm at an angle. The lens-receptacle is configured to releasably hold a lens therein.

3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/ Faculty Mentor:**
   1. Dr. Deepika Singhal
   2. Dr. Deepak Saxena
6. **Patent Filing date** : 16/07/2020
7. **Patent Granted date** : 02/07/2021
8. **Patent Application Number** : 202021030400

Patent-549: Apparatus for treating sleep disorder

1. **Name of the Technology** : Apparatus for treating sleep disorder
2. **Highlights of the Technology (innovation/uniqueness etc.):** An apparatus for treating sleep disorders. The apparatus can include a hollow plate, a bulge member, and an orifice. The hollow plate can be defined by an upper portion and a lower portion with the lower portion connected and being co-extensive with the upper portion.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor**
   1. Dr. Vikram Belkhode
   2. Dr. Sharayu Nimonkar
6. **Patent Filing date** : 07/07/2020
7. **Patent Granted date** : 07/02/2021
8. **Patent Application Number** : 202021028726

Patent-550: Mini Implant Placement Guiding Device

1. **Name of the Technology** : Mini Implant Placement Guiding Device
2. **Highlights of the Technology (innovation/uniqueness etc.):** Guiding device for accurately positioning mini implant between the adjacent roots of the teeth. A base wire is configured on 02 adjacent teeth, at least 03 sliding

members are configured with the base wire to slide on the base wire between the teeth.

3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Murarka Shriya P.
   2. Shrivastav Sunita
6. **Patent Filing date** : 03/03/2020
7. **Patent Granted date** : 27/11/2020
8. **Patent Application Number** : 202021009122

Patent-551: Loop Device for a Plurality of Teeth

1. **Name of the Technology** : Loop Device for a Plurality of Teeth
2. **Highlights of the Technology (innovation/uniqueness etc.):** • simple and effective loop device for teeth which is easily configured on teeth of a patient for realigning teeth at required position.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** :
   Granted
5. **Student team details/Faculty Mentor:**
   1. Meenakshi M. Tiwari
   2. Vikrant V Jadhav
6. **Patent Filing date** : 28/02/2020
7. **Patent Granted date** : 27/11/2020
8. **Patent Application Number** : 202021008633

Patent-552: An Apparatus for Dispensing Herbal Enema Medicine

1. **Name of the Technology:** An Apparatus for Dispensing Herbal Enema Medicine
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   An automated flexible herbal medicine mixer and dispenser for dispensing enema medicine apparatus used in the treatment of enema.

3. **Impact it will create:**
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent:** Granted
5. **Student Team details/Faculty Mentor :**

   1. Gaurav Sawarkar
6. **Patent Filing date** : 31-12-2021
7. **Patent Granted date** : 03-11-2022
8. **Patent Application Number** : 202121062268

Patent-553: An apparatus for stretching hamstring muscles

1. **Name of the Technology:** An apparatus for stretching hamstring muscles
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - An unique exercise apparatus with the help of mechanization and more specifically to a portable hamstring muscles stretching exerciser.
3. **Impact it will create:**
   - simple and cost-effective device
   - reliable and efficient device for treatment of the musculo skeletal disorders
4. **Current Status of the Patent:** Granted
5. **Student Team details/Faculty Mentor :**

   1. Irshad Qureshi
6. **Patent Filing date** **:** 09-12-2020
7. **Patent Granted date** : 29-12-2022
8. **Patent Application Number** : 202021053747

Patent-554: Medicated Thread & Process of Preparation Thereof

1. **Name of the Technology:** Medicated Thread & Process of Preparation Thereof
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A new method for manufacturing if medicated treads and the process of its use in treatment of patients
3. **Impact it will create:**
   - Help the clinician in managing and treating the patients
4. **Current Status of the Patent :**

   Granted

5. **Student Team details/Faculty Mentor :**
   1. Rushikesh Anilrao Thakre
6. **Patent Filing date** **:** 03-06-2021
7. **Patent Granted date** : 16-03-2022
8. **Patent Application Number** : 2021103081

Patent-555: A duel volatile oil extractor

1. **Name of the Technology:** A duel volatile oil extractor
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - a duel volatile oil extractor which is a single apparatus has dual application, hence cost effective and can be used for unknown entities. This new apparatuses has been designed by using different types of stop cocks at different places (two way and three way) as shown in the diagram. By operating these stop cocks mode of the apparatus can be changed. Thus the same apparatus can be used for both type of oils and even when the type of oil is unknown.
3. **Impact it will create:**
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Shriramji Jyotishi
6. **Patent Filing date** : 31-12-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221077660

Patent-556: A device for retraction and isolation of oral structures

1. **Name of the Technology:** A device for retraction and isolation of oral structures
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The device introduces a unique way for visualization, retraction and isolation of oral structures. The integrated mirror has a unique design for visualization, retraction of oral structures and includes an integrated inbuilt apparatus for suction of body fluids for the operative field. The said devices will improve the ability of the operator to visualization, maintain the operative filed and remove the body fluids using a single device, thus improving the quality of the procedure, saving valuable

operative time and reducing the number of instruments required for the procedure.

3. **Impact it will create:**
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Ashwini Kalinkar
6. **Patent Filing date** : 25-04-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221024067

Patent-557: A Formulation of Cigarette

1. **Name of the Technology:** A Formulation of Cigarette
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A Formulation of Cigarette
3. **Impact it will create:**
   - It will be helpful for the patients
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Jerin Varghese
6. **Patent Filing date** : 31-12-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221077677

Patent-558: A Convertible Bed Pressure Sore Preventer

1. **Name of the Technology:** A Convertible Bed Pressure Sore Preventer
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - a convertible bed pressure sore preventer. The invention of convertible bed to prevent pressure ulcers can help in framing newer goal-oriented treatment protocols for various long term neurological conditions like spinal cord injury and traumatic brain injury etc. This can reduce patient stay in hospital and also promotes recovery by preventing complications. As this invention has multiple elements of positioning, pressure relieving, tilting, modifiable and adjustable motorized mechanisms for patient mobility on bed itself, there is least scope for anyone to achieve for instant invention

3. **Impact it will create:**
   - Simple device for prevention of pressure sores
   - Helpful to no ambulatory patients
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Moh'd Irshad Qureshi
6. **Patent Filing date** **:** 31-12-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221077661

Patent-559: A physiotherapeutic ischemic compression device

1. **Name of the Technology:** A physiotherapeutic ischemic compression device
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - a physiotherapeutic ischemic compression device. This innovation will help the therapists at building an effective electrotherapy modality in physiotherapy for patients. Electrotherapy will be at their fingertips and thus will have good access at treating patients with myofascial pain syndrome, scar mobilization, chronic pain, stiffness, spasm, reduced range of motion and to facilitate the healing process
3. **Impact it will create:**
   - Simple device for physiotherapeutic ischemic compression
   - Helpful for patients
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Deepali Patil
6. **Patent Filing date** : 31-12-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221077673

Patent-560: Wash Magic Box

1. **Name of the Technology:** Wash Magic Box
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Magic WASH Box is heat chambered sterilizer, solar empaneled box for disinfecting mops in healthcare facilities in India. Effective sterilization of mops is essential to reduce the issue of cross infection and transmission due to usage of uncleaned mops in healthcare settings of India.

Sterilization refers to any process that eliminates (removes) or kills (deactivates) all forms of life and other biological agents and it can be achieved by using different agents such as heat, chemicals, radiation, high pressure, and filtration; among these heat is most effective and a rapid method which includes hot air and steam methods. These innovative devices have both the chambers and do test which is more microbiologically safer.

3. **Impact it will create:**
   - Simple & cost effective device
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Deepak Saxena
6. **Patent Filing date** **:** 26-12-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221075382

19) Chitkara University, Rajpura

Patent-561: InteLights – 3D smart traffic light

1. **Name of the Technology** : InteLights – 3D smart traffic light
2. **Highlights of the Technology (innovation/uniqueness etc.):** System for controlling traffic at an Intersection. InteLights is an "Edge based, deep learning powered", Intelligent Traffic Management System that uses existing CCTV cameras, cutting-edge communication and processing technologies, optically isolated MOSFET switching and appropriate Machine Learning algorithms (in house trained Convolutional Neural Networks for traffic density estimation) to control and prioritize the traffic signals based on the current intensity of traffic at each lane of an intersection.
3. **Impact it will create**: It will reduce traffic density at traffic signals, it will reduce pollution and it will generate useful data about automobiles that will be useful for the authorities (for implementing policies) as well as companies (for developing marketing strategies).
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**

   1. Gaurav Goyal
   2. Karamdeep Singh
   3. Rahul Goyal

4. Hardeep Singh
5. Karanveer Singh
6. Rishabh Malra
7. Sumit Kumar Patel

6. **Patent Filing date** : 8 November 2019
7. **Patent Granted date** : 21 June 2021
8. **Patent Application Number** : 201911045568

Patent-562: BhuGoal

1. **Name of the Technology** : BhuGoal
2. **Highlights of the Technology (innovation/uniqueness etc.):** A Device for Generating Weather Forecast. Climate change is a worldwide concern these days. Climate change is influencing Indian agriculture. Satellite weather forecasts are insufficiently precise to minimise problems. On a rainy day, our team noticed that the television signals faded away before the rain and then restored just as the sky cleared. The concept was developed further with the help of a prediction device. Based on this, data was collected and intelligence algorithms implemented using a hardware device connected between the Lnb and the transceiver. It results in the exact prediction of rain through this device.
3. **Impact it will create** : It will help the farmers by predicting the rain in advance that way their crops will not go bad/waste as it will allow them to take preventing action.
4. **Current Status of the Patent** : Response to FER received from IPO submitted
5. **Student team details/Faculty Mentor:**
   1. Rahul Kinra
   2. Kartik Vij
   3. Nitin Saluja
6. **Patent Filing date** : 24 December, 2018
7. **Patent Granted date** :
8. **Patent Application Number** : 201811048842

Patent-563: Brill-Tab Edukit

1. **Name of the Technology** : Brill-Tab Edukit
2. **Highlights of the Technology (innovation/uniqueness etc.):** Paperless Erasable Magnetic Braille Slate and A Portable Braille Device. Braille is

utilised by a large number of individuals throughout the world in their local dialects, and it also provides a method for their proficiency. The serious issue spun around the decay of proficiency rates is cost and the customary braille devices available in the market. The project “Briltab Edukit-1” signifies innovating an electronic and advanced device that can be utilised by visually impaired children and their surrounding community to ensure inclusive and equitable quality education. It promotes lifelong learning opportunities.

3. **Impact it will create** : An education kit for visually impaired children to learn and get educated.
4. **Current Status of the Patent** : The request for examination have been filed in IPO
5. **Student team details/Faculty Mentor:**
   1. Virender Kadyan
   2. Puneet Bawa
6. **Patent Filing date** : 30 Sep 2016
7. **Patent Granted date** : NA
8. **Patent Application Number** : 201611033447

Patent-564: Brill-Tab Edukit

1. **Name of the Technology** : Brill-Tab Edukit
2. **Highlights of the Technology (innovation/uniqueness etc.):** Paperless Erasable Magnetic Braille Slate and A Portable Braille Device. Braille is utilised by a large number of individuals throughout the world in their local dialects, and it also provides a method for their proficiency. The serious issue spun around the decay of proficiency rates is cost and the customary braille devices available in the market. The project “Briltab Edukit-1” signifies innovating an electronic and advanced device that can be utilised by visually impaired children and their surrounding community to ensure inclusive and equitable quality education. It promotes lifelong learning opportunities.
3. **Impact it will create** : An education kit for visually impaired children to learn and get educated.
4. **Current Status of the Patent** : The request for examination have been filed in IPO
5. **Student team details/Faculty Mentor:**
   1. Gourav
   2. Puneet Bawa

6. **Patent Filing date** : 15 April 2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911015148

Patent-565: Fogminator

1. **Name of the Technology** : Fogminator
2. **Highlights of the Technology (innovation/uniqueness etc.):** Imagine you are driving a car on a foggy day and you cannot see beyond the limit of 3 metres (about 10 feet). Sometimes, fog or smog reduces visibility to zero, which makes driving extremely dangerous and leads to accidents on the highways. According to the facts, in India, over 10,000 lives have been compromised due to fog in road accidents over the span of five years. The global road safety body, "International Road Federation", urged the Indian government to make fog lights mandatory for all vehicles. The use of fog lights can reduce accidents by 30%, which is still less. Moreover, reflexes are crucial because when an obstacle appears instantly in front of the vehicle in fog, the driver has not much time to apply the brakes. So, we are providing a Fogminator as an integrated solution for the above-stated situations.
3. **Impact it will create** : Accident prevention on roads, and road safety in foggy condition.
4. **Current Status of the Patent**: Request for examination has been filed in IPO
5. **Student team details/Faculty Mentor:**
   1. Amrinder Singh
   2. Harun Faridi
6. **Patent Filing date** **:** 04 June, 2019
7. **Patent Granted date** **:**
8. **Patent Application Number** : 201911022157

Patent-566: Swachh Neer

1. **Name of the Technology** : Swachh Neer
2. **Highlights of the Technology (innovation/uniqueness etc.): Water Filtration Apparatus -** The invention is related to an earthen pot-based water purification system. It is divided into two chambers. The top purifying chamber is made of sand and mud, and it also include a pair of ceramic candles. These candles absorb the water in the purifying chamber, which slowly trickles down to the storage chamber. Water impurities adsorb on the

surface of the silica in the candles due to the presence of burnt rice husk. The second chamber is a storage chamber, which is made up of a mixture of mud and rice husk ash in a specific ratio. After neutralization, microorganisms need to be removed from the water, for this purpose chlorination is done. The collected water in the storage chamber is contaminant-free.

3. **Impact it will create** : Safe drinking water for all people – rural, sub urban, urban, etc. at low cost with retention of essential minerals in water. For more details visit - https://newgeniedc.chitkara.edu.in/project/swach-neer/
4. **Current Status of the Patent**: Response to FER has been filed in the IPO
5. **Student team details/Faculty Mentor:**
   1. Pooja Mahajan
   2. Ajay Singh
   3. Jyotsna Kaushal
6. **Patent Filing date** **:** 20 December, 2017
7. **Patent Granted date** **:**
8. **Patent Application Number** : 201711045864

Patent-567: Intelligent Urea Spreading Machine

1. **Name of the Technology** : Intelligent Urea Spreading Machine
2. **Highlights of the Technology (innovation/uniqueness etc.):** An Apparatus for Dispensing Plant Nutrient **-** Intelligent Urea Spreading Machine' is a project focused on the structuring and manufacturing of fertiliser spreaders. It uses image recognition to detect the presence of green crops and initiates spraying of the fertiliser from the electronic device. The present revelation allows the minimised nutrient dispensing device to consolidate. It blends the solid supplement with air to mix it and starts showering the mixture on the farm. In this manner, the present revelation gives the supplements to the plants after checking their colour in the first step and spreading the supplements when adequate green colour is found in the corresponding image captured by the camera.
3. **Impact it will create** : Limited or essential use of urea in the agriculture fields in controlled manner, less health hazards.
4. **Current Status of the Patent**: Response to FER has been filed in the IPO
5. **Student team details/Faculty Mentor:**
   1. Raghav Sharma
   2. Puneet Bawa

6. **Patent Filing date** : 20 Sep 2017
7. **Patent Granted date** :
8. **Patent Application Number** : 201711034792

Patent-568: Learn-o-Little

1. **Name of the Technology** : Learn-o-Little
2. **Highlights of the Technology (innovation/uniqueness etc.):** A SYSTEM AND APPARATUS FOR AUGMENTED REALITY BASED EDUCATION **-** Learn-O-Little is an interactive learning kit for kindergarten kids to help them learn the alphabet, word building and practice various interactive quizzes. The AR application is a free complementary app with the learning kit, which is compatible with both iOS and Android. With the proposed application, learning is extended from two dimensions to three dimensions. It allows kids to learn quicker and better through animated 3D objects/characters. It is an all-around learning kit that provides the advancement to preschool children need with visual effects, audio pronunciations, and engaging interactions. The kit is designed in a convenient form so kids can carry it around and learn anytime, anywhere.
3. **Impact it will create** : It enables all round learning for kindergarten kids, will increase their curiousity and interest in the subjects.
4. **Current Status of the Patent**: Response to FER has been filed in the IPO
5. **Student team details**

   1. Neha Tuli
6. **Patent Filing date** : 8 June 2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911022811

Patent-569: The Pied Piper – Lure the Rats Away Smartly

1. **Name of the Technology** : The Pied Piper – Lure the Rats Away Smartly
2. **Highlights of the Technology (innovation/uniqueness etc.):** A Mouse Trap **-** Rats are responsible for 40% of disease transmission in developing countries. Pied-Piper is a trending patented trap, which is completely free from human touch, with its AI-based autonomous traveling to dump rats/mice outside at specified places. Pied-Piper traps multiple rats at once. E-Pinjra is also termed “The Piped Piper.”

3. **Impact it will create** : It will be an ideal tool for industrial environment like hotels, restuarants, warehouses, etc for automatic removal of rodents in humanely and touchless manner.
4. **Current Status of the Patent**:
   Granted
5. **Student team details/Faculty Mentor:**
   1. Rouble Gupta
   2. Nitin Saluja
6. **Patent Filing date** : 18 December, 2018
7. **Patent Granted date** : 18 March, 2021
8. **Patent Application Number** : 201811047766

Patent-570: Grain Paddy Drier

1. **Name of the Technology** : Grain Paddy Drier
2. **Highlights of the Technology (innovation/uniqueness etc.):** Device for Reducing Moisture from food Grains **-** A Grain Dryer is a machine that uses vibrations for the motion of grain on the plates fixed in a zig-zag manner inside the closed heating chamber. Electric heating elements are provided under the plates to supply heat to the grains. Exhaust fans are also placed in the chamber to extract the moisture. The purpose of the grain dryer machine is to reduce moisture from grains (e.g., paddy, wheat, etc.) and to prolong their storage for further processing (e.g., milling operations of paddy). This makes the harvest suitable for selling and cooking.
3. **Impact it will create** :
   Reduces moisture content of the harvested crops in the fields itself, less losses to the farmers, higher yield, etc.
4. **Current Status of the Patent**:
   Response to FER filed
5. **Student team details/Faculty Mentor:**
   1. Gurasees Singh
   2. K. Z. Molla
6. **Patent Filing date** : 05 November, 2018
7. **Patent Granted date** :
8. **Patent Application Number** : 201811041912

Patent-571: Driving Test Simulator

1. **Name of the Technology** : Driving Test Simulator
2. **Highlights of the Technology (innovation/uniqueness etc.):** A Driving Test Simulation Apparatus **-** The proposed idea is a VR (Virtual Reality) – based Driving Test Simulator. The application will be installed on an Android device and used together with a virtual reality headset. The simulator includes a custom-made steering wheel and pedals (including accelerator and brake) for interaction in the VR environment. The user will drive the car in a virtual 3D city environment where he/ she will encounter real-life challenges, different road conditions, traffic signs, and signals. Evaluation will be conducted based on the users' responses and their efficiency in following traffic rules. The proposed solution would help us examine the necessary skills required to ensure a safe driving experience.
3. **Impact it will create** : Learning driving through VR technology before driving on roads. Convenient for both learners and ensures road safety.
4. **Current Status of the Patent**: Response to FER filed
5. **Student team details/Faculty Mentor:**
   1. Shivam Sharma
   2. Archana Mantri
6. **Patent Filing date** : 16 Jan 2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911001972

Patent-572: Healthy Tea Vending Machine

1. **Name of the Technology** : Healthy Tea Vending Machine
2. **Highlights of the Technology (innovation/uniqueness etc.):** Internet of Things (IoT) and Artificial Intelligence Enabled Tea Vending System **-** We proposed a new tea vending machine that will prepare tea from fresh tea leaves on the spot without adding any artificial preservatives to give a healthy tea to tea lovers. The clean and washed fresh leaves are kept in green/dry format in the transparent jar from which tea powder is processed and directly sent to the existing tea vending machine.
3. **Impact it will create** : Lifestyle product that will enhance the experience of tea drinking.
4. **Current Status of the Patent**:
   Response to FER filed

5. **Student team details**
   1. Neha Sharma
   2. Ramkumar K. R.
6. **Patent Filing date** : 30 May 2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911021602

Patent-573: Hybrix Cooler

1. **Name of the Technology** : Hybrix Cooler
2. **Highlights of the Technology (innovation/uniqueness etc.):** Water Efficient Air Cooler **-** About 1.1 billion people in the world lack access to water, and a total of 2.7 billion face water scarcity for at least one month in a year. At present, water consumption is very high, and the situation will get worse in the coming years. By 2025, two-thirds of the world's population could face water shortage, and the ecosystems of the world will suffer. At present, when people are facing a water crisis, a great amount of water is used for desert coolers in hot summers, and the problem is unnoticed. A desert cooler consumes nearly 50–60 litres of water per day. To overcome this situation, our system plays an important role, it contributes to saving water and replenishing natural resources. Till now, desert coolers are more successful in dry and arid regions, but our system can efficiently work in humid regions also. It will increase the demand for coolers globally.
3. **Impact it will create** : Low-cost alternative to air conditioning (especially in humid condition) and saves water.
4. **Current Status of the Patent**: Response to FER filed
5. **Student team details/Faculty Mentor:**
   1. Nikhil Sharma
   2. Nitesh Parmar
6. **Patent Filing date** : 15 April 2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911015150

Patent-574: Edu-Geo

1. **Name of the Technology** : Edu-Geo
2. **Highlights of the Technology (innovation/uniqueness etc.):** System and Method for Augmented Reality-Based Learning **–** Augmented Reality-based Geometry Learning Assistant (AR-GLA), in the form of a tabletop interactive

environment, attempts to enhance the learning and retention processes of memory by allowing the students to construct, verify, interact with, and visualise the 3D objects in the real environment. The vector addition has been chosen for 12th grade mathematics for the execution of AR-GLA. The main objective of the developed application is to assist the students in their learning and long-term retention of the concepts related to geometry, as this topic requires concepts that continue for some time.

3. **Impact it will create** : Enhance the learning and retention processes of memory by allowing the students to construct, verify, interact with, and visualise the 3D objects in the real environment. For more details visit, https://newgeniedc.chitkara.edu.in/project/edu-geo/
4. **Current Status of the Patent**: Response to FER filed
5. **Student team details/Faculty Mentor:**
   1. Shubham Gargrish
   2. Bhanu Sharma
6. **Patent Filing date** : 06 August, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011033693

Patent-575: PregAura – Smart non-contact distant maternal care for pregnant women during COVID times

1. **Name of the Technology** : PregAura – Smart non-contact distant maternal care for pregnant women during COVID times
2. **Highlights of the Technology (innovation/uniqueness etc.):** Health Monitoring System for Pregnant Women and Fetus and A Device for Monitoring Health Parameters - Urban patients with mild illnesses can get Tele-Consultation but for patients in serious conditions or those who live in rural areas, just consultation is not enough, especially for Pregnant Women. Pregnant women are at high risk during an antenatal checkup due to poor hygiene and crowding at government hospitals, etc. The solution to this problem is a contact-less booth. An attached screen to the booth displays the recorded vital signs (temperature, blood pressure, oxygen level, etc.) of a pregnant woman with no or minimal contact. The data acquired by sanitizable devices can be easily transferred to the cloud and further sent to the doctor in case of need.

3. **Impact it will create** : It is a remote health monitoring system for pregnant women of rural areas, which is contactless. It will ensure their health, well-being and hygiene.
4. **Current Status of the Patent**:
   Response to FER filed for both patents
5. **Student team details/Faculty Mentor**
   1. Soni Singh
6. **Patent Filing date** : 16 Feb 2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911007068

Patent-576: PregAura – Smart non-contact distant maternal care for pregnant women during COVID times

1. **Name of the Technology** : PregAura – Smart non-contact distant maternal care for pregnant women during COVID times
2. **Highlights of the Technology (innovation/uniqueness etc.):** Health Monitoring System for Pregnant Women and Fetus and A Device For Monitoring Health Parameters - Urban patients with mild illnesses can get Tele-Consultation but for patients in serious conditions or those who live in rural areas, just consultation is not enough, especially for Pregnant Women. Pregnant women are at high risk during an antenatal checkup due to poor hygiene and crowding at government hospitals, etc. The solution to this problem is a contact-less booth. An attached screen to the booth displays the recorded vital signs (temperature, blood pressure, oxygen level, etc.) of a pregnant woman with no or minimal contact. The data acquired by sanitizable devices can be easily transferred to the cloud and further sent to the doctor in case of need.
3. **Impact it will create** : It is a remote health monitoring system for pregnant women of rural areas, which is contactless. It will ensure their health, well-being and hygiene.
4. **Current Status of the Patent**: Response to FER filed for both patents
5. **Student team details/Faculty Mentor**
   1. Shalli Rani
6. **Patent Filing date** : 16 July, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011030405

Patent-577: Mano-Aid

1. **Name of the Technology** : Mano-Aid
2. **Highlights of the Technology (innovation/uniqueness etc.):** Monitoring System for Subject - Mano-Aid provides cognitive behavioural therapy virtually to mental health patients at their homes with an electronic glove that monitors physiological signals. This will maintain the norm of social distancing and provide an opportunity for psychotherapists to work from home. There will be fewer chances of opening therapy centres soon because the immunity of patients suffering from mental illness is getting lower. Mano-Aid is an affordable VR system that can run on any Android or iOS phone, so no extra device is needed. Monitoring with a hand glove is optional for moderate-to-severe anxiety patients for therapy sessions. Moreover, monthly reports will be generated so the patients can keep track of their progress.
3. **Impact it will create** : Remote treatment of patients with mental issues overcome barriers related to taboo associated with mental health
4. **Current Status of the Patent**: Request for Examination (RFE) filed in IPO
5. **Student team details/Faculty Mentor:**
   1. Gurwinder Singh
6. **Patent Filing date** : 25 August, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011036603

Patent-578: Formulation development of Freeze Dried Inhalable microparticles of Hydroxychloroquine and Surfactants for pulmonary delivery for management of ARDS in COVID & SARS Diseases

1. **Name of the Technology** : Formulation development of Freeze Dried Inhalable microparticles of Hydroxychloroquine and Surfactants for pulmonary delivery for management of ARDS in COVID & SARS Diseases
2. **Highlights of the Technology (innovation/uniqueness etc.):** Inhalable Microparticles of Hydroxychloroquine for Management of Acute Respiratory Syndrome – COVID-19 (corona virus disease) is a respiratory illness that is severe and potentially fatal. It can cause mortality in severe cases due to alveolar collapse. HCQ could be effectively used in the treatment of SARS-CoV pneumonia. However, the major problems of oral treatment with HCQ can cause possible severe side effects and toxicity; hepatic first-pass metabolism and drug accumulation in liver. Inhalable HCQ micro-particles

pass through airway & prevent replication of virus effectively & surfactants maintain alveolar capacity. Administration of formulation using an autohaler (Inhaler) produces a long duration of action in the lungs and further absorption in systemic circulation, avoiding first-pass metabolism.

3. **Impact it will create** : Inhalable HCQ microparticles could be an important tool for the management of acute respiratory distress syndrome (ARDS) in COVID as well as in the emergency care clinical team.
4. **Current Status of the Patent**: Granted
5. **Student team details/Faculty Mentor:**
   1. Rupanshi Grover
   2. Sukhbir Singh
6. **Patent Filing date** : 18 June, 2020
7. **Patent Granted date** : 16 April, 2021
8. **Patent Application Number** : 202011025625

Patent-579: Solar Powered Umbrella like Canopy

1. **Name of the Technology** : Solar Powered Umbrella like Canopy
2. **Highlights of the Technology (innovation/uniqueness etc.):** Smart Two Directional Movable Mount for Solar Panels – Solar Powered Multipurpose Canopy is an umbrella-type canopy that has the provision of giving 5 volts, 3 amps of DC power. The canopy is powered by a 10-watt solar panel that drives a 12-volt battery and a solar charge controller to convert solar energy into DC power. Two independent USB ports have been provided that deliver 5V, 3A power sufficient for charging a smartphone, running a DC fan on a hot summer day, and lighting an LED light during the night if required. A heavy-duty metal base has been made so that the structure remains standalone and doesn't topple in windy conditions. Dedicated efforts have been made in the design of the complete structure so that it is easy to dismantle (for transportation) and looks neat and elegant.
3. **Impact it will create** : Solar-powered umbrella-type canopy is ideal for use in places like Gate Security Posts, Outdoor Police Posts, Outdoor Events, Outdoor Eateries etc.
4. **Current Status of the Patent**: Granted
5. **Student team details/Faculty Mentor:**
   1. Aaishwarika Raj Sharma
   2. Chanpreet Singh

6. **Patent Filing date** : 15 September, 2021
7. **Patent Granted date** : October 2022
8. **Patent Application Number** : 349524-001

Patent-580: Portable Virus-Sniffing-Device against Newly Emerging Viruses

1. **Name of the Technology** : Portable Virus-Sniffing-Device against Newly Emerging Viruses
2. **Highlights of the Technology (innovation/uniqueness etc.):** An Air Filtration Apparatus for Filtering Micro-Organisms–COVAPUR-AIR, is based on the easily scalable heteroatom doped quantum dots weaved on the Cu nanoparticles packed in a cannonball-type arrangement to capture the viruses. Our technology utilises these weaved quantum dots along with cellulose filters that restrict particles of all sizes from passing through.
3. **Impact it will create** : It is a well-designed device, adaptable as per the user's requirements that would intercept and kill the virus present in the air and provide pure, non-toxic air to breathe. For more details visit, https://newgeniedc.chitkara.edu.in/project/portable-virus-sniffing-device-against-newly-emerging-viruses/
4. **Current Status of the Patent**: Response to FER submitted
5. **Student team details/Faculty Mentor:**
   1. Adhish Singh
   2. Ajay Khajuria
   3. Mohit Kapoor
6. **Patent Filing date** : 10 July, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011029313

Patent-581: Ethanol Fuel Cell

1. **Name of the Technology** : Ethanol Fuel Cell
2. **Highlights of the Technology (innovation/uniqueness etc.):** Process of Preparing Three-Dimensional Carbon from Prosopis Juliflora – a novel method of converting an insidious Prosopis Juliflora source to develop a Direct Ethanol Fuel Cell (DEFT). Basically, low tortuosity and regular porous structures are the main benefits of the ethanol fuel cell. We have done carbonization and activation at low temperatures to improve the electrical conductivity of 3D carbon. Then uniform deposition of metal nano-particles by

electrochemical deposition methods will be done. The synthesised material will be used to fabricate fuel cells.

3. **Impact it will create** : Energy demand is exponentially increasing, and fossil fuels are overconsumed, which impacts biodiversity negatively. Moreover, the scarcity of groundwater is increasing day by day because of the abnormal growth of an invasive plant called Prosopis Juliflora. Both these challenges will be overcome with the help of this technology. For more details visit, https://newgeniedc.chitkara.edu.in/project/ethanol-fuel-cell/
4. **Current Status of the Patent**: Patent has been Published
5. **Student team details/Faculty Mentor:**
   1. Taniya
   2. Partha Khanra
6. **Patent Filing date** : 23 September, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011041260

Patent-582: ACTIVECAP- Stay Active be Healthy

1. **Name of the Technology** : ACTIVECAP- Stay Active be Healthy
2. **Highlights of the Technology (innovation/uniqueness etc.):** Bottle Cap Assembly and Cap for Bottle **-** Activecap is a beverage packaging company. The company's vision is to create the best infusion cap technology in the world. Using its unique solutions, Activecap assists other companies in a variety of industries in expanding their product lines and generating growth. It is a revolutionary method of storing and protecting vital ingredients until they are consumed.
3. **Impact it will create** : The product has a potential to revolutionize the beverage packaging industry.
4. **Current Status of the Patent**:
   Patent Granted
5. **Student team details/Faculty Mentor:**
   1. Pintu Kumar
6. **Patent Filing date** : 14 Oct 2019
7. **Patent Granted date** : 06 November, 2020 (323330)
8. **Patent Application Number** : 201911041596

Patent-583: Bottle Cap Assembly

1. **Name of the Technology** : Bottle Cap Assembly
2. **Highlights of the Technology (innovation/uniqueness etc.):** Bottle Cap Assembly and Cap for Bottle **-** Activecap is a beverage packaging company. The company's vision is to create the best infusion cap technology in the world. Using its unique solutions, Activecap assists other companies in a variety of industries in expanding their product lines and generating growth. It is a revolutionary method of storing and protecting vital ingredients until they are consumed.
3. **Impact it will create** : The product has a potential to revolutionize the beverage packaging industry.
4. **Current Status of the Patent**: Reply to FER has been submitted to IPO - 201911041596
5. **Student team details/Faculty Mentor:**
   1. Anshej Kaushik
6. **Patent Filing date** : November 05, 2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911041596

Patent-584: Micronized Formulation of Ivermectin-Doxycycline: A Promising Anti-Viral Approach

1. **Name of the Technology** : Micronized Formulation of Ivermectin-Doxycycline: A Promising Anti-Viral Approach
2. **Highlights of the Technology (innovation/uniqueness etc.):** Micronized Pharmaceutical Formulation Comprising Ivermectin and Doxycycline – Ivermectin has been reported in recent studies as a miracle drug in the treatment of COVID-19, but it is only effective at higher doses (12 mg/day), and this higher dose is also associated with several side effects, including cardiac toxicity. Because COVID-19 primarily affects the respiratory system, particularly the lungs, the current proposal emphasises the development of an ivermectin carrier system that directly targets the lungs to ensure that the maximum amount of drug reaches the target site. A drug delivery system that combines both drugs assist in minimising the dose and resolving dose-related toxicity issues.

3. **Impact it will create** : A combination of ivermectin and doxycycline carrier systems in the micron size range can be useful in the treatment of COVID-19 to reduce dose-related toxicity and increase efficacy.
4. **Current Status of the Patent**: Patent has been published
5. **Student team details/Faculty Mentor:**
   1. Malkiet Kaur
   2. Manju Nagpal
6. **Patent Filing date** : 25 November, 2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202111054543

Patent-585: Adsorbent Shoe Pads: Eliminates Sweat and Foul Odor

1. **Name of the Technology** : Adsorbent Shoe pads: Eliminates Sweat and Foul Odor
2. **Highlights of the Technology (innovation/uniqueness etc.):** REUSABLE ADSORBENT PAD **–** This proposal presents a waste-derived, reusable adsorbent pad that you can wear on your feet to eliminate the sweaty odour. The proposed odour removal patch includes mainly two layers, namely the moisture-absorbing layer and the malodor-removing/freshening layer, wherein the moisture-absorbing layer is made of waste-derived cellulose fibres and the malodor-removing/freshening layer is made of carbonised rice husk and citrus (e.g., lemon, orange, etc.) rind.
3. **Impact it will create** : It is a lifestyle product that will be a boon to shoe industry.
4. **Current Status of the Patent**: Patent has been published
5. **Student team details/Faculty Mentor:**
   1. Tarandeep Kaur Bhatia
   2. Adhish Singh
6. **Patent Filing date** : 05 November, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011048390

Patent-586: Agronic Culture: Bin farming for healthy beings

1. **Name of the Technology** : Agronic Culture: Bin farming for healthy beings
2. **Highlights of the Technology (innovation/uniqueness etc.):** GROW BED CUM COMPOSTING BIN– Bin Farming for Healthy Beings essentially

promotes and entails barrel and bin farming for producing organic and superlative food products. The main idea behind this setup is to promote healthy culture through organic food, build a repository of herbs and medicinal plants, take a step closer to the Sustainable Development Goals, be in sync with the 3 Rs—Recycle, Reduce, and Reuse, and create a portable and compact farming system in less space.

3. **Impact it will create** : It aims to provide healthy, organic food at a low cost. It also offers a solution for waste management.
4. **Current Status of the Patent**: Granted
5. **Student team details/Faculty Mentor:**
   1. Arryan Madhu Chitkara
   2. Shalini Somra
   3. Gautam Malik
6. **Patent Filing date** : 31 July, 2021
7. **Patent Granted date** : August, 2022
8. **Patent Application Number** : 347073-001

Patent-587: Vidyut AR

1. **Name of the Technology** : Vidyut AR
2. **Highlights of the Technology (innovation/uniqueness etc.):** Augmented Reality Based Learning System and Method for Electronic Circuits – Learning through visualization has more impact than the theoretical learning. Students usually encounter difficulties when they first apply their theoretical knowledge to the practical problems. Therefore, it is important to introduce an effective, innovative and interactive method for teaching electronic circuits. To address this problem, we have initiated the learning of basic science fundamentals at an early stage in k-12 education by different modules. We designed the innovative and engaging activities for the young minds. Prototypes of these modules have been prepared. The modules target day to day science learning, and to solve the real-world problems with the hands-on practice, by the students. The innovative step is that the kit includes transparent electronic modules, assistive sheet, Augmented Reality (AR) markers, Phone for 3D visualization of circuit, which enhance the student's interest in learning. Learning of electronic circuits at very young age is difficult. To solve this problem, we designed a kit based on Augmented Reality.

3. **Impact it will create** : It is an AR based practical/hand-on science learning kit for k-12 education. For more details, visit https://newgeniedc.chitkara.edu.in/project/vidyut_ar/
4. **Current Status of the Patent**: Response to FER has been filed
5. **Student team details/Faculty Mentor:**
   1. Ashwani Singh
   2. Bhanu Sharma
6. **Patent Filing date** : 26 June, 2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911025477

Patent-588: Homeotropic alignment of liquid crystal molecules induced by quantum dot/nanoscale particles for flexible display and device applications – a stride approach

1. **Name of the Technology** : Homeotropic alignment of liquid crystal molecules induced by quantum dot/nanoscale particles for flexible display and device applications – a stride approach
2. **Highlights of the Technology (innovation/uniqueness etc.):** Method of Nanoparticles Film Deposition Facilitating Vertical Alignment of Liquid Crystals – Homeotropically aligned LC displays are widely used in televisions, monitors, and mobile devices. Consequently, these displays have developed into one of the most dominant devices in the international market. Thus, with a view to developing high-contrast displays, the purpose of the research is to develop and analyse the homeotropically aligned LC display cell induced by quantum dots or nanoscale particles dispersed in the LC host, specifically suitable for producing flexible plastic LC displays. The proposed method is the most suitable for producing flexible plastic LC displays requiring a low-temperature process and could potentially contribute to high performance as well as low power consumption in display devices.
3. **Impact it will create** : The outcome of the project will help in building flexible displays for future electronic devices.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. Ankit Rai Dogra
   2. Pankaj Kumar
6. **Patent Filing date** : 10 June 2021

7. **Patent Granted date** :
8. **Patent Application Number** : 202111025904

Patent-589: Electrochemically deposited magnetic bio-conjugate MOF (metal organic framework) for sensor applications

1. **Name of the Technology** : Electrochemically deposited magnetic bio-conjugate MOF (metal organic framework) for sensor applications
2. **Highlights of the Technology (innovation/uniqueness etc.):** Biosensor technology has witnessed a slow rate of commercialization in recent years due to the high price of biosensors and demand emanating from the healthcare industry. Nowadays, the major interest in sensor research is the detection and quantification of several low-molecular-weight organic compounds as well as bio-macromolecules, widely applied in daily life. Efforts during the past two decades focused on three aspects: the establishment of new synthesis methods, the construction of new MOF structures, and the exploration of their applications. These three aspects complement each other. Therefore, in the present proposal, we are synthesising the magnetic iron oxide polyaniline-based MOF using the electrochemical deposition method.
3. **Impact it will create** : The outcome of the project will be helpful in building low-cost biosensors for a variety of applications.
4. **Current Status of the Patent**: Published
5. **Student team details/Faculty Mentor:**
   1. Baljinder Kaur
   2. Meenakshi Dhiman
6. **Patent Filing date** : 21 October, 2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202111047993

Patent-590: Development of Hybrid Pulse Power Device using Semiconductor 3D-Graphitic Carbon

1. **Name of the Technology** : Development of Hybrid Pulse Power Device using Semiconductor 3D-Graphitic Carbon
2. **Highlights of the Technology (innovation/uniqueness etc.):** Process of Preparing Calcium-Deposited Three-Dimensional Carbon for Energy Storage from Waste Paper and Eggshells **-** The development of efficient portable

energy storage devices for portable electronic circuits has become a major research interest. The batteries are suffering from low cyclic stability and high safety risk factors. The electrochemical capacitor or super-capacitor has the features of a high surface-to-volume ratio, a carbon or metal compound-based electrode, and solid polymer or ionic liquid-based electrolytes. Graphene is a unique material due to its excellent physicochemical properties, such as a high surface-to-volume ratio, metal-like electrical conductivity, good thermal conductivity, tremendous mechanical and chemical stability, etc. Therefore, the present proposal is based on 3D-graphene, like a network of doped heteroatoms for building batteries.

3. **Impact it will create** : More efficient carbon/graphene based energy storage device.
4. **Current Status of the Patent**: Published
5. **Student team details/Faculty Mentor:**
   1. Shagun Sharma
   2. Partha Khanra
6. **Patent Filing date** : 06 October, 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011043463

Patent-591: Wind Turbine Driven Generator for Vehicles

1. **Name of the Technology** : Wind Turbine Driven Generator for Vehicles
2. **Highlights of the Technology (innovation/uniqueness etc.):** This project relates to self-sustaining equipment for the generation of electricity, and more specifically, it relates to wind turbine-driven generators for vehicles. This device is used for the generation of electricity to charge any type of vehicle battery, provided the vehicle is in motion. The motion of the vehicle will cause air to travel over the body of the vehicle, which will force the air into the nozzle, thus increasing the speed of the air flowing. This will exert force on multiple turbines, rotating them and producing electricity that can be used to charge the batteries, thereby increasing the distance travelled by the electric vehicles. No extra energy input is required to operate wind turbines. As the vehicle moves, the air around it will rotate turbines to produce electricity.
3. **Impact it will create** : Self charging electric vehicle will have unlimited driving range and this technology will disrupt the EV market.
4. **Current Status of the Patent** : Granted

5. **Student team details/Faculty Mentor:**
   1. Yash
   2. Prabhjot Singh
6. **Patent Filing date** : 30 June, 2015
7. **Patent Granted date** : 2023
8. **Patent Application Number** : 1962/DEL/2015

Patent-592: Dequani – Counterfeit Detector

1. **Name of the Technology** : Dequani – Counterfeit Detector
2. **Highlights of the Technology (innovation/uniqueness etc.):** Machine for Detection of Fake Cheque in Banking Operation - Counterfeiting is the biggest problem for businesses and enterprises around the world. The sale of pirated goods increases by $1.7 trillion per year, which is more than drugs and human trafficking. It is expected to grow to $2.8 trillion and cost 5.4 million jobs by 2022. As a consumer, how can you differentiate between the original and the fake product? Think of a solution where, with just a single click, one can detect the bogus product through an app. We have built an app that will detect counterfeit products by simply scanning the QR code. The QR code, which is to be placed on products, is generated with an algorithm, and has a double layer of security. We are also providing functionality on our website to scan the product's originality online before buying.
3. **Impact it will create** : The technology can be very effective in large scale detection of fake products. It can be very useful in today's e-commerce scenario.
4. **Current Status of the Patent** :
   Response to FER submitted
5. **Student team details/Faculty Mentor:**
   1. Mohit Chachra
   2. Ishika Garg
   3. Sujeet Yadav
6. **Patent Filing date** : 14 November, 2017
7. **Patent Granted date** :
8. **Patent Application Number** : 201711040525

Patent-593: FoRo (Fog on Road)

1. **Name of the Technology** : FoRo (Fog on Road)
2. **Highlights of the Technology (innovation/uniqueness etc.):** System for Detection of Fog **–** FoRo is a fog detection device that gives hyperlocal predictions of fog in real time. The devices presently available in the market are ADAS (Advanced Driver Assistance Systems) integrated with LIDAR (Light Detection and Ranging), image processing, radar, optical power measurement, etc. These techniques produce reliable results, but with more complexity. Also, the cost of these techniques is very high. So, to overcome this problem, we have found that the FM radio signals vary with the fog. We started automating the process of noting down the signals while moving on the roads with an instrument named FoRo (Fog on Roads). We are in the process of prototyping FoRo for precise recording of the signals, converting them into digital signals, and transferring the data to the mobile phones with the linked application.
3. **Impact it will create** : A system will give precision forecast of Fog.
4. **Current Status of the Patent** : RFE has been filed
5. **Student team details/Faculty Mentor:**
   1. Kamal Gulati
   2. Sakhshra Monga
6. **Patent Filing date** : 17 January, 2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311003437

Patent-594: Heat Treatment Electric Furnace

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.

4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 10-08-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202211045767

Patent-595: Heat Treatment Electric Furnace

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 11-03-2022
7. **Patent Granted date** : April 2023
8. **Patent Application Number** : 360479-001

Patent-596: Rotary Job Holder Case Hardening Furnace

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the

specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.

3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 12-05-2022
7. **Patent Granted date** : June, 2023
8. **Patent Application Number** : 364097-001

Patent-597: Heat Treatment Furnace with Controlled Atmosphere and Controlled Speed

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 12-05-2022
7. **Patent Granted date** : June, 2023
8. **Patent Application Number** : 364098-001

Patent-598: Case Hardening Heat Treatment Furnace with Controlled Environment

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically & horizontally shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** : Response to FER Filed
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 12-05-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 364099-001

Patent-599: Development of safe AR-LEAD and VR-LEAD for Autism

1. **Name of the Technology** : Development of safe AR-Lead & VR-Lead for Autism
2. **Highlights of the Technology (innovation/uniqueness etc.):** Virtual Reality System to Monitor Behaviour of Rodents**–** This project aims to create an AR-based application (AR-LEAD) for treating autism in rodents. A pre-clinical study would be conducted to analyse rodents' oxidative stress parameters, neurotransmitter levels, apoptotic markers, and neuroinflammatory biomarkers. The outcomes of this project would aid in the development of similar AR/VR applications that can be used for autism patients in future clinical trials.
3. **Impact it will create** : AR based application for treatment of autism.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. Anjali
   2. Debarshi Ghosh
   3. Gurjinder Singh

6. **Patent Filing date** : 17 August, 2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202211046851

Patent-600: Perineal Retractor for Safe and Accurate Episiotomy during Vaginal Delivery

1. **Name of the Technology** : Perineal Retractor for Safe and Accurate Episiotomy during Vaginal Delivery
2. **Highlights of the Technology (innovation/uniqueness etc.):** GK Retractor**-**This is a surgical instrument that helps to guide the incision made during an episiotomy at a specific angle, in turn reducing the risk of vaginal tears. Injuries related to vaginal childbirth are something that is not talked about openly in Indian society. Up to 9 in every 10 first-time mothers who have a vaginal birth will experience some sort of tear, graze, or episiotomy. These tears range from mild to severe and, in some cases, lead to pelvic floor incontinence. With this in mind, our team set out to help make the quality of life for first-time mothers better.
3. **Impact it will create**: This is a lifesaving medical instrument for women at the time of child birth.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Vanya Sharma
   2. Prachi Mittal
   3. Keerti Bhusan Pradhan
6. **Patent Filing date** : 10 September, 2020
7. **Patent Granted date** : 29 September, 2021
8. **Patent Application Number** : 334120-001

Patent-601: Automatic and Moveable Vertical Garden Barricades

1. **Name of the Technology** : Automatic and Moveable Vertical Garden Barricades
2. **Highlights of the Technology (innovation/uniqueness etc.):** LED lights with solar panels will make the system energy-efficient and increase visibility at night. It has space for ads to generate revenue and improve nighttime visibility. This set will provide an integrated design and environmentally friendly solution for many issues.

3. **Impact it will create**: Innovative idea for increasing night time visibility on roads.
4. **Current Status of the Patent** :
   Granted
5. **Student team details/Faculty Mentor:**
   1. Jaibir Singh Makkar
   2. Shivansh Rajput
   3. Pooja Mahajan
6. **Patent Filing date** : 28 January, 2022
7. **Patent Granted date** : February, 2023
8. **Patent Application Number** : 357439-001

Patent-602: Virtual Reality Based Home Eye Testing Device for Measuring Spectacle Power of the Eye

1. **Name of the Technology** : Virtual Reality Based Home Eye Testing Device for Measuring Spectacle Power of the Eye
2. **Highlights of the Technology (innovation/uniqueness etc.):** There are only 12000 ophthalmologists in India, for a population of 136 crore. In some of the rural areas of India, there are no eye care facilities. Hence, a device for tele-eye consultation and tele-eye testing was required. Our innovation is a virtual reality-based device that can connect clinicians and patients through cloud systems. The device tests the spectacle power of the eye and sends the prescription remotely. It helps the patients reach out to the ophthalmologists easily across countries.
3. **Impact it will create**: It will give a privilege of eye testing to countless people living in rural areas.
4. **Current Status of the Patent** :
   Published
5. **Student team details/Faculty Mentor:**
   1. Maheswari Srinivasan
   2. Arshdeep Kaur
   3. Keerti Bhusan Pradhan
6. **Patent Filing date** : 27 June, 2021
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202141028827

Patent-603: Portable Ventilated Universal Laptop Stand

1. **Name of the Technology** : All in One Laptop Stand with Integrated Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea of "All-in-one Laptop Stand with Integrated Table" is to solve the problems faced by users with the existing laptop stand. The following features are provided in the single product: Mesh base to avoid overheating, along with sliding USB-powered fans for additional cooling; A hinge protection feature is uniquely designed to provide support for the laptop screen; Compatible with various sizes of laptops; The table will be adjustable in height and include features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study lamp; Adjustable angle that can reduce screen effects and help to create a more natural typing position
3. **Impact it will create**: It is a lifestyle product that can help a large number of individuals who use laptops in correcting their postures & avoid health issues.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**

   1. Pranav Garg
   1. Pranav Kumar
   1. Gulshan Dhillon
6. **Patent Filing date** : 26-August-20
7. **Patent Granted date** : 5 March, 2021
8. **Patent Application Number** : 332372-001

Patent-604: Height Adjustable Folding Arm Rest Table with Slidable Holders

1. **Name of the Technology** : All in One Laptop Stand with Integrated Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea of "All-in-one Laptop Stand with Integrated Table" is to solve the problems faced by users with the existing laptop stand. The following features are provided in the single product: Mesh base to avoid overheating, along with sliding USB-powered fans for additional cooling; A hinge protection feature is uniquely designed to provide support for the laptop screen; Compatible with various sizes of laptops; The table will be adjustable in height and include features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study

lamp; Adjustable angle that can reduce screen effects and help to create a more natural typing position

3. **Impact it will create** : It is a lifestyle product that can help a large number of individuals who use laptops in correcting their postures and avoid health issues.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Pranav Kumar
6. **Patent Filing date** : 26-August-20
7. **Patent Granted date** : 09 July, 2021
8. **Patent Application Number** : 332371-001

Patent-605: Height Adjustable Table with Folding Arm Rest & Integrated Power Strip

1. **Name of the Technology** : All in One Laptop Stand with Integrated Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea of "All-in-one Laptop Stand with Integrated Table" is to solve the problems faced by users with the existing laptop stand. The following features are provided in the single product: Mesh base to avoid overheating, along with sliding USB-powered fans for additional cooling; A hinge protection feature is uniquely designed to provide support for the laptop screen; Compatible with various sizes of laptops; The table will be adjustable in height and include features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study lamp; Adjustable angle that can reduce screen effects and help to create a more natural typing position
3. **Impact it will create** : It is a lifestyle product that can help a large number of individuals who use laptops in correcting their postures and avoid health issues.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Gulshan Dhillon
6. **Patent Filing date** : 8 Feb 2022
7. **Patent Granted date** : May 2023
8. **Patent Application Number** : 358132-001

Patent-606: IR imaging for medical applications

1. **Name of the Technology** : IR imaging for medical applications
2. **Highlights of the Technology (innovation/uniqueness etc.):** Device for Monitoring Compressed Median Nerve - The project is about high-resolution infrared imaging employing infrared sensor technology and Real-Time Image Processing techniques. The innovation is focused specifically on imaging for medical purposes.
3. **Impact it will create**: It is going to be a portable medical diagnostic device that can be carried outside of hospital premises. It has been designed for diagnostics of patients in rural areas.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. Neha Dahiya
   2. Raj Rani
   3. Varsha Singh
6. **Patent Filing date** : 6 July 2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202111030344

Patent-607: Schottky Junction Printable Solar Cell

1. **Name of the Technology** : Schottky Junction Printable Solar Cell
2. **Highlights of the Technology (innovation/uniqueness etc.):** Demand for affordable solar power components, such as solar panels, is expected to boost the printable solar cells market. Photovoltaic cells cost less and perform better, but they are not flexible. This team has made semiconductor nanocrystals-based screen-printed flexible solar cells
3. **Impact it will create**: These solar cells will be used in a variety of applications, especially wearable electronics, in future.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Member:**
   1. Nikhil Shrivastav
   2. Rahul Pandey
   3. Jaya Madan
6. **Patent Filing date** : 21 Feb 2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202211009134

Patent-608: Rodent Surgical Table

1. **Name of the Technology** : Rodent Surgical Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is an improved surgical table, particularly for use in veterinary medicine. There are a lot of surgical tables available in the market, but the facilities available are not advanced. The proposed current design is efficient with facilities as it is made up of a stainless-steel surface with heating pads, an LED lamp, a tool tray, waste drainage pipe, beaker spaces (250 ML and 100 ML), an animal tissue holder, an automated temperature regulator as per the physiological demand, and an automated position setter for the ease of the surgery.
3. **Impact it will create**: Rodent surgical tables are used for animals' examinations or surgeries by a veterinary surgeon or preclinical researchers. It is important to provide an accurate position and height of the working table for surgery with proper temperature regulation, which enables the veterinarian to be in a precise position rather than kneeling or crouching to treat the animal on the floor.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Member:**
   1. Nikhil Garg
   2. Onkar Bedi
   3. Thakur Gurjeet Singh
6. **Patent Filing date** : 21 July 2020
7. **Patent Granted date** : 18 June 2021
8. **Patent Application Number** : 331265-001

Patent-609: Screening, Actuation & Sanitizing

1. **Name of the Technology** : Screening, Actuation & Sanitizing
2. **Highlights of the Technology (innovation/uniqueness etc.):** SAS is an apparatus for granting entry permission to an individual, the said apparatus comprising: a temperature sensor for capturing and determining a body temperature by pointing it towards the head of the individual. A bar code scanner, comprising a scanner that is enabled to read different bar code symbologies present on an identification card authentication. A positive authentication of a person will grant entry permission to the individual and automatically activate a sanitizer dispenser before entering a specified

region. Monthly data from the entries will be shared with the accounts department for salary disbursements to employees.

3. **Impact it will create**: It is an automatic attendance system, which is an outcome of COVID19 problem, which is to ensure touch less entry of employees in the premises.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. Urvansh Nahata
   2. Rishab Tandon
   3. Akshat Chandra
   4. Rubina Dutta
6. **Patent Filing date** : 19 August 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011035739

20) Mar Ephraem College of Engineering & Technology, Elavuvilai

Patent-610: A Smart cattle Farming System Consisting of Automated Hydroponic Feeder, Integrated in -House Tempa

1. **Name of the Technology:** A Smart cattle Farming System Consisting of Automated Hydroponic Feeder, Integrated in -House Tempa
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The product Automated tray Revolving Mechanism for Hydroponic Cattle Feeder Production
3. **Impact it will create:**
   - This system will give economic benefits to the farmers by reducing the feeding cost, Manual intervention and also it will increase the green fodder yield and reduce the expense of fodder production by one third, thus creating the profit.
   - This system will help to reduce the requirement of cattle rearing grass land.
   - Using this system the farmer can able to provide high nutrient green fodder will maintain the health of the cattle and increase the yield, hence fetching more income to the farmers.
   - Cattle rearing are made possible even for small land holders
4. **Current Status of the Patent** **:** Appiled

5. **Student Team details/Faculty Mentor :**
   1. Mr. Aromal Vijay
   2. Mr. Abin T Wilson
6. **Patent Filing date** : 04/06/2017
7. **Patent Granted date** :
8. **Patent Application Number** : 2017414039583

Patent-611: Backyard Poultry Farm with Smart Detection and Counting of Hen, Integrated with Remote Monitoring

1. **Name of the Technology**: Backyard Poultry Farm with Smart Detection and Counting of Hen, Integrated with Remote Monitoring
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Automated portable poultry system aids owners to operate the farm without their presence.
3. **Impact it will create:**
   - Automated portable poultry system aids owners to operate the farm without their presence. Hence more people can use the product and improve their income and hence increase the economic status.
4. **Current Status of the Patent** **:** Applied
5. **Student Team details/Faculty Mentor :**
   1. Mr. Ron. P. Cherian
   2. Mr. Prince Chacko
   3. Mr. Jestin Mathew
6. **Patent Filing date** : 05/06/2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202041023606

Patent-612: Automated tray Revolving Mechanism for Hydroponic Cattle Feeder Production

1. **Name of the Technology:** Automated tray Revolving Mechanism for Hydroponic Cattle Feeder Production
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Self-Priming Automated Fodder System.
3. **Impact it will create:**
   - Reduce the manpower and Increase growth of Former
4. **Current Status of the Patent** **:** Applied

5. **Student Team details/Faculty Mentor :**
   1. Ashick Newbin A. C.
   2. Rahul R. G.
6. **Patent Filing date** : 05/06/2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202041023607

Patent-613: An Automated Machine capable of Sensing the latex layers of the Rubber Tree and Tapping the latex Fluids without damaging the Cambium layer of the Rubber Tree

1. **Name of the Technology:** An Automated Machine capable of Sensing the latex layers of the Rubber Tree and Tapping the latex Fluids without damaging the Cambium layer of the Rubber Tree
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Portable Smart Rubber Harvesting Machine.
3. **Impact it will create:**
   - Economic growth will increase and reduce the manpower Current
4. **Current Status of the Patent** **:** Applied
5. **Student Team details/Faculty Mentor :**
   1. Mr Julia Bergio. K
   2. Mr. Abinesh. E
6. **Patent Filing date** : 05/06/2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202041023623

Patent-614: Design for feeding PETs in a timely manner

1. **Name of the Technology:** Design for feeding PETs in a timely manner
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Automatically feeds the pet with Pavlo's Principle.
3. **Impact it will create:**
   - Feed the pets in the absence of owner in a timely manner
4. **Current Status of the Patent** **:** Applied
5. **Student Team details/Faculty Mentor :**
   1. Mr. Rexily Rijo R.
   2. Mr. Lijin
   3. Mr. Shiva Kumar

6. **Patent Filing date** : 07/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241012128

Patent-615: Mask Detection and Door Opening System

1. **Name of the Technology:** Mask Detection and Door Opening System
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The door opens only when the intruder wears a mask.
3. **Impact it will create:**
   - Avoid the spread of COVID '19
4. **Current Status of the Patent** **:** Applied
5. **Student Team details/Faculty Mentor :**
   1. Ms. Emarald S.
   2. Ms. Lifla Mary L.K.
   3. Ms. Abi Angel M
6. **Patent Filing date** : 07/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241012121

Patent-616: Assistacles

1. **Name of the Technology:** Assistacles
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The product detects the person in the vicinity and informs the wearer about the presence of person around them.
3. **Impact it will create:**
   - Assists the visually challenged person
4. **Current Status of the Patent** **:** Applied
5. **Student Team details/Faculty Mentor :**
   1. Ms. Sakeena Begum
   2. Ms. Fershiya Ananth
6. **Patent Filing date** : 07/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241012131

Patent-617: Drowsiness Detection module with Advanced threshold Control

1. **Name of the Technology:** Drowsiness Detection module with Advanced threshold Control
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The product helps in detection of sleep while long drive. This uses adaptive threshold value as per the size of the eyes.
3. **Impact it will create:** Helps the driver to be awake while long drive
4. **Current Status of the Patent** **:** Applied
5. **Student Team details/Faculty Mentor :**

   1. Ms. Evanjalin Bherina E. H.
   2. Mr. Britto S. P.
6. **Patent Filing date** : 07/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241012093

Patent-618: Portable Automated Black Soldier Fly

1. **Name of the Technology:** Portable Automated Black Soldier Fly
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Fully automated, economic and user friendly.
3. **Impact it will create:** Household waste management and production of nutritious food for poultry farm at low cost
4. **Current Status of the Patent** **:** Applied
5. **Student Team details/Faculty Mentor :**

   1. Aswajith S.
   2. Justin James
   3. Philby S. Mathew
6. **Patent Filing date** : 07/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241012108

Patent-619: Silk Cotton Threshing Machine

1. **Name of the Technology:** Silk Cotton Threshing Machine
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A unique mechanical motorized mechanism that would thresh the silk cotton
   - Easy to use.

3. **Impact it will create:**
   - It reduces the labor thereby increasing the productivity of the farmers
4. **Current Status of the Patent :**
   Applied
5. **Student Team details/Faculty Mentor :**
   1. Mr. Christy Varghese
   2. Mr. Jebin Mohan
   3. Mr. Thomson Abraham
6. **Patent Filing date** : 07/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241012021

Patent-620: Coconut Leaf Midrib Extraction Machine

1. **Name of the Technology:** Coconut Leaf Midrib Extraction Machine
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Unique spine based automated design that would remove the leaf from the midrib.
3. **Impact it will create:**
   - It will create a passive income for the coconut farmers
4. **Current Status of the Patent :** Applied
5. **Student Team details/Faculty Mentor :**
   1. Mr. S. Ansal Sajan
   2. Mr. T. Ajisha
   3. Mr. Lieo V. Abilash
6. **Patent Filing date** : 07/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241012098

Patent-621: Automated Portable Vermi Composed Plant

1. **Name of the Technology:** Automated Portable Vermi Composed Plant
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A simple technology that would help in production of vermi compost.
3. **Impact it will create:**
   - The use of artificial manures is reduced, and the nutrition content of the soil is rejuvenate
4. **Current Status of the Patent :** Applied

5. **Student Team details/Faculty Mentor :**
   1. Mr. Alen S George
   2. Mr. Alfin Shaji
   3. Mr. Tharun.V. Rajan
   4. Mr. Bharath Krishnan R.
6. **Patent Filing date** : 07/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241012121

Patent-622: Self charging vehicle

1. **Name of the Technology:** Self charging vehicle
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The electric vehicle which can run unlimited range without recharge externally.
3. **Impact it will create:**
   - This technology can be helpful for the electric cycle, bike, scooter etc. which gives extra range for the electric vehicles
4. **Current Status of the Patent :**
   Applied
5. **Student Team details/Faculty Mentor :**
   1. Mr. Jijin Raj SS
   2. Mr. Abidan J Lal.
   3. Mr. Rejin S.
   4. Mr. Jijin Gilbert J.
6. **Patent Filing date** : 07/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241012079

Patent-623: Traditional Portable Fruit Ripening Kit

1. **Name of the Technology:** Traditional Portable Fruit Ripening Kit
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - It uses harmless ethylene gas for ripening the fruits in an organic way.
3. **Impact it will create:**
   - It would replace the use of artificial methods of fruit ripening
4. **Current Status of the Patent :**
   Applied

5. **Student Team details/Faculty Mentor :**
   1. Mr. Jibin John Bosco
   2. Mr. Benisho Y.
   3. Mr. Rahul R. G.
6. **Patent Filing date** : 07/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241012101

Patent-624: Automatic Nutmeg Harvester

1. **Name of the Technology:** Automatic Nutmeg Harvester
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The system has a plucking arm positioned at the top of the telescopic pole with the rack and pinion gear assembly.
   - The rack has teeth cut into it and they mesh with the teeth of the pinion gear. The motor is coupled with the pinion.
   - The controlled rotary motion of the pinion is converted into corresponding linear movement of the rack.
   - The two and fro motion of the plunger will actuate the fingers to open andclose.
   - The free end of the finger provides sniping action.
   - The collected fruit flows through the hollow plunger into the cloth which can be collected from the bottom.
3. **Impact it will create:**
   - The fruits that are plucked are collected without any damage, so that the fruits are very demand in market.
4. **Current Status of the Patent** **:** Applied
5. **Student Team details/Faculty Mentor :**
   1. Mr. Paul Richard
6. **Patent Filing date** : 07/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241012090

Patent-625: Smart mediator for Indian Sign Language

1. **Name of the Technology:** Smart mediator for Indian Sign Language
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - It is an handy and portable embedded system which can convert sign language into communication language.
   - It is a simple system with can be used by anyone.
   - It is a technology which helps in complete eradication of an mediator or an assistant to use.
   - It is completely specified for Indian Sign Language
3. **Impact it will create:**
   - This could improve the ways the specially abled are been seen and it could remove the thought that they need a mediator. This could boost up their confidence
   - Over the years, communication has played a vital role in exchange of information and feelings in one's life. Sign language is the only medium through which specially abled people can connect to rest of the world through different hand gestures. The major problem faced by them is Hand gesture recognition by other people. They are forced to use an mediator for the communication and it propagate lack of self confidence in them. To overcome such problem, we attempt to develop a vision based embedded system that would recognize the sign language and convert it into communication language.
4. **Current Status of the Patent :** Applied
5. **Student Team details/Faculty Mentor :**

   1. L. Mersheba Fred
   2. Kebiya G.
   3. Ajisha Jegal JJ
6. **Patent Filing date** : 12/06/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341039912

Patent-626: IoT based Smart Azolla Bed

1. **Name of the Technology:** IoT based Smart Azolla Bed
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Vibration and shock technology to impair the snail and emancipate the plant from the snail.
   - Temperature sensor is used to detect the temperature of water and is monitored using A BLYNK Software.
3. **Impact it will create:**
   - Sustainable agriculture practices and reduces the reliance on synthetic fertilizers.
   - Efficient recycling of nutrients back into the agricultural system.
   - Monitor and optimize water usage, ensuring efficient irrigation and minimizing water waste
4. **Current Status of the Patent** **:** Applied
5. **Student Team details/Faculty Mentor :**

   1. Devine Princilla
   2. Aswajith S.
6. **Patent Filing date** : 12/06/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341039892

Patent-627: Meta Mouse: A Touchless User Interface For Personal Computing

1. **Name of the Technology:** Meta Mouse: A Touchless User Interface For Personal Computing
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - **Cutting-Edge Computer Vision:** Meta Mouse utilizes cutting-edge computer vision techniques to track and interpret hand gestures and motions with high accuracy and precision. This technology enables users to control their computers seamlessly without the need for a physical mouse, showcasing the innovative and unique approach of the project.
   - **Integration of Pre-Trained Models:** The project incorporates pre-trained models that have been trained on large datasets, providing a solid foundation for hand gesture recognition. This integration allows for efficient and effective recognition and classification of various hand gestures, enhancing the overall performance and usability of Meta Mouse.

- **Adaptive Machine Learning Algorithms:** The machine learning algorithms employed by Meta Mouse continuously learn and adapt to users' hand movements. This adaptive capability results in improved accuracy and responsiveness over time, making the touchless interface more personalized and user-friendly. The integration of machine learning algorithms adds a dynamic and intelligent aspect to the technology.
- **Accessibility and Inclusivity Focus:** Meta Mouse's primary focus is on enhancing accessibility and inclusivity in personal computing. By offering a touchless user interface, it caters to individuals with limited mobility or physical disabilities, providing them with a means to interact with computers effortlessly. This emphasis on accessibility highlights the technology's commitment to inclusivity and equal access to digital technologies.

3. **Impact it will create:**
   - **Enhanced Accessibility**: Meta Mouse's touchless user interface will greatly enhance accessibility for individuals with limited mobility or physical disabilities, providing them with equal opportunities to engage with and utilize personal computing technology.
   - **Improved Ergonomics:** By eliminating the need for a physical mouse, Meta Mouse reduces strain and discomfort on the wrists and fingers, promoting a more ergonomic and comfortable computing experience for all users.
   - **Hygienic Interaction:** The touchless nature of Meta Mouse reduces the need for physical contact with computer peripherals, offering a hygienic solution that minimizes the potential spread of contaminants and contributes to a cleaner and safer computing environment.
   - **Technological Advancement:** Meta Mouse represents a significant technological advancement in human-computer interaction. By integrating computer vision, pre-trained models, and machine learning algorithms, it opens the door for further innovation in touchless interfaces and paves the way for future advancements in personal computing technology.
4. **Current Status of the Patent :** Patent Filed
5. **Student Team details/Faculty Mentor :**
   1. Ms. Jemi K.
   2. Ms. Gracia Rose J.

6. **Patent Filing date** : 12 June 2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341039886

Patent-628: Assistacles: A Friendly Spectacle For Visually Challenged People

1. **Name of the Technology:** Assistacles: A Friendly Spectacle For Visually Challenged People
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - **Machine Vision Technology*:*** The incorporation of machine vision technology revolutionizes the way visually impaired individuals perceive and interact with their environment. By leveraging advanced algorithms and image processing techniques, "Assistacles" can analyze real-time visual data and provide meaningful audio assistance, enhancing users' spatial awareness and independence.
   - **Facial Recognition System:** The facial recognition system integrated into "Assistacles" utilizes deep learning algorithms, powered by Python's TensorFlow library, to accurately identify and recognize faces. This innovation allows visually impaired users to receive audio cues about the presence and identity of recognized individuals, greatly facilitating social interactions and personal connections.
   - **Object Recognition System:** The prototype's object recognition system is a significant advancement, enabling users to identify and understand various objects in their surroundings. Through deep learning techniques trained with TensorFlow, "Assistacles" can classify objects, such as furniture, doors, or everyday items, and provide audio descriptions, empowering visually impaired individuals to navigate their environment with greater confidence and safety.
   - **Audio Aid and Feedback:** "Assistacles" incorporates an audio aid and feedback system that plays a vital role in conveying information to visually challenged users. By utilizing synthesized voice output, the prototype provides real-time audio cues, descriptions, and feedback about recognized faces and objects. This innovation ensures that visually impaired individuals can comprehend and interact with their surroundings more effectively, fostering independence and inclusivity.

3. **Impact it will create:**
   - **Increased Independence:** "Assistacles" empowers visually impaired individuals by providing them with real-time audio assistance and information about their surroundings. By recognizing faces and objects, describing their locations, and providing audio cues, the prototype enables visually challenged users to navigate and interact with their environment more independently. This increased independence can have a profound impact on their daily lives, enhancing their confidence and reducing their reliance on others.
   - **Enhanced Social Inclusion**: The facial recognition system of "Assistacles" allows visually impaired individuals to identify and recognize familiar faces. This capability fosters more inclusive social interactions, as users can independently identify and engage with friends, family members, and acquaintances. By facilitating smoother and more meaningful social connections, "Assistacles" has the potential to improve the overall well-being and quality of life for visually challenged individuals.
   - **Improved Environmental Awareness and Safety:** The object recognition system in "Assistacles" helps users understand and interact with various objects in their surroundings. By providing audio descriptions and feedback, the prototype enables visually impaired individuals to navigate their environment with greater awareness and safety. They can identify obstacles, locate important objects, and make informed decisions, reducing the risk of accidents and enhancing their overall safety and well-being.
4. **Current Status of the Patent** **:** Patent Filed
5. **Student Team details/Faculty Mentor :**
   1. Ms. Blessiya Valberga
   2. Ms. Vinisha Joy V.M.
6. **Patent Filing date** **:** 12 June 2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341039894

Patent-629: Vegebuy: A smart vegetable purchasing device with vision & auto weighing

1. **Name of the Technology:** Vegebuy: A smart vegetable purchasing device with vision & auto weighing
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - **Advanced Machine Vision Technology:** VegeBuy incorporates advanced machine vision technology to automatically identify various types of vegetables based on their visual characteristics. This innovative approach eliminates the need for manual input or barcode scanning, streamlining the vegetable selection process and enhancing efficiency.
   - **Precise Load Cell Integration**: The integration of a high-precision load cell within VegeBuy ensures accurate weight measurements of the vegetables. This technical intervention enables precise pricing calculations and eliminates discrepancies, providing customers with transparent and reliable pricing information.
   - **RFID Technology for Seamless Checkout:** VegeBuy leverages RFID technology to update the user's RFID tag with specific vegetable, weight, and price information. This allows for a seamless checkout experience, as the tag can be quickly scanned at the point of sale, retrieving the purchase details and generating an itemized bill for swift and accurate payment.
   - **Integration and Centralized System Management:** VegeBuy offers seamless integration with existing point-of-sale systems in supermarkets or grocery stores, enhancing compatibility and ease of implementation. The centralized system management ensures real-time updates of pricing information, promoting transparency and accuracy throughout the vegetable purchase process.
3. **Impact it will create:**
   - **Enhanced Customer Experience:** The VegeBuy - Smart Vegetable Purchase System significantly improves the overall customer experience by streamlining the vegetable buying process. With automated vegetable identification, accurate pricing, and seamless checkout, customers can enjoy a hassle-free and efficient shopping experience. The system provides transparency, convenience, and reliability, enhancing customer satisfaction and loyalty.

- **Time and Cost Savings:** VegeBuy saves valuable time for both customers and retailers. The automated identification and pricing calculation reduce the need for manual input or barcode scanning, speeding up the vegetable selection process. Additionally, the seamless checkout process eliminates waiting times, enabling customers to complete their purchases quickly. This time-saving aspect translates to increased operational efficiency for retailers and improved productivity for customers.
- **Improved Accuracy and Transparency:** By leveraging machine vision technology and load cell integration, VegeBuy ensures accurate identification, weight measurement, and pricing of vegetables. This eliminates human errors and discrepancies, providing customers with transparent and reliable pricing information. The system promotes fairness and trust in the purchase process, enhancing customer confidence and loyalty.
- **Technological Advancement in Retail:** The introduction of VegeBuy represents a significant technological advancement in the retail industry. By combining machine vision, load cell integration, and RFID technology, the system sets a new standard for smart vegetable purchase solutions. Its innovative features pave the way for further advancements in automation, data management, and customer-centric retail experiences. VegeBuy showcases the potential of integrating cutting-edge technologies to transform conventional retail processes, inspiring future developments and innovations in the field.

4. **Current Status of the Patent** **:** Patent Filed
5. **Student Team details/Faculty Mentor :**
   1. Mr. Sajith S.
   2. Mr. Albin B.
   3. Mr. Plamkottathil Jerlin Jacob
6. **Patent Filing date** **:** 12 June 2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341039888

Patent-630: S-Patio: A Portable Solar Harvesting Unit

1. **Name of the Technology:** S-Patio: A Portable Solar Harvesting Unit
2. **Highlights of the Technology:**
   - S-Patio are widely used for camping trips and outdoor adventures.
   - The system is designed to capture and convert sunlight into usable electricity
   - They provide a portable and temporary shelter where individuals or groups can sleep and store their camping gear.
   - Patio offer protection from the elements such as rain, wind, and insects, allowing campers to have a comfortable and secure place to rest.
   - Patio designed for backpacking are lightweight, compact, and easy to carry, making them ideal for hikers and backpackers who need a portable shelter during multi-day trips.
   - These Patio are usually quick to set up and pack down, enabling adventurers to move efficiently while having a reliable place to sleep.
3. **Impact it will create:**
   - The s-patio system is designed to promote environmental sustainability by reducing carbon emissions and minimizing the impact on the environment.
   - The s-patio system is used particularly in areas where traditional power sources are not available or are unreliable.
4. **Current Status of the Patent** : Applied
5. **Student team details/Faculty Mentor:**
   1. Aaron S M
   2. Sanjay John J
6. **Patent Filing date** : 12/06/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341039904

Patent-631: A Solar Powered Smart Ironing Cart

1. **Name of the Technology:** A Solar Powered Smart Ironing Cart
2. **Highlights of the Technology:**
   - Solar PV system is designed with battery, panel, charge - controller and inverter module.

- Dhobi cart has elegant features like adjustable solar roof, automatic rain guard, ironing floor, sliding chair, storage decks for clothes, control module and iron box.
- Automatic rain guard is implemented to detect the continuous rain level and operate automatically.
- Handle with lever arrangement and braking is designed for easy angular motion control

3. **Impact it will create:**
   - The proposed project leads the platform to the employability opportunities in different perspectives of the state.
   - The product can be marketed throughout the state to the needy people by the state government for the betterment of the scheduled caste community.
4. **Current Status of the Patent** : Applied
5. **Student team details/Faculty Mentor:**
   1. Aron Carter
   2. Raghul R. S.
6. **Patent Filing date** : 12/06/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 201641023740

Patent-632: Portable Couch for Transferring the Patients into and from the CT machine

1. **Name of the Technology:** Portable Couch for Transferring the Patients into and from the CT machine
2. **Highlights of the Technology:**
   - Portable Couch is widely used for transferring the patients from the bed to scanning machine.
   - The system is designed for the smooth transfer of patients.
   - Folding bed setup to assist the health care professionals in fixing the probe.
3. **Impact it will create:**
   - The portable couch will make the smooth transfer of patients without any disturbance to the patients.
   - This portable couch will help to improve the accuracy of the measuring probe.

4. **Current Status of the Patent** : Applied
5. **Student team details/Faculty Mentor:**
   1. Manikandan S.
   2. Mohamed Fazil M.
   3. Shine S.
6. **Patent Filing date** : 12/06/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341039897

Patent-633: G-Store: A Flexible Traditional Storage Unit for Food Grains

1. **Name of the Technology:** G-Store: A Flexible Traditional Storage Unit for Food Grains
2. **Highlights of the Technology:**
   - The traditional paththayam was analyzed in detail and its uniqueness in preserving grains was studied.
   - Inorder to make the pathayam foldable new design is developed which consists of steel frame and the body will be of wood.
   - A portable technology for storing the food grains for a very long time was developed. The designed portable paththayam is fabricated along with natural pesticides like neem and pungu. A hybrid version which include wood for interiors and steel for the outer would be useful for the portable version.
   - The grains inside the pathayam will not have any contact with the metal frames. The length of the structure is 850 mm; breadth is 520 mm and height is 520 mm supported with a steel structure of 5mm thickness.
   - Technologically, the fabrication of storage units with natural pest repellent would help in storing the food grains for a long period of time.
3. **Impact it will create:**
   - Flexible storage units, such as bags or containers made from durable and moisture- resistant materials, help maintain the quality of food grains.
   - Flexible traditional storage units provide a suitable environment for long-term grain storage, reducing post-harvest losses caused by pests, moisture, and physical damage.
   - Flexible storage units for food grains often offer cost-effective alternatives to more complex storage infrastructure.

- The flexibility and portability of traditional storage units offer advantages in regions where grain storage needs to be mobile or adaptable to changing conditions.
- Supporting local production and utilization of storage units promotes local entrepreneurship and contributes to sustainable community development.

4. **Current Status of the Patent** : Applied
5. **Student team details/Faculty Mentor:**
   1. Jinisha P. L.
   2. Abishek M.
6. **Patent Filing date** : 12/06/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341039899

21) Nehru Institute of Engineering & Technology, Coimbatore

Patent-634: Method of Extracting Hydrochar from Biodegradable Solid Waste by Hydrothermal Carbonization Using Laser Beam

1. **Name of the Technology** : Method of Extracting Hydrochar from Biodegradable Solid Waste by Hydrothermal Carbonization Using Laser Beam
2. **Highlights of the Technology (innovation/uniqueness etc.):** The primary objective is to generate hydrochar from biodegradable municipal waste. The main purpose is to uniform heating inside the reactor by providing channelized dispersion of heat using laser beam.
3. **Impact it will create** : Conversion of municipal waste materials into more energyefficient and environmental friendly manner.
4. **Current Status of the Patent** : Examination Completed, Patent Granted
5. **Student team details/Faculty Details:**
   1. Subash P K
6. **Patent Filing date** : 29.06.2021
7. **Patent Granted date** : 09.07.2021
8. **Patent Application Number** : 202141029016

Patent-635: Overhead Distribution Line Fault Detection System

1. **Name of the Technology** : Overhead Distribution Line Fault Detection System

2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention- overhead line fault detection is a device for detecting, identifying and locating faults caused by various natural or man-made forces in distribution lines. This innovation is mainly focused on connecting the transformer to the customer's electrical circuit. These shortcomings directly affect customers and need to be discovered and corrected as soon as possible. This is done by placing individual units on certain points of the power line which consists of set of load cells. Using sensor values the system checks whether there is any fault is present on the line, if fault exists identifies the location of fault present using GSM and disconnect the power flow through the line.
3. **Impact it will create**: Helps to reduce a lot of electrical accidents of lineman and other people as it is the major cause of deaths in the whole world. continuously. The power line fault could easily be identified and located using the arrangement. This system can help the authorities to monitor and maintain the power line easily.
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Cyril Joseph
   2. Rajkumar G
   3. Ujjwal K Menon
6. **Patent Filing date** : 08.08.2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141035783

Patent-636: Solitary Multi-Transformatory Device Capable of Transforming Between Computer/Tablet/Screen Extender Modes

1. **Name of the Technology** : Solitary Multi-Transformatory Device Capable of Transforming Between Computer/Tablet/Screen Extender Modes
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Invention is a standalone Multi-Transformatory Device that is designed to bring different electronic devices like computers, Tablet and Screen Extenders devices into a single transformable device that the user can carry with convenience. The device helps the user to toggle between the computer and Tablet mode, vice versa along with this the device can be wirelessly connected to any WIFI screen cast network to use as an additional screen.

3. **Impact it will create**: The device toggles freely between different operating modes namely Computer Mode/Tablet-Mode/Screen Extender Mode without any additional infrastructure. The invention allows the user to enjoy the benefits of three different types of electronic gadgets in one, hence increasing the money value of the invention.
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Cyril Joseph
   2. Rajkumar G
   3. Ujjwal K Menon
6. **Patent Filing date** **:** 14.07.2021
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202141031709

Patent-637: Advanced Printed Circuit Board (PCB) Printing without etching

1. **Name of the Technology**: Advanced Printed Circuit Board (PCB) Printing without etching
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Advanced PCB printing technology is a method which can be used in Printed Circuit Board manufacturing process. It is an easy and low cost method of PCB manufacturing than that of conventional PCB manufacturing technologies. In this method a metal complex-ion based conductive ink is used to print PCB layouts on a Bakelite or Fibre glass sheet. The conductive ink is composed of Copper, Aluminum and silver compounds. The conductive ink is bound on the Bakelite sheet by using an Epoxy resin adhesive. The conductive ink used in this method can with stand a temperature upto 400°c which makes it suitable for soldering. There is no toxic Chlorine compounds are used in this process to reduce corrosion and toxicity as that of conventional method
3. **Impact it will create**: Reduce time, cost, pollution, material wastage in Printed Circuit Board manufacturing and manufacture good quality PCBs
4. **Current Status of the Patent** :
   Patent Published
5. **Student team details/Faculty Details:**
   1. Rajkumar G
   2. Akshay M S
   3. Suryakanth Shenoi R

6. **Patent Filing date** : 01.08.2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141034605

Patent-638: Soap Water Filter System with Advanced Compact Vessel

1. **Name of the Technology**: Soap Water Filter System with Advanced Compact Vessel
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Under cautious monitoring, aluminium and clearing nuts (bio element) can get rid of 90%-99% of microbial infected via flocculation and sedimentation. A discount in cholera transmission changed into additionally pronounced because of using potash alum Clarification the use of modular clarifiers also can be performed batch or non-stop mode. Clarifiers now no longer most effectively deal with turbidity however additionally help in doing away with almost 2 LRV of faecal coliforms. Clarifiers actually have a excessive treating potential price of 10m3/hour, consequently assist in progressed get right of entry to potable water on the network level.
3. **Impact it will create**: SOWAFIS is introducing the brand new technique layout that lessens the gap intake associated with the filtration plant levels. It makes use of much less strength intake that each filtration gadget which include those methods that noted earlier. Recycling and remedy of the soapy water will growth the water nice within side the water and land areas. The upkeep and operational fee had been reduced.
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Rajkumar G
   2. Shahrooque Shahjahan
   3. Midhun Headly Lawrance
6. **Patent Filing date** **:** 30.06.2021
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202141029471

Patent-639: Automated & Portable Vertical Solar Stacker (APVSS)

1. **Name of the Technology**: Automated & Portable Vertical Solar Stacker
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Vertical Solar Stacking (VSS) is a novel term used in the working of APVSS. It is defined as

the vertical arrangement of solar panels one above the other to reduce the space consumption while installing solar panels, especially for large-scale projects. APVSS is a mechatronic design consisting of the use of mirrors or OFE to reduce the area consumption without affecting the efficiency of solar panels. The pyramidal shape of the APVSS is also a factor that determines the quality working of solar panels.

3. **Impact it will create**: To minimize the area required to install the solar panels. In today's world, solar energy became a very important source of renewable energy. Even though a large area of land is utilized for installing the solar panels for high scale energy production. APVSS is a vertical and parallel stacker. Here the solar panels are stationary. It works on the principle of reflection and Total internal reflection. APVSS is autonomous. Therefore, an intelligent microcontroller is necessary to automatically align the Mirrors/Optical Fibre Elements (OFE).
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Rajkumar G
   2. Anas Mohammed Ali
   3. Mrudul Mohandas A
   4. Mohammed Asarudheen S
   5. Rahul K R
6. **Patent Filing date** : 22.07.2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141033052

Patent-640: Environmental Sensing Using Quadcopter for Mining and Exploration

1. **Name of the Technology** : Environmental Sensing Using Quadcopter for Mining and Exploration
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The sensor module consists of a steel exoskeleton under which the sensing elements is housed, the gases coming close to the sensing element gets ionized and absorbed by the sensing element and idealize the specific gases, Temperature, pressure and humidity are also measured.
3. **Impact it will create**: This product is very eco-friendly and pollution free. And it is also very easy to use; miners can gather information quickly and

efficiently. This information gathered through the environmental sensor technology is not only useful to the miners, but also to the people who are engaged in the environmental monitoring process.

4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Vaishnavi. T.
   2. Mohammed Vasib P.
   3. Aparna E. P.
   4. Gobi Shankar P.
   5. Dr. T. Jayaprakash
6. **Patent Filing date** : 04.08.2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141035031

Patent-641: Smart Health Monitor

1. **Name of the Technology** **:** Smart Health Monitor
2. **Highlights of the Technology (innovation/uniqueness etc.)**: In the Covid-19 pandemic situation, visiting the hospitals for the vital measurements can be avoided by using this hand held device which measures and produces the accurate values of above mentioned parameters. The device communicates to android app via IoT. The real time vital signs (Blood Pressure, Heart rate, Respiration based on impedance pneumography, Body temperature and Pulse oximetry) along with device battery level can be monitored from the Android mobile application. Additionally, one can also view live streaming of ECG in the android application itself. The webserver mode is also available which displays live monitoring of ECG and physiological data on PC screen
3. **Impact it will create**: It sets a new standard in health solutions with mobility, wireless and wearable capabilities. This device presents a snapshot of the user's medical condition within his/her environment and opens up medical research possibilities. Smart health monitor measures Electrocardiogram (ECG) data, Blood Pressure, Heart rate, Respiration based on impedance pneumography, Body temperature and Pulse oximetry (SPO_2) in real-time and with high accuracy.
4. **Current Status of the Patent** :
   Patent Published

5. **Student team details/Faculty Details:**
   1. Subha Sarmila. D
   2. Julie Christiana
   3. K. Amirtha
   4. D. Antony Pradeesh
   5. Tharanish S T
6. **Patent Filing date** : 19.07.2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141032314

Patent-642: Manufacturing of Rubber Tile Using Waste Rubber

1. **Name of the Technology:** Manufacturing of Rubber Tile Using Waste Rubber
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The waste rubber is grinded, volcanized and molded and, Reduces the burning of waste rubber and thereby which controls the emission of CO2. By this method of tile making we can minimise waste rubber. Instead of using sand and ceramic we are implementing waste rubber. Reduces the burning of waste rubber and there by which controls the emission of CO2. It also reduces the dumping of waste rubber on to the ground which helps in the control of soil pollution and hence improves the ground water table. Ordinary and poor people can purchase and use it for their basic household needs.
3. **Impact it will create:** epoxy gel, crump rubber and epoxy hardener of ratio 1:5:0.5 are mixed thoroughly and coloring pigments are added, the mix is moulded to 300 x 300 mm tiles of thickness 20mm, placed on vibration table and allowed into set for 24 hours.
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Akhilraj Ar
   2. Selvaram P
   3. Sankari MN
   4. Ragul P
   5. Pandiyaraj S
6. **Patent Filing date** : 06.08.2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141035552

Patent-643: Seed Embedded Handmade Paper Products and Packaging Solutions from Recycled Agro-Wastes

1. **Name of the Technology** : Seed Embedded Handmade Paper Products and Packaging Solutions from Recycled Agro-Wastes
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The innovation is aimed at producing handmade paper products and other 10 packaging solutions from such raw materials for use in schools, colleges and further commercialization in offices, stationery shops and other clients in the later stages. The paper being made will have seeds (fruits, vegetables, flowers) embedded in it, such that when the paper has been used up, instead of directly disposing it off in landfills or burning it, it can be planted in the soil and a new plant can be brought to life. All the products are handmade from pre-consumed materials and agro wastes with seeds flowers (periwinkle, marigold, celosia, and wildflower mix), herbs (tulsi, basil), vegetables (tomato, chilli, spinach) embedded in them.
3. **Impact it will create**: One can create other sustainable products like books, assignment sheets, gift wrappers, invitation cards, etc. and packaging materials which are sustainable, 100% non-toxic.
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Bhavini K
   2. Akhila Narayanankutty
   3. Alma V
   4. Nair Yashika Vinod
   5. Dr. Sudeepa E S
6. **Patent Filing date** : 30.04.2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202141019958

Patent-644: Floor Cleaning Cyborg Wiper Using Artificial Intelligence

1. **Name of the Technology**: Floor Cleaning Cyborg Wiper Using Artificial Intelligence
2. **Highlights of the Technology (innovation/uniqueness etc.)**: They can clean floors and spray disinfectant solution guard homes. It will navigate the paths by using the motors. While navigating if the robot detects any obstacles it will sucks the obstacles and clean the surface and after cleaning it will

pump the water to the surface. The Cyborg both wet and dry cleaning process in our robot. After cleaning the surface by using the water it will spray the sanitizer to the surrounding to disinfectant the surrounding. Residential robots are quite different from industrial robots because of nonprofessional users

3. **Impact it will create**: Everything can be controlled within the mobile application. Apart from dry cleaning spraying filled disinfectant solution during particular intervals through nozzle of the body.
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Kannan R
   2. Salman A
   3. Aiswaryalakshmi M B
6. **Patent Filing date** **:** 09.08.2021
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202141035840

Patent-645: Automatic Analysis of Soil for Plant Growth

1. **Name of the Technology:** Automatic Analysis of Soil for Plant Growth
2. **Highlights of the Technology (innovation/uniqueness etc.)**: This project aims to sense the level of temperature, soil moisture, soil pH and animalintrusion etc. using sensors. Soil moisture sensor, temperature sensor, pH sensor and PIR sensorare used to sense soil parameters. These sensors should be connected directly to the farm l and. All the data will be collected in ardiuno (motherboard) and it will directly reach user's mobile through app notifications. With the help of this unit, we will be able to analyze the soil easily and it will help to get high yield. By using the product, we can uplift the farmer community andeconomical development of agricultural sectors.
3. **Impact it will create**: Soil moisture sensor senses the soil moisture level of the soil, DHT11 digital relative humidity and temperature sensor is used to detect the soil temperature and humidity of the soil, PIR sensor will prevent the animal intrusion.
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Vennila S
   2. Kaviya S

3. Gulja S Nair
4. Dominic Sepastin A
5. Jeswin Nijoe A J

6. **Patent Filing date** **:** 04.08.2021
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202141035030

Patent-646: Automated Covid'19 Monitoring System

1. **Name of the Technology** **:** Automated Covid'19 Monitoring System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: To ensure the safety of customers we are adding a human independent temperature detector and a smart sanitizing system. In an unfortunate situation if any of the customers are detected to be covid19 positive at later stage or any diseases that is contagious then with the help of the database we could figure out the people who met him/her in the shopping complex thereby the preventive measures can be carried out fast.
3. **Impact it will create**: In case, the customer is not having a NFC enabled mobiles, we would give the customers a tag in the form of an accessory which would be easy to carry around. As they enter, they must scan the tag which will monitor the number of people entering into the shopping complex. And this information will be fed into the database. As per government regulations to maintain the social distancing the number of people gathering can be limited and monitored with this system. In any case the number of people exceeds, the next person entering will be restricted from entering into the shopping complex. People could book their time slot for shopping priory with their tag unique number through our database.
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Gokul K T
   2. S.Mani
   3. Shibin V
   4. Fabina Meharban
   5. Shanthini C
6. **Patent Filing date** **:** 28.12.2021
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202141061158

Patent-647: Personalized Water Purification System in the shape of Droplet

1. **Name of the Technology**: Personalized Water Purification System in the shape of Droplet
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Usage of Graphene Oxide
3. **Impact it will create**: Pure drinking water to every household
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Niranjan Sahadev
   2. Hari Krishnan S
   3. Vishnu Biju
   4. Don Martin V J
6. **Patent Filing date** **:** 14.05.2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202241027810

Patent-648: Usefulness of Banana waste in manufacturing Value added Bio-products

1. **Name of the Technology**: Usefulness of Banana waste in manufacturing Value added Bio-products
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Unique attempt to demonstrate packages of low-cost rural technologies.
   - Sustainable utilization of natural resources.
   - Wastes innovatively widen for revenue.
   - Effective and economic means of reducing the environmental problem.
3. **Impact it will create:**
   - Create lots of employment opportunities through fabrication of value added products.
   - Opportunity for an added revenue stream through taking on-farm feedstocks.
4. **Current Status of the Patent: Patent published**
5. **Student team details/Faculty Details:**
   1. Likhitha K K
   2. Dharanishvar R
6. **Patent Filing date** **:** 14.05.2022

7. **Patent Granted date** :
8. **Patent Application Number** : 202241027813

Patent-649: Bioenzymatic Healthcare Products

1. **Name of the Technology**: Bioenzymatic Healthcare Products
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Organic substances which are in theBio Enzyme are capable of breaking down chemical and other organic waste thus helping us in removing stains, odour, getting rid of other harmful microbes, etc. They also greatly neutralize toxins and pollutants.
3. **Impact it will create**: Nothing around us is a waste, it can be recycled and reused. Also, it canpromote health and hygiene for the people
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Karthika S P
   2. Dixith K A
   3. Gokul S
6. **Patent Filing date** : 13.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027557

Patent-650: Bio-formulation of zinc Solubilising Bacterial Fertilizers

1. **Name of the Technology**: Bio-formulation of zinc Solubilising Bacterial Fertilizers
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Beneficial microorganisms were isolated from sugarcane plant which is endophytic and that is used as biofertilizers externally to the plant
3. **Impact it will create**: With minimum production cost, can maximize the yield and canincrease the soil fertility to maintain the eco-friendly environment
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Varsha P V
   2. Anjana A
6. **Patent Filing date** : 11.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027098

Patent-651: Low cost technology for development of Organic Biopesticide

1. **Name of the Technology**: Low cost technology for development of Organic Biopesticide
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Raw materials (wheat bran, rabbit feed, cabbage leaves, potato tubercles, and cactus extracts as carbon and protein sources will betested for the cultivation of Bacillus thuringiensis. In addition, some of the plant extracts are also used as mineral source. After successive media formulation, the Bt will be cultivated and harvested endotoxin from the media. Finally the purified endotoxin will be either lyophilized ofdissolved it into suitable liquid.
3. **Impact it will create**: The product is safe and kills only pests. Since it is purified protein, it efficiently control the pest. Waste products are used for media preparation thereby helping in reduction of wastage and pollution. Low cost technology also supports low market price which is affordable for every farmers.
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Arya A
   2. Aparna C
6. **Patent Filing date** **:** 11.05.2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202241027121

Patent-652: Enzyme Production for Degrading Plastic

1. **Name of the Technology**: Production of Enzyme for the degradation of Polythene Bags
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Recycling of polythene bags and plastic bottles are carried out to get the product. Very often it is thrown in the environment which leads to serious environmental pollution-Spoilage of soil, declaiming in beneficial organism, poor soil fertility, blockage of water resources. This is highly expensive. Degradation of recalcitrant pollutants into a rare chemicals is economically viable and generates money and employability
3. **Impact it will create**: We are trying to degrade the plastic in a manner of eco friendly and to reuse it by making degradable commercial products.
4. **Current Status of the Patent** : Patent Published

5. **Student team details/Faculty Details:**
   1. Hiba
   2. Rasiya Sulthana.A
   3. Abhinandini J.
6. **Patent Filing date** : 12.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027410

Patent-653: Helical Windmill

1. **Name of the Technology**: Helical Windmill
2. **Highlights of the Technology (innovation/uniqueness etc.)**: In the turbine there is no friction and therefore it can work on low speed. Important point throughout the project that has been kept in thought is to minimize cost and to only use materials that local farmers can get hold of.
3. **Impact it will create**: Renewable Source of Energy and low cost
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Fowsiya P A
6. **Patent Filing date** : 12.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027400

Patent-654: Organic face Mask with Silver Nano Particles

1. **Name of the Technology**: Organic face Mask with Silver Nano Particles
2. **Highlights of the Technology (innovation/uniqueness etc.):** Nanotechnology and organic fabric material come together; it may ecofriendly, economic and pollution free compared with artificial material.
3. **Impact it will create**: Eco friendly and cost effective
4. **Current Status of the Patent**: Patent Published
5. **Student team details/Faculty Details:**
   1. Akhil Ajay
   2. Nafath . M
6. **Patent Filing date** : 14.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027812

Patent-655: Design and Fabrication of Tabletop Low Speed Wind Tunnel

1. **Name of the Technology**: Design and Fabrication of Tabletop Low Speed Wind Tunnel
2. **Highlights of the Technology (innovation/uniqueness etc.)**: U -Tube Manometer Systems, Anemometer, Barometric Sensor Systems, BLDC Motor with regulator control system and LED Light systems. With these materials fabrication will be done and its unique.
3. **Impact it will create**: Cost efficient, recyclable, portable and flexible to use. Easily portable from one place to other
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Dhivyadharshini .V
   2. Balakarthikeyan B
   3. Shree Sachidhanandham P.M.R
6. **Patent Filing date** : 13.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027579

Patent-656: GADIFEM – Women Safety Watches

1. **Name of the Technology**: GADIFEM – Women Safety Watches
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The product reduces the work in searching of women's in danger, because of the GPS tracker that is connected to a blynk app which sends the exact location in every single second. This product will help women's in danger situations like kidnap, the special attack hidden camera will help the crime department to rescue the women by tracing either the victim photo or place that has been captured by the camera by pressing the trigger button on the camera which will reduce the time of rescuing of women's
3. **Impact it will create**: Low Cost with high security for women
4. **Current Status of the Patent**: Patent Published
5. **Student team details/Faculty Details:**
   1. Gayathri L
   2. Divya Bharathi K
6. **Patent Filing date** : 13.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027578

Patent-657: Automotive Black Box

1. **Name of the Technology**: Automotive Black Box
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Automotive event data recorder for two wheelers. It uses sensors and recording unit which help to store the event data of the two- wheeler.
3. **Impact it will create**: It will provide the solution for every two-wheeler accident and help to let out the fact by investigating the black box data.
4. **Current Status of the Patent**: Patent Published
5. **Student team details/Faculty Details:**
   1. Sanderson Paul. M
   2. Sri Krishna. R
   3. Praveenkumar. B
   4. Balaganesan. M
6. **Patent Filing date** : 12.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027278

Patent-658: Smart and Self Reliant Two Wheelers

1. **Name of the Technology**: Smart and Self Reliant Two Wheelers
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Biometric and voice controlled antitheft system and inbuilt accident retention and detection system in two wheelers
3. **Impact it will create**: Reduction in number of accidents and two wheeler theft in our country,thereby ensuring safe and comfortable journey
4. **Current Status of the Patent**: Patent Published
5. **Student team details/Faculty Details:**
   1. Karthik M S
6. **Patent Filing date** **:** 14.05.2022
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202241027811

Patent-659: Intelligent Body Temperature, Mask and Facial Recognition

1. **Name of the Technology**: Smart Body Temperature and Mask Detector
2. **Highlights of the Technology (innovation/uniqueness etc.)**: To create a substantially new orimproved product service using jetson nano developer Kit with accurate and immediate results.

3. **Impact it will create**: This product will be useful mainly in Schools, Colleges, and Offices fortouch less attendance monitoring system. Also it creates more employment opportunities.
4. **Current Status of the Patent**: Patent Published
5. **Student team details/Faculty Details:**
   1. R. Raghul Prasad
6. **Patent Filing date** : 17.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241028246

Patent-660: PRO COMP Projector

1. **Name of the Technology**: PRO COMP Projector
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Handy and Portable
   - Low Power Consumption
   - Functioning without External Monitor
   - Possible to make connection with any output devices like Monitor or Android TV
3. **Impact it will create**: This product is very light weighted and thus it is easy to carry and it consumes low power as compared to existing projector models. Thus, this proposed Product will enable power consumption and cost reduction as well. And also the brightness will not affect our eye vision.
4. **Current Status of the Patent:** Patent Published
5. **Student team details/Faculty Details:**
   1. Richard R
   2. Kamatam Krishna Kaanth
   3. Bharath A
   4. Chinnakotla Sreeharsha
6. **Patent Filing date** : 13.05.2022
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202241027560

Patent-661: Incorporation of raw banana peel powder in the preparation of Healthy Millet Bar

1. **Name of the Technology**: Incorporation of Raw Banana Peel Powder in the preparation of Healthy Miller Bar

2. **Highlights of the Technology (innovation/uniqueness etc.)**: Waste into wealth concept andvalue addition to the waste
3. **Impact it will create**: Helpful for osteoporosis affected women, anaemic adults
4. **Current Status of the Patent**: Patent Published
5. **Student team details/Faculty Details:**
   1. Mahalakshmi G
   2. Liberna B
   3. Kousiga A
   4. Sivasankari B
6. **Patent Filing date** : 12.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027401

Patent-662: The Conch

1. **Name of the Technology**: B.M.Chankmate/The CONCH
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - PVC frame for providing the cabinets to the various systems of the B. M. Chank mate withstands 4 bar pressure and free from corrosion during the operation
   - UV Sensors predicts and communicates the distance of 1m of the chank mate with respect to the obstacle facing under the sea to the mobile phone through a user friendly application.
   - High Definition Camera captures the clear images of 1084 x 1084 pixels of the conch and passes the images to the mobile phone through Wi-Fi technology that can be used in predicting the shape and size of the conch
3. **Impact it will create**: Upliftment of fishers community , reduce the human death, Economic development is improved in all over the world ,Reduce the fishers work.
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Kumaraguru. M
   2. Nivetha. B
6. **Patent Filing date** : 13.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027532

Patent-663: Water Melon Seed Instant Soup Mix

1. **Name of the Technology**: Water Melon Seed Instant Soup Mix
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Innovation is developing a soup product made from watermelon seeds which is rich in nutrients and health friendly .This is innovatively developed for utilizing water melon's waste (seeds) into a value added product
3. **Impact it will create:**
   - To create an impact by supplying good quality soup without flavorings over unhealthy soups with heavy flavorings
   - To create impact by reducing the usage of plastic covers by covering our product in cloth material
4. **Current Status of the Patent**: Patent Published
5. **Student team details/Faculty Details:**

   1. Denuja S
6. **Patent Filing date** : 11.05.2022
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202241027122

Patent-664: Smart Water Monitoring System

1. **Name of the Technology:** IOT Based Smart Water Monitoring System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: This Smart Water Monitoring System (SWMS) is connected to internet using WiFi ,so that it can be controlled by its user from anywhere in the world using mobile application or web application.
3. **Impact it will create**: This product(SWMS) will bring a dramatic change in this field by makingit easy to know the quality of the water they use and also it helps and motivates people to manage their water system efficiently. Smart Water Monitoring System(SWMS) not only helps them to make huge savings in their water bills by providing usage and economic statistics in real time and by providing better suggestions but also reminds every customer about their social responsibility to save water.
4. **Current Status of the Patent**: Patent Published
5. **Student team details/Faculty Details:**

   1. Ashik K V
   2. Praveen G V

3. Harindranath G
4. Athulya N

6. **Patent Filing date** : 13.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027536

Patent-665: Automated money Counting Machine Treasuries

1. **Name of the Technology**: Automated money Counting Machine Treasuries
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The objective of the project is to help everyone to save their time, by providing a faster and more efficient automated facility to count the money, and thereby helping the society.
   - It can also save time and can also provide a well documented detail of the transactions for future references.
3. **Impact it will create:**
   - This machine can really help in reducing the hardship of officials who had to otherwise count the coins manually.
   - It can also reduce the time needed to count the money and can also give a well documented record of money collected
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Amala K Roy
   2. Pavithra K
   3. Aravind Perumal P
   4. Sushil P S
6. **Patent Filing date** : 13.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027533

Patent-666: Development of A Natural Soft Drink Incorporated with Betel and Sarsaparilla Extracts

1. **Name of the Technology**: Development of A Natural Soft Drink Incorporated with Betel and Sarsaparilla Extracts
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The proposed technique utilizes widely available ingredients in a unique way that preserves its medicinal property to prepare a unique natural health beverage.

3. **Impact it will create**: The addition of betel and sarsaparilla will make the drink have medicinal properties such as anti-diabetic, anti-carcinogenic, anti-inflammatory, anti-microbial, anti- diuretic, and indigestion preventive.
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Indhu S.
   2. Deepika A.
   3. Jeevitha S.
6. **Patent Filing date** : 12.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241027411

Patent-667: Diabetic Foot Ulcer Detector

1. **Name of the Technology**: Diabetic Foot Ulcer Detector
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Early detection of foot ulcer
3. **Impact it will create**: Reducing causes and defects due to ulcer
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Wasim Khan S.
   2. Baranitharan S.
   3. Monisha V.
   4. Pavithran R.
6. **Patent Filing date** : 02.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031356

Patent-668: Gesture Controlled Bluetooth Speaker

1. **Name of the Technology**: Gesture Controlled Bluetooth Speaker
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - It allows user to change music just by swiping their hand over the Bluetooth speaker.
   - The user can operate the complete speaker operation without even touching his/her mobile phone or the speaker
   - Also this speaker allows the user to adjust volume just by raising and lowering their hand over the speaker.

3. **Impact it will create:**
   - Handy and Portable
   - Touchless Operation
4. **Current Status of the Patent**: Patent published
5. **Student team details/Faculty Details:**
   1. Ajisha R
   2. Kaviya V
   3. Sandhiya Devi R
   4. Karthika P
6. **Patent Filing date** **:** 02.05.2023
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202341031354

Patent-669: Soil Nutrient Recommender

1. **Name of the Technology**: Soil Nutrient Recommender
2. **Highlights of the Technology (innovation/uniqueness etc.)**: It is developed to identify the level of nutrients present in the soil and inform the farmer about the requirements. It also identifies the soil moisture and PH level of the soil. The main goal is to automate Agricultural practices at affordable cost.
3. **Impact it will create**: It will analyze the soil nutrients with high accuracy results so that the crop production will be more.
4. **Current Status of the Patent**: Patent Published
5. **Student team details/Faculty Details:**
   1. Muppala Pooja
   2. Daivala Deepika
   3. Hema Naga Srilakshmi
   4. Polamreddy Dharani
6. **Patent Filing date** : 02.05.2023
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202341031360

Patent-670: Paper bags from banana fibre to replace plastic

1. **Name of the Technology**: Bioplastic sheet from banana waste to replace single use plastic

2. **Highlights of the Technology (innovation/uniqueness etc.)**: These bags are stronger than plastic carry bags and withstand as much as or more than that a plastic bag can carry, also these bags are suitable for carrying leaking or damp items, also most attractively these bags are reusable for a long period (if get wet we can dry and use it again).
3. **Impact it will create**: This innovation makes paper bags stronger, reusable and cheaper and most importantly its free from harmful effect for mankind and nature
4. **Current Status of the Patent**: Patent Published
5. **Student team details/Faculty Details:**
   1. Rahul Joseph Saji
   2. Alby A K
   3. Aswant Raj
   4. Safwan M K
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031404

Patent-671: Instant Pothole Repair Mix

1. **Name of the Technology**: Instant Pothole Repair Mix using Non Newtonian Fluid
2. **Highlights of the Technology (innovation/uniqueness etc.)**: It mainly focuses on the aspect of repairing those potholes with a new approach of filling them with Non- Newtonian fluid rather than the other traditional methods in repairing those potholes as they require a lot of physical labour and the idea is economically well driven, requires less human effort.
3. **Impact it will create**: Long life with less cost for repairing potholes
4. **Current Status of the Patent**: Patent Published
5. **Student team details/Faculty Details:**
   1. Sharan Sai P
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202341031398

Patent-672: Smart Glaucoma Predictor

1. **Name of the Technology:** Smart Glaucoma Predictor
2. **Highlights of the Technology (innovation/uniqueness etc.)**: It will be more compact and portable. Existence instruments cannot be used without the support of any additional experts / technicians. It is a Portable Scanning Eye Predictor cum Reporter. It has inbuilt powerful computer hardware (Raspberry pi4).
3. **Impact it will create**: This product is planned to design for Lab Technician, Researchers, Ophthalmologist and home as well to check themselves.
4. **Current Status of the Patent**: Patent published
5. **Student team details/Faculty Details:**
   1. Mohamed Bayas A
   2. Parashakthi Kumar K
   3. Rajiv R
   4. Sasikala M
6. **Patent Filing date** **:** 03.05.2023
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202341031392

Patent-673: Bio-degradable food wrapping sheet by biofilms.

1. **Name of the Technology**: Utilization of Biowaste Prosopis Ulipora bark powder for alternate food wrapping material.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: It is developed to eradicate plastic wrappers and to initiate the use of bio-degradable wrappers that doesn't affect the food. The main goal is to destroy the pyrosis juliflora and to create a healthy food life and good environment.
3. **Impact it will create**: Utilization of silver nano particles is incorporated.
4. **Current Status of the Patent**: Patent published
5. **Student team details/Faculty Details:**
   1. Gokulakannan MPR
   2. Kamalakannan B
   3. Dinesh Kumar S
6. **Patent Filing date** **:** 02.05.2023
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202341031361

Patent-674: Herbal Handwash

1. **Name of the Technology:** Herbal Handwash
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The main aim of hand wash is to prevent the spread of infection. Washing hands with hand wash is better than using alcohol based sanitizer. At this pandemic situation, world is in need of better herbal hand wash, which is free from all harmful chemicals. The harmful chemicals lead to various skin ailments such as allergies, irritation, cancer etc. From younger to older, hand wash plays an important role, hence using a chemical free herbal hand wash is mandatory.
3. **Impact it will create**: Herbal hand wash includes the natural ingredients and free from all harmful chemicals which are used in the hand washes available in the market. It is very effective and free from all skin ailments
4. **Current Status of the Patent**: Patent published
5. **Student team details/Faculty Details:**
   1. Hrithika KV
   2. Sreerag S
   3. Meena Kalyani B
6. **Patent Filing date** **:** 03.05.2023
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202341031405

Patent-675: Development of Phytosome loaded herbal pain relief transdermal patch for Menstrual cramps

1. **Name of the Technology**: Development of Phytosome loaded herbal pain relief transdermal patch for Menstrual cramps
2. **Highlights of the Technology (innovation/uniqueness etc.)**: To develop a Phytosome loaded herbal pain relief transdermal patch by isolating the bio fraction from the bark of Saraca asoca which will be highly effective and easily used for mild to severe menstrual cramps. It is developed to provide a permanent pain relief for women during those difficult times of their menstrual cycles
3. **Impact it will create**: 100% effective, affordable and instant pain relief Phytosome loaded transdermal patch with ignorable side effects
4. **Current Status of the Patent**:
   Patent published

5. **Student team details/Faculty Details:**
   1. Maria Nison
   2. Swetha T P
   3. Fathimath Shameena K
   4. Asish S
6. **Patent Filing date** **:** 02.05.2023
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202341031357

Patent-676: Manual Vegetable Planter

1. **Name of the Technology**: Manual Vegetable Seeds Planter
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - It will plant the seed with definite depth and maintained the plant to plant and row to row spacing
   - No requirement of bullock, tractor power, and self-propelled.
   - It is used to plant the seed on bed of four row which gives good yield and have better canopy for the plant.
3. **Impact it will create**: Seed metering plate in manual planter
4. **Current Status of the Patent**: Patent published
5. **Student team details/Faculty Details:**
   1. Prasanth M
   2. Salison Daniel D
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031387

Patent-677: Design and Fabrication of Arduino based Solar Tracking System with Vertical Windmill

1. **Name of the Technology**: Design and Fabrication of Arduino based Solar Tracking System with Vertical Windmill
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Using fixed Photovoltaic panels extract maximum energy only during 12 noon to 2 PM in which results in less energy efficiency. Therefore, the need to improve the energy efficiency of PV solar panel through building a solar tracking system cannot be over-emphasized. We are using Vertical windmill to maximum

energy at the same time solar is producing energy so both can be combined to form good amount of energy from same area.

3. **Impact it will create**: Utilizing the renewable energy like solar, wind energy and convert it into electricity
4. **Current Status of the Patent**: Patent published
5. **Student team details/Faculty Details:**
   1. Shankar Shiju C
   2. Aravindh M
   3. Raj Kamal D
   4. Madhavan M
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031401

Patent-678: Smell & Odour Monitoring Device

1. **Name of the Technology**: Smell & Odour Monitoring Device
2. **Highlights of the Technology (innovation/uniqueness etc.)**: An electronic device is proposed that can balance the unpleasant odour of the bathroom it can sense the odor with the help of an electronic nose and mark the level of odor in the room. If the odor exceeds its limit, there is a communication system that alerts the respected authority which can be helpful for the cleaning purpose. We are also installing a QR code for the customer's feedback. The idea proposed here has a base frame on the health & hygiene of comfort room atmosphere, our idea is a health-based idea that ensures safety from Saxon and other health problems, it is an electronic device which balances the odor in the atmosphere so whenever such a foul smell is experienced in the atmosphere the system will control that particular area and then apply the recovery procedure.
3. **Impact it will create**: The whole system is made in such a way that, it is automated with the help of sensors and a communication system is also installed to alert the respected authority in case the odor goes beyond its limit.
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Greena Sunny
   2. Sreejith J

6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031402

Patent-679: Bluetooth to IR Remote Technology

1. **Name of the Technology**: Bluetooth to IR Remote Technology
2. **Highlights of the Technology (innovation/uniqueness etc.)**: BiR is a technology which is designed to overcome the limitation to control old set-top box. Older IR remote is replaced by adding an external bluetooth smart remote which is connected to the set top box using a converter (Bluetooth to IR) which is place just before the Set-top box's IR signal receiver. The device only replaces the remote control method it doesn't replace the Set-top box.
3. **Impact it will create**: Replacement of remotes
4. **Current Status of the Patent** :
   Patent published
5. **Student team details/Faculty Details:**
   1. Ajith Shaijan
   2. Anirudhan P M
   3. Majid Bin Sulaiman
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031400

Patent-680: Multi-Purpose Smart Solar Cloth Dryer

1. **Name of the Technology**: IOT based Multi-Purpose Smart Solar Cloth Dryer
2. **Highlights of the Technology (innovation/uniqueness etc.)**: It is very difficult to dry the clothes during the winter and rainy seasons. Improper drying during these seasons leads to an unpleasant smell rising and may give room for the fungal growth in the clothes. Also drying the clothes in the open atmosphere makes room for dirt during summer season. Keeping this in mind, a smart cloth dryer has been put forth by us which will overcome all the cloth drying problems throughout the year and all the seasons.
3. **Impact it will create**: Device provides the constant updates in the consumer's mobile phone about the cloth drying status
4. **Current Status of the Patent**:
   Patent Published

5. **Student team details/Faculty Details:**
   1. Sanjay C
   2. Kapil Krithik T.
   3. Pradeep Singh Rathora A.
6. **Patent Filing date** : 20.04.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202341028618

Patent-681: Vehicle Accident Alert System

1. **Name of the Technology**: Vehicle Accident Alert System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: This project is to develop an application based on IoT which is used to help the users for saving their life. This application will be adding on functions such as reconnection, SMS triggering and Geo Location to ease user to identify accident spot. Since nowadays most of the devices have GPS and GSM technology which is readily installed and fixed inside their IoT devices. This product focused mainly to the users who want to keep track on their belongings as they are moving around so that they would feel secure as this IoT would also be able to help users to search back their belongings as well.
3. **Impact it will create**: Quick identification of accident area
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Kesaav N A
   2. Ragul T
   3. Swathi P
   4. Alisha Shaik
6. **Patent Filing date** : 02.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031358

Patent-682: Green Synthesis of Nano Particles from Polyherbal formulation against Viral Infections to boost the immunity

1. **Name of the Technology**: Green Synthesis of Nano Particles from Polyherbal formulation against Viral Infections to boost the immunity
2. **Highlights of the Technology (innovation/uniqueness etc.):** Poly herbal formulations can enhance immunity and the Nanoparticles can be

synthesized using poly herbal formulations that can fight against several viral infections including Corona Virus. After the synthesis of the Herbal nanoparticles, the shape and characteristic studies of nanoparticles can be done to standardize the formulation for herbal remedies.

3. **Impact it will create**: Purely Herbal product
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Sreejithmohan Kumar Nair
   2. Karthikeyan P
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031403

Patent-683: Chitoson based biodegradable active films for food and drug packaging

1. **Name of the Technology**: Biodegradable chitosan reinforced starch based bioplastic film
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Chitosan is a naturally derived polymer, it is biodegradable and safe for human consumption. Food-focused researchers are exploiting the properties of chitosan to develop biodegradable food packaging systems.
3. **Impact it will create**: Preparation of active films with no toxic effect
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Joel S P
   2. Fazeela A
   3. Karthik M
   4. Karthika S P
6. **Patent Filing date** : 03.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031395

Patent-684: Upscaling Agricultural Wastes-Value Addition to Jackfruit Seeds

1. **Name of the Technology**: Biofabrication of edible cutleries from jack fruit seeds
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Generally, seeds of the fruits are wasted without utilizing for any constructive purpose

other than for the cattle feed. The jack fruit seeds are one among those seeds which can be consumed by the human being but in recent years they are underutilized and less acknowledged by people. Upscaling this edible agriculture waste to edible cutleries will provide an additional income to the farmers as well as reduce the landfilling by the plastic cutleries.

3. **Impact it will create**: Waste into Wealthy
4. **Current Status of the Patent** : Patent published
5. **Student team details**
   1. Afsiya S
   2. Hathiqa Hussain Ali H
   3. Devi Vijayan
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031397

Patent-685: Low E Glass

1. **Name of the Technology**: Controlled Temperature Glass
2. **Highlights of the Technology (innovation/uniqueness etc.)**:
   - A coating will be done over the glass surface.
   - It will reflect the long-wave infra-red radiations towards the interior of the building.
   - Because of reflection, it will make the room cooler.
3. **Impact it will create**: Low Emissivity Coating
4. **Current Status of the Patent**: Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Shamnas S
   2. Sharafudheen S
6. **Patent** Filing date: 03.05.2023
7. **Patent** Granted date: Nil
8. **Patent** Application Number: 202341031391

Patent-686: Plastic Dry Cell

1. **Name of the Technology**: Plastic Dry Cell
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Cells are manufactured using the waste plastics.

- Liquid plastic will act as electrolyte from plastic waste using pyrolysis method.
- Output of the dry cell is 1.6V

3. **Impact it will create**: Cost effective
4. **Current Status of the Patent** : Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Princya S
   2. Mohammed Ariffin B
   3. Santhosh S
   4. Mohammed Ashiq J
6. **Patent Filing date** : 03.05.2023
7. **Patent** Granted date :
8. Patent Application Number : 202341031394

Patent-687: Bija Treat Cookies for A Healthy Start

1. **Name of the Technology**: Development and Standardization of cookies using pumpkin, watermelon, flax seeds
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Making cookies (watermelon, pumpkin, flax seeds and banana flour)
   - Using Banana flour instead of maida is more healthy
3. **Impact it will create**: Cookies are rich in nutrients
4. **Current Status of the Patent**: Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Melvin K Roy
   2. Sinasira B
   3. Thanveer Shahin PK
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031388

Patent-688: Extraction of Polysaccharide Base Amphiphilic Biopolymer as a Novel Excipient For Pharmaceutical Tablet Coating

1. **Name of the Technology**: Novel biopolymer for tablet coating
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Isolates polysaccharide base biopolymer from the fruit peel rind of Passiflora edulis, also known as passion fruit

- It has balanced nutrition and health benefits.
- It will be coated around the tablet.

3. **Impact it will create**: Cost-effective, low toxic and better patient tolerance, bio-compatible
4. **Current Status of the Patent** : Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Radhika Sivaraj
   2. Aiswarya K N
6. **Patent Filing date** : 02.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031359

Patent-689: Wild Animal Repellent System Fields Using AI & IoT

1. **Name of the Technology**: Wild Animal Repellent System Fields Using AI & IoT
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Ultrasonic device to repel wild animals that are entering in the agricultural field.
   - It uses modern technology like AI and IoT to identify the animal species and to produce the particular ultrasonic frequency which disturbs them.
   - Solar panels and cells are used to produce the required power for working of the system
3. **Impact it will create**: Cost efficient, portable and flexible to use.
4. **Current Status of the Patent**:
   Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Abhishekh P S
   2. Adarsh K
   3. Adithyan P
   4. Arathi Menon
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031389

Patent-690: Dairy Based beverage, Dip Tea Bag and Date Seed Coffee Sachet

1. **Name of the Technology**: Dairy based beverages from date seed powder

2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Date seed in the form of waste has been roasted at suitable temperature and pulverized into powder form
   - Then finally added with ingredients such as palm candy, elachi and micronutrients along with chilled milk which can be served as a beverage.
3. **Impact it will create**: Combating fatal health issues such as diabetics, heart problems and low immunity conditions
4. **Current Status of the Patent**: Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Mohamed Rafique K
   2. Vishva R
   3. Mohammed Farsil A
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031390

Patent-691: Endophytic Biofertilizers

1. **Name of the Technology**: Endophytic Biofertilizers, Biocontrol products for agriculture use
2. **Highlights of the Technology (innovation/uniqueness etc.):** It helps agriculture and farmers with the living microbes to promote plant's growth, improve productivity through the strengthening the agriculture. It converts the bio-fertilizer formulation (liquid/ Solid/ powder form) and biocontrol products for the potential role of plant-growth promotion and better disease management.
3. **Impact it will create**: Non- pollution of the environment and stress tolerance.
4. **Current Status of the Patent**: Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Anaamika B
   2. Bhagyasree N
   3. Reeba R
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031399

Patent-692: Formulation of Therapeutic Candy for chronic diseases from Plectranthus Amboinics

1. **Name of the Technology**: Formulation of Therapeutic Candy for chronic diseases from Plectranthus Amboinics
2. **Highlights** of the Technology (innovation/uniqueness etc.): Plectranthus amboinicus is a semi succulent Lamiaceae perennial plant with a pungent oregano like taste and odour. The other names of Indian borage are Ajwain leave, Karpooravalli leaves, Pathachur, Muriyan pacha. Candy will detoxify the body, fight against cough and cold, alleviate Arthritis pain, reduces stress and improve digestion.
3. **Impact it will create**: Anti-inflammatory, treats fever and the most common symptoms of a cold or flu
4. **Current Status of the Patent** : Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Rakshana D
   2. Harirashini R
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031396

22) S. R. M. Institute of Science & Technology, Kattankulathur

Patent-693: Electric Motor

1. **Name of the Technology:** Electric Motor
2. **Highlights of the Technology (innovation/uniqueness etc.)**: An improved Cooling system for an Electric Motor
3. **Impact it will create**: This will help in bringing the weight of the Electric motors down which will improve the overall range of the vehicle. This will also increase the efficiency of the vehicle. Overall, because of this innovation we will be able lesser size of batteries. Overall, this will help in accelerating the overall Automotive transition to EVs.
4. **Current Status of the Patent** : FER response submitted
5. **Student team details/Faculty Mentor:**
   1. Shivam Bhatia
   2. Pradeep Kumar P
   3. Karthik Donthula
   4. Madhu BVN

5. Arnav Shrivastava
6. Chandrasekhar Konda
7. Siddharth Narang

6. **Patent Filing Date** : 09 August, 2019
7. **Patent Granted Date** :
8. **Patent Application Number** : 201941032463

Patent-694: Electric Motor

1. **Name of the Technology**: Electric Motor
2. **Highlights of the Technology (innovation/uniqueness etc.)**: An easily detachable shaft for an Electric Motor
3. **Impact it will create**: This system will improve the modularity and serviceability of electric motors in various applications, So the overall costing of the motors will reduce
4. **Current Status of the Patent** : FER response submitted
5. **Student team details/Faculty Mentor:**
   1. Shivam Bhatia
6. **Patent Filing Date** : 9 August, 2019
7. **Patent Granted Date** : 10/11/2023
8. **Patent Application Number** : 201941032467

Patent-695: Electric Motor

1. **Name of the Technology**: Electric Motor
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A multi piece Swing arm system
3. **Impact it will create**: This is an application-level patent and will improvise the serviceability of motors in Electric vehicles.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor**:
   1. Karthik Donthula
   2. Pradeep Kumar
6. **Patent Filing Date** : 9 August 2019
7. **Patent Granted Date** : 29.04.2022
8. **Patent Application Number** : 201941032469

Patent-696: Electric drive control Module

1. **Name of the Technology**: Electric drive control Module
2. **Highlights of the Technology (innovation/uniqueness etc.)**: System and method for enhancing controllability of regenerative braking and electromagnetic braking
3. **Impact it will create**: This patent mainly refines the controllability of braking in the vehicle and actually helps in bringing the dependence on the mechanical braking system down. Overall it enhances the vehicle safety of electric vehicles with braking system
4. **Current Status of the Patent** :
   FER response submitted
5. **Student team details/Faculty Mentor:**
   1. Karthik Donthula
   2. Chandrashekhar Konda
   3. Teja Shyam
6. **Patent Filing Date** : 26 September, 2019
7. **Patent Granted Date** :
8. **Patent Application Number** : 201941039046

Patent-697: Electric Vehicle Frame Profile

1. **Name of the Technology**: Electric Vehicle Frame Profile
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A single mid frame structure for a two-wheeler
3. **Impact it will create**: This patent improves the modularity of the electric vehicles and multiple variants of electric motors can be fitted inside one frame for a two-wheeler
4. **Current Status of the Patent**:
   FER response submitted
5. **Student team details/Faculty Mentor:**
   1. Shivam Bhatia
   2. Pradeep Kumar
   3. Anirudh Chundawat
6. **Patent Filing Date** : 10 December, 2019
7. **Patent Granted Date** :
8. **Patent Application Number** : 201941051125

Patent-698: Electric Vehicle Mounting System

1. **Name of the Technology**: Electric Vehicle Mounting System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A system for mounting stator to the outer casing of motor
3. **Impact it will create**: This patent improves the modularity of the electric vehicles and multiple variants of electric motors can be fitted inside one frame for a two-wheeler
4. **Current Status of the Patent** : FER response submitted
5. **Student team details/Faculty Mentor:**
   1. Arnav Shrivastava
6. **Patent Filing Date** : 30 January 2020
7. **Patent Granted Date** :
8. **Patent Application Number** : 202041004229

Patent-699: Electric Motor

1. **Name of the Technology**: Electric Motor
2. **Highlights of the Technology (innovation/uniqueness etc.)**: System for an improved design of rotor for an Electric motor
3. **Impact it will create**: This patent improves the modularity of the electric vehicles and multiple variants of electric motors can be fitted inside one frame for a two-wheeler
4. **Current Status of the Patent** : FER response submitted
5. **Student team details/Faculty Mentor:**
   1. Shivam Bhatia
   2. Arnav Shrivastava
   3. Siddharth Narang
6. **Patent Filing Date** : 06 March, 2020
7. **Patent Granted Date** :
8. **Patent Application Number** : 202041009796

Patent-700: Cooling System for Electric Motor

1. **Name of the Technology**: Cooling System for Electric Motor
2. **Highlights of the Technology (innovation/uniqueness etc.)**: System for an improved heat removal from Electric Machines

3. **Impact it will create**: This will also increase the efficiency of the vehicle. Overall, because of this innovation we will be able lesser size of batteries. Overall, this will help in accelerating the overall Automotive transition to EVs
4. **Current Status of the Patent**: FER response submitted
5. **Student team details/Faculty Mentor:**
   1. Shivam Bhatia
   2. Siddharth Narang
6. **Patent Filing Date** : 30 May, 2020
7. **Patent Granted Date** :
8. **Patent Application Number** : 202041022727

Patent-701: A Machine-Vision Enabled Tactical Scope

1. **Name of the Technology**: A Machine-Vision Enabled Tactical Scope
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Autonomous Targeting, Smart Scope
3. **Impact it will create**: Defence Systems, Enhanced Surveillance, Accurate Targeting Security
4. **Current Status of the Patent** : Patent Granted
5. **Student team details/Faculty Mentor:**
   1. Dr. S. Dhanalakshmi
   2. Dr. Kumar R.
   3. Amrit Das
   4. Rohan Giri
   5. Ayon Chatterjee
   6. Vanshika Singh
6. **Patent Filing Date** : 18th November, 2020
7. **Patent Granted Date** : 04/08/2023
8. **Patent Application Number** : 202041050236

Patent-702: A power transmission system for a hybrid vehicle

1. **Name of the Technology**: A power transmission system for a hybrid vehicle
2. **Highlights of the Technology (innovation/uniqueness etc.)**: It can provide both high Torque and high speed at the same
3. **Impact it will create**: It can be a replaceable option for Diesel and Load Auto rickshaw
4. **Current Status of the Patent** : FER issued

5. **Student team details/Faculty Mentor:**
   1. Mr. Arockia Vijay Joseph
   2. Mr. A.J.D. Nanthakumar
   3. Dhruv Khurana
   4. Karni Singh Chauhan
   5. Aditya Natarajan
   6. Pratik Pankaj
   7. M Deepak Kumar
6. **Patent Filing Date** : 18th September, 2021
7. **Patent Granted Date** :
8. **Patent Application Number** : 202141042338

Patent-703: A Non-invasive device for monitoring bilirubin level and a method thereof

1. **Name of the Technology**: A Non-invasive device for monitoring bilirubin level and a method thereof
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Measurement of bilirubin content in neonates at an early stage is important to prevent any serious illness such as jaundice. Jaundice meter that can determine bilirubin count is widely used as the diagnosis procedure and the treatment procedure includes phototherapy which uses blue light to break down the bilirubin by isomerization. Both the diagnosing and treatment procedure are manual method which requires external assessment
3. **Impact it will create**: In order to make both the procedures automatic, the non-invasive bilirubin sensor has been designed which is compact for continuous monitoring of bilirubin value
4. **Current Status of the Patent**: Patent Granted
5. **Student team details/Faculty Mentor:**
   1. Akshaya J.
   2. K. Ragadeepthi
   3. Vijitha Venugopal
   4. Dr. S. P. Angeline Kirubha
6. **Patent Filing Date** : 16th October, 2020
7. **Patent Granted Date** : 23/06/2023
8. **Patent Application Number** : 202041040316

Patent-704: A Hardware Based Multi-Factor Authenticator and a Method Thereof

1. **Name of the Technology:** A Hardware Based Multi-Factor Authenticator and a Method Thereof
2. **Highlights of the technology**: Implement the workflow in a commercial market, the design of the hardware module must be reframed into a smaller easy- to-use, and carry material with no compromises on the performance of functioning.
3. **Impact it will create:** Health Management System
4. **Current Status of the Patent** **:** FER Response to be submitted
5. **Student Team details/Faculty Mentor:**
   1. K.Sornalakshmi
   2. Shalin N
   3. Jerome Samraj M
   4. Ashwin Raja S
   5. Shamunesh P
   6. Viveka M
6. **Patent Filing Date** : 17/08/2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241046792

Patent-705: A Self-Sanitizing Respiratory Apparatus

1. **Name of the Technology**: A Self-Sanitizing Respiratory Apparatus
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Filtration and sterilization unit is further configured to perform wet-scrubbing based filtration and UV-C based sanitization on the received draft of the exhaled air to facilitate sanitized air to be exhaled into the atmosphere. The apparatus is reusable and is efficient in terms of disinfection of exhaled air
3. **Impact it will create**: It avoids infection from the exhaled air and improves air quality
4. **Current Status of the Patent**: FER Response Submitted
5. **Student team details/Faculty Mentor:**
   1. N. Deepa
   2. Prabhat Kumar
   3. Abhisekh Behera
   4. Sahil Sanil
6. **Patent Filing Date** : 14 December 2020

7. **Patent Granted Date** :
8. **Patent Application Number** : 202041054363 A

Patent-706: An Efficient Refreshable Braille Pad for Visually Impaired

1. **Name of the Technology**: An Efficient Refreshable Braille Pad for Visually Impaired
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Fabrication of a Single Cell with Eight Braille Dot Projections. Validating the simulation results against the original cell, Data for study of characteristic features of the coil (current, diameter, torque, electromagnetic force). From all the experimental test results, we have finalized the usage of 38 gauge enameled copper wire for the solenoid actuators with 600 turns for the fabrication of the refreshable braille cells. Tradeoffs: Size, Current Draw
3. **Impact it will create**: Supports visually impaired with efficient reading capabilities
4. **Current Status of the Patent** : FER Response Submitted
5. **Student team details/Faculty Mentor:**
   1. Ajay Hudge
   2. Vamsi Krishna Varigonda
   3. Vignesh G.
   4. Shantanu Mukhopadhyay
6. **Patent Filing Date** : 09/07/2021
7. **Patent Granted Date** :
8. **Patent Application Number** : 202141030920 A

Patent-707: Concrete Casting Mould

1. **Name of the Technology**: Concrete Casting Mould
2. **Highlights of the Technology (innovation/uniqueness etc.)**: In the field of Civil Engineering, for both commercial and educational research purposes mould are used in the transition of wet concrete into a dry state and desired shape. In education and research institutes, as well as in the field of the construction industry they are used to test the concrete cube specimens of sizes 100mm, 150mm and mortar cube specimens of size 70mm for their compressive strength at 3 days, 7 days, 14 days and 28 days. This invention is an alternate solution for an existing cast-iron mould. The mechanism of the existing mould has been changed to make it highly efficient and user-friendly.

Our improved product is made of Nylocast material and High-Density Polymer (HDP), lighter in weight; has a toggle lock mechanism with mechanical hinges and was designed as per IS code 4031:1998 and IS code 516: 2018

3. **Impact it will create**: It will replace exciting product in the Market
4. **Current Status of the Patent** : FER Response Submitted
5. **Student team details/Faculty Mentor:**
   1. S. Pradeep
   2. Anuwar Husain S.
   3. Deepak Pugazhlendi
   4. Nagarjun Jeyachandran
   5. Nirmal Kannan V. A.
6. **Patent Filing Date** : 18/07/2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241041059

Patent-708: A System and A Method for Rehabilitation of subjects having Motor Impairments

1. **Name of the Technology:** A System and A Method for Rehabilitation of subjects having Motor Impairments
2. **Highlights of the technology (innovation/uniqueness etc.)**: IMU and EMG recording done while the movements are executed will be used to provide feedback in the first phase. This would be used for the home based application. In the second phase, for the hospital /clinic based application, EEG recordings of the sensori-motor waves will be used to provide feedback to modulate the movements of the VR avatar in the similar manner that IMU and EMG were used earlier.
3. **Impact it will create:** We are in the process of developing a prototype incorporating Virtual Reality modulated by IMU, EMG and EEG feedback for rehabilitation of motor impairment in stroke survivors. We will create a VR scenario where the patient sees himself playing cricket/ herself dancing. Any small movement made by the patient will be reflected as a full range movement by the virtual reality avatar- the cricket player swings the bat to hit a six- the dancer executes a graceful movement of the hand. As treatment progresses, the patient will have to make progressively larger movements to elicit the same response from the VR avatar.

4. **Current Status of the Patent:**
   FER Response to be submitted
5. **Student team details/Faculty Mentor:**
   1. Dr. Bhasi Sukumaran
   2. Mr. Anket Sahoo
6. **Patent Filing Date** : 23/08/2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241048029

Patent-709: A Solar based swarm drone charging system and method thereof

1. **Name of the Technology:** A Solar based swarm drone charging system and method thereof
2. **Highlights of the technology (innovation/uniqueness etc.):** "Tessellate" is an intelligent swarm drone system with solar based charging station for Search and Rescue Operations. It forms an intermediate hop in the ad-hoc mesh network with the drones being access points in the network providing connectivity immediately (LAN or internet) and covering a large area in a matter of minutes. The Tessellate drones have a high accuracy AI model fitted on the drones itself to detect people. The swarm drone system will rearrange depending on the pre-trained edge AI model that will classify the cluster of individuals beneath it. To ensure its long -term sustainability, the entire system is powered by solar energy. The drones are constructed in such a way that drone pilots are not necessary, and the drones can automatically navigate over a specified area, detect humans, land, and charge via a charging station.
3. **Impact it will create:** A solar-based swarm drone charging system introduces sustainable autonomy, enabling drones to self-charge using solar power. This innovation promises increased flight durations, reduced downtime, and enhanced operational range for drone swarms. By leveraging renewable energy, it fosters eco-friendly operations, scalability, and cost-effectiveness in various industries, including agriculture, surveillance, and logistics. This system's self-sufficiency and minimal environmental impact pave the way for expanded applications and efficiency in autonomous drone operations.
4. **Current Status of the Patent :**
   Awaiting publication

5. **Student team details/Faculty Mentor:**
   1. Shreyashri Biswas
   2. Rajeev Muttangi
   3. Harshil Patel
   4. Dr. Shanthi Prince
6. **Patent Filing Date** : 16/11/2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341077858

Patent-710: Smartisation of Anti Infiltration Obstacle System (AIOS)

1. **Name of the Technology:** Smartisation of Anti Infiltration Obstacle System (AIOS)
2. **Highlights of the technology (innovation/uniqueness etc.):** To design an automated border security and surveillance system to monitor infiltrates across the borders without requiring any human assistance. We propose the smart AIOS utilizing Artificial intelligence in sensor integration. This work utilized thermal camera to detect the activity of infiltration.
3. **Impact it will create:** Smartizing an Anti-Infiltration Obstacle System incorporates advanced technologies like AI, IoT, and sensors for proactive threat detection and response. This upgrade enhances border security, offering real-time monitoring, rapid threat identification, and automated responses to infiltration attempts. By integrating smart elements, it reduces false alarms, improves efficiency in deployment, and enables quicker, targeted responses, safeguarding borders more effectively. This innovation provides a robust defense mechanism, enhancing national security while optimizing resource utilization and minimizing human error.
4. **Current Status of the Patent** **:** Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. Dr. Annapoorani Paniyappan.K
   2. Rajat Pathak
6. **Patent Application Date** : 16.11.2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341077804

Patent-711: Design and Implementation of Hybrid Transceiver Imaging System on FPGA Hardware

1. **Name of the Technology:** Design and Implementation of Hybrid Transceiver Imaging System on FPGA Hardware
2. **Highlights of the technology (innovation/uniqueness etc.):** Implementation of a digital image processor and compressor on a Field Programmable Gate Array (FPGA) for the purpose of serving as a digital camera capable of data transfer over Very High Frequency (VHF) radio band. In this work, we focused on an over-all product development of both the hardware and software aspects of the device.
3. **Impact it will create:** Implementing a Hybrid Transceiver Imaging System on FPGA hardware revolutionizes imaging with real-time processing, reduced latency, and enhanced accuracy by combining radar, LiDAR, and optical technologies. This adaptable, power-efficient system fosters innovation, enabling cost-effective, high-performance solutions in autonomous vehicles, medical imaging, surveillance, and beyond.
4. **Current Status of the Patent** : Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. Dr. Vani R.
   2. Benjamin George Samuel
   3. Deepak Shankar R.
   4. Krishna Teja B.
   5. Vignesh S.
   6. Kanvar Kailash T.
   7. Chandresh
6. **Patent Filing Date** : 27.11.2023
7. **Patent Granted Date** **:**
8. **Patent Application Number** **:** 202341080353

Patent-712: CCD based sensor to detect the change in biologically altered Fluorescence

1. **Name of the Technology:** CCD based sensor to detect the change in biologically altered Fluorescence
2. **Highlights of the technology (innovation/uniqueness etc.):** CCD based reader in this case is used for most accurate and sensitive data collection through identifying minute changes in the fluorescence emitted by bio-

reactions by tuning and optimizing the CCD's gain, offset and exposure time. As per our research on existing literatures, even though fluorescence imaging system has been used for sensitive detection of bio molecules [1]. There are certain other methods [2] where the sensitivity and materials for analysis is limited, this aims to be the most accurate because, the sensitivity and specificity of fluorescence measurement through this method leads to potentially more precise and accurate readings along with it being cost effective than other fluorescence imaging systems

3. **Impact it will create:** Introducing a CCD-based sensor for detecting changes in biologically altered fluorescence enables precise, real-time analysis of biological substances. This innovation revolutionizes biomedical research, diagnostics, and pharmaceutical development by offering high sensitivity and accuracy in detecting subtle fluorescence variations. It facilitates early disease detection, drug efficacy testing, and environmental monitoring with unparalleled precision, potentially advancing personalized medicine and accelerating scientific discoveries. This sensor's sensitivity and specificity create new avenues for non-invasive, rapid, and reliable detection methods, impacting healthcare, research, and various industries reliant on fluorescence-based analysis.
4. **Current Status of the Patent** **:** IDF454
5. **Student team details/Faculty Mentor:**
   1. Dr. P A Sridhar
6. **Patent Filing Date** :
7. **Patent Granted Date** :
8. **Patent Application Number** :

Patent-713: Construct the Bio Feedback Device for Balance Training in Normal Individual's Using Bosu Ball

1. **Name of the Technology:** Construct the Bio Feedback Device for Balance Training in Normal Individual's Using Bosu Ball
2. **Highlights of the technology**: You can also throw a medicine ball against a wall or do some basic strength training while standing on the rounded surface of the Bosu ball. Standing on the flat surface of the Bosu ball can offer a different challenge to you balance.
3. **Impact it will create:** Exercising with a BOSU ball can improve balance, stability, coordination, strength, flexibility, cardiovascular fitness and offer a

low-impact workout which are also the benefits of BOSU Ball training. The instability of the BOSU ball challenges the muscles to work harder, resulting in a more efficient workout. It's a fun and effective way to enhance overall fitness.

4. **Current Status of the Patent** **:** FER Response to be submitted
5. **Student Team details/Faculty Mentor :**
   1. Aravind S.
   2. Raja Rishi
   3. Divyanshu Chourasiya
   4. Mr. Suresh J.
6. **Patent Filing Date** : 09/07/2021
7. **Patent Granted Date** :
8. **Patent Application Number** : 202141030920 A

Patent-714: An IOT Based Health Management System and a Method thereof

1. **Name of the Technology:** An IOT Based Health Management System and a Method thereof
2. **Highlights of the technology** –

   The following are the sensors that are measured using the “Rhythm Monitor”.

   A. Ambient Light Sensor:
   - The Luminosity Sensor Breakout is used to measure the intensity of the light in terms of lux.
   - To give a better perspective of the human eye, the sensor coalesces both visible and infrared light.

   B. Contactless IR Wrist Temperature Sensor
   - The Non-Contact Human Body Infrared Temperature Measurement Module is used to measurethe wrist temperature of the user.

   C. AI-powered IoT Board
   - Self-learning AI smart sensors with an integrated accelerometer (3-axis) and gyroscope (3-axis) are used for detecting the activity of the user.

   D. Environmental Temperature Sensor
   - To measure the environment temperature, we use the temperature sensor that can measure the temperature of minimum -40°C to maximum+85°C.

E. Heart Rate Sensor

- To measure the BPM of the user to find the sleep status of the user

3. **Impact it will create:**
4. **Current Status of the Patent:** Patent Granted
5. **Student Team details/Faculty Mentor :**
   1. K. Sornalakshmi
   2. Shalin N.
   3. Viveka M.
6. **Patent Filing Date** : 15/12/2020
7. **Patent Granted Date** : 08/09/2023
8. **Patent Application Number** : 202041054578

Patent-715: A Cuttlefish-Inspired Autonomous Underwater Vehicle (AUV) for Underwater Movement

1. **Name of the Technology:** A Cuttlefish-Inspired Autonomous Underwater Vehicle (AUV) for Underwater Movement
2. **Highlights of the technology (innovation/uniqueness etc**.): Aquabots is developing AUVs based on aquatic animal design and capability to improve performance in a varied environment of the ocean. On comparison of aquatic animal's swimming performance to the conventional AUVs and ROVs demonstrate that natural systems still have maneuvering capability beyond the current state of technology. Hence the main aim of this project is to study and analyze the behavior and movement of different aquatic animals.
3. **Impact it will create:** Developing a Cuttlefish-inspired Autonomous Underwater Vehicle (AUV) revolutionizes underwater mobility. This innovation mimics the adaptive locomotion and stealth of cuttlefish, offering unparalleled maneuverability and efficiency in underwater exploration and surveillance. The AUV's bio-inspired design enables agile movement, precise navigation, and silent operation, ideal for marine research, seabed mapping, and underwater inspections. Its streamlined form and adaptive propulsion mechanisms enhance energy efficiency, extending operational range and endurance. This advancement in AUV technology promises breakthroughs in ocean exploration, marine conservation, and underwater resource management, opening new frontiers for underwater robotics and marine science.
4. **Current Status of the Patent:** Patent Filled

5. **Student team details/Faculty Mentor:**
   1. Dr. J. Preetha Roselyn
   2. Dr. R. Annie Uthra
   3. Aryan Anand
   4. Shinjinee Maiti
   5. Sanka Karthik
   6. Thejaswin S.
6. **Patent Filing Date** : 06/10/2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341067207

Patent-716: A system and a method for monitoring the location of a vessel in the sea

1. **Name of the Technology:** A system and a method for monitoring the location of a vessel in the sea
2. **Highlights of the technology (innovation/uniqueness etc.)**: The present disclosure relates, in general, to the field of of location monitoring systems, typically for oceanic vessels. More specifically, embodiments of the present invention relate to a system for monitoring the location of a vessel in the sea. The system broadly comprises a first controller configured to be positioned on the vessel, a remote server communicatively coupled to the first controller, and a processor in communication with the second controller. The main object of the present disclosure is to provide a system for accurately monitoring the location of a vessel in the sea to save the innocent fishermen from crossing the border unknowingly especially during night times and cyclone times.
3. **Impact it will create**: Introducing a system and method for monitoring vessel locations at sea transforms maritime operations and safety. This innovation employs GPS, satellite communication, and advanced tracking technology for real-time vessel tracking and monitoring. It enhances maritime security, mitigates risks of collisions, aids in search and rescue operations, and combats illegal activities like smuggling or piracy. The system ensures efficient fleet management, optimizing routes, and enabling timely intervention in emergencies. This innovation profoundly impacts maritime logistics, fisheries management, environmental conservation, and global

trade by ensuring vessel safety, compliance with regulations, and facilitating smoother, secure navigation across oceans.

4. **Current Status of the Patent:** Patent Filled
5. **Student team details/Faculty Mentor:**
   1. Mr. G. Vibhu Kumaran
   2. Mr. Suraj ARS
   3. Dr. R. Rajkamal
6. **Patent Filing Date** : 25/04/2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341029766

Patent-717: A system and a method for electricity conservation in indoor environment

1. **Name of the Technology**: A system and a method for electricity conservation in indoor environment
2. **Highlights of the technology (innovation/uniqueness etc.)**: Energy conservation is the effort made to reduce the consumption of energy In recent years, the researchers have emphasised on efficient electrical energy consumption and energy preservation techniques. In spite of many new techniques being invented for the consumption of the resource, the demand still persists. Hence, this challenge serves as a motivation to develop a smart application which saves electricity without manual intervention.
3. **Impact it will create:** It improves productivity
4. **Current Status of the Patent**: Application in amended examination
5. **Student team details/Faculty Mentor:**
   1. Ms. S. Ushasukhanya
   2. Dr. C. Malathy
   3. Dr. T. Y. J. Naga malleswari
   4. Ms. P. Mahalakshmi
   5. Debaditya Sen
   6. Ritesh Bucha
   7. Harsh Sharma
   8. Harshit Agarwal
6. **Patent Filing Date** **:** 23/08/2022
7. **Patent Granted Date** **:**
8. **Patent Application Number** **:** 202241048028

Patent-718: A hybrid panel structure and a method for its formation

1. **Name of the Technology**: A hybrid panel structure and a method for its formation
2. **Highlights of the technology (innovation/uniqueness etc.):** Bullet proof panels with lesser weight and lesser thickness. Incorporation of the Kevlar fiber provide high strength, ductility and flexural stiffness. Replacement of the cement by metakaolin and silica fume gives reduced density and portable properties will be obtained. Addition of the GONS dispersion as enhancer will provide energy absorbing property and flexibility to the cement mortar. These sandwiched material makes the bullet proof wall panel with high protection in war units
3. **Impact it will create**: Developing a hybrid panel structure and its formation method introduces a versatile, high-strength material with multifaceted applications. This innovation combines different materials or structures, optimizing strength, weight, and flexibility for use in aerospace, automotive, construction, and renewable energy sectors. The hybrid panels offer enhanced durability, adaptability, and cost-effectiveness, providing solutions for lightweight yet sturdy components in vehicle manufacturing, durable infrastructure, and efficient renewable energy systems. This advancement in material science revolutionizes industries by offering customizable, durable, and efficient structures, paving the way for innovation across various sectors, from transportation to green technology
4. **Current Status of the Patent** : Still Awaiting
5. **Student team details/Faculty Mentor:**
   1. K. V. Kannan
   2. L. Vaishnavi
   3. Sakthi Avinash
   4. Dantuluri sathya Aashrith Varma
   5. Kaushik S. Gummadi
6. **Patent Filing Date** **:** 05/10/2023
7. **Patent Granted Date** **:**
8. **Patent Application Number** **:** 202341066828

Patent-719: A Smart Suit for workers in a Risky Environment

1. **Name of the Technology:** A Smart Suit for workers in a Risky Environment

2. **Highlights of the technology** – Protective clothing, Industrial workwear, Low-level risk protective clothing, Heat stress, Thermal comfort, Functional design
3. **Impact it will create:**
4. **Current Status of the Patent:** Awaiting Complete Specification
5. **Student Team details/Faculty Mentor :**
   1. Umamaheswari
   2. Rishi Kesavan B
   3. Siddharth Banerjee
   4. Ruchi Sinha
   5. Sakshi Singh
   6. Arpit Nigam
   7. Vaishnavi Jha
6. **Patent Filing date** : 25.04.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341029767

Patent-720: A device for controlling the behaviour of a user monitoring an object

1. **Name of the Technology**: A device for controlling the behaviour of a user monitoring an object
2. **Highlights of the technology (innovation/uniqueness etc.)**: The present disclosure envisages a device for controlling the behaviour of a user monitoring an object. The device is coupled to a spectacle worn by a user, a device comprises a memory that stores a set of threshold values of input parameters, a set of comparator rules, a set of rules, and predefined instructions, a sensing module captures at least one input parameter by means of a plurality of sensors; a microcontroller receives the input parameters from the sensing module , a microcontroller comprises a comparator module that receives the input parameters and compares with the set of threshold values of input parameters by means of the set of comparator rules and generates at least one alert and an operational module receives the alert and generates at least one alert signal to control the behaviour of the user.
3. **Impact it will create:** Introducing a device to control user behavior while monitoring an object holds diverse impacts. It offers safety in sensitive environments and aids productivity in workplaces but raises ethical concerns

about privacy and autonomy. Striking a balance between safety and individual rights is crucial. In healthcare or education, it could enhance well-being but requires transparent, consent-driven usage. Implementing such technology necessitates careful consideration of ethical, legal, and social implications, shaping its impact on various sectors and society's perception of privacy and control.

4. **Current Status of the Patent** : Awaiting examination
5. **Student team details/Faculty Mentor:**
   1. Ms. S. Ushasukhanya
   2. Dr. C. Malathy
   3. Dr. T. Y. J. Naga malleswari
   4. Ms. P. Mahalakshmi
   5. Debaditya Sen
   6. Ritesh Bucha
   7. Harsh Sharma
   8. Harshit Agarwal
6. **Patent Filing Date** : 14.04.2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241022369

Patent-721: An apparatus for projectable hess chart

1. **Name of the Technology**: An apparatus for projectable hess chart
2. **Highlights of the technology (innovation/uniqueness etc.)**: The present disclosure envisages an apparatus for projectable Hess chart. The apparatus comprises an enclosure, a projecting panel and a light source. The enclosure has an operative open front side. The projecting panel is configured to cover the open front side of the enclosure. The projecting panel includes a sheet with a Hess chart printed on it. The light source is enclosed within the enclosure .The light source is configured to emit light towards the Hess chart to perform shadowing and rectilinear propagation of light to project an image of the Hess chart on a surface, so as to quantify an angle of patient's eyes deviation with the concept of fovea- to-fovea projection.
3. **Impact it will create**: Developing an apparatus for a projectable Hess chart revolutionizes ophthalmic diagnosis and vision therapy. This innovation enables optometrists to project and analyze eye movement and coordination, aiding in diagnosing and treating visual disorders like strabismus and

amblyopia. It enhances accuracy in assessments, allowing for more effective vision therapy programs tailored to individual needs. By improving diagnostic precision and therapeutic outcomes, this apparatus transforms vision care, potentially reducing long-term vision problems in children and adults. Its impact spans healthcare, education, and research, fostering advancements in visual health and treatment strategies.

4. **Current Status of the Patent** : Patent Filied
5. **Student team details/Faculty Mentor:**
   1. Ms. Indirakumari P.
   2. Ms. Pragathi B.
   3. Mr. Kamalesh K.
   4. Ms. Divya S.
   5. Dr. Aiswaryah Radhakrishnan
6. **Patent Filing Date** : 03-11-2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341075186

Patent-722: Tele-rehabilitation module for auditory training in tamil language

1. **Name of the Technology:** Tele-rehabilitation module for auditory training in tamil language
2. **Highlights of the technology (innovation/uniqueness etc.)**: The present disclosure relates to the tele-rehabilitation for children with hearing impairment. Specifically, it introduces a novel software-based module designed for auditory training in the Tamil language, accessible to parents and caregivers globally.
3. **Impact it will create**: Introducing a tele-rehabilitation module for auditory training in Tamil language expands accessibility to specialized rehabilitation services. This innovation facilitates remote auditory therapy sessions, benefiting individuals with hearing impairments, especially in regions with limited resources. By offering therapy in Tamil, it caters to a broader demographic, fostering inclusivity and improving treatment outcomes. This module enhances language development and communication skills, empowering individuals to participate more fully in education and society. Its impact extends beyond healthcare, promoting linguistic diversity, and advocating for equal access to rehabilitation services, positively influencing the lives of individuals with hearing difficulties.

4. **Current Status of the Patent** : Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. P. Akshya
   2. Sandesh Jain
   3. Naman Sharma
   4. Praveena J.
   5. R. Rajkumar
   6. P. A. Sridhar
6. **Patent Filing Date** : 22.11.2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341079363

Patent-723: A Device for User's Safety

1. **Name of the Technology:** A Device for User's Safety
2. **Highlights of the technology (innovation/uniqueness etc.)**: The present disclosure generally relates to a device for user related to user's safety and security. The wearable device comprises: wearing device, power supply or batteries, ai chip, dynamo, piezo-electric sensor, crystal lattice,outlet,live landmark detection, processing mode, microcontroller, repository.
3. **Impact it will create**: Safety will increase
4. **Current Status of the Patent**: Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. Kanav Malhotra
   2. Aditya Paul
   3. Shreyansh Kumar
   4. Ronit Roy
6. **Patent Filing Date** : 25.11.2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341080182

Patent-724: Coastrack: Automated Accounting of Fishermen and Fishing Boats

1. **Name of the Technology:** Coastrack: Automated Accounting of Fishermen and Fishing Boats
2. **Highlights of the technology (innovation/uniqueness etc.)**: The proposed work examines the issue of real-time automated accounting of fishermen and fishing vessels at sea in ports. In order to do facial recognition at the harbour

and coast, we would build a unique database of thermal photos. To validate the information from the thermal cameras positioned at the harbours the CNN models is used. Additionally, object detection will be used to monitor the fishing vessels that enter and exit the sea ports. In addition, SOS systems will significantly protect fishermen.

3. **Impact it will create** : Benefit in coast
4. **Current Status of the Patent** : Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. Atulya Deep
   2. Gautam J.
   3. Brijesh Kumar
   4. Neelak Dasgupta
   5. Sounak Singh
6. **Patent Filing Date** : 28.11.2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341080504

Patent-725: Smart helmet

1. **Name of the Technology:** Smart helmet
2. **Highlights of the technology (innovation/uniqueness etc.)**: Our Goal is to Improve how welding is currently carried out by using the help of Artificial Intelligence and incorporating Augmented and Virtual Reality for allowing welders to perform better at their art whilst being more productive and faster in doing so.
3. **Impact it will create**: Protect Head, Injuries, Life etc.
4. **Current Status of the Patent** : Patent Filled
5. **Student team details/Faculty Mentor:**
   1. Harikrishnan M.
   2. Gadiraju Chinmay Varma
   3. Pranav Malakar
   4. Yakub Mathew
   5. Prithiv Raj Kannan
6. **Patent Filing Date** :
7. **Patent Granted Date** :
8. **Patent Application Number** : IDF492

Patent-726: An Autonomous Mobile Robot and method for performing multifunctional Tasks using the Autonomous Mobile Robot

1. **Name of the Technology**: An Autonomous Mobile Robot and method for performing multifunctional Tasks using the Autonomous Mobile Robot
2. **Highlights of the technology (innovation/uniqueness etc.)**: A Robot capable of traversing in the Z-Axis thus altering its height in the process while simultaneously autonomously navigating to any specified location in an indoor closed room.

   Also the gripper of the Robot is tasked to handle multiple use cases including but not limited to plugging in/out Ethernet Cables, Switching ON/OFF Switches, Opening Doors, Etc. The Universal Gripper Design is also another unique side to the Project.

   The Robot has a camera mounted on its arm that helps it locate the exact purpose that we are aiming to get done. For eg: The camera can find the position and orientation of Ethernet Cable Ports so the arm of the robot can plug in/out at the exact location. Similiarly it can detect switches, doors etc.
3. **Impact it will create**: The Product is supposed to reduce man-hours and limiting human interaction in careful, intensive and repeated processess. The Robot requires minimal human supervision to handle any task. The Robot saves money as the amount required for timely maintanence of the Robot is very low as compared to the amount required to employ people for the same tasks.
4. **Current Status of the Patent**: The Patents office (SRM) is still yet to publish. Document Editing
5. **Student team details/Faculty Mentor:**

   1. Yazid Marzuk K. P.
   2. Eshaan Bhardwaj
   3. Atharva Patil
6. **Patent Filing Date** :
7. **Patent Granted Date** :
8. **Patent Application Number** : IDF335

Patent-727: Tabletop Cell Culture Unit

1. **Name of the Technology:** Tabletop Cell Culture Unit
2. **Highlights of the technology**: Cell culture is the procedure being used conventionally to solve various translational research questions. The

conventional cell culture methodology requires a highly sterile lab facility with all the principal equipment for culturing including a Fume hood, Incubator, Autoclave, refrigerator, microcentrifuge, microscope, etc. These technologies have the drawbacks of large space occupancy increasing risks of contamination, frequent sterilization - a time-consuming factor, and high production, and maintenance costs. Our idea combines the two major instruments Biosafety cabinets (BCL-2 hood) into a single Table-top Cell Culture Unit (TCC Unit) measuring 90*60*60 cm. TCC Unit comes with the idea of easy to use, simple model for culturing cells. It uses various theoretical principles to maintain the pH, temperature, humidity, and CO2 Concentration. All these parameters vary with the external environment present outside the system. Electrically, all the said parameters are maintained through the integration of sensors using a microprocessor unit. This product differs from the existing CO2 incubators in terms of UVC sterilization and the strategy used to maintain the required temperature, humidity, and CO2 levels. Also, a simple design is being utilized to provide an easy-to-sterilize workspace for performing various cell culture operations like media preparation, cell slicing, etc. TCC unit is equipped with all the necessary components to maintain optimal cell growth and proliferation and can be customized to meet specific research needs. We find the integration of a customized CO2 incubator in an air-tight glove box (cell culture workspace) as our main focus area.

3. **Impact it will create:** Trends in healthcare for diagnosis, drug discovery, testing, and treatment are moving towards precise and personalized medicine. The recent challenge of testing COVID-19 samples required a closed system, otherwise, it affects technicians. Because it is a high-risk job wearing a PPE kit for a minimum of 12 hours with a break of every 3 hours. Improper personal cleaning might affect family members and other close relations. In this case, a negative pressure-based room is equipped for testing COVID-19 cases. In addition to this, point-of-care diagnosis kits, organoids, Tissue engineering, and cancer research rely on cell culture systems having a sterile environment. But conventional cell culture requires a sterile lab facility with all the principal equipment like a fume hood, incubator, autoclave, microcentrifuge, microscope, etc. The main drawbacks are large space occupancy increasing risks of contamination, frequent sterilization - a

time-consuming factor, and high production, and maintenance costs. We find TCC as a cost-effective solution to address the issue of limited incubators and facilities and culturing workspace.

4. **Current Status of the Patent:** IDF421 (recently applied to patent office, awaiting official contribution)
5. **Student Team details/Faculty Mentor :**
   1. Siva Prasath R
   2. Narendiran T
   3. NivasKumar S
   4. Sadriwala Mohammed
6. **Patent Filing date** :
7. **Patent Granted date** :
8. **Patent Application Number** :

Patent-728: A Concrete Composition and A Process for its Preparation

1. **Name of the Technology:** A Concrete Composition and A Process for its Preparation
2. **Highlights of the technology (innovation/uniqueness etc.)**: The presence of Torched Fly Ash collected from the Municipal Solid Waste dump and carbon powder from coconut husk which also credits to the reusing of the waste materials in the mix design of the tile helps acquiring the Thermal Comfort.The dimensional design of the tile allows the embedding of the Photovoltaic Panel which captures the sunlight for further conversion into Electrical energy. The energy is collected and stored in specific Energy Storage System and furthersupplied to required appliances.
3. **Impact it will create**: The research focus to make use of the solar energy. Utilization of the by products of Municipal Solid Waste. Composing a sustainable mix design (torched fly ash & carbon powder) for preparation of tile.
4. **Current Status of the Patent**: Amended Examination
5. **Student team details/Faculty Mentor:**
   1. Mukilan. P.
   2. Phumen Teron
6. **Patent Filing Date** : 18/08/2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241047120

Patent-729: A system for authentication and billing of wireless electric vehicle chargers and method thereof

1. **Name of the Technology**: A system for authentication and billing of wireless electric vehicle chargers and method thereof
2. **Highlights of the technology (innovation/uniqueness etc.)**: The present disclosure pertains to the authentication and billing of dynamic and static wireless power transfer systems employed for Electric Vehicles. Specifically, it addresses the authentication and billing procedures during both static and dynamic charging conditions in a wireless power transfer system. The authentication of an Electric Vehicle is pivotal in identifying the rightful user for charging purposes. Therefore, it is crucial to employ authentication algorithms that are not only accurate but also efficient and fair to establish effective billing schemes for Electric Vehicle charging. Fair billing not only enhances the coordination of Electric Vehicle owners but also encourages their further contribution.
3. **Impact it will create:** Electric Vehicle is pivotal
4. **Current Status of the Patent**: Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. Dr. R. Narayanamoorthi
   2. Dr. R. Raj Kumar
   3. Dr. Bala Subramaninan
   4. Mukilan
   5. Athota Vamsi
   6. Devesh Karwasra
   7. Sampath Pasangulapati
6. **Patent Filing Date** : 20.11.2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341078576

Patent-730: Interoperable dynamic wireless charging system with adaptability to static wireless charging and method thereof

1. **Name of the Technology:** Interoperable dynamic wireless charging system with adaptability to static wireless charging and method thereof
2. **Highlights of the technology (innovation/uniqueness etc.)**: The present disclosure relates to the Dynamic wireless power transfer system used for Electric Vehicles. The present disclosure particularly relates to a dynamic

wireless power transfer system using N-legged(multi-legged) driven inverter. It surpasses the limitations of conventional H-bridge inverters by offering higher power levels and lower misalignment sensitivity. The proposed invention uses a pulse density-based modulation technique to overcome the issues in the dynamic wireless charging and enhance the efficiency of the N-legged inverter.

3. **Impact it will create**: Wireless Charging
4. **Current Status of the Patent** : Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. Dr. R. Narayanamoorthi
   2. Arpan Mandal
   3. Anirban Gangully
   4. Soumalya Pal
6. **Patent Filing Date** : 20.11.2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341078830

Patent-731: IoT based bidirectional wireless charging system with v2h and h2v interface and method thereof

1. **Name of the Technology**: IoT based bidirectional wireless charging system with v2h and h2v interface and method thereof
2. **Highlights of the technology (innovation/uniqueness etc.)**: The present disclosure pertains to the Internet of Things Enabled Bidirectional Wireless Power Transfer System for Electric Vehicle application. The invention integrates the Internet of Things (IoT) to establish a smart and connected charging system for electric vehicles. This work represents a significant advancement in electric vehicle charging technology, offering a bidirectional wireless charging system with IoT integration and V2H/H2V interfaces
3. **Impact it will create:** IoT integration and V2H/H2V interfaces
4. **Current Status of the Patent** **:** Patent Filled
5. **Student team details/Faculty Mentor:**
   1. Dr. R. Narayanamoorthi
   2. Dr. R. Raj Kumar
   3. Dr. Bala Subramaninan
   4. Mukilan
   5. Athota Vamsi

6. Devesh Karwasra
7. Sampath Pasangulapati

6. **Patent Filing Date** : 23.11.2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341079556

Patent-732: Food ordering system and method thereof

1. **Name of the Technology:** Food ordering system and method thereof
2. **Highlights of the technology (innovation/uniqueness etc.):** This work related to methods and systems for ordering menu items, for seamless and contactless payment in the canteen, and relates to Near Field Communication (NFCs), for use in such methods. We harnessed the power of NFC (Near Field Communication) technology by integrating it into the existing student ID cards. This innovation allowed for seamless and contactless payment in the canteen, alleviating the congestion and long waiting times that had become a daily ordeal.
3. **Impact it will create:** NFC Technology
4. **Current Status of the Patent** : Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. Inas Kiren N. S.
   2. M. G. Sathyaa
   3. Venkatesan J.
   4. Ms. Angeline R.
6. **Patent Filing Date** : 27.11.2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341080362

Patent-733: Table-Top cell culture unit

1. **Name of the Technology:** Table-Top cell culture unit
2. **Highlights of the technology (innovation/uniqueness etc.)**: NFC powered ID cards Redeemable points Register number of student is stored in RFID card so that card will uniquely identified. If card is lost or damaged, it can be blocked through requesting the administrator. Students can also order through the website and pay using UPI
3. **Impact it will create**: Payment will Fast
4. **Current Status of the Patent** : Patent Filied

5. **Student team details/Faculty Mentor:**
   1. Ashwin Kumar N.
   2. Hema Brindha M.
   3. Siva Prasath R.
   4. Narendiran T.
   5. NivasKumar S.
6. **Patent Filing Date :**
7. **Patent Granted Date :**
8. **Patent Application Number** : IDF421

Patent-734: AI based condition monitoring system for yard activities

1. **Name of the Technology:** AI based condition monitoring system for yard activities
2. **Highlights of the technology (innovation/uniqueness etc.)**: Sensors help a lot in gathering additional data for predictive models, and also provide constantly- updated information on whether failure thresholds have been met. The life span of machines is usually in the order of years, which means that data has to be collected for an extended period to observe the system throughout its degradation process. Usage history data is an important indicator of equipment condition as well as information about maintenance and service history. Other static information about the machine/system is also useful such as data about a machine's features, its mechanical properties, typical usage behavior, and environmental operating conditions. Data has to be collected from different places because of different environmental conditions may have different affects on working of machine. In case we don't have enough data we can define mathematical models which can generate several false condition that can be merged with sensor data and with the help of combination of these two we can train our model.
3. **Impact it will create**: Static information getting from machine is also useful
4. **Current Status of the Patent:** Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. Sivaprasath S.
   2. Vibhu Jain
   3. Yash Goel
   4. N Muhammad Fadil
6. **Patent Filing Date :**

7. **Patent Granted Date** :
8. **Patent Application Number** : IDF493

23) C. V. R. College of Engineering, District: Ranga Reddy

Patent-735: Jute Branches cutting machine

1. **Name of the Technology**: Jute Branches cutting machine
2. **Highlights of the Technology** (innovation/uniqueness etc.): The jute branch cutting machine is used to separate the branches and seeds from the main stalk by passing it through the rotating cutting chamber. The jute stems are momentarily pulled inwards by the mechanical suction mechanism provided on the other end of the cutting chamber. As the jute stalk is pushed inwards, the revolving cutting blades cuts the branches away from the main stalk, separating them both. The rotation of cutting chamber is achieved by gear mechanism connected to an electric motor. The same is used to run the suction rollers to pull the stalks using of worm gear box.
3. **Impact it will create**: It assures the recycling of such huge jute wastage by converting it in to the following (lengthy and acceptable form of fibres)
4. **Current Status of the Patent**:
   Application in amended examination
5. **Student team details/Faculty Mentor**:
   1. Nayan Sangawar
   2. Jayanth Mahurkar
   3. Pramod Arun.
   4. Mr. Yasin Patan
6. **Patent Filing date** : 05/10/2018
7. **Patent Granted date** :
8. **Patent Application Number** : 201841037739

Patent-736: Conversion of Dynamic Liquid Payload to Static payload for Uniform Pesticide Spraying Process

1. **Name of the Technology**: Conversion of Dynamic Liquid Payload to Static payload for Uniform Pesticide Spraying Process
2. **Highlights of the technology**: While the drone is navigating along the planned flight path, it negotiates a number of “90 degree turns” at specific spots. As a result, the dynamic equilibrium of the pesticide tank disturbs “the

uniformity of spraying process." This disturbance is minimised by converting the dynamic payload into static payload inside the tank itself.

3. **Impact it will create**: Edge effects that cause non-uniform spraying of pesticides can be minimized by fine tuning proportional-integral-derivative (PID) gains of the flight controller system.
4. **Current Status of the Patent**: Application Awaiting Examination
5. **Student team details/Faculty Mentor**:
   1. G. Chakradhar Reddy
   2. M. Akshith Reddy
   3. Sai Sandesh Reddy
   4. Prof. Subrahmanyam Peddi
6. **Patent Filing date** : 5/11/2021
7. **Patent granted date** :
8. **Patent Application Number** : 202141052233

Patent-737: Data Analytics Powered Smart Precision Farming to Increase Crop Yield

1. **Name of the Technology**: Data Analytics Powered Smart Precision Farming to Increase Crop Yield
2. **Highlights of the Technology (innovation/uniqueness etc.):** Precision farming is a farming management strategy that uses the latest technology such as sensors, machine learning, and data analytics to maximise the use of resources such as water, fertiliser, and pesticides in order to enhance crop yields while decreasing waste. Precision farming employs IoT (Internet of Things), Data Analytics and Machine Learning in a variety of ways, including the placement of sensors in fields that gather data on a range of elements such as soil moisture, temperature, and nutrient levels. This data is then sent into a machine learning algorithm, which analyses the data and makes recommendations to farmers on how to improve their agricultural techniques. Based on the individual demands of the crops, the algorithms may recommend when to water fields or when to apply various types of fertilisers or pesticides
3. **Impact it will create:** Precision farming may assist farmers increase the efficiency and cost-effectiveness of their operations, as well as the environmental sustainability of their agricultural techniques. It can also assist farmers in producing higher-quality harvests by optimising growth conditions

for certain crop varieties. The planned activity would raise farmer knowledge of the restricted use of essential resources, which will have an influence on precision farming. This can pave way for more Agricultural start ups.

4. **Current Status of the Patent** **:** Published
5. **Student Team details/Faculty Mentor :**
   1. Gaddam Vivek
   2. Sahithi Vangala
   3. Gopu Saikiran
   4. Dudekula Anwar Baasha
   5. Pulijala Bharath Chandra
   6. Kurukuti Yasash
6. **Patent Filing date** **:** 10.2.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341008759 A

Patent-738: Machine learning powered IoT weather station to predict the rate of urbanization

1. **Name of the Technology:** Machine learning powered IoT weather station to predict the rate of urbanization
2. **Highlights of the Technology (innovation/uniqueness etc.):** Weather Station aims to ease the monitoring of local weather conditions in real-time from anywhere in the world. Storing weather and environmental data for short and long term for studyingweather pattern changes and to understand how human-induced climate change affect local weather is significant. The proposed smart weather station can be easily deployed for monitoringlocal atmospheric conditions and microclimates for weather forecasting and prediction. LoRa based weather station enables organizations and communities to develop smart environments.Many Coal mining industries, smart agriculture, and high-rise apartments in India are developing this weather station for a safe and comfortable living, increasing productivity. The system usesthe following modules that include LoRa WAN Outdoor Gateway along with the following sensors Rain Gauge, Wind Speed and Direction, CO2/PM2.5/PM10, Rain & Snow Detect Sensor, Temperature, Humidity, Illuminance, Pressure, Total Solar Radiation, PAR.
3. **Impact it will create:** The system employs both network server and application server where adynamic dashboard provides the parameters and

weather conditions. One complete product with a customized design is deployed in the campus on real-time basis. With the data set available, many machine learning and data models can be built which can reduce the risk of hazards and can help farmers for a better yield.

4. **Current Status of the Patent** **:** Published
5. **Student Team details/Faculty Mentor :**
   1. Gaddam Vivek
   2. Sahithi Vangala
   3. Gopu Saikiran
   4. Dudekula Anwar Baasha
   5. Pulijala Bharath Chandra
6. **Patent Filing date** **:** 10.2.2023
7. **Patent Granted date** : Pending
8. **Patent Application Number** : 202341008760 A

Patent-739: Data Analytics Powered IoT weather station to determine the AQI index in Amicro Climatic Zone

1. **Name of the Technology:** Data Analytics Powered IoT weather station to determine the AQI index in Amicro Climatic Zone
2. **Highlights of the Technology (innovation/uniqueness etc.):** The goal of Weather Station is to make it simpler for individuals to track their local weather in real - time basis regardless of where they are in the world. It isimportant to store weather and environmental data for both short and long periods of time in order to analyse changes in weather patterns and comprehend how human-induced climate change affects Air Quality Index (AQI). The deployed smart weather station can give data regarding the pollution levels by detecting the PM2.5 andPM10, which indirectly gives information about AQI index of the micro climatic region. Organizations and groups can create smart environments with the help ofweather stations powered by LoRa. Many coal mining operations, smart agriculture, and high-rise apartments in India are using this weather monitor to help people livein safety and comfort and reduce health issues. The weather station system employs the LoRa WAN Outdoor Gateway modules along with the sensors of Rain Gauge,Wind Speed and Direction, C02, PM2.5, PM10, Rain & Snow Detect Sensor, Temperature, Humidity, Illuminance, Pressure, TSR (Total Solar Radiation), and PAR.(Photosynthetically Available Radiation). The data

obtained by the implementation of weather station gives us insight about the PM2.5 and PM10 which is essential inpredictingtheAQIofaregion.

3. **Impact it will create:** The continuous accumulation of data and graphs on AQI can tell us about the ups and downs in the level of pollution on a particular day. The averaged AQI can be used to understand the severity of pollution in the air. It is important to integrate reliable environment monitoring models that collect data on pollutant levels and provide an analysis of environmental pollution in each area compared to air pollution. Air pollution harms both the atmosphere and human health, resulting in global warming, acid rain, heart disease, lung cancer, and skin cancer among the population.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**
    1. Gaddam Vivek
    2. Sahithi Vangala
    3. Gopu Saikiran
    4. Dudekula Anwar Baasha
    5. Pulijala Bharath Chandra
    6. Kurukuti Yasash
6. **Patent Filing date** **:** 17.4.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341027954 A

Patent-740: Machine learning powered model to determine shelf life of fruits and vegetables

1. **Name of the Technology:** Machine learning powered model to determine shelf life of fruits and vegetables
2. **Highlights of the Technology (innovation/uniqueness etc.):** Fresh fruits and vegetables are essential components of a healthy diet, but theirshort shelf life often leads to significant food waste and economic losses. The Food and Agriculture Organization (FAO) estimated that 33% of the total food produced forhuman consumption is lost due to postharvest spoilage. The assessed misfortunes infruits and vegetables are higher also, arrived 40%. These percentages are not acceptable and adversely affect the Indian economy. The aim is to propose a technology which will involve the use of sensors that can monitor the temperature, humidity, ethylene gas concentration, and oxygen gas levels in the

storage environment and to develop a predictive model using artificial intelligence and machine learning techniques to estimate the shelf life of fruits and vegetables. The technique will involve screening and identifying the most effective atmosphere by adjusting.the temperature, humidity and the amount of ethylene- absorbing compounds released into the storageenvironment, effectively slowing down the ripening process that can be used to treat fruits and vegetables. This technology is then tested on different types of fruits and vegetables to determine their effectiveness in delaying the delivery of fresh and healthy food to consumers. Moreover, the technology will contribute to sustainable agriculture by reducing the need for synthetic pesticides and preservatives, thus promoting environmentally friendly food production practices.

3. **Impact it will create:** Post harvest loss will be reduced for farmers
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**
   1. Nandipati Jyothsna Santoshi
   2. Nukala Rikitha
   3. Sri Sai Nandini Anugu
6. **Patent Filing date** **:** 17.4.2023
7. **Patent Granted date** : Pending
8. **Patent Application Number** : 202341027934 A

Patent-741: Data analytics powered health care solution to prevent maternal death in rural areas

1. **Name of the Technology:** Data analytics powered health care solution to prevent maternal death in rural areas
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention relates to a data analytics-powered smart healthcare solution aimed at preventing maternal death inrural areas. The system comprises a data analytics module and a smart healthcare device which is a wearable. The data analyticsmodule collects and analyses maternal health data from multiple sources such as medical records, wearable and other sensors. The smart healthcare module provides personalized maternal healthcare recommendations based on the analyzed data, such as temperatureof the body, pulse rate, position of body and other factors. The system uses data analytics techniques to identify potential risks

andprovide timely and appropriate healthcare interventions. The system can be deployedin remote areas with minimal infrastructure and can be accessed via mobile devices or other digital platforms. The invention is useful for improving maternal health outcomes,reducing maternal mortality rates, and improving the quality of life for pregnant women in rural areas.

3. **Impact it will create:** It will improve maternal health outcomes, reducing maternal mortality rates, and improving the quality of life for pregnant women in rural areas.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**
   1. Mohit Jain
   2. Akshit Reddy
   3. Shaik Mahammed Sahil
6. **Patent Filing date** **:** 17.4.2023
7. **Patent Granted date** : Pending
8. **Patent Application Number** : 202341027936 A

24) Sumathi Reddy Institute of Technology for Women, Warangal Urban

Patent-742: Vacuum Assisted Climbing Apparatus

1. **Name of the Technology:** Vacuum Assisted Climbing Apparatus
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Innovation
3. **Impact it will create**: It is using in college campus
4. **Current Status of the Patent** : Patent grantted
5. **Student Team details/Faculty Details:**
   1. Ch. Vinay Kumar Reddy
   2. Dr. I. Rajasri Reddy
   3. Deekonda Nikitha
6. **PatentFiling date** : 29/03/2019
7. **PatentGranted date** : 21/06/2022
8. **PatentApplication Number** : 201941012756 A

Patent-743: Lineary Filter Ban Multicarrier (FBMC) with Modified Discrete Fourier Transform for Wireless Communication

1. **Name of the Technology**: A Lineary Filter Ban Multicarrier (FBMC) with Modified Discrete Fourier Transform for Wireless Communication
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Innovation

3. **Impact it will create**: Product under commercialization
4. **Current Status of the Patent** : Patent Granted
5. **Student Team details/Faculty Details:**
   1. Dr. I. Rajasri Reddy
   2. Ranjith Kumar Marrikukkala
   3. K Mahendar
   4. Thippani Kavya
6. **PatentFiling date** : 02/08/2019
7. **PatentGranted date** : 26/09/2023
8. **PatentApplication Number** : 201941012833 A

Patent-744: Smart Employee Monitoring System

1. **Name of the Technology** : Smart Employee Monitoring System
2. **Highlights of the Technology (innovation/uniqueness etc.):** Innovation
3. **Impact it will create** : Product under commercialization
4. **Current Status of the Patent** : Patent published
5. **Student team details**
   1. Dr. E. Sudarshan
   2. Charitha Bojjam
   3. Soni Shaik
6. **Patent Filing date** : 22/02/2019
7. **Patent Granted date** : NA
8. **Patent Application Number** : 201941006216 A

Patent-745: Flood Drainage System

1. **Name of the Technology** : Flood Drainage System
2. **Highlights of the Technology (innovation/uniqueness etc**.): Innovation
3. **Impact it will create** : Commercialization
4. **Current Status of the Patent** : Patent Published
5. **Student team details**
   1. E. Sudarshan
   2. Shaik Karishma
   3. Padidala Ramya
6. **Patent Filing date** : 23/11/018
7. **Patent Granted date** : NA
8. **Patent Application Number** : 201841042709 A

Patent-746: A Device for Detecting Synthetic Food Ingredients

1. **Name of the Technology** : A Device for Detecting Synthetic Food Ingredients
2. **Highlights of the Technology (innovation/uniqueness etc.): Innovation**
3. **Impact it will create** : Starup under establishment
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Mentor:**
   1. Dr. E. Sudarshan
   2. Rabia Basri
   3. Syeda Arsheen Fathima
6. **Patent Filing date** : 05/10/2018
7. **Patent Granted date** :
8. **Patent Application Number** : 201841036063 A

Patent-747: Apparatus of writing board with the protection of biometric based and eye signal

1. **Name of the Technology:** Apparatus of writing board with the protection of biometric based and eye signal
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Innovation
3. **Impact it will create**: It is using in college campus
4. **Current Status of the Patent** : Patent Filled
5. **Student Team details/Faculty Mentor:**
   1. Dr. I. Rajasri Reddy
   2. Putta Madhurya
   3. Pulluri Chandana
6. **Patent Filing date** : 29/03/2019
7. **PatentGranted date** :
8. **PatentApplication Number** : 201941017857 A

25) I. T. S. Engineering College, Greater Noida

Patent-748: Cipher Generator

1. **Name of the Technology:** Cipher Generator
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Cipher alternator can produce approximately twice powder output.
   - In cipher alternator both rotor and stator moves in opposite direction.

- Cipher alternator is cheaper than market present alternator while being twice as power approximatelty.
- Mechanical input can be one as conventional or two or three as per specification required.

3. **Impact it will create:**
   - It will reduce production cost of alternator.
4. **Current Status of the Patent:**
   - Request for Examination (Form 18)
5. **Student Team details/Faculty Mentor:**

   1. Harshit Kumar Singh
6. **Patent Filing date** **:** 09.07.2018
7. **Patent Granted date** :
8. **Patent Application Number** : 201811025513

Patent-749: Water Resistant Coating Formulation and a Method Thereof.

1. **Name of the Technology:** Water Resistant Coating Formulation and a Method Thereof.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Present shellac based developed composition is easy to coat just by pouring it on iron metal plate and allowed to drain for even layer and it can be baked just by setting the electric iron on position keeping the temperature knob to maximum and left for 1-2 hrs
   - If this non stick coating get scratches or get removed by any reason it can be recoated by similar application method at home and even an unskilled man can do this coating on iron.
   - It is biodegradable composition due to use of Natural resin Shellac which is an added advantage over PTFE based coating.
3. **Impact it will create:**
   - Its process of coating on electric Iron is easy.
   - It can be recoated manually even by unskilled person.
   - This composition is Biodegradable due to use of Natural Resin Shellac.
   - This composition uses Shellac which is indigenous agricultural produce of Indian forests hence it will enhance market value of Shellac and will be beneficial to our farmers
4. **Current Status of the Patent** **:** Request for Exmination

5. **Student Team details/Faculty Mentor:**
   1. Nitish Kumar Jha
   2. Yash Kumar
6. **Patent Filing date** **:** 12/06/2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911023381

Patent-750: Heart rate monitoring system and method

1. **Name of the Technology:** Heart rate monitoring system and method
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The present invention relates to a system and method that involvescontinuous monitoring of heart rate of a subject by employing multiple ECGelectrodes, and providing alerts to the subject (s) suffering from heart ailments.
   - An object of the present invention is to provide a system that analyzesthe real time heart condition of the person and provides timely alerts regardingneed of consultation during any emergency.
   - Yet another object of the present invention is to provide a systemwhich is user-friendly in nature.
3. **Impact it will create:**
   - The present invention relates to a heart rate monitoring system andmethod for determining the real time heart conditions of the person and alertinghis/her relatives, parents and spouse by transmitting the alert message regardingthe consultation of the cardiologist within a week or a month during anyemergency.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor:**
   1. Anil Prajapati
   2. TuibaMushtaq
   3. Aakash Gupta
6. **Patent Filing date** **:** 29-07-2019
7. **Patent Granted date** :
8. **Patent Application Number** : 201911030638

Patent-751: Automatic solar panel cleaning Device

1. **Name of the Technology:** Automatic solar panel cleaning Device
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This machine is made by taking into consideration, the scenario of dust and dirt in theIndian context. It is a complete solution for effective removal of dirt/dust from solarpanels and makes them 95% clean.
   - This machine has two modes of operation, one is remote control another is fullyautomatic mode. We can control the parameter of cleaning in the remote control modewhile in auto mode; it ensures the 95% of cleaning in effective way using feedbacksensor mechanism.
   - In this machine there is facility to clean the panels with water as well as without water.Two different brushes provide the effective cleaning of dust and hard impurities as wellas a wiper behind the machine wipe and make it cleaner.
3. **Impact it will create:**
   - This device is made according to Indian context.
   - Cleaning the solar panels effectively without any human intervention ensuring the95% of cleaning using the feed-back mechanism and 4 stage cleaning system.
4. **Current Status of the Patent** **:** Published
5. **Student Team details/Faculty Mentor:**
   1. Mayank Raj
   2. Nitish Kr. Yadav
   3. AakashBhati
   4. Riturajkumar
   5. Shwetank Gupta
6. **Patent Filing date** **:** 19.01.2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202111002482

Patent-752: Liquid boil over prevention system

1. **Name of the Technology:** Liquid boil over prevention system
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This invention is not confined to just indicating or alarming but also controlling the boiling process. Now themilk can be left after starting and

the milk will not boil over. Whether on gas or on a hot plate, stay safe everytime.

- This machine is self-sustainable and need not be charged, it charges itself using the waste heat around it.
- Retrofitted (easy to fit or remove)
- Wireless communication between the units

3. **Impact it will create:**
    - Can be used for domestic purposes
    - Can be used for Commercial MSME Milk Processing Plants
    - It can be suitably fitted after the milk on gas with full flame mode.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor:**
    1. Mr. RanjanSinha
    2. Mr. Rijul Singh
6. **Patent Filing date** **:** 03/11/2020
7. **Patent Granted date** :
8. **Patent Application Number** : 202011047901

Patent-753: Continuous variable power generation system

1. **Name of the Technology:** Continuous variable power generation system
2. **Highlights of the Technology (innovation/uniqueness etc.):**
    - The present invention relates to a continuous variable power generationsystem that produces electrical energy in order to power electrical appliances andcomponents by optimizing fuel consumption according to load conditions, thussignificantly reducing the fuel consumptions in different conditions.
    - An object of the present invention is to provide a generator that optimizes the fuel consumption according to the load and power conditions, therebyreducing running cost of the generator.
    - The present invention relates to a continuous variable power generationsystem that efficiently generates electrical energy for general power consumptionby optimizing fuel consumption according to the load conditions withouthampering other parameters of the electricity.

3. **Impact it will create:** The present invention by sensing load conditions, optimizes the output ofthe system, thus **reducing the fuel consumption** drastically and making systemeconomical to use.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor:**
   1. Mr. Masood Alam
   2. Mr.Rishavkumar
6. **Patent Filing date** **:** 11/06/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202111026018

Patent-754: Extendable down rod

1. **Name of the Technology:** Extendable down rod
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The present invention relates to an extendable down rod that is developedfor preventing users from committing suicide by as well as providing easy reachto the ceiling fans for cleaning purpose.
   - Another object of the present invention is to provide an extendable downrod that attaches the fans with the ceiling of the enclosure to prevent the usersfrom injuries caused due to unexpected breakdown of fan.
   - Another object of the present invention is to develop a down rod that iscapable of providing a means for extending/retracting the ceiling fans up to predefined heights towards floor surfaces in order to aid the users for cleaning theceiling fans in order to remove the stubborn stains, accumulated dust and dirt.
3. **Impact it will create:**
   - It will reduce the suicide cases.
   - It will support for easy cleaning of celling fans.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor:**
   1. Mr. Mayank Raj
   2. Mr. Jeevesh Gupta
6. **Patent Filing date** **:** 09/07/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202111030803

Patent-755: Method and device for optimizing cutting fluid in metal cutting operations

1. **Name of the Technology:** Method and device for optimizing cutting fluid in metal cutting operations
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The present disclosure relates to a field of lathe machining processlike, computer numeric control (CNC)/Lathe machine and the otherordinary lathe machine, and more specifically, to a method and device foroptimizing cutting fluid that is utilized for cooling and lubricating thecontact zone between tool and workpiece in a lathe machine. Therefore, thecooling and lubricating capabilities of cutting fluids or coolant are highlydependent on the amount of cutting fluid that can be supplied through thecontact zone.
   - The principal object of the embodiments herein is to cool and tolubricate the contact zone between tool and work piece by a cutting fluidoptimization device.
3. **Impact it will create:**
   - Improve theworkpiece quality and productivity of the process.
   - Reduce the tool wearin the machining process.
   - Control the wastageof cutting fluid and enhance the tool life.
   - Improve theeconomy of machining operation.
   - Automaticallyprovide the surface finish as per need.
4. **Current Status of the Patent:** FER Response Filling
5. **Student Team details/Faculty Mentor:**

   1. Mr. Kamlesh Thakur
6. **Patent Filing date** **:** 26/07/2021
7. **Patent Granted date** : No
8. **Patent Application Number** : 202111033458

Patent-756: Smart sense whitewash device

1. **Name of the Technology:** Smart sense whitewash device
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The invention relates to a field of smart sense whitewashtechnology, and more specifically, to a smart sense whitewash device formaintaining a constant distance for proper painting of a wall.

3. **Impact it will create:**
   - It will provide a smartsense whitewash device for uniformly painting throughout the wall.
   - It will cover larger area thanexisting around 25 inches on a single go.
   - It will provide the autoadjustable nozzle orientation according to the wall.
   - It will provide comfortableceiling whitewash.
   - It will avoid the spilling ofthe paint on the floor.
   - It will provide thecontinuous blending system makes the paint uniformly mixed while using.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Details:**
   1. Nidhi Sharma
   2. Mayank Raj
   3. Jeevesh Gupta
   4. Harshit Kumar Singh
   5. Syed Yusuf Amin
6. **Patent Filing date** **:** 07/08/2021
7. **Patent Granted date** :
8. **Patent Application Number** : 202111035713

Patent-757: An electric vehicle acceleration enhancer system

1. **Name of the Technology:** An electric vehicle acceleration enhancer system
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The present invention relates generally to the field of electric vehicle (EV). More specifically, the present invention relates to electric vehicle accelerationenhancer system
3. **Impact it will create:**
   - It will provide to provide an EV accelerationenhancer system.
   - It will provide an EVacceleration enhancer system that is cost effective.
   - It will provide an EVacceleration enhancer system that can be easily integrated with current system.
   - It will provide an EVacceleration enhancer system that is light-weight, hence does not offer anyadditional resistance to operation of the vehicle.
4. **Current Status of the Patent:**

   Request for Examination (Form 18)

5. **Student Team details**
   1. Mr. Shubham Kumar
   2. Md. Samiruddin Ansari
6. **Patent Filing date** **:** 26/08/2021
7. **Patent Granted date** : No
8. **Patent Application Number** : 202111038661

Patent-758: Biodegradable Shellac and synthetic resin based Moulded Products and PCB base to tackle e-waste generation

1. **Name of the Technology:** Biodegradable Shellac and synthetic resin based Moulded Products and PCB base to tackle e-waste generation
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Pure Shellac is Brittle in nature and so Moulded Products cannot be made from pure shellac.
   - Present shellac based developed Moulded Products will provide high electrical insulation and will be biodegradable as well.
3. **Impact it will create:**
   - This process of making brittle shellac as Moulded Products makes it flexible and retains all its advantages.
   - Shellac's high dielectric strength and its tracking resistance can be utilized in grater manner.
   - The developed Moulded Products will be Biodegradable due to use of Natural Resin Shellac.
   - This composition uses Shellac which is indigenous agricultural produce of Indian forests hence it will enhance market value of Shellac and will be beneficial to our farmers.
4. **Current Status of the Patent:** Request for examination (Form 18)
5. **Student Team details**
   1. Mayank Senger
   2. Manish Pandey
6. **Patent Filing date** **:** 02/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202211011253

Patent-759: Development of Electrically Insulating Biodegradable Shellac based Fibers and method thereof

1. **Name of the Technology:** Development of Electrically Insulating Biodegradable Shellac based Fibers and method thereof.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Pure Shellac is Brittle in nature and so fibers cannot be made from pure shellac. Present shellac based developed Fiber will provide high electrical insulation and will be biodegradable as well.
   - This process of making brittle shellac as Fiber makes it flexible and retains all its advantages.
3. **Impact it will create:**
   - Shellac's high dielectric strength and its tracking resistance can be utilized in grater manner.
   - The developed Fiber will be Biodegradable due to use of Natural Resin Shellac.
   - This composition uses Shellac which is indigenous agricultural produce of Indian forests hence it will enhance market value of Shellac and will be beneficial to our farmers.
4. **Current Status of the Patent:** Request for examination (Form 18)
5. **Student Team details/Faculty Mentor:**
   1. Nitish Kumar Jha
   2. Yash Kumar
6. **Patent Filing date** **:** 02/03/2022
7. **Patent Granted date** : No
8. **Patent Application Number** : 202211011254

Patent-760: Hybrid vehicle washing system

1. **Name of the Technology:** Hybrid vehicle washing system
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A traditional vehicle washing system uses a "jet of pure water only" to wash the vehicles and results in huge wastage of fresh water. In proposed hybrid vehicle washing system it is planned to use a jet of compressed air along with very fine jet of water.
   - The function of the air jet is to develop the necessary force required for removing residues (dust, mud etc) present on the surface of the vehicle

body. Since water act as a residue dissolver (stuck tightly on vehicles), so some quantity of water will also be required. The necessary water will be supply by using a pump.

3. **Impact it will create:**
   - Instead of pure water jet, the use of a hybrid air-water jet will reduce the overall consumption of water to a large extent.
   - Air jet can also be use for interior cleaning, exterior drying, and after wash floor cleaning.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor**
   1. Rakesh Kumar Chauhan
   2. Suraj Kumar
6. **Patent Filing date** **:** 02/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202211011255

Patent-761: AI based system to evade stray livestock's on roadsand highways

1. **Name of the Technology:** AI based system to evade stray livestock's on roadsand highways
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The invention relates to the field of Artificial Intelligence(Deep Learning) based monitoring system for avoiding obstruction throughLivestock on Indian Roads.
   - The system includes a one or more cameras, adatabase, a server, a processor and an electronic device.
   - cameras capture the images or records thevideo of road or highway.the database stores the data sent by the cameras.the processor processes the data received.
   - Upon detecting livestock on the road, theprocessor generates an alert and sends to the electronic device for alerting anauthorized user.
3. **Impact it will create:**
   - This invention will provide AI based system toevade stray livestock on roads and highways, wherein the system is economical.
   - This invention will provide AI based systemto evade stray livestock on roads and highways, wherein the system generates analert for a user.

- This invention will provide AI basedsystem to evade stray livestock on roads and highways, wherein the system takesless time and responds quickly.

4. **Current Status of the Patent:** Request for examination (Form 18)
5. **Student Team details**
   1. Mr. Shaswat Pandey
   2. Ms. Divya Verma
6. **Patent Filing date** **:** 05/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202211011992

Patent-762: Desert air-cooler cum air conditioner

1. **Name of the Technology:** Desert air-cooler cum air conditioner
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The invention relates to the field of thermal engineeringand more particularly, to desert air-cooler cum air conditioner. Further, theinvention relates to heat transfer and refrigeration-based system forproviding air with controlled temperature and humidity for human beings.
   - Theinvention comprises a heat exchanger that is configured to transfer the heatfrom one medium to another.
   - Further, the desert air-cooler cum airconditioner includes a water cooler which is configured to ensure theconstant supply of cold water to the heat exchanger; and a temperaturesensor attached with the water cooler to regulate the temperature of thewater.
3. **Impact it will create:**
   - This invention will provide alow-cost cooling system to the peoples.
   - This invention will provide reduce theconsumption of the electricity.
   - Modified desert air coolerwill give sufficient amount of cold air at very low cost as compared to airconditioners.
4. **Current Status of the Patent:** Request for examination (Form 18)
5. **Student Team details**
   1. Mr. Ashirvad Pal
   2. Mr. Jaibeer
6. **Patent Filing date** **:** 05/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202211011989

Patent-763: Modular brushless direct current (BLDC) Electric motor

1. **Name of the Technology:** Modular brushless direct current (BLDC) Electric motor.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Modular BLDC motor is based on axial flux topology which has more power density compared to its counter part that is radial flux topology this difference in power density is achieved due to the length that magnetic field line has to travel to complete its loop is less in axial flux moreover the active conductor used in modular BLDC motor is more and overhang length is lesser.
   - Further the modular BLDC motor gives us the added advantage of stacking more number of rotors such that the overall torque distribution can be increased which results in increased power density. Therefore for 2-wheeler one motor can be used for 3-wheeler, two motors can be stacked together to be used and lastly in four-wheeler 4 motors can be stacked together. Moreover, the parts used and power electronics used in this is generic that is parts are manufactured in India itself therefore reduces dependence on China and can be repaired easily as it is modular in nature.
3. **Impact it will create:**
   - Promotes make in India under power electronics being manufactured in India
   - Promote development of axial flux topology.
   - Reduce dependence on other countries for design and development.
   - This motor can be developed on 3D printers.
   - Promote modular system.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor:**

   1. Nidhi Sharma
6. **Patent Filing date** **:** 05/03/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202211011990

Patent-764: High power density modular BLDC motor controller

1. **Name of the Technology:** High power density modular BLDC motor controller
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - BLDC motor controller has a major issue of thermal runaway due to improper monitoring of current being fed into the controller.
   - Due to which BLDC controller tends to fail a lot moreover these controllers are manufactured in China and MOSFETS used in these controllers are not generic therefore repairing these are not feasible.
   - This invention is designed a controller which has proper temperature control with liquid cooling and power monitoring system which makes the overall system more robust in its working.
   - Moreover, the parts used and power electronics used in this is generic that is parts are manufactured in India itself therefore reduces dependence on China and can be repaired easily as it is modular in nature.
3. **Impact it will create:**
   - Promotes make in India under power electronics being manufactured in India
   - Reduces our dependence on China for parts.
   - Easily repairable as parts used are generic.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor**

   1. Nidhi Sharma
   2. Mr. Harshit Kumar Singh
6. **Patent Filing date** **:** 05/03/2022
7. **Patent Granted date** : No
8. **Patent Application Number** : 202211011991

Patent-765: Mid-day meal automated reporting and management system

1. **Name of the Technology:** Mid-day meal automated reporting and management system
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The invention relates to the field of automation reporting andmanagement of Mid-day meal. This system is designed for reducing thecorruption and

black marketing of the food grains that is provided by thegovernment in government schools for mid-day meal.

- The system is mechanical structure with somesensors and display meters as well as screens mounted over it. The System alsocontains some Wi-Fi modules like NODE MCU. The system contains twocameras mounted on it. First camera is mounted to capture the image of child whocomes and stand on the system panel. The second camera will capture the imageof the food that will be provided to the child by school.
- Two loadcells, one loadcell will measurethe weight of the child and the second load cell will measure the weight of thefood that will be given to the child.

3. **Impact it will create:**
   - The invention is to provide a mid-day mealautomated reporting and management system, wherein the system is economical.
   - provide a mid-day mealautomated reporting and management system, wherein the system generates analert for a user.
   - Will reduce thecorruption.
4. **Current Status of the Patent:** Request for Examination (Form 18)
5. **Student Team details/Faculty Mentor:**
   1. Devraj Singh
   2. Shubham Kumar
6. **Patent Filing date** **:** 11/03/2022
7. **Patent Granted date** : No
8. **Patent Application Number** : 202211013351

Patent-766: A smart Tooth Brush

1. **Name of the Technology:** A smart Tooth Brush
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The Marvel toothbrush provides you the real time feedback on your brushing habits using an app and helps to improve your overall health.
   - It will allow the user to apply correct brushing technique and pressure involved.
   - This toothbrush has an ability to detect oral diseases like that of simple dental decay to aggressive mouth cancer via mouth scanning and associated Al module.

- This brush comes with the detachable bristle plate. It will Include different modes- Brushing Mode, Massage Mode and Tongue cleaning mode.

3. **Impact it will create:**
   - Easy diagnosis of teeth related problem.
   - Provide real time data
   - Provide various options to user.
4. **Current Status of the Patent:**
   Filed
5. **Student Team details/Faculty Mentor:**
   1. Muskan Sachdeva
   2. Afreen Ali
   3. Arshdeep Singh Baidwan
6. **Patent Filing date** **:** 20/03/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311018759

Patent-767: Datum Surface Table

1. **Name of the Technology:** Datum Surface Table
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Advance datum surface table is used for measuring all the gd&t, spotting, marking, inspection with the help of mechanical movement of 3 axis x,y, and z.
   - It is advance datum surface table by which we can measure all the gd&t.
   - The major objectives of invention are time saving, accuracy, easy to use, less rejection of products for vendor companies and easy to attach &detach the measuring instruments.
   - In this machine less rejection of products because accuracy will increase.
   - We can measure one product in one minute.
   - Working steps of invention are following 1. Placing any product on the table, 2. We can measure it in three axis x,y,z(with the help of height gauge which is attach on all the three axis, 3. Tip of dial gauge is use measure all the dimensions.(main measuring point) and 4. This table has as dead end to measure the circular runout and total runout.

3. **Impact it will create:**
   - It works on three axes mechanically not by hand (roughly).
   - Errors are very negligible as compare to normal surface table
   - Accuracy becomes more and more.
   - Less skill worker is required to measure any product.
   - Price is very less as compare to CMM machine
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Jayant Singh Rajput
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008482

Patent-768: Mobile Robot using Lidar and Navigation Camera

1. **Name of the Technology:** Mobile Robot using Lidar and Navigation Camera
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The invention uses Navigation Camera and Navigation LIDAR for obstacle avoidance and mapping uses GMCL which is defined as General Monte Carlo Localization. We have been working on this device for material handling and it can be used for other purposes also.
   - The robot has the capability of designing it's new path on its own based on the real time inspection it does by doing obstacle avoidance.
   - We will be using the camera for scanning the data using the camera and the data will automatically be sent on the cloud using the webserver. This application can be helpful in collecting data from a plant which has various departments and which are large in size so it is not possible to cover the entire plant in 1 day but robot will move at speed of 3-4 m/s and will scan all the data of the plant and automatically send the data on the cloud at real time.
3. **Impact it will create:**
   - It can navigate in the robust environment where fog and low visibility is there.
   - It can climb on the stairs of the building and navigate between different floors.

- It is voice controlled and moves as per the directions given by the ALEXA.
- No GPS for outdoor navigation.
- User friendly GUI
- LIDAR & navigation camera will help in obstacle avoidance and goal Identification.
- The navigation camera will also serve the purpose of real time data inspection and sending the scanned data over cloud to server.

4. **Current Status of the Patent:**
   - Filed
5. **Student Team details/Faculty Mentor :**
   1. Asin Suhail
   2. Mr. Suraj Singh
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number**: : 202311008481

Patent-769: Method for development of boidegradable shellac based dielectric substrate for flexible sensors

1. **Name of the Technology:** Method for development of boidegradable shellac based dielectric substrate for flexible sensors
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Shellac the only known commercial resin of animal origin is well known for its biodegradable food grade qualities and uses for coatings as lacquers and varnishes. Although the natural resin shellac possesses very high Dielectric properties and biodegradable in nature some of its weaknesses such as low thermal resistance, brittleness of its film and low water resistance limits its use as a perfect electrical insulator.
   - In present invention the shellac is modified with using some synthetic resin by solution blending process and a polymer blend of shellac in liquid state is formed.
   - This polymer blend is coated on thin Copper sheet either by spraying or by pour and flow method after air drying for half an hour the blend coated Copper sheet is baked in temperature controlled oven at 150 degree

centigrade for 1.5 hr. After cooling this coated and baked Copper sheet will be used as dielectric layer for flexible antenna.

3. **Impact it will create:**
   - Purely synthetic polymers, paper, denim, cloth and soft PCB materials are widely used to fabricate flexible antenna substrates. These are non biodegradable and poses problem to environment and also they cannot be fabricated to micrometer dimensions. Shellac the only known commercial resin of animal origin is well known for its biodegradable, food grade qualities and uses for coatings as lacquers and varnishes. In present invention the use of modified shellac is done to fabricate the flexible substrate material which can be fabricated in micrometer thickness for antenna uses.
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Raghunandan Kumar
   2. Prabhat Kumar Mishra
6. **Patent Filing date** : 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008483

Patent-770: Plastic Sand Composite Brick

1. **Name of the Technology:** Plastic Sand Composite Brick
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Plastics are incredibly useful and widely used in our everyday lives because of their low cost, easy availability, and great properties. However, it leads to the deterioration of the environment through depletion of resources such as quality of air, water and soil and the destruction of ecosystems. Their environmental impact is hazardous and the plastic pollution that has accumulated in the Earth & the environment is causing serious damage to wildlife, their habitats, and us humans.
   - To overcome this, it is proposed to convert plastic waste into useful plastic bricks as a construction material. The plastic waste would be obtained from bottles, bags and used plastic waste and chopped into small pieces, and mixed with sand, ceramics and other reagents to form composite bricks.

- These bricks would then be tested for strength by conducting compressive strength test, free fall as well as water absorption tests. The results showed that the plastic composite brick was equal or more efficient than clay and cement bricks, and could be used in construction purposes.

3. **Impact it will create:**
   - A small effective way to reduce some amount of plastic waste by using it as a construction material.
   - Cost effective
   - Alternative for routine construction material.
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Amber Shamsh
   2. Madhav Dixit
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008484

Patent-771: IoT based Health Monitoring System

1. **Name of the Technology**: IoT based Health Monitoring System
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - IoT based health monitoring systems are revolutionary systems that enable continued vigilance of human vital signs during daily routine or in hospital, with minimum distress. IoT based health monitoring systems are more of personal health monitoring systems, an idea initiated in the late 1990s, which monitors an individual and interacts with health care providers continuously.
   - There are four main requirements on their design: low power consumption, reliability and security, comfort and ergonomics. In this project we are talking about major vital signs of a human body, there are four major parameters that we need to be aware of, they are body temperature, heart rate, breath rate, blood pressure, and due to COVID, oxygen saturation has become a major parameter that we need to be aware of. In this project, we will be making a simple
   - Arduino Uno IoT-based device with multiple sensors can measure various vital parameters of the human body. The device will be like a multi monitor

that you see in ICUs, a lot simpler and made of cheap sensors not meant for actual medical use.

3. **Impact it will create:**
   - The system developed is a continuous blood sugar monitoring system for better diabetic management.
   - The system is able to continuously monitor for any type of cardiovascular disorder.
   - The system is able to reveal any nerve dysfunctions, muscle dysfunctions and nerve to muscle signal transmission.
   - The system is able to detect any abnormality in the oxygen level and temperature to detect covid-19 symptoms..
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Ainul Hasan
   2. Aditya Shankar
   3. Ashwin Yadav
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008495

Patent-772: IoT based smart mirror for multi-dimensional applications

1. **Name of the Technology**: IoT based smart mirror for multi-dimensional applications
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Everyone is extremely preoccupied with their daily tasks, making it impossible for them to check daily essential information such as the latest news, to-do lists, social media newsfeeds, traffic updates, weather forecasts, and so on. This concept allows users to access all of this information on a smart mirror, which is automatically updated from time to time. In addition, when a camera is put behind the mirror, smart mirrors are employed for security purposes.
   - An AI-based facial identification mechanism is implemented, which detects unknown people and sends a notification to the user & mobile phone. The Google voice assistant is incorporated, and the user may use it to interact with the mirror, watch YouTube videos, listen to music, and

so on. In addition, users will be able to monitor their health condition using this system. It will measure the user's heart rate, body temperature and oxygen level. All these values will be displayed automatically on the mirror and if these values are not in normal range, then it will alert the user.

3. **Impact it will create:**
   - SMART Mirror enables hosts and participants to use wireless networks to share their device screens to the SMART display.
   - Smart mirror receives online news and display it using Internet of things (IoT)
   - The smart mirror is able to screen mirroring allows you to project the content currently displayed on your smart phone, tablet, or computer Smart mirrors bring you all the functions you need hands-free while getting ready for the day: weather, stocks, traffic, and news.
   - The smart mirror is an IoT-based intelligent system to facilitate and enhance the user's awareness of various physiological functions using biomedical functions in real time.
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Devraj Singh
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008494

Patent-773: Smart Machine Box

1. **Name of the Technology:** Smart Machine Box
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Smart Machine Box is the system which consist of 10-20 sensors which is connected to Raspberry Pi 4 via PLC model and these sensors send the data from the machine to the PLC and then PLC sends the data to Raspberry Pi 4 .
   - The Raspberry Pi 4 sends the data to the cloud from machine. The main applications are Predictive maintenance, AOI (Automated Optical Inspection) and DAS(Data Acquisition System)
3. **Impact it will create:**
   - Multiple sensor integration with PLC and acquiring data at real time.

- The User-friendly APP which will have 10 sensor data coming simultaneously.
- Displaying graph of all sensors at single time.
- Presently configuring 10 sensors in a single system. It can be increased further as per the requirement.
- Performing Predictive Maintenance and Health Monitoring of the system

4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Gagan Sahu
   2. Mr. Suraj Singh
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008497

Patent-774: Vertical Mop Robot

1. **Name of the Technology:** Vertical Mop Robot
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Most maintenance works on building exterior glass walls are carried out by human labor involves a safety problem, Exterior wall automated maintenance methods have concentrated only on moving mechanisms but cleaning methods and processing of cleaning materials are neglected.
   - In addition, these systems generate problems such as the scattering and dripping of used water resulting in the contamination of surrounding areas. In order to solve these problems, a new cleaning tool system with a water circulation function is being developed to improve cleaning efficiency and reduce water usage in this paper.
   - Using the cleaning tool system with the water circulation and Pulse Width Modulation (PWM) flow control, the scattering and dripping were removed and the water usage was reduced by about 20%. Also, this cleaning tool system was compared to manual work by human experts as well as previously developed automated (or semi-automated) cleaning robots through statistical analysis.
3. **Impact it will create:**
   - The vertical mop robot can be used in two ways, either as a glass cleaning robot or as a crack-finding robot on walls..

- Another innovation is that robot is remotely controlled and fully autonomous.
- It is capable of showing the live process of cleaning glass walls and cracks on normal walls to the operator. This feature of the vertical mop robot also makes it innovative.

4. **Current Status of the Patent:**
   Filed
5. **Student Team details/Faculty Mentor :**
   1. Shubham Kumar
   2. Aadarsh
6. **Patent Filing date** **: 09/02/2023**
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008492

Patent-775: Micro Wind Turbine Tree

1. **Name of the Technology:** Micro Wind Turbine Tree
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The invention is in the shape of a tree which will be made out of Stainless Steel 306(for rust resistance) and will have a trunk at the center which will get bifurcated into branches along its height and further into sub branches.
   - At the end of its branches and sub-branches it will have a micro wind turbine that will move along the wind which will be connected to an alternator that will generate electric power.
   - This power will then be transmitted to any appliance directly or to the batteries which will be placed at the bottom of the tree through wires in the sub-branches, branches and trunk of the tree. Then this stored power can be used for operating many appliances.
3. **Impact it will create:**
   - Power generation can be in the areas of high density population and in areas which do not have enough land/space for solar power generation.
   - In India it also has a military application as it can be used in the hilly regions where there is no sunlight present throughout the year.
   - It can be used in generating electricity in coastal areas where air travels at high speeds.

4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Aditya Rai
   2. Jeevesh Gupta
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008493

Patent-776: Facial recognition based attendance marking system

1. **Name of the Technology:** Facial recognition based attendance marking system
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - It is a device that can identify students in a classroom and mark their attendance, autonomously without any requirement of human intervention. The embedded device works on a time -based mapping of scheduled lectures and the present students to keep track of students' existence in their respective lectures.
   - The device makes use of a high- definition Pan Tilt Zoom (PTZ) camera that is connected to a processing unit. It processes the captured images of students in the classrooms, from time to time as per user definition.
   - Upon processing the captured images, the algorithm running on the processing device, identifies the faces of students in the classroom and marks their attendance and update on Enterprise Resource Planning (ERP). It helps in monitoring and marking the attendance that makes the whole process hassle-free.
3. **Impact it will create:**
   - Marking attendance of a whole class at once using facial recognition technology is possible.
   - The device is also capable of handling situations of attendance of combined classes.
   - The device works on a time-based triggering process.
   - The device has to be provided primary information of lecture schedules and number of triggers in every lecture and threshold scores.
   - The device store the attendance detail locally & then also upload on ERP.
4. **Current Status of the Patent** **:** Filed

5. **Student Team details/Faculty Mentor :**
   1. Shashwat Pandey
   2. Aman Pratap Singh
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008496

Patent-777: Integrated fixed ratio diet mixing and cutting machine

1. **Name of the Technology:** Integrated fixed ratio diet mixing and cutting machine
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - IFR diet machine makes it possible for dairy producers to deal with the various feeding problems and provide healthy diets to dairy animals using this technology.
   - The IFR diet machine cuts the green grass effectively and provides a balanced diet by mixing all the nutrients well.
   - This balanced feed provides adequate supply of nutrients to milk animals, and they like to eat it.
3. **Impact it will create:** With the help of IFR DIET MACHINE, milk animals will get balanced diet and there will be no wastage of animal feed. This is a major issue for all small dairy farmers in terms of labor and expense. It solves the labor problem with its help.
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Shivendra Kumar
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008498

Patent-778: Automatic milled raw rice age finder machine

1. **Name of the Technology:** Automatic milled raw rice age finder machine
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Automatic Milled Raw Rice Age Finder Machine is a straightforward, user-friendly testing device for determining the age of milled raw rice. when used at the time of procurement.
   - It may address the problem of rice recycling and provide a precise understanding of the age and freshness. On the basis of extensive

research on the nature of rice and the variables that affect its quality over time, such as moisture, temperature, viruses, and other external and internal factors that can contribute to rice degradation, and it is being tried to make the entire system as simple as possible for anyone to operate. The recent techniques like image processing and factor analysis are also being used for this device.

3. **Impact it will create:**
   - Automatic determination of the age of raw rice milled.
   - Less time required to age determination.
   - No detrimental effects on the skin and eyes, safe for human interaction
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor:**

   1. Md Samiruddin Ansari
   2. Manish Pandey
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008689

26) Indian Institute of Information Technology, Allahabad

Patent-779: A Portable Corona-Discharge System with Custom Made Electrodes, for PDMS Hydrophilic treatment and Bonding for Microfluidic Chip Fabrication

1. **Name of the Technology**: A Portable Corona-Discharge System with Custom Made Electrodes, for PDMS Hydrophilic treatment and Bonding for Microfluidic Chip Fabrication
2. **Highlights of the Technology (innovation/uniqueness etc.)**:

   The Portable Corona-Discharge System is In-House developed equipment that finds its application in the material surface preparations such as sanitizing the surface, making hydrophobic to hydrophilic, material bonding like various silicone based polymers. Similar Corona discharge systems available in the market are of relatively high cost and bulkier. Proposed product is portable and can be operated without any preparations, just a plug and play device while maintaining the same working efficiency
3. **Impact it will create**: This In-House developed Portable Corona-Discharge System finds its application in automobile industry and healthcare industry and is highly used in R& D Labs. It’s cost-effective and safe to use.

4. **Current Status of the Patent**: Patent filing number: 201811028599. First examination report reply filed and waiting for the final grant
5. **Student Team details/Faculty Mentor :**
   1. Amar Dhwaj
   2. Prashant Nayak
   3. Ankur Jasiwal
6. **Patent Filing date** : 30/07/2018
7. **Patent Granted date** :
8. **Patent Application Number** : 201811028599

Patent-780: Apparatuses and Methods for Separation of Suspended Particles Present in Liquid

1. **Name of the Technology**: Apparatuses and Methods for Separation of Suspended Particles Present in Liquid
2. **Current Status of the Patent**: Filed via TIFAC (DST). Published on 20 Nov 2020 and under examination
3. **Student team details/Faculty Mentor**
   1. Dr. Amit Prabhakar
   2. Praveen Kumar
   3. Neha Mishra
   4. Ankur Jaiswar
   5. Dr. Deepti Verma
4. **Patent Filing date** : 14-05-2019
5. **Patent Granted date** :
6. **Patent Application Number** : 201911019244

Patent-781: Advanced Bio-3D printers and Multi domain 3D Printing Services

1. **Name of the Technology:** Advanced Bio-3D printers and Multi domain 3D Printing Services
2. **Highlights of the Technology (innovation/uniqueness etc.):** The 3D printing services provided by us is the In-House developed 3D Printing platform capable performing five operations on a single platform along with 2D and 3D applications like for 2D (pen plotter, laser engraving) and 3D(Fused deposition modeling (FDM), Cell ink based Bio-printing, Melt electro writing)
3. **Impact it will create:** This In-House developed 3D printing services will enable users or customers to easily order their 3D printed products after

customization. They can give their design requirements or can even give their 3D designs that need to be 3D printed at very affordable prices.

4. **Current Status of the Patent:** Design patent filing number: 328285-001. First examination report reply filed and waiting for the final grant
5. **Student Team details/Faculty Mentor :**
   1. Amar Dhwaj
   2. Prashant Nayak
   3. Ankur Jasiwal
6. **Patent Filing date** **:** 16/03/2020
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 328285-001

Patent-782: Cost effective micro impedance pump for lab on chip applications

1. **Name of the Technology**: Cost effective micro impedance pump for lab on chip applications.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The technology behind the micropump is that excitation of the elastic PDMS tubing occurs asymmetrically with respect to the impedance of the fluid system. It converts the circular motion into linear motion that is utilized in tapping the silicone tubing in order to drive the Micro-Impedance pump.
3. **Impact it will create**: Currently, very limited companies/organizations are working on the level of micro-device production. Companies manufacturing micropumps, Bio-Medical devices and Drugs/Medicines (for drug testing/ drug delivery devices), might be interested in our device. The other possible interested companies, which may be interested in-our invention for commercialization are various MEMs based companies i.e.: Claros, Phillips, Dolomite, Abbott, Raindance, Achira lab etc.
4. **Current Status of the Patent**: Filed via TIFAC (DST).Published on 02 April 2020 and under examination
5. **Student Team details/Faculty Mentor :**
   1. Amar Dhwaj
   2. Nimisha Roy
6. **Patent Filing date** : 02 April 2020
7. **Patent Granted date** :
8. **Patent Application Number** : 201911039486

Annexure-II

Details of Patent Granted, till March, 2023

1) Kuppam Engineering College, Kuppam

Patent-01: LOG GRAPPLE

1. **Name of the Technology** **:** "LOG GRAPPLE"
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Grapple is a hydraulically powered claw with two or more opposing levers that pinch a log or other materials, usually to lift or drag them.
   - The logging grapple used in swing yarding is not moved by hydraulics but by cables.
   - The heavy duty MultiOne log grapple is a very powerful and flexible tool used to securely grab, lift, and transport harvested logs.
   - The hydraulically powered grapple arms firmly grip the logs, securing them to the lower forks.
   - Thedesign of the grapple accommodates small logs to large tree trunks.
3. **Impact it will create:**
   - Useful attachment for fencing and forest work
   - Independent arms operated by two cylinders
   - Strong log grab, also for more professional and frequent log handling
4. **Current Status of the Patent:**
   - Design Accepted and Published, Journal No is 21/2022 and Journal Date is 27/05/2022 (Granted)
5. **Student Team details/Faculty Mentor :**

   1. P. Ajay Kumar Reddy
6. **Patent Filing date** **:** 06-09-2021 (Design)
7. **Patent Granted date** **:** Granted – 27-05-2022
8. **Patent Application Number** **:** 348948-001

2) L. J. Institute of Engineering & Technology, Ahmedabad

Patent-02: Glass Concrete

1. **Name of the Technology**: Glass Concrete
2. **Highlights of the Technology (innovation/uniqueness etc.):** A product that uses less concrete and still enhances the strength of the paver block
3. **Impact it will create:** Recycling glass is a costly affair and if if it can be upcycled in this manner then it can impact the green house emission

4. **Current Status of the Patent** **:** Granted
5. **Student Team details/Faculty Mentor :**
   1. Mr. Yash Patel
   2. Mr. Harshad Makwana
   3. Mr. Nirmal Suthar
   4. Mr. Gaurav Mer
   5. Mr. Vansh Agrawal
   6. Mr. Sahej Tuteja
6. **Patent Filing date** : 13th December, 2019
7. **Patent Granted date** : 20-07-2021
8. **Patent Application Number** : 201921051659

3) Manav Rachna International University, Faridabad

Patent-03: Shuttle Express safety comfort convenience

1. **Name of the Technology** : Shuttle Express safety comfort convenience
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A SaaS based startup, a website with complete information for the events in corporate sector.
3. **Impact it will create:** One stop solution for any corporate to conduct events
4. **Current Status of the Patent** **:** Granted
5. **Student Team details/Faculty Mentor :**
   1. Udit Tiwari
6. **Patent Filing date** : 2020/09/15
7. **Patent Granted date** : Granted
8. **Patent Application Number** : 4658240

4) B. N. M. Institute of Technology, Bengaluru

Patent-04: Balance Mate – A system and Method for Notifying Imbalance and Correction of Standing and / or sitting body posture of a user

1. **Name of the Technology:** Balance Mate – A system and Method for Notifying Imbalance and Correction of Standing and / or sitting body posture of a user
2. **Highlights of the Technology (innovation/uniqueness etc.):** Empathy towards long time ortho related issues from the employees who have the standing postures during their work period is being identified and cross checked the impact with ortho doctors about the ways to rectify ortho related future diseases through the intervention of balance mate.

3. **Impact it will create:** This project is based on weight distribution monitoring system, which is a small ankle wearable device that prevents unequal weight distribution in legs. The device consists of a skin sensitive low power vibration motor, which sends an alerting trigger signal when more pressure is exerted on one of the legs.
4. **Current Status of the Patent** : Granted
5. **Student/Faculty team details :**
   1. Brahma S. P.
   2. Keerthana Velilani
   3. Soumiya Rao T.
6. **Patent Filing Date** : 06.03.2019
7. **Patent Granted Date** : 11/04/2023
8. **Patent Application Number** : 201941008707

Patent-05: Method and System for Photocatalytic Degradation of Organic Dyes

1. **Name of the Technology**: Method and System for Photocatalytic Degradation of Organic Dyes
2. **Highlights of the Technology (innovation/uniqueness etc.):** The uniqueness of this invention that can implement environmental friendly degradable organic dyes which is very efficient compared to other methods. The invention also uses isopropyl alchohol for photo catalytic degradation of organic dyes.
3. **Impact it will create:** The principal object of the present invention is to provide an efficient method and system for Photocatalytic Degradation of Organic Dyes. Another object of the present invention is to provide a method that can implement environment friendly Degradation of Organic Dyes and evaluate performance of Isopropyl Alcohol.
4. **Current Status of the Patent** : Filed and Granted
5. **Student/Faculty team details :**
   1. Dr. Jayanna B K
6. **Patent Filing Date** : 06.08.2019
7. **Patent Granted Date** : 27/09/2022
8. **Patent Application Number** : 20194103584

Patent-06: Under Water image enhacement

1. **Name of the Technology**: Under Water image enhacement
2. **Highlights of the Technology (innovation/uniqueness etc.):** The GAN model

has generator and discriminator network which compete with each other for better learning of the target image EDL (Edge difference loss) penalty, a laplace transform-based loss function is used as a feedback to the generator to update its weight. This weight helps the generator to efficiently enhance the image.

3. **Impact it will create**:A Generative Adversarial Network (GAN) based model to enhance underwater images. This helps to recover the realistic colour and appearance and other vision tasks such as classification, detection and tracking.
4. **Current Status of the Patent:** Patent Granted
5. **Student/Faculty team details** :
   1. Dr. Sejal Santosh Nimbhorkar
   2. Namitha S.
   3. Meghana R.
   4. Nikhitha Gururaj
6. **Patent Filing Date** : 26.06.2021
7. **Patent Granted Date** : 24.08.2021
8. **Patent Application Number** : 349135-001

Patent-07: Portable Wind Turbine

1. **Name of the Technology**: Portable Wind Turbine
2. **Highlights of the Technology (innovation/uniqueness etc.):** The novelty lies in the shape and configuration of the Portable Wind Turbine. No claim is made by virtue of this registration im respect of any mechanical or other action of any mechanism whatsoever or in respect of any mode or principle of contruction of the article.
3. **Impact it will create:** The main objective of the project is to develop microcontroller based low-cost compact ventilators that can be used in case of emergencies and can help save lives of the patients when conventional systems are not available. The plan is to use components which are readily available in the market and use simple, yet effectively control the operation.
4. **Current Status of the Patent** : Patent granted
5. **Student/Faculty team details**
   1. Dr. Shivalingappa
   2. Dr. L. Vijayashree
   3. Omkar N. Kashyap
   4. Aditya Sunku

6. **Patent Filing Date** : 26.11.2021
7. **Patent Granted Date** : 06/01/2023
8. **Patent Application Number** : 349135-001 dated 08/09/2021

Patent-08: A Smart Yoga Instructor program/code for estimating and correcting Yoga posture in real time using Python

1. **Name of the Technology**: A Smart Yoga Instructor program/code for estimating and correcting Yoga posture in real time using Python
2. **Highlights of the Technology (innovation/uniqueness etc.):** The main object of the invention is to develop a smart yoga instructor devise that will act as a personal yoga instructor and with this pratitioners can practice oga in their comfort zone. It is another object of the invention to develop a smart yoga instructor device whichis interactive and providing an audio guidance to perform different yoga asana correctly in real time.
3. **Impact it will create:** In an aspect the present invention relates to smart yoga instructor device for guiding and correcting posture of the user using an input device, output device, display device, image capturing device and a computer configured with a pre trained model from data sets of reference yoga asana postures with quadrant based correction mechanism in real time using deep learning(Python). In another aspect, the present invention relates to using Smart Yoga Instructor program code for correcting Yoga posture in a real time.
4. **Current Status** : Patent Granted
5. **Student/Faculty team details** **:**
   1. Dr. Bindu S.
   2. Dr. Jyoti R. Munavalli
   3. Dr. L. Vijayashree
6. **Patent Filing Date** : 27/01/2022
7. **Patent Granted Date** : 02/02/2023
8. **Patent Application Number** : 1756/2022-CO/SW

Patent-09: Solar Smart Bench

1. **Name of the Technology:** Solar Smart Bench
2. **Highlights of the Technology (innovation/uniqueness etc.):** A stainless steel bench with an outer frame made of MS Steel and seating made with WPC (Wood Plastic Composite) along with lamination and ACP sheets for the final finishing. The bench can be dismantled into 3 parts – The solar panel

structure, side support and the seating structure to enhance the portability of the bench. The assembling and disassembling of these parts cab be done easily with standard screws with are conveniently available.

3. **Impact it will create:** The Solar Smart Bench brings a note of ultra-modern design that can enhance or blend with existing landscapes. Being on the front edge of innovation, it will make a visible and functional green statement. It is a smart designed bench that enables people to charges their devices like mobile phones, laptops, etc., while relaxing on this bench. This project not only supports our PM's vision of Digital India, but will also contribute to the smart city project of our nation.
4. **Current Status of the Design Patent:** Granted on 03/02/2023
5. **Student Team details/Faculty Mentor :**
   I. Madhukeshwar S Malige
   II. Aishwarya M
   III. Gomathi S N
   IV. Hrishikesh S Bhat
6. **Patent Filing date** **:** 16.11.2022
7. **Patent Granted date** **:** 03.02.2023
8. **Patent Application Number** **:** 374232-001

Patent-10: Solar Powered Refrigerated Vending Cart

1. **Name of the Technology :** Solar Powered Refrigerated Vending Cart
2. **Highlights of the Technology (innovation/uniqueness etc.):** This vending cart makes use of solar power for the cooling of fruits and vegetables. This will maintain an ambient temperature of 10-12º c which will increase the shelf life of fruits and vegetables by 5 days. The uniqueness of this project lies in its hybrid nature where the cart can be propelled by an electric motor of 250 w. This will assist the vendor in pushing the cart on slopes and during fully loaded conditions.
3. **Impact it will create:** This project will reduce the wastage of fruits and vegetables to a great extent. Apart from reduction of wastage, this will also improve the quality of life and earnings of the vendor. The addition of a juicer will act as an additional source of income for the vendor. Hybrid mode of propelling the cart will greatly reduce vendor fatigue and increases productivity.
4. **Current Status of the Design Patent** **:** Patent Granted

5. **Student Team details/Faculty Mentor :**
   I. Bhuvan J
   II. Samarth S
   III. Surya Ravishankar
   IV. Vaibhav Krishna Rao
6. **Patent Filing date** **:** 31.05.2023
7. **Patent Granted date** : 13/07/2023
8. **Patent Application Number** **:** 387348-001

5) College of Technology & Engineering, Udaipur

Patent-11: Development of Two-Stage Dark Fermentation System for the Production of Green Hydrogen through Organic Waste

1. **Name of the Technology:** Development of Two-Stage Dark Fermentation System for the Production of Green Hydrogen through Organic Waste
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Hydrogen can be used as a clean alternative fuel instead of conventional fossil fuel in transportation sector as well as in chemical industries as a raw material for formation of many other substance like ammonia, urea etc. The production method will be Eco-friendly and utilized fuel is abundantly available renewable energy sources that are free from any types of harmful greenhouses gases. Direct conversion to electricity can also be achieved through fuel cell. This technology provides suitable environment for the fermentation of agricultural waste/waste biomass through which organic waste can be converted to clean alternative hydrogen fuel. It helps to eliminate the COD content of waste influent by proper digesting the waste streams.
3. **Impact it will create**: Organic waste will be optimally utilized as an alternate source of energy, which will not only be ecofriendly and reduce the pollution, but will also help in enhancing the hydrogen fuel collection.
4. **Current Status of the Patent** : Patent Granted
5. **Student Team details/Faculty Mentor :**
   1. Rupal Jain
   2. Naina Sachdeva
6. **Patent Filing date** : 20.04.2023
7. **Patent Granted date** : 23.08.2023
8. **Patent Application Number** : 384367-001

Patent-12: Manual Driven Solar Power Ice Cream Cart

1. **Name of the Technology**: Manual Driven Solar Power Ice Cream Cart
2. **Highlights of the Technology (innovation/uniqueness etc.):** Using traditional ice cream carts spoils the ice cream due to uneven cooling. Also, it is increasing environmental pollution by releasing poisonous gases into the atmosphere during ice making. They have a negative impact on the environment as they are part of the greenhouse gases that trap heat and lead to the depletion of the ozone layer. The solution lies in solar powered system. By developing a solar powered system, we are not only reducing the energy costs but also preserving our environment. This system doesn't use any of the poisonous gases so our ozone layer is safe. This system does not produce any CFCs and harmful gases so this system is eco-friendly.
3. **Impact it will create:** Solar powered ice cream thela system is the best option for street vendors storage ice cream. Generally, the ice cream consume in the clean weather timings are in between 10:00 AM to 10:00 PM. During the day, the availability of the solar radiation is higher, so solar panels get sufficient radiation to run the whole system. When the requirement of cooling is high as the availability of solar radiation is also high; hence the whole system is sufficient for cooling.
4. **Current Status of the Patent** : Patent Granted
5. **Student Team details/Faculty Mentor :**
   1. Kuldeep Kumar
   2. Lokendra Singh Rathore
6. **Patent Filing date** : 05-04-2023
7. **Patent Granted date** : 20-06-2023
8. **Patent Application Number** : 383116-001

6) Dr. M. G. R. Educational & Research Institute, Chennai

Patent-13: An apparatus and method of measuring the muscle strength

1. **Name of the Technology** : An apparatus and method of measuring the muscle strength
2. **Highlights of the Technology (innovation/uniqueness etc.):** Digital Instrument to Measure the Foot Muscle Strength
3. **Impact it will create** : Easy to diagnose the foot muscles. The accuracy of the muscle strength can be calculated.
4. **Current Status of the Patent** : Granted

5. **Student Team details/Faculty Mentor :**
   1. Bharath Kumar
6. **Patent Filing date** : 13.06.2019
7. **Patent Granted date** : 21/02/2022
8. **Patent Application Number** : 201941023462

7) National Engineering College, Kovilpatti

Patent-14: Non-invasive Diabnosis Device

1. **Name of the Technology** : Non-invasive Diabnosis Device
2. **Highlights of the Technology**: Without physically harming humans, blood glucose levels can be measured in real-time
3. **Impact it will create**: Blood glucose level testing made easy and accurate
4. **Current Status of the Patent** :
   Patent Granted (Patent No. 500346)
5. **Student Team details/Faculty Mentor :**
   1. S. Annalakshmi
   2. M. Anugraha
   3. S. Sundar Rajan
   4. P. Ramprasath
   5. M. Vishnu
6. **Patent Filing Date** : 05-10-2018
7. **Patent Granted Date** : 17-01-2024
8. **Patent Application Number** : 201841037694

Patent-15: Smart theft prevention system using GSM and cloud

1. **Name of the Technology**: Smart theft prevention system using GSM and cloud
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Home safety system developed with intelligent features
3. **Impact it will create**: Below middle-class people can also get an intelligent featured home safety system
4. **Current Status of the Patent** :
   Patent Granted (Patent No. 466641)
5. **Student Team details/Faculty Mentor :**
   1. S. Prabhu
   2. P. R. Prakash
   3. R. Narain Krishna

6. **Patent Filing Date** : 05-10-2018
7. **Patent Granted Date** : 07-11-2023
8. **Patent Application Number** : 201841037699

Patent-16: Water Tank Cleaning Device

1. **Name of the Technology** : Water Tank Cleaning Device
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A semi-automatic cleaning device was developed exclusively to clean overhead tanks in homes and commercial buildings
3. **Impact it will create**: This product's market volume is enormous and will become mandatory furniture in all homes.
4. **Current Status of the Patent** : Patent granted (Patent No. 487877)
5. **Student Team details/Faculty Mentor :**
   1. G. Ramaiah
   2. A. Selvakumar
   3. K. Rakesh
   4. S. Sankarakumar
   5. M. Prabukannan
6. **Patent Filing Date** : 05-10-2018
7. **Patent Granted Date** : 22-12-2023
8. **Patent Application Number** : 201841037676

Patent-17: Tractor Rear Loader

1. **Name of the Technology**: Tractor Rear Loader
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A special attachment was developed tractor, which will be brought the load lifting feature like a dozer.
3. **Impact it will create**: Ordinary tractor can be used as a load lifter with this attachment at a lower initial investment may reduce separate load lifting equipment expenses in agriculture.
4. **Current Status of the Patent** : Patent granted (Patent No. 487509)
5. **Student Team details/Faculty Mentor :**
   1. S. Rajakumar
   2. L. Karthikeyan
   3. J. David Prasannaraj
6. **Patent Filing Date** : 21-02-2020

7. **Patent Granted Date** : 22-12-2023
8. **Patent Application Number** : 202041007421

Patent-18: Solar Dryer for Agriculture Products

1. **Name of the Technology**: Solar Dryer for Agriculture Products
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Solar powered vegetable and fruit dryer cum dehumidifier was developed to preserve the items.
3. **Impact it will create**: Cultivated vegetables and fruits are season-specific. Due to demand fluctuation, vegetables are thrown away without selling many times. This product preserves the items and supplies to the demand consistently.
4. **Current Status of the Patent**: Patent Granted (Patent No. 497785)
5. **Student Team details/Faculty Mentor :**
   1. Aravind Prabaharan
   2. P. Periyanayaga Nathan
   3. K. P. Siva Sankaran
   4. R. Selva Arun
   5. S. Vishnu
6. **Patent Filing Date** : 21-02-2020
7. **Patent Granted Date** : 11-01-2024
8. **Patent Application Number** : 202041007418

Patent-19: Automatic floor cleaning and mopping device

1. **Name of the Technology**: Automatic floor cleaning and mopping device
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The floor mopping robot is developed with a wet mopping feature and is affordable among lower-middle-class customers.
3. **Impact it will create**: Floor mopping robot usage among the people will be encouraged, and the same will influence the development and use of many home-automation-related products in society.
4. **Current Status of the Patent**: Patent Granted (Patent No. 488737)
5. **Student Team details/Faculty Mentor :**
   1. R. Vigneshwaran
   2. V. Jayaraman
   3. T. S. Easwar
   4. M. Ahamed Yaseer

6. **Patent Filing Date** : 20-02-2020
7. **Patent Granted Date** : 21-12-2023
8. **Patent Application Number** : 202041007307

Patent-20: Gas Stove

1. **Name of the Technology**: Gas Stove
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A LPG gas stove was developed with many intelligent features enabling users to have a cooking experience like induction stoves. The innovative features include flame control, over-burning control, cooking timer, leakage protection and alerting will be helpful in fuel economy and safety aspects.
3. **Impact it will create**: excess usage of LPG can be avoided and both money and energy conserved. The safety features assure the avoidance of dangerous accidents.
4. **Current Status of the Patent**: Patent Granted (Patent No. 498056).
5. **Student Team details/Faculty Mentor :**
   1. K. Gandhi Muthu
   2. R. Arun Gomathi
   3. J. Ajay Karthick
6. **Patent Filing Date** : 14-02-2020
7. **Patent Granted Date** : 11-01-2024
8. **Patent Application Number** : 202041006561

Patent-21: A Candy Making Machine

1. **Name of the Technology**: A candy making machine
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A region-specific product was developed to automate the preparation of peanut candy in cottage industries.
3. **Impact it will create**: The machine and its process reduce the effort of human workers and increase the production rate for meeting the demand. Direct physical involvement of the human worker is diminished, and many health issues can be avoided.
4. **Current Status of the Patent** : Patent granted (Patent No. 393303)
5. **Student Team details/Faculty Mentor :**
   1. K. R. Praveen Krishna
   2. M. Pravin

3. M. Subramani
4. A. Sakthi

6. **Patent Filing Date** : 20-02-2020
7. **Patent Granted Date** : 29.03.2022
8. **Patent Application Number** : 202041007310

Patent-22: A portable ophthalmic apparatus

1. **Name of the Technology**: A portable ophthalmic apparatus
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A compact & unique eye examination kit was developed to test glaucoma disease's.
3. **Impact it will create**: The device cost is very cheap compared to the existing medical instruments available for the same purpose, enabling the low scale medical centres also to afford it. Further, the expanded testing facilities in society reduce the impact of the disease to a great extent.
4. **Current Status of the Patent** : Patent Granted (Patent No. 480221).
5. **Student Team details/Faculty Mentor :**
   1. P. M. Pon Jeyan
   2. S. Praveen
   3. S. M. Rejin Sobi
   4. V. Sivaraman
6. **Patent Filing Date** : 21-02-2020
7. **Patent Granted Date** : 11-12-2023
8. **Patent Application Number** : 202041007419

Patent-23: An apparatus for decluttering refuse from free-flowing garbage

1. **Name of the Technology**: An apparatus for decluttering refuse from free-flowing garbage
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A solid waste collecting system for open sewages was designed and developed based on the municipality's drainage paths. The device is designed to prevent the choking of solid wastes in the drainage junctions, thereby assuring the free flow in drainage.
3. **Impact it will create**: Choking free flow can be maintained in the open sewages, and direct physical involvement of human workers in drainages can be avoided entirely.
4. **Current Status of the Patent** : Patent Granted (Patent No. 474747)

5. **Student Team details/Faculty Mentor :**
   1. Hariharasudan V.
   2. Guruessakiraj M.
6. **Patent Filing Date** : 24-12-2021
7. **Patent Granted Date** : 29-11-2023
8. **Patent Application Number** : 202141060654

Patent-24: An apparatus for reaping of sodium chloride

1. **Name of the Technology**: An apparatus for reaping of sodium chloride
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A special attachment to the tractor is developed to efficiently harvest the salt extracted from the seawater in salt flats.
3. **Impact it will create**: The product can be attached to any tractor, and the rate of salt collection from the salt flats is comparatively high. Human workers' direct physical effort can be avoided, saving many lives from relative health issues.
4. **Current Status of the Patent**: Patent granted (Patent No. 427275)
5. **Student Team details/Faculty Mentor :**
   1. L. Karthikeyan
   2. V. Gowtham Sri Kumar
6. **Patent Filing Date** : 24-12-2021
7. **Patent Granted Date** : 28-03-2023
8. **Patent Application Number** : 202141060655

Patent-25: An apparatus for deriving a natural sweetener

1. **Name of the Technology**: An apparatus for deriving a natural sweetener
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A Device to prepare palm jaggery from the palm toddy is developed. The device's operating principle was planned as per the traditional procedure of the palm-jaggery-making process.
3. **Impact it will create**: The electricity-free device is well suited to be used in small palm tree fields. The device cost is low enough to be afforded by the existing palm field formers, and the production rate is higher when compared to the conventional process of preparing palm jaggery.
4. **Current Status of the Patent** :
   Patent granted (Patent No: 487704)

5. **Student Team details/Faculty Mentor :**
   1. A. Aakash Edwin
   2. R. Sanjay
   3. B. Venkatesh
   4. D. Vignesh
6. **Patent Filing Date** : 24-12-2021
7. **Patent Granted Date** : 22-12-2023
8. **Patent Application Number** : 202141060656

Patent-26: A portable apparatus for making nibbles

1. **Name of the Technology**: A portable apparatus for making nibbles
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A fully automatic multi-variety snack-making machine is designed and developed to cook fried snacks in a faster way to meet the demand
3. **Impact it will create**: The machine featured operates sequentially. Hence, cottage-level snack-making units can efficiently run their trade with less labour.
4. **Current Status of the Patent** : Patent Granted (Patent No. 497711)
5. **Student Team details/Faculty Mentor :**
   1. Venkatesh S.
   2. Hirthik Joel E.
   3. Vignesh R.
   4. Udhayakumar B.
   5. Sree Kumaran V.
6. **Patent Filing Date** : 28-02-2022
7. **Patent Granted Date** : 11-01-2024
8. **Patent Application Number** : 202241010735

Patent-27: An apparatus for surveilling air disseminating members

1. **Name of the Technology**: An apparatus for surveilling air disseminating members
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A ceiling fan regulator is developed with several intelligent features and can be installed for the existing ceiling fans. This controller is made in two variants; one is to control a single ceiling Fan with additional features that make a complete bedroom solution cost-effective. Another is a high-power controller that

contains a large number of Fans based on the factors, which conserves a lot of energy

3. **Impact it will create**: As an independent home automation device, it can provide a unique user experience and energy conservation.
4. **Current Status of the Patent** : Patent Granted (Patent No. 486794)
5. **Student Team details/Faculty Mentor :**
   1. H. Selvadevi
   2. B. Pandeeswari
   3. A. Deepika
   4. G. Mani Mekala
   5. P. Latha Nivetha
6. **Patent Filing Date** : 28-02-2022
7. **Patent Granted Date** : 28-12-2023
8. **Patent Application Number** : 202241010736

Patent-28: An apparatus for synthesizing activated carbon

1. **Name of** the Technology: An apparatus for synthesizing activated carbon
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A device is developed to prepare industrial-grade charcoal from waste woods and other non-metallic scraps. The device is very compact, and less skilled labour only required to operate the machine
3. **Impact it will create**: Charcoal production will be made as a cottage industry-level process which will meet the demand for good quality charcoal, and more employment generation will occur
4. **Current Status of the Patent**:
   Patent granted (Patent No. 431040)
5. **Student Team details/Faculty Mentor :**
   1. M. Pravin
   2. M. Subramani
   3. Sakthi A.
6. **Patent Filing Date** : 02-04-2022
7. **Patent Granted Date** : 03-05-2023
8. **Patent Application Number** : 202241020049

8) GLA University, Mathura

Patent-29: Tredmill Electric Cycle

1. **Name of the Technology** : Tredmill Electric Cycle
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - E-Bicycle combined with treadmill
3. **Impact it will create** :
   - Promoting health awareness and environment
4. **Current Status of the Patent** : Patent Granted
5. **Student Team details/Faculty Mentor :**
   1. Sachin Singh Sengar
   2. Himanshu Mishra
   3. Karanjeet Singh Randhawa
   4. Gaurav Verma
   5. Ravi Kumar Shukla
   6. Tejas Singh
6. **Patent Filing date** : 16.07.2018
7. **Patent Granted date** : 361044 Date: 12/03/2021
8. **Patent Application Number** : 201811026312

Patent-30: Automatic Toilet Seat with Auto Flush

1. **Name of the Technology**: Automatic Toilet Seat with Auto Flush
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Hygine Awareness
3. **Impact it will create**:
   More awareness towards personal hygiene
4. **Current Status of the Patent** :
   Patent Granted
5. **Student Team details/Faculty Mentor :**
   1. Ayush Goswami
   2. Shubham Agrwal
   3. Kapil Sharma
6. **Patent Filing date** : 17.12.2019
7. **Patent Granted date** : 371263 Date 06.07.2021
8. **Patent Application Number** : 201911052367

Patent-31: Smart Bird (Petrol Bike into Hybrid Bike)

1. **Name of the Technology**: Smart Bird (Petrol Bike into Hybrid Bike)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Hybrid Electric cum petrol bike
3. **Impact it will create**: Converting present vehicle to electric
4. **Current Status of the Patent** : Grant
5. **Student Team details/Faculty Mentor :**
   1. Akash Jain
   2. Amit Chaturvedi
   3. Chirag Rajpoot
   4. Harsh varshney
   5. Deepak Pal
   6. Sunil Sharma
6. **Patent Filing date** : 17.12.2019
7. **Patent Granted date** : 357023 Date 29.01.2021
8. **Patent Application Number** : 201911052235

Patent-32: Water Purification System (Distillation Based Water Purification System)

1. **Name of the Technology**: Water Purification System (Distillation Based Water Purification System)
2. **Highlights of the Technology (innovation/uniqueness etc.):** Highly efficient Purification system saving water upto 70%
3. **Impact it will create**: Saving water wastage in normal RO system
4. **Current Status of the Patent** : Grant
5. **Student Team details/Faculty Mentor :**
   1. Kaustubh Srivastava
6. **Patent Filing date** : 17.12.2019
7. **Patent Granted date** : 353518 Date 11.12.2020
8. **Patent Application Number** : 201911052368

Patent-33: Under Water Robot (Under water RoboticVehicle)

1. **Name of the Technology**: Under Water Robot (Under water RoboticVehicle)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Robot design especially for under-water survilliance
3. **Impact it will create**: Can be used for rescue mission or expedition mission and also for defence purpose

4. **Current Status of the Patent**: Grant
5. **Student Team details/Faculty Mentor :**
   1. Himanshu Baghel
   2. Mudit Sehgal
6. **Patent Filing date** : 19.12.2019.
7. **Patent Granted date** : 355581 Date 11.01.2021
8. **Patent Application Number** : 201911052868

Patent-34: Smart Vegetable Cutter

1. **Name of the Technology:** Smart Vegetable Cutter
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Device can cut different type of vegetable at high speed
3. **Impact it will create**: Helping cook and chefs to cut vegetable with lesser human efforts in less time
4. **Current Status of the Patent** : Grant
5. **Student Team details/Faculty Mentor :**
   1. Himanshu Goyal
   2. Raghav Agrawal
6. **Patent Filing date** : 28.12.2019.
7. **Patent Granted date** : 359133 Date 23.02.2021
8. **Patent Application Number** : 201911054346

Patent-35: Eco Gap Filler

1. **Name of the Technology:** Eco Gap Filler
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Adhesive from non-biodegradable foam
3. **Impact it will create**: A novel adhesive prepared by recycling of non-biodegradable Styrofoam for sticking various surfaces
4. **Current Status of the Patent**: Grant
5. **Student Team details/Faculty Mentor :**
   1. Raghav Rohatgi
6. **Patent Filing date** : 28.12.2019
7. **Patent Granted date** : 352171 Date 25.11.2020
8. **Patent Application Number** : 201911054344

Patent-36: I-COS (Ignition Cut off System)

1. **Name of the Technology:** I-COS (Ignition Cut off System)
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Vehicle Ignition cut off system based on different parameter
3. **Impact it will create**: Will prevent theft of motorcycles
4. **Current Status of the Patent** : Grant
5. **Student Team details/Faculty Mentor :**
   1. Rajat Yadav
6. **Patent Filing date** : 28.12.2019.
7. **Patent Granted date** : 354941 Date 31.12.2020
8. **Patent Application Number** : 201911054343

Patent-37: Advance Drip Irrigation System (ADIT)

1. **Name of the Technology:** Advance Drip Irrigation System (ADIT)
2. **Highlights of the Technology (innovation/uniqueness etc**.): New way of Drip Irrigation ensuring high cultivation
3. **Impact it will create**: More efficient Drip Irrigation
4. **Current Status of the Patent** : Grant
5. **Student Team details/Faculty Mentor :**
   1. Mayank Bhugra
6. **Patent Filing date** : 06.11.2021
7. **Patent Granted date** : 423062 Dated 24/02/23
8. **Patent Application Number** : 202111050415

9) Indian Institute of Technology (IIT), Guwahati

Patent-38: A novel processing technique for the development of machining free acetabular cup from ultra-high molecular weight polyethylene powder to be used in total hip replacement surgeries

1. **Name of the Technology:** A novel processing technique for the development of machining free acetabular cup from ultra-high molecular weight polyethylene powder to be used in total hip replacement surgeries
2. **Highlights of the Technology (innovation/uniqueness etc.):** A novel processing technique is developed for manufacture of acetabular cup from ultra-high molecular weight polyethylene powder to be used in total hip replacement surgeries without machining
3. **Impact it will create:** Useful for patients with hip problems and needs hip replacement surgeries

4. **Current Status of the Patent** **:** Granted
5. **Student Team details/Faculty Mentor :**
   1. Ashirbad Jana
6. **Patent Filing date** **:** 06/08/2019
7. **Patent Granted date** : Granted; 379704
8. **Patent Application Number** : 201931031886

Patent-39: Device for evaporation and recovery of organic solvents using simple labwares

1. **Name of the Technology:** Device for evaporation and recovery of organic solvents using simple labwares
2. **Highlights of the Technology (innovation/uniqueness etc.):** The design and fabrication of compliant pipe crawler to navigate pipe bends
3. **Impact it will create:** Simple method to fabricate a lab scale model is developed at affordable cost
4. **Current Status of the Patent** **:** Granted
5. **Student Team details/Faculty Mentor :**
   1. S. Sanjana
   2. Manish Gupta
   3. Heeramoni Boro
6. **Patent Filing date** **:** 4 February, 2022
7. **Patent Granted date** **:** 04.01.2023 (Granted; 416769)
8. **Patent Application Number** **:** 202131005168

Patent-40: Sachet/ Pouch cutting and squeezing apparatus

1. **Name of the Technology:** Sachet/ Pouch cutting and squeezing apparatus
2. **Highlights of the Technology (innovation/uniqueness etc.):** A sachet/pouch cutting and squeezing apparatus is designed and fabricated for implementation in manufacturing industry
3. **Impact it will create:** A simple and easy to implement device for cutting and squeezing sachet/pouch in manufacturing industry
4. **Current Status of the Patent:** Granted
5. **Student Team details/Faculty Mentor :**
   1. Gurdeep Singh
   2. Abhishek Singh

6. **Patent Filing date** : 25-5-2022
7. **Patent Granted date** : Granted; 415999
8. **Patent Application Number** : 202231030090

10) Marwadi University, Rajkot

Patent-41: Solar Collector

1. **Name of the Technology:** Solar Collector
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Solar Collector innovative Designed Intend to reduce the heat losses from absorber tube by providing a cut on the upper portion of the tube. Absorber Tube have direct heat losses of consent rated heat in the tube this cut portion. The cut portion plate is welded with low thermal heat losses plates
3. **Current Status of the Patent:**
   Design Is Published on 23-04-2021 (Journal Date) & Patent Granted
4. **Student Team details/Faculty Mentor :**
   1. Dr. Karan Motwani
   2. Dr. Nikhil Chotai
   3. Dr. Jatinkumar Patel
   4. Mr. Gaurav Vithalani
   5. Mr. Akhil Sidpara
   6. Mr. Mihir Thakar
5. **Patent Filing Date** : 18-12-2019
6. **Patent Published Date** : 23-04-2021
7. **Patent Granted Date** : 13/04/2021
8. **Patent Application Number** : 324828-001

Patent-42: Flexural Displacement Measuring Device

1. **Name of the Technology:** Flexural Displacement Measuring Device
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Deflection, in structural engineering terms, refers to the movement of a beam or node from its original position due to the force and load being applied to the member. It Can Occur for external applied loads from the weight of the structure itself, and the force of gravity in which this applies. It can occur in beams, trusses, frames and basically any other structure.
3. **Impact it will create**:
   It prevents the unique design of the flexural displacement device

4. **Current Status of the Patent:**
   Design Is Published on 05-02-2021 (Journal Date) and Patent Granted
5. **Student Team details/Faculty Mentor :**
   1. Mr. Rinkesh Makwana
   2. Dr. Ankur Bhogayata
   3. Dr. Nikhil Chotai
6. **Patent Filing Date** **:** 03-10-2020
7. **Patent Published Date** **:** 05-02-2021
8. **Patent Granted Date** : 27/01/2021
9. **Patent Application Number** **:** 336655-001

Patent-43: Tele-operated Smart Transportation Vehicle

1. **Name of the Technology**: Tele-operated Smart Transportation Vehicle
2. **Highlights of the Technology (innovation/uniqueness etc.):** We have invented a new design of a Tele Operated Smart Transportation Vehicle as outlined in the following specifications. The Claimed design of the Tele Operated Smart Transportation Vehicle consists of an arrangement to deliver medicines or food sor other products without contamination at desired location through remote controller using Global Positioning System Operated using internet. The Vehicle is designed to carry a weight of 60kg, and has two separate spaces each for carrying medicines or foods and other products. Boat Storage Spaces Are Equipped with ultraviolet light of wavelength in the range of 207-222 Nano meters to avoid contamination. Storage Space for medicines or food has a special arrangement of cooling systems to prevent contamination during the delivery period. The vehicle will have modes of operation including manual and automatic mode
3. **Impact it will create**: - Tele-operated Smart Transportation Vehicle
4. **Current Status of the Patent**: Design accepted and published, Certificate received
5. **Student Team details/Faculty Mentor :**
   1. Mr. Chandrasinh Parmar
   2. Mr. Viraj Shekhada
6. **Patent Filing Date** : 08-02-2022
7. **Patent Published Date** : 15-04-2022
8. **Patent Granted Date** : 11/04/2022
9. **Patent Application Number** : 358078-001

11) Datta Meghe Institute of Medical Sciences, Wardha

Patent-44: Knee valgus / varus dynamic deformity measurement tool**.**

1. **Name of the Technology** : Knee valgus / varus dynamic deformity measurement tool.
2. **Highlights of the Technology (innovation/uniqueness etc.):** Device to accurately measure Knee valgus / varus dynamic deformity in clinical settings
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment of the Musculo skeletal disorders
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor**:

   1. Deshpande Sanjay V.
6. **Patent Filing date** : 14/09/2019
7. **Patent Granted date** : 08/11/2021
8. **Patent Application Number** : 201921037088

Patent-45: Forceps for iris claw lenses

1. **Name of the Technology** : Forceps for iris claw lenses
2. **Highlights of the Technology (innovation/uniqueness etc.):** a forceps for applying an iris-claw lens. The forceps can include a first forceps body, a second forceps body, and a lens-receptacle. The first forceps body can have a first handle at a head end and a first arm at a tail end, the first handle being connected to the first arm at an angle. The lens-receptacle is configured to releasably hold a lens therein.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**

   1. Dr. Deepika Singhal
   2. Dr. Deepak Saxena
6. **Patent Filing date** : 06/04/2021
7. **Patent Granted date** : 10/06/2021
8. **Patent Application Number** : 2021103117

Patent-46: Apparatus for treating sleep disorder

1. **Name of the Technology** : Apparatus for treating sleep disorder
2. **Highlights of the Technology (innovation/uniqueness etc.):** an apparatus for treating sleep disorders. The apparatus can include a hollow plate, a bulge member, and an orifice. The hollow plate can be defined by an upper portion and a lower portion with the lower portion connected and being co-extensive with the upper portion.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Dr. Vikram Belkhode
   2. Dr. Sharayu Nimonkar
6. **Patent Filing date** : 6/4/2021
7. **Patent Granted date** : 10/6/2021
8. **Patent Application Number** : 2021103112

Patent-47: An apparatus for facilitating ultrasound based soft tissue mobilization probe

1. **Name of the Technology** : An apparatus for facilitating ultrasound based soft tissue mobilization probe
2. **Highlights of the Technology (innovation/uniqueness etc.):** an ultrasound and instruments assisted soft tissue mobilization tools for maximal effects on pain reduction with deep heating properties of ultrasound to reduce pain effectively by reducing spam, breaking adhesions, promoting tissue healing, inflammation reduction, reducing trigger points
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor**
   1. Dr. Waqar Naqvi
   2. Dr. Laukik Vaidya
6. **Patent Filing date** : 06/04/2021

7. **Patent Granted date** : 10/06/2021
8. **Patent Application Number** : 2021103109

Patent-48: An apparatus to hold crown during crown manipulations

1. **Name of the Technology** : An apparatus to hold crown during crown manipulations
2. **Highlights of the Technology (innovation/uniqueness etc.):** an apparatus to hold crown firmly during crown manipulations. The object of the proposed invention is to provide an apparatus to hold crown firmly during crown manipulations so that it could not jerk while operating on it
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Fulzele Punit
   2. Adakane Rakesh Datta
6. **Patent Filing date** : 6/4/2021
7. **Patent Granted date** : 4/20/2022
8. **Patent Application Number** : 2021103111

Patent-49: An apparatus for stretching hamstring muscles

1. **Name of the Technology** : An apparatus for stretching hamstring muscles
2. **Highlights of the Technology (innovation/uniqueness etc.):** • an unique exercise apparatus with the help of mechanization and more specifically to a portable hamstring muscles stretching exerciser.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment of the musculo skeletal disorders
4. **Current Status of the Patent** :
   Granted
5. **Student team details/Faculty Mentor:**
   1. Irshad Quarashi
   2. Khedkar Sandip Sudhakarrao
6. **Patent Filing date** : 6/3/2021

7. **Patent Granted date** : 7/9/2021
8. **Patent Application Number** : 2021103076

Patent-50: An IoT based Portable Vaccine Cold Carrier

1. **Name of the Technology** : An IoT based Portable Vaccine Cold Carrier
2. **Highlights of the Technology (innovation/uniqueness etc.):** IOT based Portable Vaccine Carrier to maintain the supply chain for vaccines and other temperature sensitive medicines.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Shilpa Bavankule
   2. Gadiane Abhay
6. **Patent Filing date** : 3/19/2021
7. **Patent Granted date** : 4/28/2021
8. **Patent Application Number** : 2021101427

Patent-51: A Device For Dilation of The Cervix

1. **Name of the Technology** : A Device For Dilation of The Cervix
2. **Highlights of the Technology (innovation/uniqueness etc.):** Device to assist the dilation of cervix in specific conditions where in the surgical intervention can be differed.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details**
   1. Khedkar Sandip Sudhakarrao
   2. Jaiswal Arpita
6. **Patent Filing date** : 19/03/2021
7. **Patent Granted date** : 28/04/2021
8. **Patent Application Number** : 2021101426

Patent-52: Dhara Device For Treating Musculoskeletal Disorders

1. **Name of the Technology** : Dhara Device For Treating Musculoskeletal Disorders
2. **Highlights of the Technology (innovation/uniqueness etc.):** automated Dhara Device for treatment and ayurvedic procedures
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Devendra Shahare
   2. Vaishali Kuchewar
6. **Patent Filing date** : 10/06/2020
7. **Patent Granted date** : 01/12/2022
8. **Patent Application Number** : 202021043329

Patent-53: An apparatus for facilitating ultrasound based soft tissue mobilization probe

1. **Name of the Technology** : An apparatus for facilitating ultrasound based soft tissue mobilization probe
2. **Highlights of the Technology (innovation/uniqueness etc.):** an ultrasound and instruments assisted soft tissue mobilization tools for maximal effects on pain reduction with deep heating properties of ultrasound to reduce pain effectively by reducing spam, breaking adhesions, promoting tissue healing, inflammation reduction, reducing trigger points
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Dr. Waqar Naqvi
   2. Dr. Laukik Vaidya
6. **Patent Filing date** : 09/03/2020
7. **Patent Granted date** : 10/20/2021
8. **Patent Application Number** : 202021038065

Patent-54: Forceps for iris claw lenses

1. **Name of the Technology** : Forceps for iris claw lenses
2. **Highlights of the Technology (innovation/uniqueness etc.):** a forceps for applying an iris-claw lens. The forceps can include a first forceps body, a second forceps body, and a lens-receptacle. The first forceps body can have a first handle at a head end and a first arm at a tail end, the first handle being connected to the first arm at an angle. The lens-receptacle is configured to releasably hold a lens therein.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** :
   Granted
5. **Student team details/ Faculty Mentor:**
   1. Dr. Deepika Singhal
   2. Dr. Deepak Saxena
6. **Patent Filing date** : 16/07/2020
7. **Patent Granted date** : 02/07/2021
8. **Patent Application Number** : 202021030400

Patent-55: Apparatus for treating sleep disorder

1. **Name of the Technology** : Apparatus for treating sleep disorder
2. **Highlights of the Technology (innovation/uniqueness etc.):** An apparatus for treating sleep disorders. The apparatus can include a hollow plate, a bulge member, and an orifice. The hollow plate can be defined by an upper portion and a lower portion with the lower portion connected and being co-extensive with the upper portion.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor**
   1. Dr. Vikram Belkhode
   2. Dr. Sharayu Nimonkar
6. **Patent Filing date** : 7/7/2020

7. **Patent Granted date** : 7/2/2021
8. **Patent Application Number** : 202021028726

Patent-56: Mini Implant Placement Guiding Device

1. **Name of the Technology** : Mini Implant Placement Guiding Device
2. **Highlights of the Technology (innovation/uniqueness etc.):** Guiding device for accurately positioning mini implant between the adjacent roots of the teeth. A base wire is configured on 02 adjacent teeth, at least 03 sliding members are configured with the base wire to slide on the base wire between the teeth.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Murarka Shriya P.
   2. Shrivastav Sunita
6. **Patent Filing date** : 03/03/2020
7. **Patent Granted date** : 27/11/2020
8. **Patent Application Number** : 202021009122

Patent-57: Loop Device for a Plurality of Teeth

1. **Name of the Technology** : Loop Device for a Plurality of Teeth
2. **Highlights of the Technology (innovation/uniqueness etc.):** Simple and effective loop device for teeth which is easily configured on teeth of a patient for realigning teeth at required position.
3. **Impact it will create** :
   - simple and cost-effective device
   - reliable and efficient device for treatment
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Meenakshi M. Tiwari
   2. Vikrant V Jadhav
6. **Patent Filing date** : 28/02/2020
7. **Patent Granted date** : 27/11/2020
8. **Patent Application Number** : 202021008633

Patent-58: An Apparatus for Dispensing Herbal Enema Medicine

1. **Name of the Technology:** An Apparatus for Dispensing Herbal Enema Medicine
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   An automated flexible herbal medicine mixer and dispenser for dispensing enema medicine apparatus used in the treatment of enema.
3. **Impact it will create:**
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent:**
   Granted
5. **Student Team details/Faculty Mentor :**
   1. Gaurav Sawarkar
6. **Patent Filing date** : 31-12-2021
7. **Patent Granted date** : 03-11-2022
8. **Patent Application Number** : 202121062268

Patent-59: An apparatus for stretching hamstring muscles

1. **Name of the Technology:** An apparatus for stretching hamstring muscles
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - An unique exercise apparatus with the help of mechanization and more specifically to a portable hamstring muscles stretching exerciser.
3. **Impact it will create:**
   - simple and cost-effective device
   - reliable and efficient device for treatment of the musculo skeletal disorders
4. **Current Status of the Patent:**
   Granted
5. **Student Team details/Faculty Mentor :**
   1. Irshad Qureshi
6. **Patent Filing date** **:** 09-12-2020
7. **Patent Granted date** : 29-12-2022
8. **Patent Application Number** : 202021053747

Patent-60: Medicated Thread & Process of Preparation Thereof

1. **Name of the Technology:** Medicated Thread & Process of Preparation Thereof
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A new method for manufacturing if medicated treads and the process of its use in treatment of patients
3. **Impact it will create:**
   - Help the clinician in managing and treating the patients
4. **Current Status of the Patent** **:** Granted
5. **Student Team details/Faculty Mentor :**
   Rushikesh Anilrao Thakre
6. **Patent Filing date** **:** 03-06-2021
7. **Patent Granted date** : 16-03-2022
8. **Patent Application Number** : 2021103081

12) Chitkara University, Rajpura

Patent-61: InteLights – 3D smart traffic light

1. **Name of the Technology** : InteLights – 3D smart traffic light
2. **Highlights of the Technology (innovation/uniqueness etc.):** System for controlling traffic at an Intersection. InteLights is an "Edge based, deep learning powered", Intelligent Traffic Management System that uses existing CCTV cameras, cutting-edge communication and processing technologies, optically isolated MOSFET switching and appropriate Machine Learning algorithms (in house trained Convolutional Neural Networks for traffic density estimation) to control and prioritize the traffic signals based on the current intensity of traffic at each lane of an intersection.
3. **Impact it will create**: It will reduce traffic density at traffic signals, it will reduce pollution and it will generate useful data about automobiles that will be useful for the authorities (for implementing policies) as well as companies (for developing marketing strategies).
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Gaurav Goyal
   2. Karamdeep Singh
   3. Rahul Goyal

4. Hardeep Singh
5. Karanveer Singh
6. Rishabh Malra
7. Sumit Kumar Patel

6. **Patent Filing date** : 8 November 2019
7. **Patent Granted date** : 21 June 2021
8. **Patent Application Number** : 201911045568

Patent-62: The Pied Piper – Lure the Rats Away Smartly

1. **Name of the Technology** : The Pied Piper – Lure the Rats Away Smartly
2. **Highlights of the Technology (innovation/uniqueness etc.):** A Mouse Trap **-** Rats are responsible for 40% of disease transmission in developing countries. Pied-Piper is a trending patented trap, which is completely free from human touch, with its AI-based autonomous traveling to dump rats/mice outside at specified places. Pied-Piper traps multiple rats at once. E-Pinjra is also termed "The Piped Piper."
3. **Impact it will create** : It will be an ideal tool for industrial environment like hotels, restuarants, warehouses, etc for automatic removal of rodents in humanely and touchless manner.
4. **Current Status of the Patent**: Granted
5. **Student team details/Faculty Mentor:**
   1. Rouble Gupta
   2. Nitin Saluja
6. **Patent Filing date** : 18 December, 2018
7. **Patent Granted date** : 18 March, 2021
8. **Patent Application Number** : 201811047766

Patent-63: Formulation development of Freeze Dried Inhalable microparticles of Hydroxychloroquine and Surfactants for pulmonary delivery for management of ARDS in COVID & SARS Diseases

1. **Name of the Technology** : Formulation development of Freeze Dried Inhalable microparticles of Hydroxychloroquine and Surfactants for pulmonary delivery for management of ARDS in COVID & SARS Diseases
2. **Highlights of the Technology (innovation/uniqueness etc.):** Inhalable Microparticles of Hydroxychloroquine for Management of Acute Respiratory Syndrome – COVID-19 (corona virus disease) is a respiratory illness that is

severe and potentially fatal. It can cause mortality in severe cases due to alveolar collapse. HCQ could be effectively used in the treatment of SARS-CoV pneumonia. However, the major problems of oral treatment with HCQ can cause possible severe side effects and toxicity; hepatic first-pass metabolism and drug accumulation in liver. Inhalable HCQ micro-particles pass through airway & prevent replication of virus effectively & surfactants maintain alveolar capacity. Administration of formulation using an autohaler (Inhaler) produces a long duration of action in the lungs and further absorption in systemic circulation, avoiding first-pass metabolism.

3. **Impact it will create** : Inhalable HCQ microparticles could be an important tool for the management of acute respiratory distress syndrome (ARDS) in COVID as well as in the emergency care clinical team.
4. **Current Status of the Patent**: Granted
5. **Student team details/Faculty Mentor:**
   1. Rupanshi Grover
   2. Sukhbir Singh
6. **Patent Filing date** : 18 June 2020
7. **Patent Granted date** : 16 April 2021
8. **Patent Application Number** : 202011025625

Patent-64: Solar Powered Umbrella like Canopy

1. **Name of the Technology** : Solar Powered Umbrella like Canopy
2. **Highlights of the Technology (innovation/uniqueness etc.):** Smart Two Directional Movable Mount for Solar Panels – Solar Powered Multipurpose Canopy is an umbrella-type canopy that has the provision of giving 5 volts, 3 amps of DC power. The canopy is powered by a 10-watt solar panel that drives a 12-volt battery and a solar charge controller to convert solar energy into DC power. Two independent USB ports have been provided that deliver 5V, 3A power sufficient for charging a smartphone, running a DC fan on a hot summer day, and lighting an LED light during the night if required. A heavy-duty metal base has been made so that the structure remains standalone and doesn't topple in windy conditions. Dedicated efforts have been made in the design of the complete structure so that it is easy to dismantle (for transportation) and looks neat and elegant.

3. **Impact it will create** : Solar-powered umbrella-type canopy is ideal for use in places like Gate Security Posts, Outdoor Police Posts, Outdoor Events, Outdoor Eateries etc.
4. **Current Status of the Patent**: Granted
5. **Student team details/Faculty Mentor:**
   1. Aaishwarika Raj Sharma
   2. Chanpreet Singh
6. **Patent Filing date** : 15 Sep 2021
7. **Patent Granted date** : October 2022
8. **Patent Application Number** : 349524-001

Patent-65: ACTIVECAP- Stay Active be Healthy

1. **Name of the Technology** : ACTIVECAP- Stay Active be Healthy
2. **Highlights of the Technology (innovation/uniqueness etc.):** Bottle Cap Assembly and Cap for Bottle **-** Activecap is a beverage packaging company. The company's vision is to create the best infusion cap technology in the world. Using its unique solutions, Activecap assists other companies in a variety of industries in expanding their product lines and generating growth. It is a revolutionary method of storing and protecting vital ingredients until they are consumed.
3. **Impact it will create** : The product has a potential to revolutionize the beverage packaging industry.
4. **Current Status of the Patent**: Patent Granted
5. **Student team details/Faculty Mentor:**
   1. Pintu Kumar
6. **Patent Filing date** : 14 Oct 2019
7. **Patent Granted date** : 6 Nov 2020 (323330)
8. **Patent Application Number** : 201911041596

Patent-66: Agronic Culture: Bin farming for healthy beings

1. **Name of the Technology** : Agronic Culture: Bin farming for healthy beings
2. **Highlights of the Technology (innovation/uniqueness etc.):** GROW BED CUM COMPOSTING BIN– Bin Farming for Healthy Beings essentially promotes and entails barrel and bin farming for producing organic and superlative food products. The main idea behind this setup is to promote healthy culture through organic food, build a repository of herbs and

medicinal plants, take a step closer to the Sustainable Development Goals, be in sync with the 3 Rs—Recycle, Reduce, and Reuse, and create a portable and compact farming system in less space.

3. **Impact it will create** : It aims to provide healthy, organic food at a low cost. It also offers a solution for waste management.
4. **Current Status of the Patent**: Granted
5. **Student team details/Faculty Mentor:**
   1. Arryan Madhu Chitkara
   2. Shalini Somra
   3. Gautam Malik
6. **Patent Filing date** : 31 July 2021
7. **Patent Granted date** : August 2022
8. **Patent Application Number** : 347073-001

Patent-67: Wind Turbine Driven Generator for Vehicles

1. **Name of the Technology** : Wind Turbine Driven Generator for Vehicles
2. **Highlights of the Technology (innovation/uniqueness etc.):** This project relates to self-sustaining equipment for the generation of electricity, and more specifically, it relates to wind turbine-driven generators for vehicles. This device is used for the generation of electricity to charge any type of vehicle battery, provided the vehicle is in motion. The motion of the vehicle will cause air to travel over the body of the vehicle, which will force the air into the nozzle, thus increasing the speed of the air flowing. This will exert force on multiple turbines, rotating them and producing electricity that can be used to charge the batteries, thereby increasing the distance travelled by the electric vehicles. No extra energy input is required to operate wind turbines. As the vehicle moves, the air around it will rotate turbines to produce electricity.
3. **Impact it will create** : Self charging electric vehicle will have unlimited driving range and this technology will disrupt the EV market.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Yash
   2. Prabhjot Singh
6. **Patent Filing date** : 30 June 2015
7. **Patent Granted date** : 2023
8. **Patent Application Number** : 1962/DEL/2015

Patent-68: Heat Treatment Electric Furnace

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 11-Mar-22
7. **Patent Granted date** : April 2023
8. **Patent Application Number** : 360479-001

Patent-69: Rotary Job Holder Case Hardening Furnace

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal

6. **Patent Filing date** : 12-May-22
7. **Patent Granted date** : June 2023
8. **Patent Application Number** : 364097-001

Patent-70: Heat Treatment Furnace with Controlled Atmosphere and Controlled Speed

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 12-May-22
7. **Patent Granted date** : June 2023
8. **Patent Application Number** : 364098-001

Patent-71: Perineal Retractor for Safe and Accurate Episiotomy during Vaginal Delivery

1. **Name of the Technology** : Perineal Retractor for Safe and Accurate Episiotomy during Vaginal Delivery
2. **Highlights of the Technology (innovation/uniqueness etc.):** GK Retractor**-**This is a surgical instrument that helps to guide the incision made during an episiotomy at a specific angle, in turn reducing the risk of vaginal tears. Injuries related to vaginal childbirth are something that is not talked about openly in Indian society. Up to 9 in every 10 first-time mothers who have a vaginal birth will experience some sort of tear, graze, or episiotomy. These tears range from mild to severe and, in some cases, lead to pelvic

floor incontinence. With this in mind, our team set out to help make the quality of life for first-time mothers better.

3. **Impact it will create**: This is a lifesaving medical instrument for women at the time of child birth.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Vanya Sharma
   2. Prachi Mittal
   3. Keerti Bhusan Pradhan
6. **Patent Filing date** : 10 Sep 2020
7. **Patent Granted date** : 29 Sep 2021
8. **Patent Application Number** : 334120-001

Patent-72: Automatic and Moveable Vertical Garden Barricades

1. **Name of the Technology** : Automatic and Moveable Vertical Garden Barricades
2. **Highlights of the Technology (innovation/uniqueness etc.):** LED lights with solar panels will make the system energy-efficient and increase visibility at night. It has space for ads to generate revenue and improve nighttime visibility. This set will provide an integrated design and environmentally friendly solution for many issues.
3. **Impact it will create**: Innovative idea for increasing night time visibility on roads.
4. **Current Status of the Patent** :
   Granted
5. **Student team details/Faculty Mentor:**
   1. Jaibir Singh Makkar
   2. Shivansh Rajput
   3. Pooja Mahajan
6. **Patent Filing date** : 28 Jan 2022
7. **Patent Granted date** : Feb 2023
8. **Patent Application Number** : 357439-001

Patent-73: Portable Ventilated Universal Laptop Stand

1. **Name of the Technology** : All in One Laptop Stand with Integrated Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea of "All-in-one Laptop Stand with Integrated Table" is to solve the problems faced by users with the existing laptop stand. The following features are provided in the single product: Mesh base to avoid overheating, along with sliding USB-powered fans for additional cooling; A hinge protection feature is uniquely designed to provide support for the laptop screen; Compatible with various sizes of laptops; The table will be adjustable in height and include features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study lamp; Adjustable angle that can reduce screen effects and help to create a more natural typing position
3. **Impact it will create** : It is a lifestyle product that can help a large number of individuals who use laptops in correcting their postures and avoid health issues.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Pranav Garg
   1. Pranav Kumar
   1. Gulshan Dhillon
6. **Patent Filing date** : 26-Aug-20
7. **Patent Granted date** : 5 March 2021
8. **Patent Application Number** : 332372-001

Patent-74: Height Adjustable Folding Arm Rest Table with Slidable Holders

1. **Name of the Technology** : All in One Laptop Stand with Integrated Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea of "All-in-one Laptop Stand with Integrated Table" is to solve the problems faced by users with the existing laptop stand. The following features are provided in the single product: Mesh base to avoid overheating, along with sliding USB-powered fans for additional cooling; A hinge protection feature is uniquely designed to provide support for the laptop screen; Compatible with various sizes of laptops; The table will be adjustable in height and include features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study

lamp; Adjustable angle that can reduce screen effects and help to create a more natural typing position

3. **Impact it will create**: It is a lifestyle product that can help a large number of individuals who use laptops in correcting their postures and avoid health issues.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Pranav Kumar
6. **Patent Filing date** : 26-Aug-20
7. **Patent Granted date** : 9 July 2021
8. **Patent Application Number** : 332371-001

Patent-75: Height Adjustable Table with Folding Arm Rest & Integrated Power Strip

1. **Name of the Technology** : All in One Laptop Stand with Integrated Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea of "All-in-one Laptop Stand with Integrated Table" is to solve the problems faced by users with the existing laptop stand. The following features are provided in the single product: Mesh base to avoid overheating, along with sliding USB-powered fans for additional cooling; A hinge protection feature is uniquely designed to provide support for the laptop screen; Compatible with various sizes of laptops; The table will be adjustable in height and include features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study lamp; Adjustable angle that can reduce screen effects and help to create a more natural typing position
3. **Impact it will create**: It is a lifestyle product that can help a large number of individuals who use laptops in correcting their postures & avoid health issues.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Gulshan Dhillon
6. **Patent Filing date** : 8 Feb 2022
7. **Patent Granted date** : May 2023
8. **Patent Application Number** : 358132-001

Patent-76: Rodent Surgical Table

1. **Name of the Technology** : Rodent Surgical Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is an improved surgical table, particularly for use in veterinary medicine. There are a lot of surgical tables available in the market, but the facilities available are not advanced. The proposed current design is efficient with facilities as it is made up of a stainless-steel surface with heating pads, an LED lamp, a tool tray, waste drainage pipe, beaker spaces (250 ML & 100 ML), an animal tissue holder, an automated temperature regulator as per the physiological demand, & an automated position setter for the ease of the surgery.
3. **Impact it will create**: Rodent surgical tables are used for animals' examinations or surgeries by a veterinary surgeon or preclinical researchers. It is important to provide an accurate position and height of the working table for surgery with proper temperature regulation, which enables the veterinarian to be in a precise position rather than kneeling or crouching to treat the animal on the floor.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Member:**
   1. Nikhil Garg
   2. Onkar Bedi
   3. Thakur Gurjeet Singh
6. **Patent Filing date** : 21 July 2020
7. **Patent Granted date** : 18 June 2021
8. **Patent Application Number** : 331265-001

13) Nehru Institute of Engineering & Technology, Coimbatore

Patent-77: Method of Extracting Hydrochar from Biodegradable Solid Waste by Hydrothermal Carbonization Using Laser Beam

1. **Name of the Technology** : Method of Extracting Hydrochar from Biodegradable Solid Waste by Hydrothermal Carbonization Using Laser Beam
2. **Highlights of the Technology (innovation/uniqueness etc.):** The primary objective is to generate hydrochar from biodegradable municipal waste. The main purpose is to uniform heating inside the reactor by providing channelized dispersion of heat using laser beam.

3. **Impact it will create** : Conversion of municipal waste materials into more energyefficient and environmental friendly manner.
4. **Current Status of the Patent** : Examination Completed
5. **Student team details/Faculty Details:**
   1. Subash P K
6. **Patent Filing date** : 29.06.2021
7. **Patent Granted date** : 09.07.2021
8. **Patent Application Number** : 202141029016

14) S. R. M. Institute of Science & Technolgy, Kattankulathur

Patent-78: Electric Motor

1. **Name of the Technology**: Electric Motor
2. **Highlights of the Technology (innovation/uniqueness etc.)**: An easily detachable shaft for an Electric Motor
3. **Impact it will create**: This system will improve the modularity and serviceability of electric motors in various applications, So the overall costing of the motors will reduce
4. **Current Status of the Patent** : FER response submitted
5. **Student team details/Faculty Mentor:**
   1. Shivam Bhatia
6. **Patent Filing Date** : 9 August, 2019
7. **Patent Granted Date** : 10/11/2023
8. **Patent Application Number** : 201941032467

Patent-79: Electric Motor

1. **Name of the Technology**: Electric Motor
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A multi piece Swing arm system
3. **Impact it will create**: This is an application-level patent and will improvise the serviceability of motors in Electric vehicles.
4. **Current Status of the Patent**: Granted
5. **Student team details/Faculty Mentor**:
   1. Karthik Donthula
   2. Pradeep Kumar
6. **Patent Filing date** : 9 August 2019
7. **Patent Granted date** : 29.04.2022
8. **Patent Application Number** : 201941032469

Patent-80: A Machine-Vision Enabled Tactical Scope

1. **Name of the Technology**: A Machine-Vision Enabled Tactical Scope
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Autonomous Targeting, Smart Scope
3. **Impact it will create**: Defence Systems, Enhanced Surveillance, Accurate Targeting Security
4. **Current Status of the Patent**: Patent Granted
5. **Student team details/Faculty Mentor:**
   1. Dr. S. Dhanalakshmi
   2. Dr. Kumar R.
   3. Amrit Das
   4. Rohan Giri
   5. Ayon Chatterjee
   6. Vanshika Singh
6. **Patent Filing date** : 18th Nov 2020
7. **Patent Granted date** : 04/08/2023
8. **Patent Application Number** : 202041050236

Patent-81: A Non-invasive device for monitoring bilirubin level and a method thereof

1. **Name of the Technology**: A Non-invasive device for monitoring bilirubin level and a method thereof
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Measurement of bilirubin content in neonates at an early stage is important to prevent any serious illness such as jaundice. Jaundice meter that can determine bilirubin count is widely used as the diagnosis procedure and the treatment procedure includes phototherapy which uses blue light to break down the bilirubin by isomerization. Both the diagnosing and treatment procedure are manual method which requires external assessment
3. **Impact it will create**: In order to make both the procedures automatic, the non-invasive bilirubin sensor has been designed which is compact for continuous monitoring of bilirubin value
4. **Current Status of the Patent**: Patent Granted
5. **Student team details/Faculty Mentor:**
   1. Akshaya J.
   2. K. Ragadeepthi
   3. Vijitha Venugopal

4. Dr. S. P. Angeline Kirubha

6. **Patent Filing date** : 16th October 2020
7. **Patent Granted date** : 23/06/2023
8. **Patent Application Number** : 202041040316

Patent-82: An IOT Based Health Management System and a Method thereof

1. **Name of the Technology:** An IOT Based Health Management System and a Method thereof
2. **Highlights of the technology** –

   The following are the sensors that are measured using the “Rhythm Monitor”.

   A. Ambient Light Sensor:
   - The Luminosity Sensor Breakout is used to measure the intensity of the light in terms of lux.
   - To give a better perspective of the human eye, the sensor coalesces both visible and infrared light.

   B. Contactless IR Wrist Temperature Sensor
   - The Non-Contact Human Body Infrared Temperature Measurement Module is used to measurethe wrist temperature of the user.

   C. AI-powered IoT Board
   - Self-learning AI smart sensors with an integrated accelerometer (3-axis) and gyroscope (3-axis) are used for detecting the activity of the user.

   D. Environmental Temperature Sensor
   - To measure the environment temperature, we use the temperature sensor that can measure the temperature of minimum -40°C to maximum+85°C.

   E. Heart Rate Sensor
   - To measure the BPM of the user to find the sleep status of the user
3. **Impact it will create:**
4. **Current Status of the Patent:** Patent Granted
5. **Student Team details/Faculty Mentor :**

   1. K. Sornalakshmi
   2. Shalin N.
   3. Viveka M.
6. **Patent Filing Date** : 15/12/2020

7. **Patent Granted Date** : 08/09/2023
8. **Patent Application Number** : 202041054578

15) Sumathi Reddy Inst. of Tech. for Women, Warangal Urban

Patent-83: Vacuum Assisted Climbing Apparatus

1. **Name of the Technology:** Vacuum Assisted Climbing Apparatus
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Innovation
3. **Impact it will create**: It is using in college campus
4. **Current Status of the Patent** : Patent grantted
5. **Student Team details/Faculty Details:**
   1. Ch. Vinay Kumar Reddy
   2. Dr. I. Rajasri Reddy
   3. Deekonda Nikitha
6. **PatentFiling date** : 29/03/2019
7. **PatentGranted date** : 21/06/2022
8. **PatentApplication Number** : 201941012756 A

Patent-84: Lineary Filter Ban Multicarrier (FBMC) with Modified Discrete Fourier Transform for Wireless Communication

1. **Name of the Technology**: A Lineary Filter Ban Multicarrier (FBMC) with Modified Discrete Fourier Transform for Wireless Communication
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Innovation
3. **Impact it will create**:
   Product under commercialization
4. **Current Status of the Patent** : Patent Granted
5. **Student Team details/Faculty Details:**
   1. Dr. I. Rajasri Reddy
   2. Ranjith Kumar Marrikukkala
   3. K Mahendar
   4. Thippani Kavya
6. **PatentFiling date** : 02/08/2019
7. **PatentGranted date** : 26/09/2023
8. **PatentApplication Number** : 201941012833 A

Annexure-III

Details of Companies/Starts up set up by Students, till March, 2023

01) Kuppam Engineering College, Kuppam

Start-Up-001: INTELLIBIN Solutions Private Limited

1. **Name of the Company/ Start-up**: INTELLIBIN Solutions Private Limited
2. **Highlights of the Company/Start-up :**

   Product : Product (Smart Bins, Odor Sense Device)

   Investment : Rs. 7,00,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Efficient Waste management
   - Ensures Clean and Hygienic society
4. **Current Status of the Company/Start-up:**
   - Registered & Active
   - CIN: U90000AP2018PTC109961
5. **Student team Details/Faculty Mentor:**

   1. R. Mohan
   2. S. Prasanna Kumar
6. **Establishment date of the Company/Start-up/Commercialization:**

   Date of Incorporation: 12th December 2018
7. **One paragraph on the Company/Start-Up covering all the points.**

   INTELLIBIN Solutions Private Limited is a Private Company incorporated on 12th December 2018. It is classified as Non-Govt. Company and is registered at Registrar of Companies, Vijayawada. Its authorized share capital is Rs. 1,00,000 and its paid up capital is Rs. 1,00,000. It is involved in Sewage and refuse disposal, sanitation and similar activities through Smart Bins, Odor sensing devices.

Start-Up-002: DAMASMART (F2C)

1. **Name of the Company/Start-up:** DAMASMART (F2C)
2. **Highlights of the Company/Start-up :**

   Product/Service : Agri Services (Food and beverage Agri service)

   Investment : Rs. 3,00,000

   Employment generated : 05

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - Our mission is to act as an Bridge Between Company and Customer
   - It will reduce the burden of customers.
   - It will reduce their dependence on food preparation.
   - We collect the vegetables and fruits from Farmers and we supply the Fresh vegetables and fruits to the customers, so that there is no middlemen
4. **Current Status of the Company/Start-up**
   - Registered and Running (UAN: AP02D0008765)
5. **Student team Details**

   1. K. V. Sanjana
   2. S. Rachana
   3. M. Nirmal Kumar
   4. D. Bharath
6. **Establishment date of the Company/Start-up/Commercialization:**

   Date of Establishment: 01/07/2018
7. **One paragraph on the Company/Start-Up covering all the points.**

   Dam smart is an e-commerce application, which is started for food, groceries and vegetables delivery to door step. Started in September 1st 2017 in Kuppam. Initially we have started with 5employs in Kuppam as food delivery application. Now we are providing employability to 5 members and Dam smart is developed in five different branches. Our mission is to act as an Bridge Between Company and Customer, Initially we have started with 5 employs in kuppam. In soon we are going to provide employability to another 30 members of both graduates and graduates to Damasmart. We are planning to open another 10 Branches in this coming 2 years of 2024 and 2025 can provide employability around 150 members.(Tirupati, Kadapa, Kurnool, Hosur, Vellore, Nellore)

Start-Up-003: EVEZON India Private Limited

1. **Name of the Company/Start-up**: EVEZON India Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product (Home Automation) & Service

   Investment : Rs. 25,00,000

   Employment generated : 50

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - Farmers Network: 4000+
   - Employment generated: 50
   - Farmer Benefits
     - Free crop suggestions and advices
     - Labor Assistance & Transportation Assistance
     - Commission less trade
     - Best Farmer Awards and Health camps
     - Loans and Rewards
4. **Current Status of the Company/Start-up**
   - **Registered & Running**
   - **Corporate Identity Number(CIN)** : U51909AP2019PTC112968
5. **Student team Details/Faculty Mentor:**

   1. J. Yashwanth
   2. J. Prasad
6. **Establishment date of the Company/Start-up/Commercialization:**

   Establishment Date: 24-09-2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   EVEZON is one of the largest fresh produce supply chain company that is solving one of the toughest problems in the world through technology. The company connects producers of food directly with retailers, restaurants, and service providers using in-house applications that drive end-to-end operations. Currently, the EVEZON'S Supply Chain is equipped to move 100 tons of perishables from farms to businesses, every day, in less than 12 hours. EVEZON is a developer of an agricultural marketing and supply chain platform intended to revolutionize the fresh produce supply chain. The company's platform

leverages data science, infrastructure, and networks to connect farmers directly to businesses and end retailers such as grocery stores, enabling retailers and merchants to source fresh farm produce directly from farmers in less time and in a cost-effective way. EVEZON has eliminated intermediaries by taking control of the Supply Chain by using technology and analytics. The company has built reliable, cost-effective, and high-speed logistics and infrastructure to solve inefficiencies in the Supply Chain. On one end, farmers get better prices and consistent demand, and on the other end, retailers receive fresh hygienic produce at competitive prices that are delivered to their doorstep.

Start-Up-004: KUPPAM Electro Solutions Private Limited

1. **Name of the Company/Start-up**: KUPPAM Electro Solutions Pvt. Ltd.
2. **Highlights of the Company/Start-up :**

   Product : Product (Live Wire Detector)

   Investment : Rs.10,00,000

   Employment generated : 03

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - It will save the human life from electrocution.
   - It will detect the livewire before 5 meters and produce sound alarm.
   - is an affordable device and it is easy to carry in the hand and pocket.
   - It is environment friendly.
4. **4. Current Status of the Company/Start-up**
   - Company Registered & Running 2020.
   - CIN: U36990AP2020PTC114222
5. **Student team Details/Faculty Mentor:**

   1. Rithin K. Thedevos
   2. S Nanda Kishor
   3. P. Ajay Kumar Reddy
6. **Establishment date of the Company/Start-up/Commercialization:**

   Date of Establishment: 19/02/2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   The KUPPAM Electro solutions Private Limited company was incorporated in 19th February 2020 with an aim of providing globally acceptable solutions to our clients. We aim to conduct our business with integrity, honesty and in compliance with legal requirements. We at KUPPAM Electro Solutions works on building a trusted brand. We closely work with our clients for better understanding of their needs and to provide high quality product services. Electrocution causes serious effect on human and animals and leads to dead some times. The Electrocution is one in all the main faced problems in forest areas, Building collapse due to earth quakes and floods and in agricultural fields. The Live Wire Detector (LWD) gives cautioning of uncovered high voltage AC from a protected distance. The LWD will gives audible alert of the presence of AC voltage wires without the need to contact the AC wires. The LWD will beeps with an increasing rate as the unit is closer to the AC wires. LWD is an affordable device and it is easy to carry in the hand and pocket. It is extremely valuable for frontline officers and it save their lives.

Start-Up-005: EXCLOR Academic Solutions Private Limited

1. **Name of the Company/Start-up**: EXCLOR Academic Solutions Private Limited
2. **Highlights of the Company/Start-up**:

   Product : Service

   Investment : Rs. 2,00,000

   Employment generated : 02

   Commercialized or not : Yet to Commercialize
3. **Impact it will create (including social impact, if any)**
   - The Business that provides Technical Training to the students of various Science and technology Backgrounds.
   - Employment Bureau
   - Consultancy and other Services in connection with requirement of persons and man power supply in india and abroad
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) : AP-10-66-038-03209455
   - Corporate Identity Number : U85499AP2023PTC110414

- Permanent Account Number : AAHCE44144A
- TAX Deduction collection Account No. : HYDE06701C
- Name of the Establishment : EXCLOR Academic Solutions Private Limited
- Address of the Establishment : 3rd Floor, AK Block, Pedda Bangarunatham Village, Kuppammandal, Chittoor District: 517425
- Employer Name : M RANJITH KUMAR
- Nature of Business / Work / Construction / Activity / Manufactory : Education and Training
- Date of issue : 15-05-2023
- Service Type : Fresh registration /License

Act Name	No. of Workers	Date of Commencement	Registration Valid Date
AP Shops & STTS Act 1988	02	20/02/2023	31/03/2024

5. **Student team Details/Faculty Mentor:**
   i. M. Ranjith Kumar
   ii. S. Sathyanarayana
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 20-02-2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   EXCLOR Academic Solutions Private Limited is a Registered Company/Start-Up which has been In-corporate to carry on the Business to own, establish, acquire, run, operate, manage, maintain, develop, promote, advertise either on its own or through Franchise fully equipped with Technical Educational Institutes to promote and disseminate Knowledge, create awareness and provide a common forum of interaction amongst academicians, professionals and government agencies, establish effective coordination, to organize training courses and special programmes to impart training, education in all disciplines, online, distinct and correspondence Courses

Start-Up-006: EZ TECH Solutions

1. **Name of the Company/Start-up** : EZ TECH Solutions
2. **Highlights of the Company/Start-up**:

   Product : Product

   Investment : Rs. 10,00,000

   Employment generated : 05

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**
   - Generates employment in rural areas
   - We offer Technology connect to rural people
   - Will create impact on rural economy in the country
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) :
   - Corporate Identity Number : Nil
   - Permanent Account Number : Nil
   - Name of the Establishment : Evezon Technology Solutions Private Limited
   - Address of the Establishment : Sy.No 96/1, #2-34/2, First Floor, Rukmini Homes, Cheldiganipalle, Kuppam Sub District, Andhra Pradesh, 517424
   - Employer Name :
   - Nature of Business / Work / Construction / Activity / Manufactory : IT, IoT & Artificial Intelligence products design and development
   - Date of issue : 13-05-2023

Act Name	No.of Workers	Date of Commencement	Date of Completion	Registration Valid Date
Companies act 2013	40	13/05/2023	-	-

5. **Student team Details/Faculty Mentor:**

   i. J. Bhavyasri

   ii. P. Chitrasri

6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 13/05/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   An EZ Tech solution is a technology company based in Andhra Pradesh. On seeing Gap in technology Industry Bhavyasri has cofounded EZ Tech in the year 2023 with P. Chitrasri. The company aims in solving the basic problems in the society to most complex defence analytics using the most advanced technologies like ITES, Artificial Intelligence, Block Chain and Industrial IoT. Recently we got MSME funding of Rs.1500000/- for prototype development of the project named Green Doctor-A reliable food toxic detector.

Start-Up-007: Innovation in Wheels

1. **Name of the Company/Start-up**: Innovation in Wheels
2. **Highlights of the Company/Start-up**:

Product	: Service
Investment	: Rs. 2,00,000
Employment generated	: 02
Commercialized or not	: Yet to Commercialize

3. **Impact it will create (including social impact, if any)**
   - The startup mainly concentrates on innovation support at the school level along with developing commercially viable products or technologies to meet current needs. The focused areas will be on renewable energy solutions, storage and AI
   - To avoid addiction of mobiles, PC games and learns effective knowledge by using SCRATCH and TINKERCAD.
   - We are collaborating with EXCLOR Academic Soloutions startup and we were working with rural schools based on technology part from initial stage of basic electronic components
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) : IN-AP13699952288065V
   - Corporate Identity Number : -NIL-
   - Permanent Account Number : -NIL-
   - Name of the Establishment : Innovation in Wheels

- Address of the Establishment: : Door Number: 184, Engineering College T. G. Palli, Kuppam (Urban), Chittoor, Andhra Pradesh - 517425
- Employer Name : B. Gowtham
- Nature of Business/Work/Construction/Activity/Manufactory : Education and Training
- Date of Issue : 10-05-2023
- Service Type : Fresh registration /License

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
AP Shops & STTS. Act 1988	02	31/05/2023	-	AT WILL

5. **Student team Details/Faculty Mentor:**
   i. B. Gowtham
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 31/05/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   To Make CHILDRENS avoid addiction of mobiles, PC games and learn effective knowledge by using SCRATCH and TINKERCAD A visual programming language that allows students to create their own interactive stories, games and animations. Tinkercad is a simple, online 3D design and 3d printing tool for the masses. Whether you are a designer, hobbyist, teacher, or kid, you can use Tinkercad to make toys, prototypes, home decor, Minecraft models, jewelry – the list is truly endless. Efficient use of technology through SCRATCH and TINKERCAD to the games in schools. Now-a-days corporate schools were collaborating with some learning apps like Byju's and tuting them with basic practical with fewer contents regarding their syllabus structure. We are collaborating with EXCLOR ACADEMIC SOLOUTIONS start-up and we were working with rural schools based on technology part from initial stage of basic electronic components

Start-Up-008: Swasriyas V Groups

1. **Name of the Company/Start-up**: Swasriyas V Groups
2. **Highlights of the Company/Start-up**:

   Product : Product & Service

   Investment : Rs. 10,00,000

   Employment generated : 10

   Commercialized or not : Yet to Commercialize
3. **Impact it will create (including social impact, if any)**
   - Generates employment in rural and urban areas
   - We offer Technology connect to the rural people
   - Will create impact on rural economy in the country
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) : 29AEQFS6022L1Z
   - Corporate Identity Number/GSTIN : 29AEQFS6022L1ZD
   - Permanent Account Number : AEQFS6022L
   - Name of the Establishment : Swasriyas V Groups
   - Address of the Establishment : Site No 68, Khata No 4/4/25/68, 1st Floor, Basavanapura, KR Puram, Bengaluru 560036.
   - Employer Name : Evezon Technology Solutions Private Limited
   - Nature of Business/work/Construction/activity/ Manufactory: ITES
   - Date of issue : 25/04/2023

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
Indian Partnership act 1932	10	25/04/2023	---	NA

5. **Student team Details/Faculty Mentor:**
   i. M. Yaswanth
   ii. J. Prasad
6. **Establishment date of the Company/Start-up/Commercialization:**

   Establishment Date: 25/04/2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   A Swasriyas Tech solution is a technology company based in Bengaluru, Karnataka. On seeing Gap in technology Industry, yaswanth has founded swasriyas tech solutions in the year 2022. The company aims in solving real time problems in the society as well as businesses facing using the advanced technologies like Machine learning and robotics. Our core competency has been to design and build effective machines to solve unaddressed problems dominating labor-intensive processes, wherein such processes are currently using manual labor in hazardous, perilous, and inhumane environments. We are a team of machine builders with a zeal for automation and innovative problem-solving.

Start-Up-009: VSEN Consultancy

1. **Name of the Company/Start-up**: VSEN Consultancy
2. **Highlights of the Company/Start-up**:

   Product : Product & Service

   Investment : Rs. 10,00,000

   Employment generated : 08

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**
   - Generates employment in rural areas
   - We offer Technology connect to students in rural people
   - Will create impact on rural economy in the country
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) : 37AZHPN9074B1Z5
   - GST Identity Number : 37AZHPN9074B1Z5
   - Permanent Account Number : AZHPN9074B
   - Name of the Establishment : 30/01/2023
   - Address of the Establishment : Elementary school, 3rd Floor, No 6-571, Kuppam Road, Opp HP petrol bunk, Venkatagirikota, Chittoor(D), Andhra Pradesh, 517424
   - Employer Name : VSEN Consultancy

- Nature of Business/work/Construction/activity/Manufactory: Technology solutions and services
- Date of Issue : 30/01/2023

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
Shops and establishment act	10	30/01/2023	-	NA

5. **Student team Details/Faculty Mentor:**
   i. M. Ravikumar
   ii. M Yaswanth
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 30-01-2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   VSEN Consultancy is an EdTech company focuses on providing technical education and practical based learning with all physical activities from the younger ages to produce fully skilled manpower and knowledgeable technocrafts in the present era of science and technology through efficient and innovative technologies and programmes.

Start-Up-010: KIKISHADES

1. **Name of the Company/Start-up**: KIKISHADES
2. **Highlights of the Company/Start-up**:
   Product : Agri Business Service
   Investment : Rs. 1,00,000
   Employment generated : 02
   Commercialized or not : Yet to Commercialized
3. **Impact it will create (including social impact, if any)**
   - The Business that provides Technologies Solutions and Product to the various Science and technology Backgrounds.
   - Employment Bureau
   - Consultancy and other Services in connection with requirement of cosmetic product market & sale.

4. **Current Status of the Company/Start-up**
   - Registration Number : IN-AP-13701932960004V
   - Corporate Identity Number : -NIL-
   - Permanent Account Number : -NIL-
   - Name of the Establishment : KIKISHADES
   - Address of the Establishment : D. No.:184, 3rd Floor, AK Block, Pedda Bangarunatham Village, Kuppammandal, Chittoor District – 517 425, Andhra Pradesh
   - Employer Name : V. Keerthika
   - Nature of Business/work/Construction/activity/Manufactory: Natural Agri cosmetic products & Services
   - Date of issue : 10-05-2023

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
AP Shops & STTS. Act 1988	02	10/05/2023	-	AT WILL

5. **Student team Details/Faculty Mentor:**
   i. V. Keerthika
   ii. K Rasadurai
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 10-05-2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   KIKISHADES is a Registered Company/Start-up which has been In-corporate to carry on the Business to own, establish, acquire, run, operate, manage, maintain, develop, promote, advertise either on its own or through Franchise fully equipped.
   - Develop as a Natural Agri cosmetic products.
   - Develop a portable Smart Automatic hand Sanitizer with Natural hand wash liquid from natural herbals and coconut oils.
   - To provide Hi Tech Cosmetic service for Functions make-ups.

Start-Up-011: P. M. V. Enterprises

1. **Name of the Company/Start-up**: P. M. V. Enterprises
2. **Highlights of the Company/Start-up**:

   Product : Agri Based Services

   Investment : Rs. 2,00,000

   Employment generated : 02

   Commercialized or not : Yet to Commercialize
3. **Impact it will create (including social impact, if any)**
   - The Business that provides Technologies Solutions and Product to the various agri related services
   - Consultancy and other Services in connection with requirement internships, project development and project assistances.
4. **Current Status of the Company/Start-up**
   - Registration Number : IN-AP13931630882937V
   - Corporate Identity Number : -NIL-
   - Permanent Account Number : -NIL-
   - Name of the Establishment : P. M. V. Enterprises
   - Address of the Establishment : D. NO-184, Engineering Collage, T G Palli, Kuppam (Urban), Kuppam, Chittoor, Andhra pradesh - 517425
   - Employer : M. B. Bhanu Prakash, Mr. Prakash
   - Nature of Business/work/Construction/activity/Manufactory: Agri Based services
   - Date of issue : 30/06/2023
   - Service Type : Fresh registration /License

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
AP Shops & STTS. Act 1988	02	30/06/2023	-	AT WILL

5. **Student team Details/Faculty Mentor:**
   i. M. B. Bhanu Prakash
   ii. K. Prakash

6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 30/06/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   P. M. V. Enterprises Tech solutions is an agri based company in Andhra Pradesh. On seeing Gap in technology usage in agriculture sector, Bhanu Prakash and cofounded MV Enterprises in the year 2023 with K Prakash. The company aims in solving the basic problems in the society to most complex defence analytics using the most advanced technologies like smart equipment, Intelligence and IoT based technology. recently our product prototype developed and the project named ground water hunter, it is reliable water detector.

Start-Up-012: JKR Industries

1. **Name of the Company/Start-up**: JKR Industries
2. **Highlights of the Company/Start-up**:

Product	: Product
Investment	: Rs. 2,00,000
Employment generated	: 02
Commercialized or not	: Yet to Commercialized

3. **Impact it will create (including social impact, if any)**
   - The Industries that provides New Employment to the students of various Science and technology Backgrounds.
   - Employment Bureau
   - Industries and other Services in connection with requirement of persons and product supply in india and abroad
4. **Current Status of the Company/Start-up**
   - Registration Number : IN-AP13702121856339V
   - Corporate Identity Number : -NIL-
   - Permanent Account Number : -NIL-
   - Name of the Establishment : JKR Industries
   - Address of the Establishment : AK - 302, 3rd Floor, AK Block, Pedda Bangarunatham Village, Kuppam Mandal, Chittoor - 517 425
   - Employer : Thallapalli Jagadish

- Nature of Business / Work / Construction / Activity / Manufactory: Agro Products & Services
- Date of Issue : 10-05-2023
- Service Type : Fresh registration /License

Act Name	No. of Workers	Date of Commencement	Registration Valid Date
AP Shops & STTS. Act 1988	02	01/06/2023	AT WILL

5. **Student team Details/Faculty Mentor:**
   i. T. Jagadish
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 10-05-2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   JKR Industry is a Registered Company/Start-up, which has been incorporated to carry on agro products and services. JKR Industries aims to excel in providing diverse range of soil testing and measuring devices, along with associated services. We commit to the agricultural sector through accurate and reliable data collection, helping farmers and growers make informed decisions for optimal crop cultivation. JKR Industries will play a pivotal role in empowering the agricultural community by equipping them with cutting-edge technology and expert guidance, ultimately contributing to the sustainable growth of the industry

Start-Up-013: RRK Structural Consultancy

1. **Name of the Company/Start-up**: RRK Structural Consultancy
2. **Highlights of the Company/Start-up**:
   Product : Service
   Investment : Rs. 2,00,000
   Employment generated : 02
   Commercialized or not : Yet to Commercialized

3. **Impact it will create (including social impact, if any)**
   - The Business that provides safe bearing capacity of the soil through consultancy.
   - Foundation Design based on SBC
   - Consultancy and other Services in connection with requirement of persons and man power supply in India
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) : IN-AP15215568481016V
   - Name of the Establishment : RRK Structural Consultancy
   - Address of the Establishment : D. No.:184 Kuppam Engineering College, T G Palli, Kuppam, Chittoor District : 517425
   - Employer Name : D Radhakrishnan
   - Nature of Business/work/Construction/activity/Manufactory: Construction/Consultancy
   - Date of Issue : 19/06/2023
   - Service Type : Fresh registration /License

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
AP Shops & STTS. Act 1988	02	19/06/2023	-	AT WILL

5. **Student team Details/Faculty Mentor:**
   i. D. Radhakrishnan
   ii. M. Rajesh
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 19-06-2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   RRK is a Registered Company/Start-up, which has been In-corporate to carry on the soil consultancy to own, to provide geotechnical engineering properties for foundation design purposes. The test is carried out within a borehole. The results can be used to determine the relative density, bearing capacity, and settlement of granular soil. The results can also be used to correlate the approximate strength

of cohesive soil. Soil Investigation done to find out it's Safe Bearing Capacity through Standard Penetration Tests including Laboratory Tests in order to determine the Type & Depth of foundation for its structural design purpose for any type of projects like Residential, Commercial, Multi-storied buildings, Warehouse & Industries, IT Parks, Hotels, Dams, Bridges & Roads etc., Please contact for any specific Tests or for more details

Start-Up-014: SRI Enterprises

1. **Name of the Company/Start-up**: SRI Enterprises
2. **Highlights of the Company/Start-up**:

   Product : Service

   Investment : Rs. 2,00,000

   Employment generated : 02

   Commercialized or not : Yet to Commercialized
3. **Impact it will create (including social impact, if any)**
   - The startup mainly concentrates on innovation support at the school level along with developing commercially viable products or technologies to meet current needs. The focused areas will be on low cost agro solutions, Small scale industries and Farmers
   - To provide affordable modern solutions to the problems faced by small scale farmers.
   - We are collaborating with Jayalakshmi Industries and try to provide Simple, affordable solutions.
4. **Current Status of the Company/Start-up**
   - Registration Number : 37EAZPR8424J1ZL
   - Corporate Identity Number : -NIL-
   - Permanent Account Number : -NIL-
   - Name of the Establishment : SRI Enterprises
   - Address of the Establishment : Door Number : 5-53, Tumisi Road, Abakaladoddi, Chittoor, Andhra Pradesh
   - Employer Name : V Ravindra
   - Nature of Business/work/Construction/activity/Manufactory: Service
   - Date of Issue : 02-03-2023

- Service Type : Fresh Registration /License

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
AP Shops & STTS. Act 1988	02	02/03/2023	-	NA

5. **Student team Details/Faculty Mentor:**
   i. V. Ravindra
   ii. N. Nagesh
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 02/03/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   This start-up mainly focuses on training Students from various organizations such as schools and colleges to Design and Fabricate using Various tools like AUTOCAD, CAATIA and Ansys. Students will be in a better position to understand how designing works in real lifetime scenarios. This start-up caters to the needs of various industries too. They train the students to assess various need of the industries and provide optimal solutions. They try to analyse the problems faced by farmers and provide affordable tools to reduce manpower requirement

Start-Up-015: SEL Edutech Solutions

1. **Name of the Company/Start-up**: SEL Edutech Solutions
2. **Highlights of the Company/Start-up**:
   Product : Service
   Investment : Rs. 1,00,000
   Employment generated : 02
   Commercialized or not : Yet to Commercialized
3. **Impact it will create (including social impact, if any)**
   - The Business that provides Technologies Solutions and webinars, workshops and internships on the various trends and technologies of all the departments from schooling to engineering.

- Provides certification to various students and individuals on recent trends and technologies.
- Consultancy and other Services in connection with requirement internships, project development and project assistances.
- Generates employment based on the various projects.

4. Current Status of the Company/Start-up

- Registration Number : UDYAM-AP-25-0008068
- Corporate Identity Number : -NIL-
- Permanent Account Number : -NIL-
- Name of the Establishment : SEL Edutech Solutions
- Address of the Establishment : Kuppam Engineering College, KES Nagar, Kuppam, District: Chittoor – 517 425, Andhra Pradesh,
- Employer Name : R. Nagi Reddy
- Nature of Business/work/Construction/activity/Manufactory: Project Developments/ Internship/ Project Assistance /Certification courses
- Date of Issue : 15-08-2022

5. Student team Details/Faculty Mentor:

i. R Nagi Reddy
ii. Naresh Reddy

6. Establishment date of the Company/Start-up/Commercialization:

Establishment Date: 15-08-2022

7. One paragraph on the Company/Start-Up covering all the points.

Start e Learning is completely online based learning we offers many courses along with programming languages which are going to teach by the Industrial Experts. Along with the online classes, we will let our students to do the projects and for the best projects, the prize money will be awarded. We have vast collection of books in the name of engineering technical support app. We planned to construct a bridge between the engineering students and the school students to enhance the minds of the schoolchild.

- Skilled Instructors
- Online Classes
- Certified by Govt. of India & EMAX INDIA

- Certificate is valid across the country
- Registered under MSME

Start-Up-016: CMR Enterprises

1. **Name of the Company/Start-up**: CMR Enterprises
2. **Highlights of the Company/Start-up**:

   Product : Service

   Investment : Rs. 15,00,000

   Employment generated : 05

   Commercialized or not : Yet to Commercialized
3. **Impact it will create (including social impact, if any)**

   CMR Enterprises will transform the agribusiness and food processing sectors by introducing innovative practices, empowering farmers, and creating sustainable value chains that creates following impacts;

   - Enhancing Agricultural Productivity
   - Empowering Farmers and Rural Communities
   - Establishing Food Processing Infrastructure
   - Creating Employment Opportunities
   - Promoting Sustainable Practices
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) : IN-AP15212509685940V
   - Corporate Identity Number : -NIL-
   - Permanent Account Number : -NIL-
   - Name of the Establishment : CMR Enterprises
   - Address of the Establishment : Agraharamdinne village, Balla post, Ramakuppam Mandal, Chittoor District: 517425, Andhra Pradesh
   - Employer Name : A Jaiganesh, M Lakshmipathy
   - Nature of Business/work/Construction/activity/Manufactory : Agro & Food Processing
   - Date of Issue : 19/06/2023
   - Service Type : Fresh registration /License

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
AP Shops & STTS. Act 1988	05	10/06/2023	-	NA

5. **Student team Details/Faculty Mentor:**
   i. A. Jai Ganesh
   ii. M. Lakshmipathy
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 19/06/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   CMR Enterprises aims to transform the agribusiness and food processing sectors by introducing innovative practices, empowering farmers, and creating sustainable value chains. Through its collaborative approach and commitment to social and economic development, the company will create an impact on agricultural productivity, rural livelihoods, employment generation, and the overall growth of communities. The success of CMR Enterprises agribusiness and food processing initiatives may leads to the creation of numerous employment opportunities across the value chain. From farm labourers and technicians at processing units to skilled professionals in management, marketing, and distribution, the company generates both direct and indirect employment. This job creation stimulates economic development, reduces unemployment rates, and provides livelihood options to individuals in rural and peri-urban areas, thereby reducing migration to overcrowded cities.

02) Ramachandra College of Engineering, Eluru

Start-Up-017: **Drone Sonic Systems Private Limited**

1. **Name of the Company/Start-up** : Drone Sonic Systems Private Limited
2. **Highlights of the Company/Start-up**;

   Product : Pesticide spraying drones

   Investment : Rs. 8,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**:

   It will create impact in agriculture and social life
4. **Current Status of the Company/Start-up**: Established and handling contracts
5. **Student team Details/Faculty Mentor:**

   1. P. Sai Harsish
6. **Establishment date of the Company/Start-up/Commercialization**: 26/11/2020
7. **One paragraph on the Company/Start-Up covering all the points**.

   Drones are revolutionizing agriculture. The ability to survey crops from the air with an inexpensive unmanned aerial vehicle equipped with a variety of sensors enables a farmer to collect an unprecedented amount of useful data, including information about:

   - Soil hydration
   - Variations in soil composition
   - Pest/fungal infestations

   In addition, drone crop surveys can be taken weekly, daily, or even hourly as required. Accurate information allows for optimal crop irrigation, fertilization, and pest control. Reducing water and pesticide usage and maximizing crop yields benefits the bottom line and the environment.

Start-Up-018: Chiru EV Car Accessories

1. **Name of the Company/Start-up** : Chiru EV Car Accessories
2. **Highlights of the Company/Start-up**;

   Product : EV vehicles retrofitting and accessories

   Investment : Rs. 10,00,000

   Employment generated : 02

Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**:
   Impact will create on environment
4. **Current Status of the Company/Start-up** :
   Established
5. **Student team Details/Faculty Mentor:**
   1. G. Chiranjeevi
6. **Establishment date of the Company/Start-up/Commercialization**:
   01/06/2020
7. **One paragraph on the Company/Start-Up covering all the points**:
   The auto components market shares 30.66% of its contribution in the whole automotive industry in India. As the revolution of electric vehicles has started and also from the strict order of the Indian government to convert the way of commutation to all-electric till 2030, and as the existing services can't cater all the needs and requirements for the EV users it has become compulsory to work rigorously for making an E.V. friendly ecosystem in India. Now to achieve this goal many companies and startups have started investing in this electric vehicle spare parts and components firm. The most fascinating fact about E.Vs. is that they are easy to build or maintain. The one having even basic knowledge of electric vehicles can easily replace a part or build an electric vehicle from the scratch and due to this feasibility in electric vehicles, the E.V. component market has a vast customer base with recurring product requirements.

Start-Up-019: KAGN Road side assistance Private Ltd.

1. **Name of the Company/Start-up**: KAGN Road side assistance Private Ltd.
2. **Highlights of the Company/Start-up**:
   Product : Provides road assistance
   Investment : Rs. 2,50,000
   Employment generated : 03
   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   Gives more support to society by assisting the peoples
4. **Current Status of the Company/Start-up** : Applied for bank loan

5. **Student team Details/Faculty Mentor:**

   1. Anand Venkat Rakumar K

6. **Establishment date of the Company/Start-up/Commercialization**:

   11/02/2022

7. **One paragraph on the Company/Start-Up covering all the points**:

   "OnRoad Assist" is a startup related to automobile service sectors. We have recognitioned for DIPPT for startup India for 10 years. We have incorporation in MCA portal. We are also published the patent rights.

   .Our startup is focusing on the problem like

   1) Roadside assistance for bikes and cars
   2) Occurrence of Minor/Major Accident
   3) Security Threat
   4) Difficult to find mechanic

   We are going to provide the solution at one place. We have designed unique website and app for provide service. These are service we are going provide.

   a. Towing
   b. Fuel Delivery
   c. Tire Replace / Puncture Repair
   d. Battery
   e. Jump Start/ Pull Start
   f. Key Replacement Service
   g. Vehicle Repair

   Future Business Opportunities:

   i. Bike Renting
   ii. Electrical Charging Station
   iii. Door Step Services
   iv. Buy and selling of second handed vehicles

Start-Up-020: Abhielectrobest & Consultancy Pvt. Ltd.

1. **Name of the Company/Start-up**: Abhielectrobest & Consultancy Pvt. Ltd.
2. **Highlights of the Company/Start-up**:

   Product : Covid detection using Smart sensing

   Materials Detection of obstacles using Robot

   Investment : Rs. 10,00,000

   Employment generated : 04

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**:

   In Eluru region it will create high impact on COVID detection equipment and help full to society
4. **Current Status of the Company/Start-up**:

   Applied for approval and registration
5. **Student team Details/Faculty Mentor:**

   1. K. Abhishek
   2. J. Prasanth Kumar
6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process
7. **One paragraph on the Company/Start-Up covering all the points**:

   After the first case has appeared in China, the COVID-19 pandemic continues to pose an omnipresent threat to global health, affecting more than 70 million patients and leading to around 1.6 million deaths. To implement rapid and effective clinical management, early diagnosis is the mainstay. Today, real-time reverse transcriptase (RT)-PCR test is the major diagnostic practice as a gold standard method for accurate diagnosis of this disease. On the other side, serological assays are easy to be implemented for the disease screening. Considering the limitations of today's tests including lengthy assay time, cost, the need for skilled personnel, and specialized infrastructure, both strategies, however, have impediments to be applied to the resource-scarce settings. Therefore, there is an urgent need to democratize all these practices to be applicable across the globe, specifically to the locations comprising of very limited infrastructure.

Start-Up-021: Med Mitra Health Manger Private Limited

1. **Name of the Company/Start-up**: Med Mitra Health Manger Private Limited
2. **Highlights of the Company/Start-up**:

   Product : Company produces medicine tracking system to know about patient medicine Record

   Investment : Rs. 12,00,000

   Employment generated : 03

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**:

   Most of the patient doesn't have time to remind about medicine to take in time, this product will help to support health
4. **Current Status of the Company/Start-up**:

   Applied for startup registration and office location
5. **Student team Details/Faculty Mentor:**

   1. A. Uma Maheswara Rao
   2. Shameena Begum
6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process
7. **One paragraph on the Company/Start-Up covering all the points**:

   The adoption of technology in healthcare over the years has led to better diagnosis and treatment of patients. Out of all the benefited sectors from technology adoption, healthcare is probably the most important one. Consequently, it improved the quality of life over time, and it has saved many lives. But what are some of the benefits of technology in healthcare? And what are some groundbreaking medical technologies in healthcare right now. Someone cannot argue that technology in healthcare is a new thing. Medication adherence, a growing concern to healthcare systems, usually refers to whether patients take their medications as prescribed (eg, twice daily), as well as whether they continue to take a prescribed medication. Poor adherence to prescribed regimens can result in substantial disease progression, additional medical costs and physician visits, medication changes, and leads sometimes to death. However, managing medication is very hard. To date, measurement of patient medication adherence and use of interventions to improve adherence are rare in

routine clinical practice. For people, who take medication on regular basis, organizing and remembering is a huge challenge. To address this challenge, it is proposed to develop a user-friendly medication management tool, Med-Mitra+, that tracks the medication in a simple and smart way and measure the medical adherence.The device can be designed to remind the patients or elderly parents about the medication due, effortlessly track what they have taken and instantly notify the people their health attributes and feelings that need to know, thus enabling them to live quality and independent life.

Start-Up-022: KR Electronic Innovations Private Limited

1. **Name of the Company/Start-up**: KR Electronic Innovations Private Limited
2. **Highlights of the Company/Start-up**:

   Product : Company planning to manufacture automated toilet cleaning devices, only one company in this region focused on automated cleaning system manufacturing

   Investment : Rs. 6,00,000

   Employment generated : 03

   Commercialized or not : Applied for product approval
3. **Impact it will create (including social impact, if any)**:

   It gives good support to maintain hygiene in toilets
4. **Current Status of the Company/Start-up**:

   Under startup registration process
5. **Student team Details/Faculty Mentor:**

   1. K Raju

   2. M. Durga Bhavani
6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process
7. **One paragraph on the Company/Start-Up covering all the points**.

   Moving towards our glorious goal of developed and prosperous nation, cleanliness is one of the biggest need. “Swachh Bharat Abhiyan‟ is our motto behind the research of „Robot Toilet Cleaner‟ and it is the great leap towards the cleanliness of private as well as Public Lavatories. Dirty toilets cause contagious diseases which are hazardous for human life. This system is a remedy for human

health as well as our goal towards „clean and smart India". The purpose of this system is to maintain hygiene level of toilets through cleaning the bowl in a semi automatic way. At present, cleaning system of toilets is worst and leads to health issues. This system automatically cleans the western toilet with the help of robotic arms. There is a sequential cleaning algorithm for the same. The robotic arm has a brush attached to its end that is used for the cleaning purpose. Water jets are provided. In this system there is minimum usage of water & electricity. To maintain the periodicity of cleanliness level servo motor and DC motors are used

Start-Up-023: FuGen Electronics Private Limited

1. **Name of the Company/Start-up**: FuGen Electronics Private Limited
2. **Highlights of the Company/Start-up**:

   Product : Company targeting to grab gap of this Product in market

   Investment : Rs. 3,00,000

   Employment generated : 03

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**:

   A product with less cost and quality, it will create to support water saving in urban and rural
4. **Current Status of the Company/Start-up**:

   Product production is going on-Company registration is in progress
5. **Student team Details/Faculty Mentor:**

   1. B. Pravallika

   2. S. Jagan Mohan Rao
6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process
7. One paragraph on the Company/Strat-up covering all the points

   When the water level in the overhead tank exceeds the required level, the pump automatically turns off and stops the pumping process thus preventing the over flow of water. It uses a relay to cut off the power supply to the water pump.

   ❖ This project is based on the theme that water should be controlled to such a

level that it ca be utilized with proper use. With this project we not only save water but also the power consumption and running time of motor. Own designing of the circuit with ambient temperature of 0-65degC for commercial purpose, 120degC for Industrial purpose, and -50 to 120degC for Military purpose.

- For the indication of the levels we are using Magnetic Reed Sensors.
- Magnetic Reed Sensor: A reed switch is an electromagnetic switch used to control the flow of electricity in a circuit. They are made from two or more ferrous reeds encased within a small glass tube-like envelope, which become magnatised and move together or separate when a magnetic field is moved towards the switch.
- Working Specifications would be different for different purposes.

SCOPE OF MARKET

- It will help industries in saving water
- It will increase the motor running time.
- Fully automatic, saves man power.
- Avoid seepage of roofs and walls due to overflowing tanks.
- All domestic house owners
- Industries & Railways
- Schools, Colleges, Office and Hostels etc.,

Advantage of Product

- For 1HP motor Power consumed is 746watts. It's RPM(Revolutions per Minute) is 3,450.
- It's Maximum flow rate is 80 LPM.
- If a 1 HP motor runs for a minute it consumes 746*0.0166667%100=0.1243333582 units
- In Indian Currency 1 Unit=5.43 Rupees.
- So, if we delay a minute to turn off the motor for 60 days we can save nearly 330 rupees.
- Similarly we can save 17.904 K watts of Power and 4800 Liters of water in 60 days.
- If we can save that much of power and water in 60 days in just one place, we can save lots of energy and power if it is widely used.

Start-Up-024: PR Argo Services Private Limited

1. **Name of the Company/Start-up**: PR Argo Services Private Limited
2. **Highlights of the Company/Start-up**:

   Product : Company manufacturing products help full to support agriculture

   Investment : Rs. 12,00,000

   Employment generated : 02

   Commercialized or not : Under process
3. **Impact it will create (including social impact, if any)**:

   It gives huge support to farmers for increasing production rate
4. **Current Status of the Company/Start-up**:

   Applied for sales and marketing approvals
5. **Student team Details/Faculty Mentor:**

   1. S. Harish
   2. P. Rajesh
6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process
7. **One paragraph on the Company/Start-Up covering all the points**:

   Soil and field analysis- Agricultural drones can be used for soil and field analysis to help in field planning. They can be used to mount sensors that measure soil moisture content, topographical conditions, soil conditions, soil erosion, soil nutrients, and soil fertility. Crop monitoring- Crop surveillance refers to the monitoring of a crop from seeding to harvesting. This includes applying fertilizers at the appropriate times, tracking the impact of weather conditions, and inspecting for insect infestation. When dealing with seasonal crops, crop surveillance is the only way to secure a timely harvest. Crop failure could come from any faults made at this time. Crop surveillance helps in understanding and planning for the next farming season

Start-Up-025: Solar Tech Power Solutions Private Limited

1. **Name of the Company/Start-up**: Solar Tech Power Solutions Private Limited
2. **Highlights of the Company/Start-up**:

   Product : Established to manufacture different types of products based on solar energy to support agriculture and domestic usages

   Investment : Rs. 20,00,000

   Employment generated : 06

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**:

   New applications of solar energy based products will be developed
4. **Current Status of the Company/Start-up**:

   Products manufacturing started, Apply for approval
5. **Student team Details/Faculty Mentor:**

   1. Ms. Poojitha M.

   2. Mr. S. S. Sarma
6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process
7. **One paragraph on the Company/Start-Up covering all the points**:

   This unique integrated solar device can be used as a solar water heater during the winter, a solar cooker during clear days and a solar dryer for fruits or vegetables. It can produce about 50 lt of hot water of 50-60°C utilising the low altitude position of sun during winter and food for a family can be boiled within 2-3 hours, when used as a solar cooker and that too without sun tracking. As a dryer, fruits and vegetables can be dehydrated efficiently with regulation of temperature during the day with water working as a sink regulating temperature and helps continuation of the drying process in the night through the solar heated water. lant protection is an important component of agriculture. Solar PV duster is a novel device suitable for dusting insecticide and pesticide powder on crops. It essentially comprises a PV panel carrier, a storage battery and a specially designed compatible dusting unit.

Start-Up-026: VNSR Power Tech Private Limited

1. **Name of the Company/Start-up**: VNSR Power Tech Private Limited
2. **Highlights of the Company/Start-up**:

   Product : Company invested to manufacture air purifiers

   Investment : Rs. 13,00,000

   Employment generated : 04

   Commercialized or not : Under process
3. **Impact it will create (including social impact, if any)**

   Heavy Capacity air purifiers for large public spaces manufacturing unit create high impact in market
4. **Current Status of the Company/Start-up**:

   Applied for product License
5. **Student team Details/Faculty Mentor:**

   1. M. Divya Jyothi
   2. Mr. Murthy
6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process
7. **One paragraph on the Company/Start-Up covering all the points**:

   Pollution has rocked the world with skyrocketing pollution levels. Though the long term solution to the pollution problem lies in finding and minimizing pollution sources, we need to bring the current pollution levels under control by the time. The best way of controlling pollution is by using air purifiers. But regular indoor air purifiers are small low power devices that don't posses enough purifying capability needed for outdoor spaces. Along with this there is also an issue of power supply in outdoor machines. So here we design a heavy duty outdoor air purifier that is made for outdoor purification along and powered by solar panels so it is energy independent. Our solar air purifier consists of a heavy duty suction fan that pulls air from the bottom of the purifier through a layer of HEPA and Carbon filters for elimination of PM 10 PM 2.5 pollutants as well as gases. The purifier uses 2 layer purification, the first one being HEPA layer and second and active carbon filter. The combination of these 2 filters leads to dual filtration using a centrifugal air force to suck large amount of air and purify it of dust particles.

Start-Up-027: Ramachandra Batteries Private Limited

1. **Name of the Company/Start-up**: Ramachandra Batteries Private Limited
2. **Highlights of the Company/Start-up**:

   Product : Low-cost lithium phosphorus and lithium-ion Manufacturing battery unit

   Investment : Rs. 7,00,000

   Employment generated : 03

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any)**:

   In India we have less battery production units, by establishment of company can supply the battery in this region of Andhra pradesh
4. **Current Status of the Company/Start-up**:

   Applying for raw material handling license and contract
5. **Student team Details/Faculty Mentor:**

   1. Mr. J. Ranga
   2. Mr. E. Ravi Teja
6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process
7. **One paragraph on the Company/Start-Up covering all the points**:

   From the time Electric Vehicles (EV) came in to Indian market, the growth is slow but steady. This is due to huge initial cost.

   - Nowadays, the most expensive part of an electric vehicle is the battery, which represents 25 ... 50 % of the price of the electric vehicle, depending of the technology used.
   - A decrease in the acquisition price of the electric vehicles is mandatory until it reaches a level closer to that of the internal combustion engine vehicles.
   - Which will determine a significate decrease in the acquisition price of the electric vehicles.
   - The costing of batteries is reducing in recent days but still it shares the major cost
   - The pricing of battery can be reduced by importing the cell of the batteries and then assembling them.

- This technology will contributes to manufacturing and marketing of battery at low cost, this accelerate the sales of EVs in the market.

So that, more customers show much willingness to buy EVsProduct:

Benefits:

i. Priority for the high performance pack with higher effeciency.
ii. BMS will monitor all the cells and equalize the cell voltage at load.
iii. User friendly
iv. We can be easily carry.
v. This technology represents the best “charge to weight” solution, fulfilling one of the most important conditions for battery used in electric vehicles, which made an easily replacement of NI-MH batteries and lead acid batteries.

Features:

i. Cost effective
ii. Reliable
iii. State-of-Art Design
iv. Effective after sales service
v. Continuous improvement through technology development and continuous R&D.

Customers:

i. Small-scale Industries
ii. Public sectors
iii. All future vehicles are works on Electricity
iv. Future will completely depend on the EVs

Start-Up-028: Aqua Sustains Solutions Private Limited

1. **Name of the Company/Start-up**: Aqua Sustains Solutions Private Limited
2. **Highlights of the Company/Start-up**:

Product : In West Godavari District most of the Peoples depend up on aqua culture, this Developed technology helps to improve fish Growth rate and production rate

Investment : Rs. 15,00,000 Lakhs

Employment generated : 03

Commercialized or not : Product released and handover to customer-Applying for aqua culture license

3. **Impact it will create (including social impact, if any)**:

   It creates high impact on social aqua culture economics

4. **Current Status of the Company/Start-up**:

   Estimated proposal prepared for fund acquiring

5. **Student team Details/Faculty Mentor:**

   1. Bhavanarayana K.
   2. S. Venkat
   3. K. Venkatesh

6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process

7. **One paragraph on the Company/Start-Up covering all the points**:

   Optimal Recirculation aquaculture systems (ORAS) represent a new and unique way to farm fish. Instead of the traditional method of growing fish outdoors in open ponds and raceways, this system rears fish at high densities, in indoor tanks with a controlled environment. Recirculating systems filter and clean the water for recycling back to fish culture tanks. This report, Recirculating Aquaculture Systems, provides an introduction to Recirculating Aquaculture Systems (RAS). This closed-loop fish farming facilities that retain and treat water within the systems. This form of aquaculture is quickly gaining popularity in the United States. Recirculating Aquaculture Systems also provides commercial case studies of existing successful RAS operations in the United States. ORAS can be of various sizes ranging from large-scale production systems (over 1 million pounds per year) to intermediate-sized systems (500,000 pounds per year), to small systems (50,000 pounds per year). They can be used as grow-out systems to produce food fish or as hatcheries to produce eggs and fingerling sport fish for stocking and ornamental fish for home aquariums.ORAS are currently being used to grow catfish, striped bass, tilapia, crawfish, blue crabs, oysters, mussels, and aquarium pets. Indoor fish culture systems offer considerable flexibility to (1) grow a wide diversity of fish species, (2) rear a number of different species simultaneously in the same tank (polyculture) or

different tanks (monoculture), (3) raise a variety of different sizes of one or several species to another depending on market demand and price.

Start-Up-029: Super Sonic Sigma Pumps Private Limited

1. **Name of the Company/Start-up**: Super Sonic Sigma Pumps Pvt. Ltd.
2. **Highlights of the Company/Start-up** :

   Product : Company established to manufacture electrically powered agriculture application Machines. Initially planned to manufacture battery powered water pump. Trail run and Testing completed

   Investment : Rs. 18,00,000

   Employment generated : 03

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**:

   When farmer replace the exist fossil fuel pump with this electrical based pump, farmer can save 80% of money and ecofriendly. High efficiency
4. **Current Status of the Company/Start-up**:

   Collaborating with local dealers
5. **Student team Details/Faculty Mentor:**

   1. K. Srinivas Prabhu
   2. Chandra Sekhar
6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process
7. **One paragraph on the Company/Start-Up covering all the points**:

   Pump is a mechanical device which converts mechanical energy into hydraulic energy. Existing pumping systems are based upon conversion electrical to mechanical to hydraulic. It has less efficiency and high rate of power consumption so we need to reduce the power consumption and need to increase the efficiency save for energy conservation. In this project we aim to fabricate a pump which has high efficiency and compactable to carry and to work without any external supply. Sonic pump has less energy consumption as compared to existed pumps. It is very compactable to carry anywhere and use at any location where we don't have power availability. In some areas and in some applications power is not available so we are unable to use existed pumps so this problem

overcome by this sonic pump it has own power built assistance to work any remote areas.

- This sonic pump Runs on dc supply so no need of AC power source
- It has a self-power unit to carry any here to work
- Major advantage of this pump is it can operate in remote areasw here no power is available.
- It is also useful for agriculture nursery maintenance
- On one complete charge it will run up to 100 min and above
- It sucks water from up to 11 feet's and deliver up to 15 feet height
- It is a multipurpose pump, it can use in municipality works especially repair of leakage water pipe lines
- Produces zero emissions then compared to existed portable petrol engines
- Consumes less power and running cost is very less.
- Easy to operate and handle
- No maintenance is required as petrol or oil engines
- Operate at different speeds as per required flow rate it is not possible in existed AC water pumps
- Efficiency is high

Start-Up-030: Ramachandra Mech irrigation Pvt. Ltd.

1. **Name of the Company/Start-up**: Ramachandra Mech irrigation Pvt. Ltd.
2. **Highlights of the Company/Start-up**:

   Product : Company focusing to develop hydraulic and marine machines for irrigation canals and drain maintenance

   Investment : Rs. 10,56,000

   Employment generated : 4

   Commercialized or not : Company registration in Process
3. **Impact it will create (including social impact, if any)**

   In our India no one company focused to develop machines for this application, this will help to farmers and to increase cultivation rate
4. **Current Status of the Company/Start-up :**

   Under startup registration process

5. **Student team Details/Faculty Mentor:**

   1. Rama Koteswara Rao
   2. Venkatesh.K
   3. Bhavanarayana K.

6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process

7. **One paragraph on the Company/Start-Up covering all the points.**

   Liquid fluid power is used by hydraulic machines to carry out the specific task. Hydraulic fluid is compressed to various hydraulic motors and hydraulic cylinders inside of this type of equipment and is then controlled by hoses using directional control valves to move pipes. The movement is managed hoses, either manually or automatically, through management valves, either pipes or tubes. The popularity of hydraulic machinery is due to the large amount of power that can be transferred through small tubes and flexible hoses, as well as the high power density and wide variety of actuators that can use this power, as well as the significant force multiplication that can be achieved by applying pressures over relatively large areas.Pumps that provide limitless flow are used in the proposed hydraulic circuits. The management valve's open centre allows the flow to be returned to the tank; hence, once the management valve is cantered, it offers an open return path to the tank and also ensures that the fluid is not under excessive pressure. Otherwise, if the management valve is operated, fluid is sent to the nursing assistant from the nursing assistant mechanism and tank. Given that the pump has an ongoing output, any resistance will be overcome by an increase in fluid pressure. A pressure valve allows liquids to return to the tank if the pressure gets too high. Additionally, many management valves are stacked non-parallel. Constant displacement pumps with minimal costs are suitable for this type of circuit. And also hydraulic gear pump is operated by using the fluid power. By using the hydraulic gear pump along with chain cutter can remove the aquatic weeds plants.

Start-Up-031: GB Mechanical Works Pvt. Ltd.

1. **Name of the Company/Start-up**: GB Mechanical Works Pvt. Ltd.
2. **Highlights of the Company/Start-up :**

   Product:

   - Implementation of ozone treatment mechanism in domestic washing machines and laundry machines
   - Killing and eliminating the bacteria from cloths during washing in washing machine by using UV light.
   - Washing machine having the UV treated water pumping system and UV water treating mechanism
   - Washing machine consists of Ozone gas (O3) pumping mechanism and UV treatment, UV water treatment system.

   Investment : Rs. 13,00,000

   Employment generated : 02

   Commercialized or not : Applied for approval
3. **Impact it will create (including social impact, if any)**

   Our proposed and developing technology taking the washing machine working to next level of advancement by implementing the ozone technology in washing machines.
4. **Current Status of the Company/Start-up :**

   Under startup registration process
5. **Student team Details/Faculty Mentor:**

   1. M. Vimal Teja
   2. G. Bhanu Prakash
6. **Establishment date of the Company/Start-up/Commercialization:**

   Under Process
7. **One paragraph on the Company/Start-Up covering all the points.**

   Ozone technology gives more effectiveness in washing performance. Our technology removes bacteria/virus and manganese, Iron, Hydrogen sulphide from laundry. Ozone technology creates impact on mentioned solvents and stains of cloths and water. So that it will removes more dirt with less water consumption in less time. We are using high chemical power detergents and chemicals to clean the cloths, finally it happens to contaminate soil and air due to

draining in to drainages etc. In this developed technology ozone gas is used to react with germs and dirt of cloths, after reaction of gas will converts in to oxygen. It was eco-friendly. ozone generator system consist of regulator mechanism to control the feeding rate of O3 gas in to the rotating drum chamber. UV light is fixed to washing machine to kill microbiological bacteria on laundry cloths This designed washing machine having UV treated water pumping assisted system it helps full to eliminates water source bacteria, this implementation improves washing quality.

Start-Up-032: HALIKASETHU

1. **Name of the Company/Start-up :** HALIKASETHU
2. **Highlights of the Company/Start-up;**

   Product : Service

   Investment : Rs. 7,58,000

   Employment generated : 02

   Commercialized or not : Applied for product approval
3. **Impact it will create (including social impact, if any)**

   This project is going to be the gateway between the producer and consumer that is it helps the organic products from the producer reach the consumer directly without interference of any another mediator
4. **Current Status of the Company/Start-up :**

   Under startup registration process
5. **Student team Details/Faculty Mentor:**

   1. A. Sai Venkata Sandeep
   2. U. Pavan
   3. Ch Swathi
6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process
7. **One paragraph on the Company/Start-Up covering all the points**:

   In this advancing world no producer is being paid enough for their products. Most of the producers are farmers. Farmers have never been paid enough for what they have produced because of a mediator who deals with their products. Mediator is gaining more money than the one who is producing or the one who is

buying. Because of a mediator huge commission has to be given. In this case the producers are being paid less than the budget they have planned to produce the goods which makes a huge loss for them and the consumers have to buy the products at high rate from the mediators which even make a huge loss for them. There are chances to avoid a mediator and our whole projects works on this. Avoiding a mediator benefits the producer as well as the consumer.

- We can avoid adulteration of products by direct dealing.
- Consumers can buy the goods at reasonable prices
- Producers can be benefited by getting sufficient amount of money for their valid products
- Direct access between the producer and consumer provides accountability and liability.

Start-Up-033: MACPRO Circuits Private Limited

1. **Name of the Company/Start-up:** MACPRO Circuits Private Limited
2. **Highlights of the Company/Start-up:**

   Product : Progressive Mechanized Air Conditioner

   Investment : Rs. 14,00,000

   Employment generated : 02

   Commercialized or not : Applied for product approval
3. **Impact it will create (including social impact, if any)**

   This product reduces power consumption in air conditioners and saves15% of electricity
4. **Current Status of the Company/Start-up** :

   Under startup registration process
5. **Student team Details/Faculty Mentor:**

   1. Chandrasekhar K.
6. **Establishment date of the Company/Start-up/Commercialization**:

   Under Process
7. **One paragraph on the Company/Start-Up covering all the points**:

   In day to day life air conditioners are becoming a necessary appliance to conditioning the living space. In India lakh of air conditioners in House hold and in industry are working around a day, here cost of equipment and maintenance is

on one end and power consumption, power bill on other end in thoughts before going to buy or install. People sure to vote for low power consumption high efficiency Air conditioners it seems to eco-friendly and financial safety. In this invention a truly eco-friendly Sub cooling technology with evaporative cooling mechanism is developed to fix Air conditioner for energy saving. By this technology cooling rate will increase and efficiency will be stable on all season of year-round. It Pre condition the air pass to the condenser.

Start-Up-034: Green Agile-Agro Techno Solutions LLP

1. **Name of the Company/Start-up**: Green Agile-Agro Techno Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : IOT-based solutions for smart organic farming for various farms (management of natural fertilizers, pesticides, fungicides, and germicides) for higher quality yield

   Investment : Not yet Started

   Employment generated : Not yet Started

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - Reduction in manpower;
   - Increased quality yield that boosts socioeconomic position;
   - Decreases water and air pollution and soil protection that promotes a greener planet.
   - Decreased water consumption
   - Ecological harmony
4. **Current Status of the Company/Start-up**

   Start-up (LLP) registration under process
5. **Student team Details/Faculty Mentor:**

   1. Srisivaphani Srisai Sudharam Saride
6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**

   Company supports to solve problems of agriculture and Green house farming

Start-Up-035: Nature resources Management Solutions LLP

1. **Name of the Company/Start-up**: Nature resources Management Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product / Service : Electronic and electromechanical control systems for water and air management, and, drainage management

   Investment : Not yet Started

   Employment generated : Not yet Started

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - Green earth
   - Reduced floods during rainy season thereby minimal loss to the society
   - Improved health
   - Natural resources to future generations
4. **Current Status of the Company/Start-up :**

   Start-up (LLP) registration under process
5. **Student team Details/Faculty Mentor:**

   1. Sai Suseel Mohan Saride
6. **Establishment date of the Company/Start-up/Commercialization**:

   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**

   It is proposed that a new venture use electrical and electromechanical control systems to deliver affordable solutions for drainage management, air and water management, and other related issues. The start-up's mission statement calls for reducing water waste, providing clean air and water, and reducing flooding during rainy seasons in society indirectly, a little movement for a greener planet. Water waste in homes, colonies, and factories is to a minimum since the advent of electronic control systems, both residential and industrial grade. equipment for pure water and air are also offered. The goal of drainage management systems is to lessen drain obstruction, which in turn lessens floods in rainy systems. One by one, the products will be commercialized. A professional professor with experience in the industry and a Ramachandra College of Engineering final-year engineering student are the startup's promoters. After securing the funds needed

and seeking government support through startup-promoting agencies, the firm will be launched.

Start-Up-036: Sarideson Techno Solutions LLP

1. **Name of the Company/Start-up** : Sarideson Techno Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Production of safety and health care equipments/Devices for employees in inductries

   Investment : Not yet Started

   Employment generated : Not yet Started

   Commercialized or not : Not
3. **Impact it will create (including social impact, if any)**
   - Improved employee health;
   - Improved employee safety;
   - Decreased risk of accidents; and
   - Decreased risk of orthopedic and neurological diseases
4. **Current Status of the Company/Start-up**

   Start-up (LLP) registration under process
5. **Student team Details/Faculty Mentor:**

   1. Saride Srisivaphani Srisai Sudharam
6. **Establishment date of the Company/Start-up/Commercialization**:

   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**

   It is proposed that a new business build and market healthcare equipment to increase productivity and make working people less susceptible to orthopedic and neurological problems, as well as gadgets that improve safety for industry employees. The technology is user- and eco-friendly. The devices became dependable and affordable with the development of modern electronics. The products will be released for sale one by one. The startup is promoted by a qualified professor with experience in the industry and Ramachandra College of Engineering graduates. The status is currently in the registration process. The NewGen IEDC has assisted in the creation of a prototype for an intelligent office chair and has provided full support for the registration procedure. The company

will be created after obtaining the necessary funding and gaining government assistance through startup-promoting organizations.

Start-Up-037: Veera Shine Agri LLP

1. **Name of the Company/Start-up** : Veera Shine Agri LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Manufacturing of Agriculture Machines and Electrical Pumps

   Investment : Not yet started

   Employment generated : Not yet started

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - It will provide a greater range of availability of different agriculture Machines and Pumps according to the regional Agriculture process
4. **Current Status of the Company/Start-up**

   Start-up (LLP) registration under process
5. **Student team Details/Faculty Mentor:**

   1. G. Uma Naveen Kumar
6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**

   Registered company establishing to manufacture and design the agriculture equipments

Start-Up-038: Jarabala Electrical Batteries LLP

1. **Name of the Company/Start-up**: Jarabala Electrical Batteries LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Providing Solutions for replace of fossile fuels with EV Batteries

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : Not

3. **Impact it will create (including social impact, if any)**
   - EV batteries significantly reduce greenhouse gas emissions
   - This leads to cleaner air and a healthier environment
   - Enhancing energy security and autonomy
   - Collaboration and Knowledge Sharing
4. **Current Status of the Company/Start-up**

   Start-up (LLP) registration under process
5. **Student team Details/Faculty Mentor:**

   1. E Raviteja
6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**

   EV Batteries Inc. is a leading and innovative start-up that was established in 2012 with the mission to revolutionize the electric vehicle (EV) industry through cutting-edge battery technologies. Specializing in advanced energy storage solutions, the company has rapidly emerged as a frontrunner in the field of electric vehicle batteries. EV Batteries Inc. is dedicated to developing high-performance and long-lasting battery packs that significantly enhance the range, efficiency, and overall performance of electric vehicles. With a team of skilled engineers and researchers, the company constantly pushes the boundaries of battery technology, utilizing state-of-the-art materials and manufacturing processes.

Start-Up-039: Sai Baba Smart Home Automations

1. **Name of the Company/Start-up**: Sai Baba Smart Home Automations
2. **Highlights of the Company/Start-up**:

   Product/Service : Providing Smart Home Automations.

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - This can be particularly beneficial for elderly or disabled
   - Smart home automation can lead to a reduction in energy consumption and lower utility bills

4. **Current Status of the Company/Start-up**

   Start-up (LLP) registration under process

5. **Student team Details/Faculty Mentor:**

   1. N. Vinay Kumar

6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration

7. **One paragraph on the Company/Start-Up covering all the points.**

   Smart Homes is a cutting-edge start-up at the forefront of the smart home automation revolution. Our company is dedicated to transforming traditional houses into intelligent living spaces, providing unparalleled convenience, safety, and energy efficiency. Through our state-of-the-art smart home systems, we empower individuals to control lighting, temperature, and appliances with ease, enhancing their overall comfort and quality of life. Our commitment to energy efficiency not only helps homeowners save on utility bills but also contributes to a greener and more sustainable future.

Start-Up-040: Jarabala Solar Systems LLP

1. **Name of the Company/Start-up**: Jarabala Solar Systems LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Reduce the Grid Energy by using the solar systems

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : No

3. **Impact it will create (including social impact, if any)**
   - Reducing reliance on fossil fuels and vulnerable energy supply chains
   - Solar systems provide a viable energy solution in remote and off-grid regions
4. **Current Status of the Company/Start-up**

   Start-up (LLP) registration under process

5. **Student team Details/Faculty Mentor:**

   1. E Raviteja

6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration

7. **One paragraph on the Company/Start-Up covering all the points.**

   Specializing in solar power solutions, the company has quickly become a leader in the renewable energy industry. Solar Systems is committed to developing cutting-edge solar technologies, including high-efficiency solar panels, energy storage systems, and innovative solar tracking technologies. The company's mission is to provide clean and sustainable energy solutions to businesses, communities, and homeowners worldwide, reducing their carbon footprint and dependence on fossil fuels. With a team of talented engineers and scientists, Solar Systems continuously pushes the boundaries of solar technology, making renewable energy accessible, reliable, and cost-effective for everyone.

Start-Up-041: Med-Mitra Healthlogger LLP

1. **Name of the Company/Start-up**: Med-Mitra Healthlogger LLP
2. **Highlights of the Company/Start-up**:This startup offers an innovative medication management device, empowering patients to take charge of their health. With strong data insights & partnerships, it addresses a critical market need, positively impacting healthcare outcomes. The talented team and clear vision for growth ensure its competitive advantage & potential for meaningful societal impact.

   Product/Service : A Smart Medication Management & Health Monitoring Tool)

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : Not
3. **Impact it will create (including social impact, if any)**

   This medication management device has a significant social impact by enhancing medication adherence and empowering patient independence. These devices reduce the burden on caregivers, prevent medical complications, and lead to cost savings in the healthcare system
4. **Current Status of the Company/Start-up**

   Company registration in process
5. **Student team Details/Faculty Mentor:**

   1. Uma Maheswara Rao Annavarapu
   2. Ravuri China Gopi Reddy

6. **Establishment date of the Company/Start-up/Commercialization:**
   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**
   Our innovative start-up is dedicated to revolutionizing healthcare through our advanced medication management device, Med-Mitra. With a strong focus on enhancing patient adherence, our device empowers individuals to take control of their medication routines independently, promoting a sense of empowerment and improving overall health outcomes. The device's timely reminders and alerts not only reduce the burden on caregivers but also prevent medical complications and subsequent hospitalizations, resulting in significant cost savings for the healthcare system. Furthermore, our device offers accessibility features to cater to diverse user needs, while the data insights it provides help healthcare providers tailor personalized treatment plans. Through educational initiatives and inclusivity, we aim to raise awareness about medication adherence and support the aging population in maintaining their independence and optimal health. Our progress in product development and partnerships ensures a transparent path towards a more efficient and sustainable healthcare landscape.

Start-Up-042: Karshak-Mitra Agro Solutions LLP

1. **Name of the Company/Start-up**: Karshak-Mitra Agro Solutions LLP
2. **Highlights of the Company/Start-up**:
   Product/Service : Providing Solutions for All agricultural issues by Organic Farming and monitoring by IOT Technology.
   Investment : Not yet started
   Employment generated : Not yet
   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - Smart Sensing: Precision Farming
   - Livestock Monitoring
   - Climate and Weather Insights
   - Data Analytics and AI
   - Resource Efficiency
   - Remote Monitoring and Control

- Collaboration and Knowledge Sharing

4. **Current Status of the Company/Start-up**

   LLP Registration is under Process

5. **Student team Details/Faculty Mentor:**

   1. Revanth Kumar Mareedu

6. **Establishment date of the Company/Start-up/Commercialization:** Applied for Company registration

7. **One paragraph on the Company/Start-Up covering all the points.**

   Karshak-Mitra Agro Solutions LLP is a pioneering agricultural start-up committed to revolutionizing the farming landscape with innovative technologies and sustainable practices. Established in [year], the company aims to address the challenges faced by farmers by providing them with cutting-edge agricultural solutions. Leveraging the power of artificial intelligence, Internet of Things (IoT), and data analytics, Karshak- Mitra offers a range ofsmart farming products and services, including precision agriculture tools, crop monitoring systems, and soil health management solutions.

Start-Up-043: Prasanth A Tech Solutions LLP

1. **Name of the Company/Start-up** : Prasanth A Tech Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Providing Solutions for All agricultural issues by Organic Farming and monitoring by IOT Technology

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : No

3. **Impact it will create (including social impact, if any)**
   - Smart Sensing
   - Precision Farming
   - Livestock Monitoring
   - Climate and Weather Insights
   - Data Analytics and AI
   - Resource Efficiency:
   - Remote Monitoring and Control:

- Collaboration and Knowledge Sharing:

4. **Current Status of the Company/Start-up**

   LLP Registration is under Process

5. **Student team Details/Faculty Mentor:**

   1. M. Poojitha

6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration

7. **One paragraph on the Company/Start-Up covering all the points.**

   The Agriculture IoT startup aims to transform traditional farming practices by harnessing the power of Internet of Things (IoT) technology. By integrating IoT devices and smart sensors with agricultural processes, the startup envisions optimizing resource utilization, improving crop yields, and enhancing overall farm efficiency. By integrating cutting-edge IoT technology with traditional farming methods, it empowers farmers to achieve higher yields, conserve resources, and embrace sustainable practices in the face of evolving agricultural demands

Start-Up-044: PVELECTRIX LLP

1. **Name of the Company/Start-up**: PVELECTRIX LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Providing Solutions for All agricultural issues by Organic Farming and monitoring by IOT Technology.

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : No

3. **Impact it will create (including social impact, if any)**
   - Smart Sensing
   - Precision Farming:
   - Livestock Monitoring
   - Climate and Weather Insights
   - Data Analytics and AI
   - Resource Efficiency
   - Remote Monitoring and Control
   - Collaboration and Knowledge Sharing

4. **Current Status of the Company/Start-up**

   LLP Registration is under Process

5. **Student team Details/Faculty Mentor:**

   1. Pavan Mulleti

6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration

7. **One paragraph on the Company/Start-Up covering all the points.**

   PVELECTRIX LLP is a dynamic and innovative start-up that specializes in renewable energy solutions. Established in [year], the company has rapidly emerged as a leading player in the clean energy sector, driven by its commitment to sustainability and cutting-edge technology. PVELECTRIX LLP focuses on designing, developing, and implementing photovoltaic systems and related energy storage solutions, catering to both residential and commercial markets. With a team of highly skilled engineers and researchers, the company strives to offer efficient and cost-effective solar energy solutions that contribute to a greener future.

Start-up-045: H20 Farming Solutions LLP

1. **Name of the Company/Start-up**: H20 Farming Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Providing Solutions for All agricultural issues by Organic Farming and monitoring by IOT Technology.

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : No

3. **Impact it will create (including social impact, if any)**
   - Smart Sensing
   - Precision Farming:
   - Livestock Monitoring
   - Climate and Weather Insights
   - Data Analytics and AI
   - Resource Efficiency
   - Remote Monitoring and Control

- Collaboration and Knowledge Sharing

4. **Current Status of the Company/Start-up :**

   LLP Registration is under Process

5. **Student team Details/Faculty Mentor:**

   1. Bala Gopala Rao Sanku

6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration

7. **One paragraph on the Company/Start-Up covering all the points.**

   H20 Farming Solutions LLP is an innovative and forward-thinking start-up that is revolutionizing the agricultural industry with its sustainable and cutting-edge water-based farming solutions. Founded in [year], the company aims to address the global challenges of water scarcity and food security by developing and implementing advanced hydroponic and aquaponic technologies. Through its state-of-the-art farming systems, H20 Farming Solutions enables efficient water usage, significantly reducing water wastage compared to traditional farming method.

03) Sasi Institute of Technology & Engineering, Tadepalligudem

Start-Up-046: **Martek Bioscience**

1. **Name of the Company/Start-up**: Martek Bioscience
2. **Highlights of the Company/Start-up**:

Product/Service	: Aqua Farming Kits
Investment	: Rs.35,00,000
Employment generated	: 18
Commercialized or not	: Commercialized

3. **Impact it will create (including social impact, if any)**
   - It helps aqua farmers in reducing the farming cost and production cost using intelligent farming kits.
4. **Current Status of the Company/Start-up**
   - Running
5. **Student team Details/Faculty Mentor:**

   1. Revu Satyanarayana

6. **Establishment date of the Company/Start-up/Commercialization:**
   - 17-07-2017

7. **One paragraph on the Company/Start-Up covering all the points.**
    - The company is manufacturing the farming kits for shrimp growth analysis & disease recognition. It has achieved MSME recognition from Govt. of India.

Start-Up-047: Think IC Labs

1. **Name of the Company/Start-up**: Think IC Labs
2. **Highlights of the Company/Start-up**:

    Product/Service : IoT products

    Investment : Rs. 10,00,000

    Employment generated : 8

    Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
    - IoT products helps in providing protection against theft and danger from un-know persons and accidents.
4. **Current Status of the Company/Start-up:** Running
5. **Student team Details/Faculty Mentor:**

    1. I Naresh
6. **Establishment date of the Company/Start-up/Commercialization:**
    - 11-04-2018
7. **One paragraph on the Company/Start-Up covering all the points.**
    - ThinkIC labs help users to maintain home safety and road safety during harsh conditions. It is established under the vision of 'safety for citizens'. It is initially started by targeting few districts and now achieve state-wide recognition for safety devices.

Start-Up-048: Kemiva Bioscience

1. **Name of the Company/Start-up**: Kemiva Bioscience
2. **Highlights of the Company/Start-up**:

    Product/Service : Aqua Farming Equipment

    Investment : Rs. 50,00,000

    Employment generated : 14

    Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - It helps aqua farmers in reducing the farming cost and production cost on a season basis.
4. **Current Status of the Company/Start-up**
   - Running
5. **Student team Details/Faculty Mentor:**

   1. Reddy Prasad
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 14-01-2019
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The company is established under the grounds of Make In India compaign and helping local material vendors to manufacture in rural environment. Products related to aqua farming are produced and helping farmers to reduce the production cost by 20% for the last 3 years.

Start-Up-049: Athritek Innovations

1. **Name of the Company/Start-up**: Athritek Innovations
2. **Highlights of the Company/Start-up**:

   Product/Service : Aqua IoT Equipment

   Investment : Rs. 2,00,000

   Employment generated : 5

   Commercialized or not : Not commercialized
3. **Impact it will create (including social impact, if any)**
   - It helps aqua farmers in reducing the farming cost and production cost using IoT based hardware.
4. **Current Status of the Company/Start-up:**
   - Running
5. **Student team Details/Faculty Mentor:**

   1. Ramya Undavalli
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 13-09-2021

7. **One paragraph on the Company/Start-Up covering all the points.**
   - The company is manufacturing the devices related to IoT technology for aqua farmers in identifying various farming parameters to take care. It has achieved Start-up Recognition from DPIIT, Govt. of India.

Start-Up-050: Sunrise Smart Innovations

1. **Name of the Company/Start-up** : Sunrise Smart Innovations
2. **Highlights of the Company/Start-up** :

   Product/Service : Product

   Investment : Rs. 3,50,000

   Employment generated : 8

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - It helps to the users in terms of regular monitoring and maintenance of the all water tanks in organizations.
   - Remote monitoring of the water flow in all water tanks easy.
4. **Current Status of the Company/Start-up:** Running

   Prototype kit was verified in the institute water tanks and prepared view kits to nearby small independent organizations for practical verifications and testing.
5. **Student team Details/Faculty Mentor:**

   1. T. Venkateswara Reddy
6. **Establishment date of the Company/Start-up/Commercialization:**

   10-03-2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   The company is manufacturing the proposed kits to small organizations who are interested to use and gives the demo to local people for product usage. Regular maintenance of the product is scheduled by area wise for proper market growth and avoiding competitors.

Start-Up-051: Abaya Health Care Systems

1. **Name of the Company/Start-up** : Abaya Health Care Systems
2. **Highlights of the Company/Start-up :**

   Product/Service : Services

   Investment : Rs. 4,00,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - More number of patients can handle due to low prize.
   - Certified material my medical department for real implementation.
4. **Current Status of the Company/Start-up - Running**

   Prototype kit was verified in the institute dispensary and prepared few kits to nearby small independent organizations for practical verifications and testing.
5. **Student team Details/Faculty Mentor:**

   1. T. Prasad
6. **Establishment date of the Company/Start-up/Commercialization:**

   23-03-2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   The company is manufacturing the proposed kits to small organizations who are interested to use and gives the demo to local people for product usage. Regular maintenance of the product is scheduled by area wise for proper market growth and avoiding competitors.

Start-Up-052: Navsin Medical Technologies

1. **Name of the Company/Start-up** : Navsin Medical Technologies
2. **Highlights of the Company/Start-up :**

   Product/Service : Service

   Investment : Rs. 2,50,000

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - It will help in early detection and diagnosis of Sleep Apnea
   - Waiting time for the results is reduced.

4. **Current Status of the Company/Start-up:** Running

   Prototype kit was verified by taking the data from the persons and the report generated will be examined by the expert.

5. **Student team Details/Faculty Mentor:**

   1. G Naveen Kishore

6. **Establishment date of the Company/Start-up/Commercialization:**

   17-03-2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   This Start up aims at the early diagnosis of Obstructive sleep Apnea. The device detects the pattern of the ECG signal to identify whether it is normal or abnormal. Deep Learning algorithms are used for identifying anormal activity present in the ECG which can be used to suggest necessary life style modifications by the doctor.

Start-Up-053: Vihari Smart Innovations

1. **Name of the Company/Start-up** **:** Vihari Smart Innovations
2. **Highlights of the Company/Start-up** **:**

   Product/Service : Product

   Investment : Rs. 300000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - It helps to the farmers in terms of regular monitoring and maintenance of the
   - Farm parameters.
   - Remote monitoring of the farm activities is easy to establish
4. **Current Status of the Company/Start-up** - Running
5. **Student team Details/Faculty Mentor:**

   1. J. L. Narayana

6. **Establishment date of the Company/Start-up/Commercialization:**

   03-03-2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   The company is manufacturing the farming kits for farmers who are interested to use and gives the demo to local farmers for product usage. Regular maintenance of the product is scheduled by area wise for proper market growth and avoiding competitors.

04) L. J. Institute of Engineering & Technology, Ahmedabad

Start-Up-054: Anywhera

1. **Name of the Company/Start-up**: Anywhera
2. **Highlights of the Company/Start-up**;

   Product : 1) Surprise travel

   Investment : Rs. 12,00,000

   Employment generated : 100 (More than indirect employment)

   Commercialized or not : Yes, Commercialized
3. **Current Status of the Company/Start-up** : ongoing
4. **Student team Details/Faculty Mentor:**

   1. Venu Rathore
5. **Establishment date of the Company/Start-up/Commercialization**: 2019
6. **One paragraph on the Company/Start-Up covering all the points**.
   - Anywhera is not an ordinary travel agency or trip advisory but a surprising new way to relax and rejuvenate.
   - We, at Anywhera challenge the concept of traditional travel planning and booking to something far more spontaneous and adventurous.
   - Anywhera decides your travel destination which is revealed to you 24 hours before departure!
   - We decide the destination on the basis of a questionnaire filled out be you. We plan your complete expedition, including travel bookings, accommodation, and a curated list of local recommendations.
   - "We believe that as adults, we get far more excited when we know there is a surprise waiting for us!
   - Our biggest motivation is to bring out the wanderlust, wonderstruck kid in you."
   - Anywhera plans surprise travel trips for solo and dual travellers.We offer a vivid new experience and a whole new feeling of travel, help couples find a lov-

er's retreat, fill enough adrenaline in the backpackers and adventure junkies, and plan the perfect getaway for friends whose vacation plans have always failed.

Start-Up-055: Tri-E-Con Developers LLP

1. **Name of the Company/Start-up** : Tri-E-Con Developers LLP
2. **Highlights of the Company/Start-up**;

   Product : Precast Eco-Friendly Concrete Products (Paver Blocks, Kerb Stone, Concrete Covers, Fly Ash Bricks, Elevation Jali, Home Decor Pots and Other concrete Products)

   Investment : Rs. 15,00,000

   Employment generated : 75

   Revenue generated : Rs. 50,00,000

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)** : we have Upcycled more than 75 tons of Waste which was going to end up in landfills, we also reduced more than 50 tons of carbon footprints entering into atmosphere by manufacturing Eco-Friendly Products.
4. **Current Status of the Company/Start-up**: Early Growth Stage
5. **Student team Details/Faculty Mentor:**

   1. Yash Patel
   2. Sahej Singh Tuteja
   3. Harshad Makwana
   4. Nirmal Suthar
   5. Vansh Agrawal
   6. Gaurav Mer
6. **Establishment date of the Company/Start-up/Commercialization**: 12/12/2018
7. **One paragraph on the Company/Start-Up covering all the points**.

   Tri-e-con work on the principle of the 3 E's which are Economical, Enhanced, and Eco-Friendly. We manufacture nonstructural concrete products from industrial waste materials which are nonrecyclable and thrown in landfills. Our prime motto is to reduce carbon footprints by reducing cement consumption. As cement industry produces more than 7% of Co2 annually.

Start-Up-056: Karbh IT Solutions

1. **Name of the Company/Start-up**: Karbh IT Solutions
2. **Highlights of the Company/Start-up**;

   Product : 1) Question paper generation 2) Software solutions

   Investment : Rs. 1,50,000

   Employment generated : 15

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)** It has already been in the market for over three years and has generated employment for over 10 people directly or indirectly.
4. **Current Status of the Company/Start-up**: Ongoing
5. **Student team Details/Faculty Mentor:**

   1. Yash Shukla
6. **Establishment date of the Company/Start-up/Commercialization**:

   19-October 2019
7. **One paragraph on the Company/Start-Up covering all the points.**
   - We at Karbh IT solutions focus on providing intuitive, robust, and simple software solutions related to any field. We believe in empowering all social and business activities through technology to meet their needs.
   - Which means we are here to solve your problems through various technologies, all you need to do is contact us.
   - In the last few years, Karbh IT Solutions has built various software solutions which are helping our clients in varied ways. It is really heartening to see how our work has been useful to them and we strive to contribute even more to their success.
   - We believe in the collective work which we can do to help you grow by solving your problems. Teamwork, Self-belief, and the motivation to give back to society is what keeps us going. 90% of our customers are recurring which shows the value we have added for them and their trust in us to take it forward. So if you are here you are at the right place to find solutions to your technological problems.

Start-Up-057: Resto'lution

1. **Name of the Company/Start-up**: Resto'lution
2. **Highlights of the Company/Start-up**;

   One stop HR solution for Restaurants

   Product : App

   Investment : Rs. 2,00,000

   Employment generated : 135 (Direct 35, Indirect 100)

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)** : Livelihoods in restaurant industry
4. **Current Status of the Company/Start-up**: Tech development
5. **Student team Details/Faculty Mentor:**

   1. Naman Patel
6. **Establishment date of the Company/Start-up/Commercialization**:

   Incorporated on 1st Oct 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   We provide one-stop HR solution to restaurant industry. From searching candidates, attendance, upskilling and payroll management

Start-Up-058: YM Intelligence Tech LLP

1. **Name of the Company/start-up**: YM Intelligence Tech LLP
2. **Highlights of the Company/Start-up**;

   Product : face attendance, visitor management & face cropper

   Investment : Rs. 1,50,000

   Employment Generated : 15 (Direct-07 & Indirect-07)

   Commercialized or not : Yes, Commercialized
3. **Impact it will create**:
   - A major impact in healthcare industry to track and detect life threatening diseases.
   - It is catering to numerous industries through it facial recognition and image processing solutions.
   - One of the USP is that they have provided solutions for detection of TB.
   - Also implemented this during covid 19 for social distancing detection

4. **Current Status of the Company/Start-up**: Start-up (Ongoing)
5. **Student team Details/Faculty Mentor:**
   1. Yakshkumar Harishbhai Thakar
   2. Mihir Upendrabhai Bhatt
6. **Establishment date of the Company/Start-up/Commercialization**:
   Establishment date: 28 August 2019.
7. **One paragraph on the Company/Start-Up covering all the points.**
   Introduction: YM Intelligence Tech LLP is an AI based Start Up Company. We offer a various product for Governments, Manufacturers, Retailers, Jewelers, Real Estate business & Authorized Buildings using smart AI based innovative & unique solution in Face Recognition Technology for human authentication and authorization.

Start-Up-059: Folklore Food Private Limited

1. **Name of the Company/Start-up**: Folklore Food Private Limited
2. **Highlights of the Company/Start-up**:

Product/Service	: Condiments and Packed food
Investment	: Rs. 2,50,000
Employment generated	: 1
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - The basic idea of this company is to focus on the awareness of local food served in different states and to be able to make serve them all over the nation with authentic touch
4. **Current Status of the Company/Start-up**
   - The products are under shelf life testing and soon will be open to the market.
5. **Student team Details/Faculty Mentor:**
   1. Aditya Thakkar
   2. Mit Chavda
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Date of Establishment is 09/02/2022

7. **One paragraph on the Company/Start-Up covering all the points.**
    - The main idea behind Folklore Food was to focus on the variety local and traditional cuisine consumed in all the states. Our aim is to provide that taste to other respective state with the same authenticity and recipe served. Currently we have 6 products in inline in which 2 of them are in shelf life testing and soon to be ready to launch in market. Our basic business model is launch all this products on online market as our primary focus to increase the reach as the idea mentioned above

Start-Up-060: TRIYAZA Healthcare Private Limited

1. **Name of the Company/Start-up**: TRIYAZA Healthcare Private Limited
2. **Highlights of the Company/Start-up**;

Product	: Wearable IV Care & the Patient Turner
Investment	: Rs. 1,00,000
Employment generated	: 1
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

    Wearable IV Care

    - In the case of wearable IV the nursing staff does not have to go with patients anywhere anytime to handle IV bottle, as they can complete their more meaningful work.
    - Easily mobile and can be worn on the wheelchair so the patient can easily get mobility with an IV bottle, for e.g going to the radiology department.
    - Patients have full privacy in the restroom

    In-Patient Turner:

    - Nursing staff get relief from back pain as they now do not pull patients for turning them.
    - Ease of diaper changing, cleaning bedsheets
    - Relief from pressure ulcers or bed sores as now the patient can be turned from side to side.
    - The light exercise of the patient can be done

4. **Current Status of the Company/Start-up**
   - Scaling, reaching out to more hospitals personally
   - R&D of new upcoming product/project
5. **Student team Details/Faculty Mentor:**
   1. Aayush Trivedi
   2. Jaydeep Yadav
   3. Meetrajsinh Zala
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Date of Establishment is 25/03/2022
7. **One paragraph on the Company/Start-Up covering all the points.**

   Triyaza healthcare is a medical device manufacturing company where we try to solve, day-to-day problems in the lives of patients. We are focused on delivering the best medical device in the Indian market. We are trying to strengthen the healthcare of India and explore new opportunities in this industry. Our focus is to reduce the imports of medical devices and try to manufacture them in India.

Start-Up-061: AZE Automative Private Limited

1. **Name of the Company/Start-up**: AZE Automative Private Limited
2. **Highlights of the Company/Start-up**:

Product/Service	:	Electric Motorcycle
Investment	:	Rs. 2,00,000
Employment generated	:	No
Commercialized or not	:	No
3. **Impact it will create (including social impact, if any)**
   - Environmental Impact: Electric motorcycles produce zero tailpipe emissions, reducing air pollution and greenhouse gas emissions compared to traditional internal combustion engine motorcycles.
   - This can contribute to improved air quality and help mitigate climate change.
   - Innovation and Technology: Electric motorcycle startups often push the boundaries of technology and innovation in the automotive industry.
   - Urban Mobility: Electric motorcycles can provide a sustainable and efficient mode of transportation for urban areas.

- Consumer Awareness and Adoption: Electric motorcycle startups often raise awareness about the benefits of electric vehicles and sustainable transportation.
- Market Competition: New startups entering the electric motorcycle market can drive healthy competition and innovation among established players.
- Cultural Shift: Electric motorcycles can contribute to a cultural shift towards cleaner and more sustainable forms of transportation.

4. Current Status of the Company/Start-up

- Working on prototyping for filing 2nd IP.

5. Student team Details/Faculty Mentor:

1. Kavan Panchal
2. Suraj Yadav
3. Devesh Panchal
4. Pratham Barot
5. Manthan Patel

6. Establishment date of the Company/Start-up/Commercialization:

- 30th May 2023

7. One paragraph on the Company/Start-Up covering all the points.

- Aze automotive has been working on transmission of electric motorcycles where we can extract maximum performance from an electric motor giving us enhanced riding experience with best-in-class range and performance. We first tried an electronically controlled Continuously Variable Transmission or E-CVT. After prototyping and testing we saw positive results and opted to patent the design. But after some testing on the prototype motorcycle we built, we experienced some issues regarding heating and ride quality. Therefore, to solve the issues we designed an automatic two speed gearbox in which we experienced an increase in range and speed with best-in-class acceleration. But as we increased the testing cycles, we observed that the shifting mechanism we designed is inefficient and in order to solve that, we have designed a more efficient shifting mechanism.

Start-Up-062: RIOB

1. **Name of the Company/Start-up**: RIOB
2. **Highlights of the Company/Start-up**:

   Product/Service : Biscuits

   Investment : Rs. 1,50,000

   Employment generated : 02

   Commercialized or not : Commercialized
3. **Impact it will create (including social impact, if any)**
   - Healthy Life for Dogs
4. **Current Status of the Company/Start-up**
   - Developing New Products
5. **Student team Details/Faculty Mentor:**

   1. Smriti Patel

   2. Jeet Shah
6. **Establishment date of the Company/Start-up/Commercialization:**
   - February 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - We are dog biscuits manufacturers which are 100% natural. Our biscuits are available in 3 different pack sizes (5rs, 30rs, 120rs).

Start-Up-063: GREENEVON Bio Private Limited

1. **Name of the Company/Start-up**: GREENEVON Bio Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Biodegradable and Compostable Bottles

   Investment : Rs. 30,00,000

   Employment generated : 20

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - We are provide superior PLA Bottle manufacturing services that meet the highest sustainability standards. We are dedicated to developing and producing biodegradable and compostable bottles that minimize environmental impact and reduce plastic waste
4. **Current Status of the Company/Start-up:** Started Product Marketing

5. **Student team Details/Faculty Mentor:**
   1. Nikhil Kumar
   2. Chintan Prajapati
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 4th August 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - We are working on sustainable packaging solutions through the production of high-quality and eco-friendly PLA bottles. We aim to revolutionize the packaging industry by offering innovative, biodegradable, and compostable bottles that significantly reduce the environmental impact of single-use plastics.

05) Manav Rachna International University, Faridabad

Start-Up-064: Halestein Foodlabs LLP

1. **Name of the Company/Start-up**: Halestein Foodlabs LLP
2. **Highlights of the Company/Start-up**:

Product/Service	: Health based organic edibles and drinks
Investment	: Rs 2,50,000/-
Employment generated	: 4-5 People
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - Providing healthy snacks and drinks to the customer for last minute food cravings.
4. **Current Status of the Company/Start-up**
   - The company is working on opening food outlets.
5. **Student team Details/Faculty Mentor:**
   1. Pranaw Jha
   2. Anshu Jha
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 07-Oct-2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   HALESTEIN FOODLABS LLP is an initiative by two nutritionists with a mission to inculcate a healthy regime among the youth.

- With products. Rich in antioxidants, aiding digestion, hydrating the body, enhancing immunity and improving the skin we are preparing the future generation for a disease free, healthy and productive life ahead.Our aim is to increase the interest of children and youth of the country towards nutritious products to promote the rich nutritional heritage of India for a healthier lifestyle approach and make nutrition easily accessible to a larger population.

Start-Up-065: Aarkaya Solar Solution Private Limited

1. **Name of the Company/Start-up**: Aarkaya Solar Solution Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Solar panels/ infrastructure

   Investment : Rs. 2,50,000

   Employment generated : 20

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - Providing extended support by installing solar panels to places with little to no electricity.
4. **Current Status of the Company/Start-up**
   - Expansion of business PAN India.
5. **Student team Details/Faculty Mentor:**

   1. Shivender Singh
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 01 March 2018
7. **One paragraph on the Company/Start-Up covering all the points.**
   - At Aarkaya our core mission is to deploy a network of renewable energy solutions to create sustainable, green and interconnected urban infrastructures worldwide.
   - We envision a world where society uses technology and clean energy to improve living conditions while preserving the planet. Everything we do is about a green future and energy efficiency.

Start-Up-066: Tackyon Motorsports Private Limited

1. **Name of the Company/Start-up**: Tackyon Motorsports Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Electric Vehicles

   Investment : Rs. 2,50,000

   Employment generated : 10

   Commercialized or not : Commercialized
3. **Impact it will create (including social impact, if any)**
   - Developing inhouse electric motors and drivetrains for indian customers
4. **Current Status of the Company/Start-up**
   - Expansion of business PAN India.
5. **Student team Details/Faculty Mentor:**

   1. Aayush Mohan
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 31 March 2018
7. **One paragraph on the Company/Start-Up covering all the points.**

   Tackyon Motorsports Pvt Ltd is a startup working towards electrifying the mobility sector.The team has developed fast charging, and up to mark electric scooters for rental purposes. The team is also working on different variants and have developed electric utility vehicles to overtake the commercial sector.

   STAGE:-
   - Working on developing high voltage controllers for better performance and quick charging.
   - Developing motors due to the trade cut-off between India-China.
   - Consultancy to Students participating in National/International Events.

Start-Up-67: TFT Industries

1. **Name of the Company/Start-up**: TFT Industries
2. **Highlights of the Company/Start-up**:

   Product/Service : Manufacturing

   Investment : Rs. 2,50,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - Making jobs of movers and packers easy.
4. **Current Status of the Company/Start-up**
   - Expansion of business PAN India.
5. **Student team Details/Faculty Mentor:**

   1. Aman Nischal
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 03rd April 2018
7. **One paragraph on the Company/Start-Up covering all the points.**

   TFT Industries is one of the leading manufacturers of Meyer Bar Coater, Tape Making Machine, Film Applicator and much more. In their development process, we assure that only top notch material is used along with modern machinery. Besides this, we check these on a variety of grounds before finally shipping them at the destination of our customers.

Start-Up-068: Synsalus Technomed LLP

1. **Name of the Company/Start-up**: Synsalus Technomed LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Sukoon and Dant Setu

   Investment : Rs 2,50,000

   Employment generated : 04

   Commercialized or not : Not commercialized
3. **Impact it will create (including social impact, if any)**
   - Mental and wellness application
4. **Current Status of the Company/Start-up:** Development of application
5. **Student team Details/Faculty Mentor:**

   1. Sunansh Malik
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 13 March 2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   Synsalus is a start-up venture which aims at bringing about a paradigm shift in healthcare. By integrating technology and healthcare we intend to help

healthcare organizations achieve efficient, connected and continuous care. This shall lead to better self-care and enhanced health outcomes in patients.

Start-Up-069: Thap Krida LLP

1. **Name of the Company/Start-up**: Thap Krida LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Android platform games

   Investment : Rs 2,50,000

   Employment generated : 06

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**
   - Gaming to improve the motor skills and intelligence of the players
4. **Current Status of the Company/Start-up:**

   Closed
5. **Student team Details/Faculty Mentor:**

   1. Sahil Tanwar
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   Our aim is to make hyper casual games that can be played by a 6 year old kid and his 60 year old grandfather. The students now we are working for a Canada based gaming company in gaming industry and decided to close the LLP.

Start-Up-070: Helix Smart Labs Private Limited

1. **Name of the Company/Start-up**: Helix Smart Labs Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Services

   Investment : Rs 4,50,000

   Employment generated : 20+

   Commercialized or not : Commercialized
3. **Impact it will create (including social impact, if any)**
   - The team is providing IT support to the budding startups
4. **Current Status of the Company/Start-up**
   - Looking for new opportunities along with product development

5. **Student team Details/Faculty Mentor:**

   1. Dhruv Rohatgi

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 02 July 2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   - At Helix Smartlabs believes in bringing change in technology which can truly impact the lives of people and make their life easier to ensure that we have inline more than 10 products which can ease your daily life. Due to unavailability of injection moulding facility at an affordable rate the firm had to change the business model IT consultation and development. Generating revenue and serving clients with a team of 20+ employees working on contractual basis.

Start-Up-071: Svachalan Technolgy LLP

1. **Name of the Company/Start-up**: Svachalan Technolgy LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs 2,50,000

   Employment generated : 3

   Commercialized or not : Not commercialized

3. **Impact it will create (including social impact, if any)**

   - Water management in agriculture and domestic

4. **Current Status of the Company/Start-up**

   - Finalizing the MVP

5. **Student team Details/Faculty Mentor:**

   1. Jahanvi Aggarwal

6. **Establishment date of the Company/Start-up/Commercialization:**

   - June 2022

7. **One paragraph on the Company/Start-Up covering all the points.**

   - Moity is an automated water sprinkler system which will provide water to the plants if the water level goes below the threshold level. The user can see the moisture content using a mobile phone application in real time.

- Moity App is the name of an app on which the user can get the readings of soil moisture content. The user needs to connect to the Bluetooth of the microcontroller and after that the respective current reading of the soil moisture gets displayed on screen. We can connect the device with wifi to give a more wide area of access. An alert can be given to the user in case of no electricity or no water.

Start-Up-72: Baso Fresh Foodlab LLP

1. **Name of the Company/Start-up**: Baso Fresh Foodlab LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs 2,50,000

   Employment generated : 3

   Commercialized or not : Not commercialized
3. **Impact it will create (including social impact, if any)**
   - Organic and healthy mouth freshners, drinks
4. **Current Status of the Company/Start-up**
   - Finalizing the MVP
5. **Student team Details/Faculty Mentor:**

   1. Mahika Goel

   2. Shreya Pasricha
6. **Establishment date of the Company/Start-up/Commercialization:**
   - June 2022
7. **One paragraph on the Company/Start-Up covering all the points.**

   Basofresh is an initiative by three of us to promote herbal eating in day to day life. Under Basofresh, we have a herbal mouth freshener with all natural products and no added preservatives. With **tulsi seed** being the main ingredient along with lata kasturi, stevia, peppermint etc natural flavors. **Tulsi** is preeminent and has been seen in reducing physical, mental, chemical, metabolic, and psychological stress as well as antibacterial properties.

Start-Up-073: Big Daddy Car Wash LLP

1. **Name of the Company/Start-up**: Big Daddy Car Wash LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs 250000

   Employment generated : 3-4

   Commercialized or not : Not commercialized
3. **Impact it will create (including social impact, if any)**
   - Automatic car washing
4. **Current Status of the Company/Start-up**
   - Developing final MVP
5. **Student team Details/Faculty Mentor:**

   1. Ankit Dagar

   2. Chirag Arora
6. **Establishment date of the Company/Start-up/Commercialization:**
   - June 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The company has manufacturing of tech-oriented automatic car washing machine and selling machine to local workstations and big businesses as well. The machine can be operated with an app for its users, and (for later stage) machine uses special AI-features to justify car body, shape, design and level of dirt in order to control the pressure and water consumption.
   - We are generating solar energy to use electricity for some extent.
   - We will also be settling up our own Hi-Tech automatic car washing stations in near future.

Start-Up-074: Arctic Innovage Private Limited

1. **Name of the Company/Start-up**: Arctic Innovage Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : MyGarage (SaAs based)

   Investment : Rs. 2,50,000

   Employment generated : 10

   Commercialized or not : In Process

3. **Impact it will create (including social impact, if any)**
   - Door to door service for two wheeler. And providing business to small scale automobile garages.
4. **Current Status of the Company/Start-up**
   - Applying for Series funding
5. **Student team Details/Faculty Mentor:**

   1. Aman
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Establishment date is 10/12/2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - We had introduced our vehicle washing service application in the market with the name EZwash. Customer can get his vehicle washed at his desired location (home, office etc.). It has provided us an opportunity to survey about customer's requirement of vehicle services and improvement. After getting results from EZwash and from the survey we can proceed with the vehicle's periodic services and maintenance activities. The service which we plan to introduce is routine maintenance of vehicle at customer's desired location. The setup will require an application for customers and partners. And simultaneously collaborating with workshops for a better network.

Start-Up-075: Logicyard Technologies Private Limited

1. **Name of the Company/Start-up**: Logicyard Technologies Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Innominate (Ed-Tech)

   Investment : Rs. 2,50,000

   Employment generated : 8

   Commercialized or not : In Process
3. **Impact it will create (including social impact, if any)**
   - Online skill development application, chance to create jobs for promoters.
4. **Current Status of the Company/Start-up**
   - Applying for Series funding

5. **Student team Details/Faculty Mentor:**
   1. Vikas Baisoya
   2. Sarthak Negi
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 02/2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Innominate is a start-up of skill-based education platform where we provide skills apart from academics. Skills which one can pursue for their best like for their passion hobbies or to make living out of it. We have started this start-up 9 month ago through beta website Base portal.
   - Which was just a beta version to test thing up. In which we have connected industries Best collaborator to our customers. We have accumulated of three lac in sales within 6 month and have successfully run our beta website. Now we are currently working on developing an app for our online courses, to give our customers better understanding and experience of the courses. On this app we'll be going to providing skills like:
   - Fashion Industry: Fashion designing, Apparel making, jewelry designing, graphic designing
   - Cooking and baking classes and tips
   - Nutrition & Fitness

Start-Up-076: Hobit Technologies Private Limited

1. **Name of the Company/Start-up**: Hobit Technologies Private Limited
2. **Highlights of the Company/Start-up**:

Product/Service	: Hobit (An Online Skill based App)
Investment	: Rs. 3,50,00,000
Employment generated	: 32
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - Online skill development application focusing on hobbies, chance to create jobs for promoters.
4. **Current Status of the Company/Start-up**
   - Applying for Series funding

5. **Student team Details/Faculty Mentor:**

   1. Arpit Tyagi

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 15/06/2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   - Founded in June, 2020 with a mission to become the world's most Hobby centric platform. HOBIT is a one-of-its kind virtual platform with a vision to connect educators and learners from all over the globe. The platform enables the users to access prerecorded modules and live video sessions with the topmost tutors across the world. HOBIT is providing 360-degree solution for hobbies/ passion learning through their application. The company has received funding from angel investors and catalysts and is growing its operations steadily.

Start-Up-077: DNA ADDA Private Limited

1. **Name of the Company/Start-up**: DNA ADDA Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Gamerzpit

   Investment : Rs. 2,50,000

   Employment generated : 3

   Commercialized or not : In Process

3. **Impact it will create (including social impact, if any)**

   - A cross platform games development company.

4. **Current Status of the Company/Start-up**

   - Developing games and IP generation

5. **Student team Details/Faculty Mentor:**

   1. Ayush Goel

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 17 June 2022

7. **One paragraph on the Company/Start-Up covering all the points.**

   - Our venture aims on creating 2D & 3D games. We also plan on designing websites and applications. Moreover, we'll be targeted towards building cus-

tom PC systems irrespective of the purpose. Our company will also simultaneously be handling both hardware and software technologies.

Start-Up-078: Shuttle Express LLP

1. **Name of the Company/Start-up**: Shuttle Express LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Car and Bus Rental Company

   Investment : Rs. 25,00,000

   Employment generated : 50 (On commission basis)

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Shuttle Express is creating an umbrella where the unorganized ground transportation sector can fulfill the requirements of B2B Travel agents and corporate companies. By this we reduce poverty and improve health, housing, education, and overall well-being of Transport operators and Drivers.
4. **Current Status of the Company/Start-up**

   We are a GST verified MSME and generating revenues. Also “Shuttle Express” brand name is registered as a Trademark.
5. **Student team Details/Faculty Mentor:**

   1. Udit Tiwari
   2. Shubham Singh
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 01 January 2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   Shuttle Express is one of the leading company for buses and cab booking in India which offer riders a one-stop solution to book vehicles of their choice for their Intercity as well as Local travel needs. Shuttle Express aims to leverage technology as a platform to squeeze the gap in the land transportation industry to book the vehicle for their travel bookings. One can easily book the cab of their choice in just a few minutes and that too at affordable prices. Having a strong pipeline of verified cabs and drivers in major cities covering nearly every major city of India, Shuttle Express strives to provide the car of your choice Anytime & Anywhere.

Start-Up-079: FIN Horse Financial Advisory Private Limited

1. **Name of the Company/Start-up**: FIN Horse Financial Advisory Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Services

   Investment : Rs 8,00,000

   Employment generated : 15

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - A one stop personalized financial planning startup to provide assistance to the customers.
4. **Current Status of the Company/Startup:** Working towards acquiring customers
5. **Student team Details/Faculty Mentor:**

   1. Shubham Adhlakha
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 26th April, 2022
7. **One paragraph on the Company/Start-Up covering all the points.**

   The advisory concept is simple and clear: we provide a one-stop-shop for all aspects of financial management. Throughout the entire process of building and managing your portfolio, everything has been taken care of. As your financial doctor, we can monitor your financial health and restore it if necessary. Our idea behind this is crystal clear: to provide more and more HNI's for society. We are all geared up with trained professionals to assist our clients with their finances. Investing according to your financial needs is something we are committed to helping you achieve. With qualified and trained staff onboard, we tend to deliver according to the clients' expectations.

Start-Up-080: Asset reclaimers/Oops Consultancy LLP

1. **Name of the Company/Start-up**: Asset reclaimers/Oops Consultancy LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Services

   Investment : Rs 10,00,000

   Employment generated : 35

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - A startup with a focus to help the customers getting claims of the assets like Bonds, gold, FDs and more.
4. **Current Status of the Company/Start-up**
   - Generating revenues by catering to NRIs, HNIs in Delhi, Kolkatta, Gujarat, Bangalore and Mumbai
5. **Student team Details/Faculty Mentor:**

   1. Vishal Gupta
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 14th July, 2022
7. **One paragraph on the Company/Start-Up covering all the points.**

   The Demat accounts & the paper less share trading was not always the trend. Strange but yes it's true, not that far behind rather till the previous generation, shares/ debentures were bought & sold in physical form. However, "any investor who is desirous of transferring shares (which are held in physical form) after April 1, 2019 can do so only after the shares are dematerialised," Asset Reclaimers brings to you the complete solution of any issues with the physical documents of share or debentures. Our experts assist clients in resolving doubts/ queries related to share transfer, claims by nominee, name deletion/ modification etc. We have experts to help you recover the unclaimed amount from lost or damaged share certificates as well.

Start-Up-081: VIEH Private Limited

1. **Name of the Company/Start-up**: VIEH Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Cyber-National security/ IT services & solutions

   Investment : Rs 2,50,000

   Employment generated : 15

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   CVMS can create a lot of impact while building a safe and secure nation, because it is a kind of a full-fledged system from which organizations will get

overall security for their infrastructure. Since we have reported vulnerability on almost all big tech giant server, we feel we can do it better

4. **Current Status of the Company/Start-up**

   Company has been registered as a private limited and also got recognized under Startup India program, Government of India

5. **Student team Details/Faculty Mentor:**

   1. Manish Kumar

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 27 August 2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   1. Our startup is fully dedicated to Cyber security and National security ideas. Right now we're working on two major things
   2. Here we're working on a model to provide intelligence support to the intelligence agencies of India- It include Global surveillance model, getting information about the confidential data and operation that are running in the enemy nation like Pakistan and China
   3. CVMS- Centralized vulnerability management system This is a portal where we're listing out the critical vulnerabilities that are present in multiple government servers/ websites. Apart from this we'll be providing ticket and remedies support with that too.

Start-Up-082: Analytix Nexus Private Limited

1. **Name of the Company/Start-up**: Analytix Nexus Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Bad word Protection, Scammer IP Protection, Live Traffic of Website

   Investment : Rs 2,50,000

   Employment generated : 15

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

   Abedhya is a product where customers can get updates about the website management from various hacks like scammer protection etc.

4. **Current Status of the Company/Start-up**

   Company has been registered as a private limited and also got recognized under Startup India program, Government of India

5. **Student team Details/Faculty Mentor:**

   1. Anirudh Khandwe

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 02 March 2022

7. **One paragraph on the Company/Start-Up covering all the points.**

   Abhedya is an indigenous GUI-based Firewall as well as it has its unique features like IP block, Region wise block, and Country-wise block traffic. It also shows the location of the Attacker by IP LOOKUP, Abhedya gives protection against bad bots then, IP whitelisting, Bad word Protection, Scammer IP Protection, Live Traffic of Website, and many more feature

Start-Up-083: Trufit Kitchen LLP

1. **Name of the Company/Start-up**: Trufit Kitchen LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs 2,50,000

   Employment generated : 5

   Commercialized or not : Not Commercialized

3. **Impact it will create (including social impact, if any)**

   - Smart kitchen appliances

4. **Current Status of the Company/Start-up**

   - Development of prototypes and IP

5. **Student team Details/Faculty Mentor:**

   1. Ashutosh
   2. Pawan Dixit

6. **Establishment date of the Company/Start-up/Commercialization:**

   - June 2022

7. **One paragraph on the Company/Start-Up covering all the points.**

   Our aim is to improve the quality of kitchen life and make relevant technologies accessible to all. We are providing all in one solution for smart kitchen

automation. We have two products: Adjustable slab: we are adjusting the slab by using gestures and advanced IT features like Artificial intelligence and Machine learning. Smart dustbin: we segregating green and non-green waste which is helpful to segregate the waste easily and the company also sets out to offer IT solutions for automating the daily needs in the kitchen.

Start-Up-084: 2nd Life Inning Ventures LLP

1. **Name of the Company/Start-up**: 2nd Life Inning Ventures LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Website for senior citizens

   Investment : Rs. 2, 50,000

   Employment generated : 04

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Enhancing lives, one step at a time. Our well-designed project aims to prioritize the holistic needs of seniors, offering a seamless blend of essential services ranging from nourishing meals, safety, medical care, housekeeping, to thoughtfully curate entertainment, ensuring perpetual happiness, comfort, and security.
4. **Current Status of the Company/Start-up**
   - LLP has been registered and also got recognized under Startup India program, Government of India.
5. **Student team Details/Faculty Mentor:**

   I. Babita

   II. Shreyansh
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 13.02.2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The 2nd Lifeinnings is a well-planned project to ensure that you are always Happy, Comfortable, Secured and Looked after- Focusing on the minor as well as major requirements starting from Food & Diet to Security and Medical care from House- keeping to entertainment planning of the old age people.

Start-Up-085: MANAVNEER LLP

1. **Name of the Company/Start-up**: MANAVNEER LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Water cleaning using NANO material

   Investment : 2, 50,000/-

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Revolutionizing water purification with an air stable, biocompatible porous nano composite material, and effectively combating pollution by enhancing absorption capabilities in contaminated water. Harnessing innovation for a cleaner, healthier future.
4. **Current Status of the Company/Start-up**
   - LLP has been registered and also got recognized under Startup India program, Government of India.
5. **Student team Details/Faculty Mentor:**

   I. Sudeep Shukla
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 26.04.2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The proposed idea will be attempted to synthesize air stable biocompatible porous nano composite material for advance absorption of pollutants from contaminated water.

06) B. N. M. Institute of Technology, Bengaluru

Start-Up-086: Entrada Solution Private Limited

1. **Name of the Company/ Start-up**: Entrada Solution Private Limited
2. **Highlights of the Company/Start-up;**

   Product : Home Automation, IoT, iOS and Android, Interactive Solutions product.

   Investment : Rs. 50,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - to make human-object inter-action as natural as possible.
4. **Current Status of the Company/Start-up:**
   - Growth stage
5. **Student team Details/Faculty Mentor:**

   1. Pavan R
6. **Establishment date of the Company/Start-up/Commercialization:** 2017
7. **One paragraph on the Company/Start-Up covering all the points.**

   Entrada Solutions Private Limited is a private establishment based in Bengaluru. We at Entrada Solutions believe that speech is the most natural form of communication. The idea for Entrada Solutions was coined in 2015, to make human-object inter-action as natural as possible. We are using latest AI-based technologies like Amazon's Alexa, Apple's Siri and Google Home to build these interactive solutions. We have developed a voice-controlled interactive solution for Home Automation. Our home automation solution involves lights, fans, door lock, switches, HVAC, electric water heaters and other consumer electronics. We also provide custom solutions for automating various tasks in automotive Industries. Currently, we are developing a voice-activated interactive universal controller which can be used to control most commonly used objects at home or office. Additionally, we are in a nascent research stage with respect to "Beacon" technology. These beacons can be used to further the user's communication with the daily usable objects.

Start-Up-087: USOCL

1. **Name of the Company/ Start-up**: USOCL
2. **Highlights of the Company/Start-up;**

   Product : Usocl is a social networking and knowledge sharing platform. Creating and sharing content with others is the core functionality of usocl.

   Investment : Rs. 2,50,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   There are multiple ways in which you can interact with usocl, like by creating your account, by creating your profile, by sharing your messages, pictures or posts with a network of your friends on usocl, by liking and commenting on others messages, pictures or posts, by sharing your reviews and blogs, by following reviews and blogs shared by other people, by commenting on the reviews and blogs, by creating your followers or by following others, by searching for friends, reviews or blogs.
4. **Current Status of the Company/Start-up:** In Seed stage
5. **Student team Details/Faculty Mentor:**
   1. Hassan Raza
6. **Establishment date of the Company/Start-up/Commercialization**: 2017
7. **One paragraph on the Company/Start-Up covering all the points.**
   Usocl is a social networking and knowledge sharing platform. Creating and sharing content with others is the core functionality of usocl. There are multiple ways in which you can interact with usocl, like by creating your account, by creating your profile, by sharing your messages, pictures or posts with a network of your friends on usocl, by liking and commenting on others messages, pictures or posts, by sharing your reviews and blogs, by following reviews and blogs shared by other people, by commenting on the reviews and blogs, by creating your followers or by following others, by searching for friends, reviews or blogs.

Start-Up-088: Hycube Works Private Limited

1. **Name of the Company/ Start-up**: Hycube Works Private Limited
2. **Highlights of the Company/Start-up;**

Product	: 3D Printer Manufacturers**.**
Investment	: Rs. 2,00,000
Employment generated	: 18
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):** This company has created a pragmatic change in the field of digital manufacturing and is helping the Hardware industry in creating cost effective end products and prototypes.

4. **Current Status of the Company/Start-up: Expansion Stage**

   It is a bootstrapped company which has 7 full time employees and has 20+ interns. HyCube Works has served clients such as Indian Army, Indian Air Force, BARC, CSIR organizations, NIT's, Private companies. This company has created a pragmatic change in the field of digital manufacturing and is helping the Hardware industry in creating cost effective end products and prototypes.

5. **Student team Details/Faculty Mentor:**

   1. Shreyas S P
   2. Reethan D

6. **Establishment date of the Company/Start-up/Commercialization:** 2018

7. **One paragraph on the Company/Start-Up covering all the points.**

   HyCube Works Private Limited is pre incubated company at BNMIT in the year 2017-18. HyCube Works Private Limited is a two-time incubated venture at NSRCEL IIMB and is also an incubated venture at Maruti Suzuki India Limited. It is an OEM for Manufactures of FDM 3D Printers and is in the process of coming with Indigenous Multi Material Metal (IMMM) 3D Printer. It is a bootstrapped company which has 7 full time employees and has 20+ interns. HyCube Works has served clients such as Indian Army, Indian Air Force, BARC, CSIR organizations, NIT's, Private companies. This company has created a pragmatic change in the field of digital manufacturing and is helping the Hardware industry in creating cost effective end products and prototypes. The founders of this company are Mr.Shreyas S P and Reethan D L who is our alumni graduated in the year 2018. They registered their company also on 8th August 2018. They have created their own website named www.hycubeworks.in which explains more about their ventures.

Start-Up-089: WAF Digital

1. **Name of the Company/ Start-up**: WAF Digital
2. **Highlights of the Company/Start-up :**

Product	: Software Development product
Investment	: Rs. 30,000
Employment generated	: 1
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - to build and grow online businesses — generally, digital services.
4. **Current Status of the Company/Start-up: Seed Stage**
   - Digital entrepreneurs rely on web-based tools and information to build and grow online businesses — generally, digital services.
5. **Student team Details/Faculty Mentor:**

   1**.** Neetu Purba
6. **Establishment date of the Company/Start-up/Commercialization:** 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   A digital entrepreneur pursues a business venture that's built exclusively on a digital platform. Digital entrepreneurs rely on web-based tools and information to build and grow online businesses — generally, digital services. These kinds of entrepreneurs are distinctly modern, as they take advantage of mass digitization to build new businesses in the online space. She is also working for Envestnet | Yodlee India as Software Engineer at Bengaluru

Start-Up-090: Ace Destiny LLP

1. **Name of the Company/ Start-up**: Ace Destiny LLP
2. **Highlights of the Company/Start-up :**

   Product : Real Estate Professional

   Investment : Rs.1,00,000

   Employment generated : 3

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   Have conducted successful consultations with various organizations and representatives in the field of real estate market analysis and research.
4. **Current Status of the Company/Start-up:** Established
5. **Student team Details/Faculty Mentor:**

   1**.** Kalyan Chakravarthy Gurram
6. **Establishment date of the Company/Start-up/Commercialization**: 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   Real Estate Professional, with several years of experience across residential and commercial real estate industry. Strong expertise in Real Estate Economics and

Trasanctions. Has diverse knowledge of product marketing and implementation of operational efficiency strategies. Have conducted successful consultations with various organizations and representatives in the field of real estate market analysis and research.

Start-Up-091: Tedora Technologies Private Limited

1. **Name of the Company/ Start-up**: Tedora Technologies Private Limited
2. **Highlights of the Company/Start-up;**

   Product : Software Development

   Investment : Rs. 2,00,000

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   The platform also aims at educating the students about the basics of web and mobile application development.
4. **Current Status of the Company/Start-up:** Growth
5. **Student team Details/Faculty Mentor:**

   1. Shreyas G S

   2. Thrupthi N Murthy
6. **Establishment date of the Company/Start-up/Commercialization:** 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   Tedora Technologies is a design engineering start up that is intended to provide innovative Web and Mobile application services to render the needs of the customers. Over a year of service, the startup is fruitful in developing applications for the chief customers, Ayushya Technologies and Services Pvt Ltd and Aarna Solutions Pvt Ltd, besides conducting workshops for 11th and 12th students across Bangalore. The platform also aims at educating the students about the basics of web and mobile application development. Ayushya Technologies and Services (ATAS) increases the longevity of electronic products through innovation, technology and best in class processes and controls to generate value for the customers.

Start-Up-092: Switchkase Technologies Private Limited

1. **Name of the Company/ Start-up**: Switchkase Technologies Private Limited
2. **Highlights of the Company/Start-up :**

   Product : Manufactures Low Cost Medical Equipment's

   Investment : Rs. 4,00,000

   Employment generated : 5

   Commercialized or not :
3. **Impact it will create (including social impact, if any):**

   The devices developed can reach all sectors of the society and help people solve their medical issues which are cost effective.
4. **Current Status of the Company/Start-up: Established**

   They are doing their research and have been chosen for incubation at IISC, Bangalore.
5. **Student team Details/Faculty Mentor:**

   1. Brahma S P
   2. Disha Maru
6. **Establishment date of the Company/Start-up/Commercialization**: 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   SwitchKase Technologies is pre incubated company at BNMIT in the year 18-19. SwitchKase Technologies is a company focused on developing low cost medical electronic devices. It is founded by Brahma S P and Disha Maru our fresh alumni passed out this year in 2021. They are doing their research and have been chosen for incubation at IISC, Bangalore. At present they are having 6 interns with them to manage the company. Since the product is in the testing stage and waiting for board approval from IISc, this product has not yet been commercialized. The devices developed can reach all sectors of the society and help people solve their medical issues which are cost effective. They have applied for patent during 2019 and the patent is granted on 2023. They started their company during 2019 and registered their company on 18th September 2020.

Start-Up-093: Cadcon Education Private Limited

1. **Name of the Company/ Start-up**: Cadcon Education Private Limited
2. **Highlights of the Company/Start-up :**

   Product : Software Development

   Investment : Rs. 5,00,000

   Employment generated : 35

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - With a vision to become leading digital education providers of the world, we cater to the needs of students through regional languages.
4. **Current Status of the Company/Start-up:** Established, we cater to the needs of students through regional languages.
5. **Student team Details/Faculty Mentor:**

   1**.** Abhiram V
6. **Establishment date of the Company/Start-up/Commercialization:**

   Incorporated - 2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   Cadcon is a product company, which has an end-to-end solution for the educational needs of students, presently studying between class 8-12. We have an in-house tech team through which we have built our product, an Android App. The app is used to integrate and provide academic courses to students. Academic courses are built in-house, with highly experienced expert educators, and an extremely skilled content development team. We stand apart for our highly relatable, concept based education taught. Cadcon is an Ed-Tech SaaS Model based Product Company. We bring onto the table a very novel idea of concept based education. With a vision to become leading digital education providers of the world, we cater to the needs of students through regional languages. Academic and Non-academic content developed consists relatable examples and explanations. The vast reachability and affordability of this innovative content is a welcome change to students of rural India

Start-Up-094: Dhiyo.ai

1. **Name of the Company/ Start-up**: Dhiyo.ai
2. **Highlights of the Company/Start-up;**

Product	: Software Development Product
Investment	: Rs. 60,00,000
Employment generated	: 1
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):** Responsibility to solve job market inefficiencies for blue-collar sector and a confidence that conversational technology can help.
4. **Current Status of the Company/Start-up:** Startup stage-Our Vision is to remove friction by NOT imposing English and Tech literacy as a precondition for Bottom-of-Pyramid folks to become members of the new digital economy
5. **Student team Details/Faculty Mentor:**
   1. Samith Jaganath
6. **Establishment date of the Company/Start-up/Commercialization:** 2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   Dhiyo was born out of a deep sense of responsibility to solve job market inefficiencies for blue-collar sector and a confidence that conversational technology can help. The power of conversation becomes a meaningful engagement especially if it's done in your native tongue. Our Vision is to remove friction by NOT imposing English and Tech literacy as a precondition for Bottom-of-Pyramid folks to become members of the new digital economy. Using our AI and NLP technology, they now can make an active presence on the job market without any dependency on middle-man.

Start-Up-095: Vtrike Private Limited

1. **Name of the Company/ Start-up**: Vtrike Private Limited
2. **Highlights of the Company/Start-up :**

Product	: Provide world class battery management systems
Investment	: Rs. 2,50,000
Employment generated	: 4
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**

   To design, develop and deploy energy efficient smart technology maintaining ecological balance that adds values to our customers.

4. **Current Status of the Company/Start-up: Growth stage**

   Vtrike is currently incubated under NDBI an initiative of the National Institute of Design, Bengaluru.

5. **Student team Details/Faculty Mentor:**

   1. Aslesh Kumar A.
   2. Raghuveer Bhat
   3. Shwetha S.
   4. Alagar Krishna B.

6. **Establishment date of the Company/Start-up/Commercialization**: 2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   Vtrike Private Limited is pre incubated company at BNMIT in the year 2019-20. Vtrike Private Limited is a deep tech start-up focused on providing efficient, robust edge to cloud solutions to the battery applied sectors. It is found by 4 students of our institution Aslesh Kumar A, Raghuveer S Bhat, Shwetha S, Alagar Krishna B and they have registered their company on 14th January 2020. Their main is to design, develop and deploy energy efficient smart technology maintaining ecological balance that adds values to our customers. To provide world class battery management systems, promote green and safe transportation. To increase battery life, vehicle safety with technology that achieves more, consumes less and is accessible for everyone. They have created their own website www.vtrike.in for more information of their company.

   <u>ACHIEVEMENTS:</u>

   - Vtrike is recognized by Start-up India, DPIIT and MSME.
   - Vtrike is currently incubated under NDBI an initiative of the National Institute of Design, Bengaluru.
   - Vtrike has been granted Rs.25 lakhs by National Institute of Research and Design.
   - The team also has applied for patent vide Application no. 201941037512 dated 17.09.2019.

Start-Up-096: Innovkraft Inc

1. **Name of the Company/ Start-up**: Innovkraft Inc
2. **Highlights of the Company/Start-up :**

   Product : Software Development Product

   Investment : Rs. 3,00,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   Branding, Social Media Marketing, Search Engine Optimization (SEO), Management, Leadership, and Team Leadership.
4. **Current Status of the Company/Start-up:** Growth stage
5. **Student team Details/Faculty Mentor:**

   1. Apoorva R
6. **Establishment date of the Company/Start-up/Commercialization: 2021**
7. **One paragraph on the Company/Start-Up covering all the points.**

   An Entrepreneur, skilled in Branding, Social Media Marketing, Search Engine Optimization (SEO), Management, Leadership, and Team Leadership. Passionate about photography. A strong business development professional with a Bachelor of Engineering - focused in Electronics and Communications Engineering from B N M Institute of Technology, BANGALORE. “At Innovraft we innovators are expert in design and technology, with a focus on creating campaigns that resonate with your target audience. Once we have a grasp of your company’s vision, we’ll work with you to use our expertise to develop a strategy that elevates the way you interact with your customers” says Managing Partner Ms. Apporva.

07) University of Science and Technology, Ri-Bhoi

Start-Up-097: Tosinindra Private Limited

1. **Name of the Company/ Start-up:** Tosinindra Private Limited (CIN: U74999AS2018PTC018912)
2. **Highlights of the Company/Start-up :**

   Product : Non-conventional energy solutions (Solar powered processes)

   Investment : Rs. 1,00,000/-

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - The company is engaged in the agro sector with projects of solar driven irrigation devices & also associated with design & implementation of the same.
4. **Current Status of the Company/Start-up:** Functioning
5. **Student team Details/Faculty Mentor:**

   1. Paramanda Pathak
   2. Sagar Tiwari
6. **Establishment date of the Company/Start-up/Commercialization:** 31.03.2020
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The aim of this startup is to take forward the economic and environmental friendly socially acceptable product portfolio based on solar energy into the realm of agriculture, urban housing etc. The services offered includes, survey, design, procurement, installation, commissioning and annual maintenance.

Start-Up-098: Ennovate LLP

1. **Name of the Company/ Start-up:** Ennovate LLP (application still in process)
2. **Highlights of the Company/Start-up :**

   Product : Smart Home Appliances

   Investment : Rs. 1,00,000/-

   Employment generated : 10 expected to be employed within 1 year

   Commercialized or not : Under process
3. **Impact it will create (including social impact, if any):** Automation of home/ domestic/ office premises, remote control of appliances, etc.

4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**
   1. Abu Bakr Siddiq Laskar
   2. Shubhrajyoti Dhar
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The startup aims to focus in the domain of home automation and introduce remote controlling of domestic/ electrical appliances, etc with target users being residential apartments, hospitals and other institutions where such operations will boost just in time control of required functionality. For example, an apartment with senior citizens will be benefitted by a remote control of the app, water pumps, etc which will be controlled and monitored by their sons/ daughters during the working hours.

Start-Up-099: Poshe LLP

1. **Name of the Company/ Start-up:** Poshe LLP (application still in process)
2. **Highlights of the Company/Start-up :**

Product	: Herbal tea and drinks
Investment	: Rs. 1,00,000/-
Employment generated	: 10 expected to be employed within 1 year
Commercialized or not	: Under process

3. **Impact it will create (including social impact, if any):**
   - Providing preservative free beverages to the community and including farmers in the manufacturing process
4. **Current Status of the Company/Start-up:**
   Start-up process initiated
5. **Student team Details/Faculty Mentor:**
   1. Dorthi Rajkumari
   2. Soubam Nickol Devi
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process

7. **One paragraph on the Company/Start-Up covering all the points.**
    - The startup aims to harness the rich diverse fruits, vegetable and flowers of the region towards offering heathy preservative free beverages fortified with natural nutritional supplements. The targeted niche being the health-conscious segment of the population. At present, test marketing of the same is being initiated and also the startup registration is in process.

Start-Up-100: Topical Use

1. **Name of the Company/ Start-up:** Topical Use
2. **Highlights of the Company/Start-up :**

Product	: Antifungal formulation
Investment	: Rs. 1,00,000
Employment generated	: 8 expected to be employed within 1 year
Commercialized or not	: Under process

3. **Impact it will create (including social impact, if any):**
    - Natural antifungal agents are in great needed because currently used therapeutics have toxic side-effects, may interact with other drugs, and become ineffective as a result of the rapid development of fungal resistance
4. **Current Status of the Company/Start-up:**
    - Start-up process initiated
5. **Student team Details/Faculty Mentor:**

    1. Hafiz Nekibur Rahman Ahmed
6. **Establishment date of the Company/Start-up/Commercialization:**
    - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
    - The project targets collection, identification, extraction, analysis and in vitro study of the plant compound to analyze their antifungal activity and formulation of the product at a low cost.

Start-Up-101: Weedkill

1. **Name of the Company/ Start-up:** Weedkill
2. **Highlights of the Company/Start-up :**

   Product : Bio-weedicide

   Investment : Rs. 1,00,000

   Employment generated : 9 expected to be employed within 1 year

   Commercialized or not : Under process
3. **Impact it will create (including social impact, if any):**
   - Bio-weedicide have been identified as a significant biological control strategy. Bio-weedicide have many advantages such as clearly defined for target weeds, no side effect on beneficial plants or human health, a lack of pesticide residue build-up in the environment, and effectiveness for control of some herbicide-resistant weed biotypes.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**

   1. Madhumita Roy
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Since it is bio-weedicides it won't have any kind of harmful side effects and it won't disturb the existence of other beneficial bugs, insects like honeybee which helps in pollination and other microbials which helps in increasing the fertility of soil.

Start-Up-102: Arogya

1. **Name of the Company/ Start-up:** Arogya
2. **Highlights of the Company/Start-up :**

   Product : Food supplement

   Investment : Rs. 1,00,000/-

   Employment generated : 10 expected to be employed within 1 year

   Commercialized or not : Under process

3. **Impact it will create (including social impact, if any):**
   - The product can lower the sugar level effectively and can be routinely taken for maintenance of the glucose level (consultation with the doctor is also required for specific patients).
   - Moreover this product also can be given to patients suffering from liver troubles
   - Since this product is made from the local herbs so side effects are very less.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**

   1. Arupjyoti Konwar
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The product is totally herbal and made from the medicinal plants of NorthEast India.

Start-Up-103: AlKlin

1. **Name of the Company/ Start-up:** AlKlin
2. **Highlights of the Company/Start-up :**

   Product : Sanitary napkin

   Investment : Rs. 1,00,000/-

   Employment generated : 10 expected to be employed within 1 year****

   Commercialized or not : Under process
3. **Impact it will create (including social impact, if any):**
   - An organic bioplastic based sanitary napkin which can be used in both rural and urban areas focusing mainly on female health and hygiene in an eco-friendly manner without causing harm to the environment on its proper disposal.
4. **Current Status of the Company/Start-up:** Start-up process initiated
5. **Student team Details/Faculty Mentor:**

   1. Jilimani Nath
   2. Srijana Jaishi

6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The product aims at being antimicrobial, aromatic, anti-plasmodic and anti-inflammatory

Start-Up-104: Piscine: Fish Food

1. **Name of the Company/ Start-up:** Piscine: Fish Food
2. **Highlights of the Company/Start-up;**

Product	: Aqua feed from waste
Investment	: Rs. 1,00,000/-
Employment generated	: 10 expected to be employed within 1 year
Commercialized or not	: Under process

3. **Impact it will create (including social impact, if any):**
   - The prototype developed by considering hostel waste which is economically and environmentally beneficial. It has led to the development of nutritional supplementary or regular buoyant fish feed for the aquatic animals by utilization the waste & converting them to a valuable nutritive product. The developed prototype might lead to expansion of fishery industries through sustainable way without degrading the environment.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**
   1. Yashodhara Goswami
   2. Soubam Nickol Devi
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - To use hostel waste which include the lignin based food products, the egg shells, the chicken feathers, etc for the development of floating fish feed.

Start-Up-105: Algal Matbag Filter

1. **Name of the Company/ Start-up:** Algal Matbag Filter
2. **Highlights of the Company/Start-up :**

   Product : Filtration system

   Investment : Rs. 1,00,000/-

   Employment generated : 8 expected to be employed within 1 year

   Commercialized or not **:** Under process
3. **Impact it will create (including social impact, if any):**
   - Algae are great accumulators, absorbents and adsorbents with a high selectivity for pollutants.
   - They generate high alkalinity which is essential for precipitation of heavy metals.
   - They are potentially efficient for the removal of heavy metals
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**

   Mercillia Sangma
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - A filtration system was developed using different materials and green algal mat bags are prepared in the form of tea bags which can remove toxic metals from the water significantly and below the permissible limit prescribed by BIS.

Start-Up-106: Jaivik- An Algal Fertilizer

1. **Name of the Company/ Start-up:** Jaivik- An Algal Fertilizer
2. **Highlights of the Company/Start-up :**

   Product : Bio fertilizer

   Investment : Rs. 1,00,000/-

   Employment generated : 10 expected to be employed within 1 year

   Commercialized or not : Under process

3. **Impact it will create (including social impact, if any):**
   - The use of algal bio-fertilizer provides an effective, eco- friendly and non-polluting approach in improving the productivity of crop by both nitrogen fixation and photosynthesis. Algal bio-fertilizers improve soil structure and increase yield productivity even if applied in a small area. The application of algal bio-fertilizers in plants has resulted in increase in root, shoot length with number of leaves and hence overall growth of the plant has been increased.
4. **Current Status of the Company/Start-up:** Start-up process initiated
5. **Student team Details/Faculty Mentor:**
   1. Pushpanjali Sharma
   2. Marpe Bam
6. **Establishment date of the Company/Start-up/Commercialization:** In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Develop an organic fertilizer from green algae which forms bloom in different water bodies making the Depletion of DO level in many water bodies.

Start-Up-107: Prakruti

1. **Name of the Company/ Start-up:** Prakruti
2. **Highlights of the Company/Start-up :**

Product	: Organic hand wash and hand sanitizer
Investment	: Rs. 1,00,000
Employment generated	: 10 expected to be employed within 1 year
Commercialized or not	: Under process

3. **Impact it will create (including social impact, if any):**
   - The gadget is ultimately expected to contribute to contactless hand disinfection in public places and virus infection prevention. Additionally, it is economical and eco-friendly by decreasing waste emissions.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**
   1. Pankaj Chitrakar
   2. Jakia Wahid

6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - A cost effective non-alcoholic anti-viral/ bacterial hand sanitiser and hand wash with an additional dispenser timer gadget so as to save water and to maintain equal time interval between sanitisation.

Start-Up-108: Smart Urban Tree

1. **Name of the Company/ Start-up:** Smart Urban Tree
2. **Highlights of the Company/Start-up :**

Product	: Smart Urban Tree
Investment	: Rs. 1,00,000/-
Employment generated	: 10 expected to be employed within 1 year
Commercialized or not	: Under process

3. **Impact it will create (including social impact, if any):**
   - Urban trees on average reduce air temperatures on summer days by 2-4˚F, although in some circumstances the cooling effect can be even larger. Trees also sequester carbon, helping to mitigate climate change.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**

   1. Anuradha Boruah
   2. Eldad Ngurienkhum Riengsete
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Fight air pollution using an artificial tree structure and different lower groups of organisms.

Start-Up-109: Bio Inscense

1. **Name of the Company/ Start-up:** Bio Inscense
2. **Highlights of the Company/Start-up :**

   Product : Incense sticks and mosquito repellent

   Investment : Rs. 1,00,000/-

   Employment generated : 10 expected to be employed within 1 year

   Commercialized or not : Under process
3. **Impact it will create (including social impact, if any):**
   - The Mission of our team's innovative prototypes is to provide women entrepreneurship opportunities by aligning itself with Swachh Bharat Abhiyan, Skill India, Make in India, and Startup India by utilizing bioresources i.e. cow dung, divine flowers, and purely organic herbs.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**

   Sampriti Goswami & Glarisa Mary Nongsiej
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Incense Sticks and mosquito repellent are made using cow dung, pious temple flowers, natural & non-toxic ingredients – with NO Chemicals, petrochemicals, charcoal, dyes, alcohol or pesticides

Start-Up-110: Vehicle Speed Estimator

1. **Name of the Company/ Start-up:** Vehicle Speed Estimator
2. **Highlights of the Company/Start-up :**

   Product : Speed estimator

   Investment : Rs. 1,00,000

   Employment generated : 8 expected to be employed within 1 year

   Commercialized or not : Under process
3. **Impact it will create (including social impact, if any):**
   - Implement a real-time vehicle classification and speed estimation system and apply it to videos acquired from traffic cameras installed in highways. In this

approach we: a) Detect moving vehicles through background-foreground segmentation techniques. b) Compare different supervised classifiers (e.g. artificial neural networks) for vehicle classification into categories: (car, motorcycle, van, and bus/truck). c) Apply a calibration method to georeference vehicles using satellite images. d) Estimate vehicles speed per class using feature tracking and nearest neighbors algorithms**.**

4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**
   1. Rashanara Ahmed
   2. Anusri Baruah
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Computer based image processing can be a best technique for the surveillance of traffic to keep an eye on every vehicle through only a computer located area wise traffic control rooms.

Start-Up-111: Herbal Tea

1. **Name of the Company/ Start-up:** Herbal Tea
2. **Highlights of the Company/Start-up :**

Product	: Herbal tea
Investment	: Rs. 1,00,000/-
Employment generated	: 10 expected to be employed within 1 year
Commercialized or not	: Under process

3. **Impact it will create (including social impact, if any):**
   - Herbal tea is a boon to mankind as it provides specific benefits-including digestion, detoxification and weight loss. Rich in antioxidants, minerals and vitamins, it not only makes your body healthy but also helps in relaxing, recovery and refreshing your mind.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated

5. **Student team Details/Faculty Mentor:**
   1. Rony Bhowal
   2. Shahbaaz Ahmed
   3. Arun Jerang
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Develop a herbal product basically as herbal tea made purely from natural plant parts.

Start-Up-112: Natural Dye

1. **Name of the Company/ Start-up:** Natural Dye
2. **Highlights of the Company/Start-up :**

Product	: Natural dye
Investment	: Rs. 1,00,000/-
Employment generated	: 8 expected to be employed within 1 year
Commercialized or not	: Under process

3. **Impact it will create (including social impact, if any):**
   - Because they come from natural sources, natural dyes are not harmful to the environment, which makes it so appealing for consumers. Natural dyes are biodegradable and disposing them don't cause pollution.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**
   1. Md Saeed Ahmed
   2. Rajesh Adhikary
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Develop Natural Dye basically from natural plant parts.

Start-Up-113: Tita Gura

1. **Name of the Company/ Start-up:** Tita Gura
2. **Highlights of the Company/Start-up :**

   Product : Immunity booster

   Investment : Rs. 1,00,000/-

   Employment generated : 10 expected to be employed within 1 year

   Commercialized or not : Under process
3. **Impact it will create (including social impact, if any):**
   - The medicinal plants and herbs playing a critical role to boosting our immunity. It is also very important to consume supplements in the form of immune nutrients such as vitamin A, C, E, D, B-complex, Zinc and copper that will support your body to fight against the pathogens.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**

   1. Miss. Dharitree Sonowal

   2. Aiman Nawaz
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The product, “Tita gura” (powdered mixture of different medicinal herbs), a medicinal herb-based immune booster having anti-inflammatory, anti-carcinogenic, anti-diarrheal, antioxidant, antimicrobial, etc. properties.

Start-Up-114: Diabetic Chocolate

1. **Name of the Company/ Start-up:** Diabetic Chocolate
2. **Highlights of the Company/Start-up :**

   Product : Herbal And Sugar-Free Chocolate

   Investment : Rs. 1,00,000/-

   Employment generated : 10 expected to be employed within 1 year

   Commercialized or not : Under process

3. **Impact it will create (including social impact, if any):**
   - Sugar free chocolate candy bars have more antioxidants than red wine or green tea. Chocolate contain flavonoids that is good for the heart. It thins the blood platelets and prevents clotting. In addition, flavonoids may be helpful in the prevention of cancer.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**
   1. Sharvanee Borah
   2. Mobina Ahmed
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The product can be enjoyed by diabetic patients without any fear as it does not alleviate or fluctuate blood sugar levels. The ingredients added to this product are herbs, some simple, easily available materials.

Start-Up-115: Prebiotic Food

1. **Name of the Company/ Start-up:** Prebiotic Food
2. **Highlights of the Company/Start-up :**

Product	: Prebiotic Food Supplements
Investment	: Rs. 1,00,000/-
Employment generated	: 10 expected to be employed within 1 year
Commercialized or not	: Under process

3. **Impact it will create (including social impact, if any):**
   - Eating a diet rich in prebiotics and taking prebiotic supplements may benefit certain aspects of metabolic health, including blood sugar, cholesterol, and triglyceride levels.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**
   1. Ankita Kalita
   2. Anishmita

6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Prebiotic food supplement is a mixture of heathy fibers made from raw materials found in the North East of India. These raw materials are in the dried form

Start-Up-116: Wholesome Ventures

1. **Name of the Company/ Start-up:** Wholesome Ventures
2. **Highlights of the Company/ Start-up:**

   Product/ Service : Frozen Food

   Investment : Rs. 20,00,000

   Employment generated : 15 Nos

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Most of the Frozen Food players are from mainland India. The presence is limited to major cites/ towns of North East. NE food has a particular taste pallet. This region is blessed with indigenous herbs and spice rich in taste. We are trying to create products considering the indigenous taste and mouth fullness. We Intend to be a leading frozen food player in the country.
4. **Current status of the company/ start-up**

   46 Lakhs of Turn Over in 1st year of Operation with Market Presence in 7 District of Assam and 3 State Capitals of North East Shillong, Nagaland, Manipur.

   Shall be launching Bangalore by Mid of July 2023.
5. **Team details**

   1. Nashat Hussain
   2. Boilal P Gangte
6. **Establishment date of the Company/ start-up/ commercialization:**

   04th of April 2022 is the date of incorporation.

   Commercial launch happened in June 2022

7. **One paragraph on the company/ start-up covering all the points:**
   - Wholesome ventures is a frozen food manufacturing and marketing firm from the North East, based out of Guwahati. The company operates under the brand “Petoo”.
   - The company intends to be a leading frozen food player in the country by providing interesting and relevant products through a fine blend of science, art and aesthetics.
   - What makes Petoo different from the rest is, the product innovation using smart & local know-how and the different brand appeal.

Start-Up-117: AmbyGold Manorama Foods Pvt Ltd

1. **Name of the Company/ Start-up:** AmbyGold Manorama Foods Pvt Ltd
2. **Highlights of the Company/ Start-up:**

   Product/ Service : Indigenous Functional Food Products

   Investment : Rs. 6,00,000

   Employment generated : 6 Nos

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   We are a community building concept with a vision to create a sustainable ecosystem by commercialising indigenous functional food products.
   - Closely working with flood effected farmers
   - better earning opportunities for marginal farmers of Assam
   - employment generation (80% female employees)
   - providing to the society (indigenous superfoods) compromise free better substitutes of unhealthy meals
   - Promoting indigenous foods and small farmers
4. **Current status of the company/ start-up:**

   Early Revenue
5. **Team details**

   1. Monalisha Borthakur
6. **Establishment date of the Company/ start-up/ commercialization:**

   Incorporated on 22 June 2020

7. **One paragraph on the company/ start-up covering all the points:**

   Ambygold Manorama Foods Private Limited is a Private incorporated on 22 June 2020. It is classified as Non-govt company and is registered at Registrar of Companies, Shillong. Its authorized share capital is Rs. 100,000 and its paid up capital is Rs. 30,000. It is inolved in Production, processing and preservation of meat, fish, fruit vegetables, oils and fats. Ambygold Manorama Foods Private Limited's Annual General Meeting (AGM) was last held on 15 May 2021 and as per records from Ministry of Corporate Affairs (MCA), its balance sheet was last filed on 31 March 2021.

Start-Up-118: Agro Origin

1. **Name of the Company/ Start-up:** Agro Origin
2. **Highlights of the Company/ Start-up:**

   Product/ Service : Dehydrated fruits and vegetables

   Investment : Rs. 6,00,000

   Employment generated : 7 Nos

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Dehydrated fruits and vegetables have had a positive social impact by improving food accessibility, especially in areas with limited access to fresh produce. They offer a convenient and lightweight option for individuals with busy lifestyles, making it easier to incorporate fruits and vegetables into their diet. Dehydrated produce also promotes healthier snacking alternatives, contributing to improved overall nutrition and reduced reliance on unhealthy processed snacks. Additionally, the production and sale of dehydrated fruits and vegetables have created employment opportunities, benefiting local economies and providing sustainable income for farmers and processors. Overall, dehydrated fruits and vegetables have helped promote healthier food choices and economic empowerment within communities.
4. **Current status of the company/ start-up:**

   Early Revenue
5. **Team details**

   1. Abhinab Shyam

6. **Establishment date of the Company/ start-up/ commercialization:**
   Incorporated on 1st November 2020
7. **One paragraph on the company/ start-up covering all the points:**
   - Agro Origin is a 2 years 7 months old Proprietorship Firm incorporated on 01-Nov-2020, having its registered office located at Ward No 29, Agro Origin, Ghoramara Chariali, Niribili Path, Guwahati, Assam.
   - The major activity of Agro Origin is Manufacturing, Sub-classified into Manufacture of food products and is primarily engaged in the Artificial de-hydration of fruit and vegetables.
   - Agro Origin is classified as Micro enterprise in the financial year 2020-21. It has its unit situated at Guwahati, Assam.

Start-Up-119: Dong Valley Creation Pvt Ltd (Beyondarie)

1. **Name of the Company/ Start-up:** Dong Valley Creation Pvt Ltd (Beyondarie)
2. **Highlights of the Company/ Start-up:**

Product/ Service	: Wild Tea
Investment	: Rs. 50,00,000
Employment generated	: 40 Nos
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   Wild tea has a notable social impact by promoting sustainability, cultural preservation, and economic opportunities. Harvesting wild tea leaves encourages the preservation of natural habitats, as it incentivizes the protection of the ecosystems where these plants thrive. By engaging in sustainable wild tea practices, communities can maintain biodiversity and safeguard traditional tea-growing regions. Culturally, wild tea connects people to their heritage and traditional practices, fostering a sense of pride and identity. Additionally, the cultivation and sale of wild tea provide economic opportunities for local farmers, creating jobs and income within communities. Overall, wild tea contributes to environmental conservation, cultural preservation, and socioeconomic development.

4. **Current status of the company/ start-up**

   Dong Valley Creations Private Limited (DVCPL) is a registered startup operating as a Private Limited Indian Non-Government Company incorporated in India on 04 August 2020 (Two years and ten months old). Its registered office is in Kamrup, Assam, India. The Corporate is engaged in the business of growing rows and rows of tea bushes in the numerous tea estates.

5. **Team details**

   1. Nashat Hussain
   2. Boilal P Gangte

6. **Establishment date of the Company/ start-up/ commercialization:**

   Incorporated on 4th August 2020

7. **One paragraph on the company/ start-up covering all the points:**

   Dong Valley Creations Private Limited. It is a Private company, incorporated on Aug 04, 2020. It is classified as a Non-govt company and registered at Shillong. The registration number for the mentioned company is 020288. It's Corporate Identification Number (CIN) is 020288 having an Active status currently.

   Dong Valley Creations offers a wide range of products and services, including:

   - Ayurvedic Powder and Medicinal Herbs
   - Herbal Powder
   - Manufacturing & Assembling Services
   - Grinding Services
   - Tea & Coffee
   - Tea Bags
   - Tea Premix
   - Flavored Tea
   - Tea
   - Herbal Tea

08) College of Technology & Engineering, Udaipur

Start-Up-120: EF Polymer

1. **Name of the Company/Start-up**: EF Polymer
2. **Highlights of the Company/Start-up**:

   Product/Service : Agri Business

   Investment : Rs. 2,50,000

   Employment generated : 07

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - The team tried to create something helpful to retain water for a longer duration of time, and in the process, the team was successful to create a polymer named "Eco-Friendly Water Retention Natural Polymer". Keeping in mind all the conditions of the country and its farmers the team designed the product at low cost with much more efficiency
4. **Current Status of the Company/Start-up**
   - Selected for the 1-year Entrepreneur-in-Residence Program in Japan
5. **Student team Details/Faculty Mentor:**

   1**.** Narayan Lal Gurjar
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 13.10.2018
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Eco-Friendly Water Retention Natural Polymer works on the properties of SAP. As the team knew SAP had properties to absorb a large quantity of water. The team used properties of SAP and designed natural polymer, which has more capacity to store water for longer time.
   - On testing of the product, the team found that it may retain water for 4 to 6 weeks that means crops irrigated at intervals of 2 to 4 days can now be irrigated up to 7 to 8 days with less water consumption. Finally, farmers can get more crop production in low water consumption.
   - The natural polymer was produced by using natural waste material like orange peels, banana peels and peepal barks with gel. All the ingredient used are biodegradable, the designed product is also biodegradable and completely pollution free. It can be easily mixed with soil and does not create any prob-

lem for the future. Also, the team has not used any type of chemicals, so it is harmless to crops, soil, and farmers as well.

Start-Up-121: Kangaroo Rooms

1. **Name of the Company/Start-up**: Kangaroo Rooms
2. **Highlights of the Company/Start-up**:

   Project: Kangaroo Rooms is a fastest Growing Rental Platform for Room, Flats, Hostel and PGs. The startup is engaged in leasing/hiring some properties in order to rent out to needy including students going to different cities for coaching or education or even for job as fresher. Also we provide one-to-one interaction through our application between property owners and seekers for rent at very nominal charges. Usually, the brokers in the market charge heavy commission, which most of the times is equal to one month rent from both parties. We offer the interaction platform at a nominal charge of Rs.100 to 500. We connect with the customer through varied online and offline channels. Prospective tenants can browse our application or website and look for the kind of homes they desire, without a broker or any third-party engagement. We are working in some cities as of now, and planning to expand the services in all major cities of the country.

   End product/Prototype/Process developed along with specification and target achieved: So far, we have created three such panels in technology, with the help of which we have solved the problems of five thousand plus customers till now and we have added more than 2 thousand landlords to our platform

   Studies on techno-economic viability undertaken for the commercialization of result of the project & plans for commercialization, if any: We have already commercialized the developed platform by using this for revenue generation. For the purpose, an LLP has been formed and registered with ROC in the name of 'Kangaroo Alphabet Pvt Ltd.' The company has already started as STARTUP and making revenues meeting some of the expenditures. With the growth of the client base, it is expected that the revenues will exceed the expenditures and will make profits. In cities like Kota, Bangalore, Jaipur, Ahmedabad, Pune, etc A number of people are looking for appropriate accommodation suited to their pocket; providing services to them offers a great potential for growth of the company.

Whenever a person moves to a new city, the first thing he has to do is make arrangements for his stay, during which he has to face a lot of difficulties. We solve all these problems and get them provided according to their budget. Profitable business that we can take to a higher level

Employment generation potential, if any: So far we have a team of 16 people, all of us have got employment through the project and we are adding many more people together in this project. There is so much potential in this project that we can give employment to thousands of people and in every city, we can take this project. Right now we are providing our facilities in 4 cities. So far we have boarded more than 500 landlords and provided service to more than 5000 customers.By making partners in various cities, we will be able to create ample earning opportunities for property owners and direct employment potential for many more in hospitality in these properties. Indirect employment and help to self –earning individuals around these will come along with these opportunities

Product/technology details developed through the project: Web development is the work involved in developing a Web site for the Internet (World Wide Web) or an intranet (a private network). Web development can range from developing a simple single static page of plain text to complex web applications, electronic businesses, and social network services. A more comprehensive list of tasks to which Web development commonly refers, may include Web engineering, Web design, Web content development, client liaison, client-side/server-side scripting, Web server and network security configuration, and e-commerce development. We have used Angular which is Type Script-based open-source web application framework led by the Angular Team at Google and by a community of individuals and corporations. Angular is a complete rewrite from the same team that built AngularJS

3. **Impact it will create (including social impact, if any)**
   - The start-up “Kangaroo rooms” is widely being accepted in the society as it has capability to cater a common mass irrespective of one’s status breaking all the geographical boundaries, cast creed and religion. At it gets expanded, it has capability to create good scale employment in youths and a learning platform for the college students. The response witnessed in past one year is

very encouraging and we are sure that it will be revealing good results in years to come

4. **Current Status of the Company/Start-up**

We have developed an android application and website to provide accessibility to different users of the services. Any client with property and join his property with photographs and details and the space seekers can join and search for appropriate property by paying a nominal fee. Presently we are providing our services in 4 cities viz. Kota, Udaipur, Jaipur in Rajasthan and Bangalore in Karnataka. In Kota city, we have so far added 200 plus landlord with us. Hundred plus landlords are associated with us in Udaipur and in Jaipur and Bangalore cities, we have added 50-50 landlord in each. We are moving ahead by making our presence in many more cities. Recently we have publicized our services through social media platforms through various groups of student community with which we are conversant. As a result, we have started receiving queries from other metro cities as well. Our business model is to develop partnerships with some landlord/property owners in these cities and develop the business on a profit-sharing basis.In cities like Bangalore, Pune, Chennai, etc., many freshers are moving seeking jobs through walk-in interviews. They need accommodation for a few days only. Getting accommodation in hostels is very costly and hence they are looking for cheap solutions. We at Kangaroo Rooms provide them support in getting the accommodation in an economic way by connecting paying guest service providers or even unregistered properties

5. **Student team Details/Faculty Mentor:**

1. Vishal Dinesh Gurjar
2. Dinesh Sardar Kharra
3. Ashish Aryan
4. Vikas Kamal Mehta

6. **Establishment date of the Company/Start-up/Commercialization:**

- 10th January 2020

7. **One paragraph on the Company/Start-Up covering all the points.**

The company Kangaroo Alphabet Private Limited came into existence on 10th January 2020 after getting registered from Registrar of Companies, Ministry of Corporate affairs, Govt. of India. Kangaroo Rooms is a fastest Growing Rental

Platform for Room, Flats, Hostel and PGs. The startup is engaged in leasing/hiring some properties in order to rent out to needy including students going to different cities for coaching or education or even for job as fresher. The company has already started as STARTUP and making revenues meeting some of the expenditures. With the growth of the client base, it is expected that the revenues will exceed the expenditures and will make profits spreading its wings in the cities like Kota, Bangalore, Jaipur, Ahmedabad, Pune, etc. Presently we are providing our services in 4 cities viz. Kota, Udaipur, Jaipur in Rajasthan and Bangalore in Karnataka.

Start-up-122: ARCHITECTICA

1. **Name of the Company/Start-up**: ARCHITECTICA
2. **Highlights of the Company/Start-up**:
   a. Upskilling students to make them more employable.
   b. Generating employability by supporting students' start-ups.
   c. Community for intellectual discussions will be developed and free community support will be helpful to students.

   End product/Prototype/Process developed along with specification and target achieved:
   - Developed our community over 15 new colleges.
   - Provided training to 2500+ students
   - Technically supported 50+ startups.
   - Mentored 500+ students on our app "Rift-Project collaboration Platform".

   Studies on techno-economic viability undertaken for the commercialization of result of the project & plans for commercialization, if any: Rift- A project collaboration platform. Go through catalogue of projects and apply to work with other Students from premier Institutes. Post your own project idea - invite people to work together and develop your leadership and management skills

   Employment generation potential, if any: More than 500+ students have developed their products on our platform, from more than 100+ colleges in India. More than 500+ students got mentorship and certification for free and developed more than 150 products.

Product/technology details developed through the project: Web development is the work involved in developing a Web site for the Internet (World Wide Web) or an intranet (a private network). Web development can range from developing a simple single static page of plain text to complex web applications, electronic businesses, and social network services. A more comprehensive list of tasks to which Web development commonly refers, may include Web engineering, Web design, Web content development, client liaison, client-side/server-side scripting, Web server and network security configuration, and e-commerce development. We have used Angular which is Type Script-based open-source web application framework led by the Angular Team at Google and by a community of individuals and corporations. Angular is a complete rewrite from the same team that built AngularJS.

3. **Impact it will create (including social impact, if any)**

   The start-up "ARCHITECTICA" is widely being accepted in the society specially among students' community upskilling the students making them more employable. It is a platform which will generate employment by supporting students' start-ups. It has capability for intellectual discussions at Community level and giving free community support to the students. As it is gradually being expanded, and has spread its wings in over 15 colleges catering over 2500 students and connecting over 70000 students across the country. The start-up has capability to create good scale employment in youths and a learning platform for the college students. The response witnessed in past one year is very encouraging & we are sure that it will be revealing good results in years to come

4. **Current Status of the Company/Start-up**

   - Connected over 70000+ students across various activities.
   - Won the zonal round of Innopreneures, Nagpur.
   - Selected for the Entrepreneur in residence program of Lemon Ideas.
   - 1000000+ Website visits in last one year

5. **Student team Details/Faculty Mentor:**

   1. Ashish Aryan
   2. Abhishek Chahar
   3. Jayant Banshiwal
   4. Samiksha Pande

6. **Establishment date of the Company/Start-up/Commercialization:**
   - 17 May 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   The company **ARCHITECTICA** came into existence on 17th May 2019 after getting registered from Registrar of Companies, Ministry of Corporate affairs, Govt. of India. **ARCHITECTICA** is a fastest Growing platform very popular among college students looking for suitable niche area for employment. Main objective of this startup is Upskilling the students to make them more employable. The android based application developed is generating employability by supporting students start-ups.It has created some sort of community for intellectual discussions which will further be helpful to students. This platform has mentored over 500 students' groups and catered over 70000 students across the country

09) Dr. M. G. R. Educational & Research Institute, Chennai

Start-Up-123: Fenice Technical Solutions LLP

1. **Name of the Company/ Start-up**: Fenice Technical Solutions LLP
2. **Highlights of the Company/Start-up :**

   Product : Clog Removing Autonomous Bot (CRAB)

   Investment : Rs. 15,50,000

   Employment generated : Yes

   Commercialized or not : In progress
3. **Impact it will create (including social impact, if any):**
   - Reducing the human interventions in sewage pipelines scavenging work.
   - Creating social cause for sanitary workers.
4. **Current Status of the Company/Start-up:**
   - MVP has been developed and completed with pilot testing in the real time case.
   - TRL 6
5. **Student team Details/Faculty Mentor:**

   1. L. Madheshwaran

   2. M. Dhilipkumar
6. **Establishment date of the Company/Start-up/Commercialization:** 16.01.2019

7. **One paragraph on the Company/Start-Up covering all the points.**
    - Fenice Technical Solutions LLP is a Technology based startup working on sanitation and hygiene care. The startup mainly focuses on the problem statement – manhole scavenging. The Clog Removing Autonomous Bot (CRAB) was developed by the startup and it is an automated bot which can clear the clog inside manholes. The startup also focuses on other prototypes such as "All Weather Power Generating panel" and also provides technical training for the students. The startup is incubated at AKC and funded by NewGen IEDC, Startup NIDHI and AICTE with an amount of 15.5 Lakhs. A private regulatory government incubated startup compliance innovates solution for society or industrial based problems through Engineering & Technology. Primary working on removing clogs that occurs in the sewage pipelines without human interventions. They are also conducting training workshops and sessions for schools and college students on basics of robotics and engineering.

Start-Up-124: PPM DESIGN STUDIOS LLP

1. **Name of the Company/ Start-up**: PPM DESIGN STUDIOS LLP
2. **Highlights of the Company/Start-up :**

Product	: Coir-Acoustic Panel & Architecture Designing
Investment	: Rs. 12,50,000
Employment generated	: Yes
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
    - Waste to wealth product which makes environment clean and producing commercial product like acoustic panels from coir-waste generated while making coir mats.
4. **Current Status of the Company/Start-up:**
    - MVP has been developed and completed with pilot testing in the real time case.
    - TRL 5

5. **Student team Details/Faculty Mentor:**

   1. Pavan Kalyan A

   2. Pankaj Jangid S

6. **Establishment date of the Company/Start-up/Commercialization:**

   26.02.2019

7. **One paragraph on the Company/Start-Up covering all the points.**

   - PPM Design Studios LLP is a start-up incubated at Dr. APJ Abdul Kalam CoE in Innovation and Entrepreneurship (AKC). It is an architecture based startup working on waste to wealth management in making coir based acoustic panels. The startup has generated employment by offering internships to the students of architecture and management. The startup has been funded with Rs. 12.5 Lakhs from NewGen IEDC and Start up NIDHI. Currently they are working in Research and Development of Acoustic Panels and on Designing

Start-Up-125: BRAINBUDS Healthcare Pvt Ltd

1. **Name of the Company/ Start-up**: BRAINBUDS Healthcare Pvt Ltd

2. **Highlights of the Company/Start-up :**

Product	: Wheelchair cum stretcher and stairclimber
Investment	: Rs. 19,25,000
Employment generated	: 12
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**

   - The transportation & shifting of patients will be easier.
   - It makes bed ridden patients' life easier.

4. **Current Status of the Company/Start-up:**

   - The product is getting sold to the hospitals and clinics.
   - The new and updated versions of the products are in development.

5. **Student team Details/Faculty Mentor:**

   1. S. Sabariswaran

   2. Dinesh T

6. **Establishment date of the Company/Start-up/Commercialization:**

   05.11.2020

7. **One paragraph on the Company/Start-Up covering all the points.**
    - Brainbuds Healthcare Pvt Ltd is a Healthcare based startup focusing on developing wheelchair cum stretcher and stair-climber. The startup is incubated at AKC funded by NewGen IEDC, Nidhi Prayas and AICTE with around 19 lakhs of funding. The startup has generated employment opportunities for students and welders. Currently the startup is generating revenue by selling and manufacturing physiotherapy products and wheelchair.

Start-Up-126: NOV INFLUX HEALTHCARE LLP

1. **Name of the Company/ Start-up**: NOV INFLUX HEALTHCARE LLP
2. **Highlights of the Company/Start-up :**

Product	: Foot sole for diabetic patients to prevent foot ulcer
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
    - It will prevent diabetes patients infected from the foot ulcer.
    - Through this device the severe medical cases of diabetes patient can be avoided and cured in the initial stages.
4. **Current Status of the Company/Start-up:**
    - TRL 4
    - MVP have been developed and the first version of the product is under development
5. **Student team Details/Faculty Mentor:**

    1. Nabeena N.
    2. Hamida Hana Z.
6. **Establishment date of the Company/Start-up/Commercialization:** 04.11.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
    - NOV Influx Healthcare LLP is a healthcare-based startup focusing on diabetic cure. It is currently working on developing a shoe sole which increases the blood circulation in the foot which will prevent foot ulcer. The startup is currently incubated at AKC with 2.5 lakhs funding support by NewGen IEDC.

Start-Up-127: MOV MAKERS LLP

1. **Name of the Company/ Start-up**: MOV MAKERS LLP
2. **Highlights of the Company/Start-up :**

Product	: Muscle Spasticity Measuring Device
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - The accurate evaluation of muscular spasticity can be measured.
   - This device will quantify muscle spasticity, providing healthcare professionals with a valuable tool.
4. **Current Status of the Company/Start-up:**
   - TRL 2
   - Poc has been made and working prototype have been developed
5. **Student team Details/Faculty Mentor:**

   1. Daranisri.J
   2. Mennushaa.K
   3. Aamir Basha.V
6. **Establishment date of the Company/Start-up/Commercialization:** 09.11.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Young innovative minds developing a device that measures the spasticity in muscles. Because, the limitation of manual muscle testing arises from subjective nature of the testing. Though the tester must provide the external resistance, this force may be variable between testers. Measuring spasticity scales such as modified Ashworth scale and Modified Tardieu scale were available, but we don't have any mechanical equipment which measures spasticity. This project aims to address the limitations of manual muscle testing in measuring muscle spasticity by developing an innovative device that provides accurate and objective measurements. Muscle spasticity is a common issue in patients with neurological conditions, and its assessment is crucial for effective treatment planning and rehabilitation.

Start-Up-128: HEALINN PHARMACEUTICALS Pvt Ltd

1. **Name of the Company/ Start-up**: HEALINN PHARMACEUTICALS Pvt Ltd
2. **Highlights of the Company/Start-up :**

   Product : Ionto-Orthotic Device for Joint pains

   Investment : Rs. 2,50,000

   Employment generated : No

   Commercialized or not : In progress
3. **Impact it will create (including social impact, if any):**
   - Treating the joint pain for arthritis patients without pain.
4. **Current Status of the Company/Start-up:**
   - TRL 4
   - Laboratory model of the product have been developed
5. **Student team Details/Faculty Mentor:**

   1. M. Tharun Kumar

   2. B. A Tanisha
6. **Establishment date of the Company/Start-up/Commercialization:** 02.08.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Healinn, Heals INNovatively Healinn pharmaceutical Pvt.Ltd is a start up company build by two young entrepreneurs as director with vision to create innovation in treatment to efficiently cure disease . It was initiated with the fund of NEW GEN IDEC government of India. We are self employed as researcher and administrator and working under the guidance of our mentoring. Our prototype is on clinical trails to check Quality attribute to certify it for commercialization. We are also working on developing our community through social media and linkedin.

Start-Up-129: CREATIVE PHYSIOCARE LLP

1. **Name of the Company/ Start-up**: CREATIVE PHYSIOCARE LLP
2. **Highlights of the Company/Start-up :**

   Product : Balance Accessor

   Investment : Rs. 2,50,000

   Employment generated : No

   Commercialized or not : In progress

3. **Impact it will create (including social impact, if any):**
   - People who suffer to balance and walk, will get trained in this machine and slowly their balance will be recovered.
4. **Current Status of the Company/Start-up:**
   - TRL 4
   - Laboratory model of the product have been developed successfully.
5. **Student team Details/Faculty Mentor:**
   1. Manju bashini. M
   2. Preethi. S
   3. Bhavani. V
6. **Establishment date of the Company/Start-up/Commercialization:** 31.12.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Creative Physiocare LLP is a startup incubated at AKC with 2.5 lakhs funding support under DST NewGen IEDC Scheme. The startup is currently working on physiotherapy product called balance accessor. This product will help patients to be stable with balance.

Start-Up-130: ENDEAVOURS ALLY PVT LTD

1. **Name of the Company/ Start-up**: ENDEAVOURS ALLY PVT LTD
2. **Highlights of the Company/Start-up :**

Product	: Health Saathi
Investment	: Rs. 2,50,000
Employment generated	: 8
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - The lab test and combatible medical equipments and devices will also be readily & easily available in the rural areas with minimal charges.
   - There won't be need to shift the patients to labs for taking tests and check-ups.
4. **Current Status of the Company/Start-up:**
   - TRL 6
   - Proof of Concept have been successfully developed and tested in the real life case with minimal customer segments.

5. **Student team Details/Faculty Mentor:**

   1**.** Vishwajeet Kumar

6. **Establishment date of the Company/Start-up/Commercialization:** 31.03.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - ENDEAVOURS ALLY a health-tech company that provides a comprehensive range of healthcare services to help individuals take control of their health and wellbeing. Our services include doctor consultations, home health aides, therapy support, lab tests, and equipment rentals. We are a one stop solution for comprehensive, convenient, and affordable healthcare services delivered by qualified and compassionate professionals.

Start-Up-131: MEDAZZA HEALTHCARE LLP

1. **Name of the Company/ Start-up**: MEDAZZA HEALTHCARE LLP
2. **Highlights of the Company/Start-up :**

   Product : Med Cartridge

   Investment : Rs. 2,50,000

   Employment generated : No

   Commercialized or not : In progress

3. **Impact it will create (including social impact, if any):**
   - The med-cartridge allows people to carry the medicine they require for the day and not all the medicines which might mess up the container/bag. Making peoples' life easier
4. **Current Status of the Company/Start-up:**
   - TRL 5
   - Laboratory testing of the design and model have been.
5. **Student team Details/Faculty Mentor:**

   1. Sneha G
   2. Vigenesh Kumar S

6. **Establishment date of the Company/Start-up/Commercialization:** 23.08.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Medazza Healthcare LLP is a startup incubated at AKC with NewGen IEDC Funding. It is currently working on medicine cartridge which helps people carry medicine around in their pockets. The startup is manufactures pharma-

ceutical based instruments and currently one of their product called Med-cartridge is under testing.

START-UP-132: IATRIC HEALTHCARE LLP

1. **Name of the Company/ Start-up**: IATRIC HEALTHCARE LLP
2. **Highlights of the Company/Start-up :**

Product	: Holter watch
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - The med heart health can be monitored regularly and the data of the patient/consumer will be stored in cloud and accessed anytime for medical references.
4. **Current Status of the Company/Start-up:**
   - TRL 3
   - Proof of Concept have been developed the laboratory space.
5. **Student team Details/Faculty Mentor:**

   1. Sandhiya.B
   2. Mano.R
   3. Lohitha.V
6. **Establishment date of the Company/Start-up/Commercialization:** 15.11.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - IATRIC HEALTHCARE offers a range of services and solutions aimed at improving the efficiency, interoperability, and security of healthcare systems. This includes EHR optimization, data migration, privacy and security services, and more. They work on enabling different healthcare systems to communicate and share information seamlessly, which is crucial for providing comprehensive and coordinated patient care.

Start-Up-133: RPKS BIOBAGS LLP

1. **Name of the Company/ Start-up**: RPKS BIOBAGS LLP
2. **Highlights of the Company/Start-up :**

Product	: Bags for Sanitary Napkin Disposal
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - Managing bio-waste will create an environmental impact like prevention of disease and infection.
   - Through this product the hygiene of the nation can be improved with the avoidance of spreading of diseases.
4. **Current Status of the Company/Start-up:**
   - TRL 3
   - Proof of Concept have been developed the laboratory space.
5. **Student team Details/Faculty Mentor:**

   1. Rhiyana A
   2. Boopalan
   3. Jimsy
6. **Establishment date of the Company/Start-up/Commercialization:** 22.10.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - By concentrating on sanitary napkin disposal bags, the startup is tackling a specific pain point in menstrual hygiene. These bags provide a convenient and hygienic way to dispose of used sanitary napkins. Menstrual hygiene is a crucial aspect of women's health and well-being. Access to proper sanitary products and effective disposal methods is fundamental for maintaining hygiene and dignity during menstruation.

Start-Up-134: MARKHOR TECH FACTORY LLP

1. **Name of the Company/ Start-up**: MARKHOR TECH FACTORY LLP
2. **Highlights of the Company/Start-up :**

Product	: Compact Multi-Purpose Junction Box For Travellers
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - Makes the travellers life easier by providing several solutions as one product.
   - There won't be a need to search for plug points or separate power sources to charge your mobile phones when they are about to die.
4. **Current Status of the Company/Start-up:**
   - TRL 3
   - Proof of Concept have been developed the laboratory space.
5. **Student team Details/Faculty Mentor:**

   1**.** Venkatesh V
6. **Establishment date of the Company/Start-up/Commercialization:** 12.08.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The junction box is designed to be small and lightweight, making it easy for travelers to carry in their luggage, backpack, or even pocket. Its compact size ensures that it doesn't take up much space in a traveler's bag. The entity is currently working on final fabrication of their prototype and to test it with the real time users and cases, they are also planning to tieup with the travel and tourism company's for enlargingtheir market size.

Start-Up-135: IGNIT TECHNICAL SOLUTIONS Pvt Ltd

1. **Name of the Company/ Start-up**: IGNIT TECHNICAL SOLUTIONS Pvt Ltd
2. **Highlights of the Company/Start-up :**

Product	: Automatic Basti Maker
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - Makes the ayurvedic basti automatically by blending all the mixtures in correct proportion reduces the human resources required.
   - It will make the work easier for the medical & ayurvedic people.
4. **Current Status of the Company/Start-up:**
   - TRL 3
   - Proof of Concept have been developed the laboratory space with different ingredients and mixtures of operation.
5. **Student team Details/Faculty Mentor:**

   1. Gunjara Shalini
   2. K.Divya
   3. K.S.Supraja
6. **Establishment date of the Company/Start-up/Commercialization:** 18.10.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Team of energetic Engineers developed an automated machine to prepare the ayurvedic medicine using a pressurized chamber in a vacuum condition where the viscosity of the ingredients is depleted and the proper mixing is achieved Honey is one of the Major Ingredient in Most Ayurvedic Products, Making it Difficult to Mix with Other Ingredients

Start-Up-136: NOBACO TOOTHPASTE LLP

1. **Name of the Company/ Start-up**: NOBACO TOOTHPASTE LLP
2. **Highlights of the Company/Start-up :**

   Product : Toothpaste to remove tobacco stains and to improve oral health

   Investment : Rs. 2,50,000

   Employment generated : No

   Commercialized or not : In progress
3. **Impact it will create (including social impact, if any):**
   - Improves the confidence in people who chew / smoke tobacco as well as it will improve the oral health of the normal people.
   - Act as an immediate solution for the removal of tobacco stains.
4. **Current Status of the Company/Start-up:**
   - TRL 4
   - Laboratory model of the product/sample of the toothpaste have been developed successfully
5. **Student team Details/Faculty Mentor:**

   1. S S Nivedha
   2. N Aprose Nisa Alee
6. **Establishment date of the Company/Start-up/Commercialization:** 29.09.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Nobaco toothpaste LLP, currently under the developing process of "The Nobaco -toothpaste assisting tobacco user, received the initial funding amount of Rs. 2.5 Lakhs from (new gen IEDC) and utilised the funding from the same for developing proof of concept and the following prototype. The startup is making a toothpaste that counteract the oral harmful effects of tobacco among the smoke and smokeless form of users that will positively impact their day to day life in regard to oral hygeine with a specially formulated toothpaste which is easy and efficient to use.

Start-Up-137: KLEENTECH LLP

1. **Name of the Company/ Start-up**: KLEENTECH LLP
2. **Highlights of the Company/Start-up :**

Product	: WaterMat
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - Improves the hygienic environment and space.
   - This also reduces the spread and infection rate of children at home.
4. **Current Status of the Company/Start-up:**
   - TRL 4
   - Laboratory model of the product/ have been developed.
5. **Student team Details/Faculty Mentor:**

   1. Booja C S
6. **Establishment date of the Company/Start-up/Commercialization:** 04.09.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - They have designed a new methodology of Water Mat which is an automatic leg washing prototype with cut off sensor. This water mat drastically reduces the water when compare to regular water curtain used in temples and also saves electricity bill. We can provide customized solutions for religious places, Research facilities, Gated Communities and Individual houses. Water mat circulation system with disinfectant and purifier. For less power consumption or electricity bill, solar panels can be included based on customer needs. Our proposed solution consists of silent motors for indoor usage.

Start-Up-138: EASYTHERMORECORDS LLP

1. **Name of the Company/ Start-up**: EASYTHERMORECORDS LLP
2. **Highlights of the Company/Start-up :**

Product	: Easythermorecords
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - The temperature of the food& items can be monitored lively.
   - The utility period of the food can be increased via this process.
4. **Current Status of the Company/Start-up:**
   - TRL 4
   - Laboratory model of the product/ have been developed.
5. **Student team Details/Faculty Mentor:**

   1. Birla Kasthurirangan
   2. Rewti Ranjan
6. **Establishment date of the Company/Start-up/Commercialization:** 01.11.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - They have designed a new methodology of Water Mat which is an automatic leg washing prototype with cut off sensor. This water mat drastically reduces the water when compare to regular water curtain used in temples and also saves electricity bill. We can provide customized solutions for religious places, Research facilities, Gated Communities and Individual houses. Water mat circulation system with disinfectant and purifier. For less power consumption or electricity bill, solar panels can be included based on customer needs. Our proposed solution consists of silent motors for indoor usage.

Start-Up-139: SHORELINE SCIENTIFIC LLP

1. **Name of the Company/ Start-up**: SHORELINE SCIENTIFIC LLP
2. **Highlights of the Company/Start-up :**

   Product : Mosquito Trapper

   Investment : Rs. 2,50,000

   Employment generated : No

   Commercialized or not : In progress
3. **Impact it will create (including social impact, if any):**
   - Mosquitos can be captured without any leakage of harmful gases/solutions.
   - This will reduce the air pollution rate caused by the liquid vapourier
4. **Current Status of the Company/Start-up:**
   - TRL 4
   - Laboratory model of the product/ have been developed.
5. **Student team Details/Faculty Mentor:**

   1. Adnan Umar Mallick

   2. Madasamy Priyadarshini
6. **Establishment date of the Company/Start-up/Commercialization:** 10.09.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - An enthusiastic startup who works with Bioagents as a mosquito trap. The trap is essentially a collapsible, fabric container with a white lid with holes covering its opening. In the middle of the gauze cover, air is sucked into the trap through a black catch pipe by an electrical fan, drawing approaching mosquitoes into a catch bag. .The air then exits the trap through the white gauze, generating ascending currents.

Start-Up-140: YESDG INNOVATIONS LLP

1. **Name of the Company/ Start-up**: YESDG INNOVATIONS LLP
2. **Highlights of the Company/Start-up :**

   Product : NESEM

   Investment : Rs. 2,50,000

   Employment generated : No

   Commercialized or not : In progress

3. **Impact it will create (including social impact, if any):**
   - Electricity consumption of appliances and household parts will be monitored lively with data storage.
   - This will reduce the air pollution rate caused by the liquid vapourier in market.
4. **Current Status of the Company/Start-up:**
   - TRL 4
   - Laboratory model of the product/ have been developed.
5. **Student team Details/Faculty Mentor:**
   1. Adnan Umar Mallick
   2. Madasamy Priyadarshini
6. **Establishment date of the Company/Start-up/Commercialization:** 10.09.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - An enthusiastic startup who works with Bioagents as a mosquito trap. The trap is essentially a collapsible, fabric container with a white lid with holes covering its opening. In the middle of the gauze cover, air is sucked into the trap through a black catch pipe by an electrical fan, drawing approaching mosquitoes into a catch bag. .The air then exits the trap through the white gauze, generating ascending currents.

Start-Up-141: Skorpion InfoTech Pvt. Ltd.

1. **Name of the Company/ Start-up**: Skorpion InfoTech Pvt. Ltd.
2. **Highlights of the Company/Start-up :**

Product	: Green Light Energy
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - Dependency of the Electricity in daytime will be reduced.
   - Unnecessary consumption of the electricity will be avoided.
4. **Current Status of the Company/Start-up:**
   - Proof of Concept have been developed and tested.
   - In progress of real life implementation.

5. **Student team Details/Faculty Mentor:**
   1. Balaji.R.A
   2. Austin David
6. **Establishment date of the Company/Start-up/Commercialization:** 26.08.2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Innovative startup with a motto of “greatness lies in simplicity.” They have developed a system that uses fiber optic cables to transfer the SUNLIGHT to rooms. One plan covers an area of 15-30 square meters (200-400 square feet) and the intensity of the light in each luminary will depend on the number of fibers used. The setup of system varies for each space with different dimensions and dependency of people occupancy.

Start-Up-142: VIMETS SOLUTIONS PRIVATE LIMITED

1. **Name of the Company/ Start-up**: VIMETS SOLUTIONS PRIVATE LIMITED
2. **Highlights of the Company/Start-up :**

Product	: Retractable Helmet
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - Dependency of the Electricity in daytime will be reduced.
   - Unnecessary consumption of the electricity will be avoided.
4. **Current Status of the Company/Start-up:**
   - Proof of Concept with feasibility is in development process.
5. **Student team Details/Faculty Mentor:**
   1. Vignesh R
   2. R Praveen Kumar
6. **Establishment date of the Company/Start-up/Commercialization:** 08.05.2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Innovative startup that is redefining safety in a unique way with their groundbreaking product – the Retractable Helmet. This startup is making waves in the safety industry by introducing a modernized product that combines convenience, style, and safety. The retractable feature allows the helmet to be

easily folded and tucked away when not in use, making it more compact and convenient to carry around. Despite its retractable feature, the startup places utmost emphasis on safety and protection. The helmet is constructed with high-quality materials that meet stringent safety standards, providing reliable head protection in case of accidents or collisions. The Retractable Helmet encapsulates the visionary spirit of this startup, standing as a testament to their dedication to reimagining safety.

Start-Up-143: OHANZA HEALTH CARE PRIVATE LIMITED

1. **Name of the Company/ Start-up**: OHANZA HEALTH CARE PRIVATE LIMITED
2. **Highlights of the Company/Start-up :**

Product	: Women Safety Device
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - Dependency of the Electricity in daytime will be reduced.
   - Unnecessary consumption of the electricity will be avoided.
4. **Current Status of the Company/Start-up:**
   - Proof of Concept with feasibility is in development process.
5. **Student team Details/Faculty Mentor:**

   1. Muralirajan Meena
   2. Priyadharshini
6. **Establishment date of the Company/Start-up/Commercialization:** 30.08.2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - A startup designed and developed safety devices to empower and protect women in various situations. The device incorporates smart technology, automatically sending distress signals to pre-programmed emergency contacts and local authorities. Through their innovative safety devices and educational initiatives, they are empowering women to reclaim their sense of security and live without fear. With their unyielding determination and vision, they are creating a safer world for women and inspiring positive societal change.

Start-Up-144: AL-ZIRA TECHNOLOGY PRIVATE LIMITED

1. **Name of the Company/ Start-up**: AL-ZIRA TECHNOLOGY PRIVATE LIMITED
2. **Highlights of the Company/Start-up :**

Product	: Fog free lens
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - People won't face any trouble and inconvenience with fog on their spectacles.
   - Expences on the service of lens and spectacles will be reduced.
4. **Current Status of the Company/Start-up:**
   - Proof of Concept with laboratory model has been developed.
5. **Student team Details/Faculty Mentor:**

   1. Balavigneshwari.S
   2. Rajul Rajpurohit.M
6. **Establishment date of the Company/Start-up/Commercialization:** 18.04.2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Our nanotechnology company is dedicated to leveraging cutting-edge technology and advanced materials to provide innovative solutions for society's pressing challenges. With a focus on revolutionizing industries, we develop groundbreaking products and services that improve lives. Located in Madurai, we serve a global client base, including government organizations, research institutions, multinational corporations, startups, and entrepreneurs. Our offerings encompass nanomaterials development, nanodevice design and fabrication, nanomedicine and biotechnology, energy and environmental solutions, as well as consulting and collaboration services. Through our commitment to excellence and collaboration, we strive to harness the potential of nanotechnology for the betterment of society.

Start-Up-145: CRUCIAN Infotech Private Limited

1. **Name of the Company/ Start-up**: CRUCIAN Infotech Private Limited
2. **Highlights of the Company/Start-up :**

Product	: Zebra fish Monitor & Software Developer
Investment	: Rs. 2,50,000
Employment generated	: 6
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - Pernalized Applications & User interfaces can be created for start ups and others in minimal cost.
   - Huge amount of investment in monitoring the zebra fish can be avoided.
4. **Current Status of the Company/Start-up:**
   - Proof of Concept has been developed.
5. **Student team Details/Faculty Mentor:**

   1. Udayakumar Danabal
   2. Lekha Sri
6. **Establishment date of the Company/Start-up/Commercialization:** 17.03.2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Crucian Infotech Private Limited is a leading software development company known for its expertise in various domains, including machine learning, Android, iOS, web applications and biotechnology research software. With a team of highly skilled professionals, the company is committed to delivering innovative and reliable software solutions to its clients.

Start-Up-146: AIGLE LANZA PRIVATE LIMITED

1. **Name of the Company/ Start-up**: AIGLE LANZA PRIVATE LIMITED
2. **Highlights of the Company/Start-up :**

Product	: Fire Safety suit for Fire Fighters
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - The risk of fire safety fighters will be reduced.
   - Unnecessary consumption of the electricity will be avoided.
4. **Current Status of the Company/Start-up:**
   - Proof of Concept with feasibility is in development process.
5. **Student team Details/Faculty Mentor:**

   1. Praveen Kumar.G
   2. Trivikraman.R
   3. Sneha.S
6. **Establishment date of the Company/Start-up/Commercialization:** 04.08.2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Budding startup works on the growing safety problem of rescue team and who needs sustainable solutions.They provided an innovative upgradation for the flaws in existing Suit.FEU-NEU is an advanced suits integrated with sensors and Lidar that provides a better way to Rescue and communicate within the rescue team, our suit has a capability to resist more than 1000-degree Celsius. This is a fully automated system, ensuring efficiency and safety. Sensor Integration: The startup will strategically incorporate sensors into the FEU-NEU Rescue Suit, enabling real-time data collection, communication, and improved situational awareness for rescue team members.

Start-Up-147: MEYNIKAR LABS PRIVATE LIMITED

1. **Name of the Company/ Start-up**: MEYNIKAR LABS PRIVATE LIMITED
2. **Highlights of the Company/Start-up :**

   Product : VR EduTech platform

   Investment : Rs. 2,50,000

   Employment generated : No

   Commercialized or not : In progress
3. **Impact it will create (including social impact, if any):**
   - Student's interest and method of learning regular syllabus will improve.
   - Better understanding and clarity will be provided to the student with real life experience.
4. **Current Status of the Company/Start-up:**
   - Proof of Concept with feasibility is in development process.
5. **Student team Details/Faculty Mentor:**

   1**.** Ganesh Babu.M
6. **Establishment date of the Company/Start-up/Commercialization:** 12.04.2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Ekaliven is an innovative and groundbreaking service offered by Menikar, designed to revolutionize the way we approach education and learning. By introducing a higher dimensional view and leveraging the power of imagination, Ekaliven aims to empower learners of all ages to explore and engage with educational content like never before. Envisions a future where education transcends traditional boundaries, fostering a deeper understanding, creativity, and curiosity among learners worldwide.

Start-Up-148: MDK LABS PRIVATE LIMITED

1. **Name of the Company/ Start-up**: MDK LABS PRIVATE LIMITED
2. **Highlights of the Company/Start-up :**

   Product : VR EduTech platform

   Investment : Rs. 2,50,000

   Employment generated : No

   Commercialized or not : In progress

3. **Impact it will create (including social impact, if any):**
   - Student's interest and method of learning regular syllabus will improve.
   - Better understanding and clarity will be provided to the student with real life experience.
4. **Current Status of the Company/Start-up:**
   - Proof of Concept with feasibility is in development process.
5. **Student team Details/Faculty Mentor:**
   1. Monisha.V.K
   2. Kalaiselvan.R
   3. Deepika.G
6. **Establishment date of the Company/Start-up/Commercialization:** 12.09.2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - MDK Labs is a pioneering startup a forefront of innovation in the electronics recycling industry. They have created a long-term approach for recycling waste PCBs. They have developed PCB-RAC, an automated machine that turns waste printed circuit boards (PCBs) into different powders. With a vision for a greener future, these powders are transformed into e-bricks, revolutionizing e-waste management and promoting responsible resource utilization. Through strategic partnerships and a dedicated team, MDK Labs is leading the charge in creating a more sustainable and environmentally friendly world.

Start-Up-149: JESSO EDU TECH LLP

1. **Name of the Company/ Start-up**: JESSO EDU TECH LLP
2. **Highlights of the Company/Start-up :**

Product	: Online EduTech platform
Investment	: Rs. 2,50,000
Employment generated	: No
Commercialized or not	: In progress

3. **Impact it will create (including social impact, if any):**
   - Student's from rural areas can also get educated without high expenses
   - All students' data and process can be monitored and checked online from anywhere.

4. **Current Status of the Company/Start-up:**
   - Proof of Concept and basic UI platform have been developed.
5. **Student team Details/Faculty Mentor:**

   1. Joel Andrews.D
6. **Establishment date of the Company/Start-up/Commercialization:** 08.06.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Jesso is an education tech company aiming to make educational activities smart, easy, error-free, accessible at any time, and monitor them at any time. We started this venture to upgrade education in the path we wished for things to happen in reality when we were students. To give a brief tour of our application, Jesso helps to bridge the connection between Management - Teacher-Student- Parents. Jesso. provide the students and the teacher a tablet that's going to work the magic easily.

Start-Up-150: AFH Innovation and Technology Pvt. Ltd.

1. **Name of the Company/ Start-up**: AFH Innovation and Technology Pvt. Ltd.
2. **Highlights of the Company/Start-up :**

   Product : Fall Prevention Device

   Investment : Rs. 2,50,000

   Employment generated : No

   Commercialized or not : In progress
3. **Impact it will create (including social impact, if any):**
   - The risk of Old age people getting hurt due to imbalance will be reduced.
   - Can act as a basic support for the patients struggling to locomate.
4. **Current Status of the Company/Start-up:**
   - Proof of Concept and basic structure of the system have been developed.
5. **Student team Details/Faculty Mentor:**

   1. Ashrin.T

   2. Krishna.K
6. **Establishment date of the Company/Start-up/Commercialization:** 23.09.2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This startup is dedicated to revolutionizing fall prevention and ensuring safety in various settings, from healthcare facilities to homes of the elderly. The

fall prevention device incorporates a range of sensors and smart algorithms to detect and analyze movements, posture, and environmental factors. By continuously monitoring these variables, the device can identify potential fall hazards and alert the user or caregiver in real-time. This immediate response empowers individuals to take preventive actions, reducing the likelihood of falls and related injuries.

Start-Up-151: AMVYRAD GREENRICH PRIVATE LIMITED

1. **Name of the Company/ Start-up**: AMVYRAD GREENRICH PRIVATE LIMITED
2. **Highlights of the Company/Start-up :**

   Product : Bifurcation of Aquatic weed & Reap Cleansing Organon

   Investment : Rs.42,50,000

   Employment generated : Yes

   Commercialized or not : In progress
3. **Impact it will create (including social impact, if any):**
   - Water pollution created by the water hyacinth will be reduced.
   - Water pipelines clogs and blocks rate will be reduced.
4. **Current Status of the Company/Start-up:**
   - Proof of Concept and basic structure of the system have been developed.
5. **Student team Details/Faculty Mentor:**

   1. Varsheni Nagarajan
   2. Lingeshwar.R
   3. Varshini Vijayarangam
6. **Establishment date of the Company/Start-up/Commercialization:** 26.07.2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   Young ardent engineers from different core developed an unique product named BARCO – Bifurcation of Aquatic weed & Reap Cleansing Organon, is a Remotely Operated Vehicle that works at a lower sea bed level (3 to 5 ft.), unlike JCBs, and weed harvesters for clearing the water hyacinths.Our product BARCO segregates water hyacinth and contaminated wastes separately by automated method,without any human interventions. It has a high-end mechanical function

to reduce the mass of the polluted waste. The unique value is the conversion of water hyacinth plants to fibers at the point source and the smaller in size.

10) National Engineering College, Kovilpatti

Start-Up-152: Goldnwelkin Pvt.Ltd. (Autowelkin)

1. **Name of the Company/ Start-up**: Goldnwelkin Pvt.Ltd. (Autowelkin)
2. **Highlights of the Company/Start-up :**

   Product : 50 Lakhs

   Investment : Rs. 2,50,000

   Employment generated : 8

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Yes, autowelkin giving solutions for Automobile Industry where the four-wheeler mechanics facing issues.
4. **Current Status of the Company/Start-up:**
   - Autowelkin Serve the 10 districts of Tamilnadu state.
   - Currently 7 employee's work in our firm.
   - Our technology partner is Hashroot Pvt Ltd (Kochin)
   - Our Revenue (2021-2022) 46 lakhs
5. **Student team Details/Faculty Mentor:**

   1**.** S. Shunmugasundaram
6. **Establishment date of the Company/Start-up/Commercialization:** 18.5.2018/DIPP
7. **One paragraph on the Company/Start-Up covering all the points.**

   Autowelkin is E-commerce platform for used auto spare parts. We selling all kind of Autoparts through our platform. Autowelkin, an Incubatee of KR Innovation Centre, is the one and only startup in India that is organizing the unorganized aftermarket parts salvaged from automobile junkyards. We have wholly adopted Refurbish, Reuse and Recycle in the automobile sector of Tamilnadu and have achieved a lot of milestones and received a lot of accolades in our journey so far.

ACTIVITIES: ***Circular Economy***

1. Recycling
2. Reuse
3. Refurbish

Start-Up-153: M/s RAMJI Agro Implements

1. **Name of the Company/ Start-up**: M/s RAMJI Agro Implements
2. **Highlights of the Company/Start-up;**

   Product : Reversible Disc Plough, 9 Tyne Plough, 5 Tyne plough and Seed Showing Device.

   Investment : Rs. 50,00,000 Lakhs

   Employment generated : 12

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   Present day agriculture is facing acute shortage of manpower for the agricultural tasks right from seed sowing to harvesting. Agriculture is backbone of our country and the farmers are inclined to use mechanized devices in order to resolve shortage of manpower, the seed showing device is expected to have high market potential all over India. The farmers those who are interested in cultivating Maize, Wheet, Paddy, Cotton etc., will be highly benefited by the proposed device.

   Target Customers: Formers cultivating Maize, cotton, sunflower, Ground nut, and dhall throughout India. Initially the targeted customers are various districts of Tamilnadu and later will be extended to India and other countries.

   - In Karnataka, Andhra Pradesh, Tamilnadu, Maharashtra, Madhya Pradesh and Gujarat are contributing around 85% per cent of India's maize production.
   - Around 9.4 million hectares of land with an estimated four million farms had been involved in cotton farming.
   - Hence, the farmers those who are interested in cultivating Maize, Cotton etc., will be highly benefited by the proposed device.
4. **Current Status of the Company/Start-up:**

   Production Started in March 2020. Nearly 300 Nos of Reversible Disc Plough, 80 Nos of 9 Tyne Plough, 25 Nos of 5 Tyne plough and 300 Nos of Seed Showing Device are fabricated and sold directly to the farmers.
5. **Student team Details/Faculty Mentor:**

   1. S. Rajakumar

6. **Establishment date of the Company/Start-up/Commercialization:** 21.03.2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   The enterprises “Ramji Agro Industries” is a registered firm under the sole proprietorship of Mr. S.Rajakumar who is an Engineering graduate from Mechanical Engineering completed his degree at National Engineering College, Kovilpatti. I am from an agricultural family and having 40 acres of land and well supported by my parents. I have already taken dealership of selling agricultural machineries of SARBAN brand and so far has made 30 lakhs turnover in six months. As I am actively involved in cultivating suitable crops in 40 acres of land using machineries and further, I started a Start-up Company for manufacturing agricultural machineries. The idea has been evolved as a result of practical experience faced in real agricultural task by me. The agricultural products like Reversible Disc Plough, 9 Tyne Plough, 5 Tyne plough and Seed Showing Device are manufactured. A plasma cutting machine, Hydraulic Bending machine, Hydraulic Pressbrakes, 2 Nos Drilling Machines, MIG Welding machines, Manual Metal Arc Welding Machine MMAW- 8 Nos, 5 Hp Compressor – 1 Nos, Portable cutting and Grinding Tools – 20 Nos, Impact Wrench – 3 Nos are equipped for fabrication in the industry. The present turnover for the industry will be nearly 3 Crores.

Start-Up-154: M/s Blackatt Agro Private Limited

1. **Name of the Company/ Start-up**: M/s Blackatt Agro Private Limited
2. **Highlights of the Company/Start-up :**

   Product : Palm Jaggery Making Machine, Palm Jaggery (solid), Palm Jaggery powder, Peanut Candy, Sesame Candy

   Investment : Rs. 2,00,000

   Employment generated : 7

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   In this fast-growing modern world, every individual expects enough money, good food, and a peaceful life. But in reality, it doesn't occur to many. Even though many have enough money to live, they don't have good and healthy food. The palm tree provides many healthy foods for us. Yes, plam jaggery not only gives

us taste but also a healthy life. The replacement of conventional sugar by palm jaggery will eliminate diabetes. Similarly, peanuts also provide the required nutrition for all ages. Palm jaggery and peanut candy are expected to have high market potential in India and abroad. Any individual who has health consciousness will be highly benefited by these products.

Target Customers:

Each and every individual who has health consciousness in the world is one of our targeted customers. Initially, the targeted customers were various districts of Tamil Nadu, but in the future, they will be extended to India and other countries

4. **Current Status of the Company/Start-up:**

   First palm jaggery production started in May 2019. In an average of 3 - 5 tons of palm jaggery and 2-3 tons of peanut candy was manufactured annually by the company

5. **Student team Details/Faculty Mentor:**

   1. K. Sudalaiyandi
   2. R. Vignesh Kumar

6. **Establishment date of the Company/Start-up/Commercialization:** 4th April 2019.

7. **One paragraph on the Company/Start-Up covering all the points.**

   Blackatt Agro Private Limited is a Private firm incorporated on April 4, 2019. It is classified as a non-government Company and is registered at the Registrar of Companies, Chennai. It is involved in the production and marketing of palm jaggery (both in solid and powder form), peanut candy (smooth and raw), and sesame candy. The directors of Blackatt Agro Private Limited are Mr. K. Sudalaiyandi and Mr. R. Vignesh Kumar. Both of them are engineering graduates from Mechanical Engineering backgrounds. In addition to this firm contribution, both directors are working as teaching professionals at the National Engineering College, Kovilpatti. They were brought up in southern Tamil Nadu, named for its hot and humid environment. Based on their inspiration from the native cultivations and cultures, they started a startup company to manufacture and market food products. Initially, the firm planned to manufacture the palm jaggery and peanut candies using conventionally available appliances and manpower. Then later on, they decided to develop a machine to manufacture the palm

jaggery with the help of the NewGen IEDC fund through the National Engineering College. The palm jaggery-making machine was fabricated and tested successfully. The firm is presently marketing palm jaggery and peanut candy throughout India via both conventional and digital methods. The present turnover for the company is nearly 12 lakhs.

Start-Up-155: Tersbyte Technologies

1. **Name of the Company/ Start-up**: Tersbyte Technologies
2. **Highlights of the Company/Start-up :**

   Product : AI Based Soil Nutrients Prediction and Plantation Device

   Investment : Rs. 15,00,000

   Employment generated : 5

   Commercialized or not : Not yet commercialized.
3. **Impact it will create (including social impact, if any):**

   It will promote people to setup terrace farming and start using organic vegetables.
4. **Current Status of the Company/Start-up:**

   The prototype of the product has been designed and survey based on the product is being taken.
5. **Student team Details/Faculty Mentor:**

   1. Kailaash Jeevan J
6. **Establishment date of the Company/Start-up/Commercialization:** 28/07/2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   The company was developed by focusing majorly on AI and Cloud development. It was formed during covid pandemic when a team of students decided to build an mobile application for the people who were suffering due to the pandemic and covid. Later on the application was developed, but was unable to launch it. Further we noticed about the pest sprayed vegetables and fruits in the market. Thus we developed an IoT based product for plantation assistance so that people could set up terrace forming and sell organic vegetables. We have also planned to built our own ecommerce website for organic vegetables.

11) Velammal Engineering College, Chennai

Start-Up-156: ILLAKANAM Private Limited

1. **Name of the Company/Start-up**: ILLAKANAM Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Hybrid Desalination & Vacuum suspension

   Investment : 30,000

   Employment generated : 0

   Commercialized or not : Not
3. **Impact it will create (including social impact, if any):** Nil
4. **Current Status of the Company/Start-up**
   - Approaching Customers
5. **Student Team Details/Faculty Mentor:**

   1. Mr. M. Yuvaraj

   2. Mr. Thennarasu
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 11/03/2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - To promote research and development in the field of Engineering, Business, Technology, Educational, Telecommunication, Cellular Device, Braille, Agriculture, Automotive, Electro-Mechanical devices and other related fields and to engage in design, manufacturing, production, buying, importing, assembly, repairing, improving, selling, reselling, export, store, supply, etc. including the manufacture of scientific Prototypes and other equipment relating to the above fields. Also, to promote growth and development of R&D activities in engineering field and other related fields to be explored.

Start-Up-157: VBIND Innovation Private Limited

1. **Name of the Company/Start-up**: VBIND Innovation Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Karthavya's& Drone

   Investment : 30,000

   Employment generated : 4

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - Best Project in International Science Festival, Goa.
4. **Current Status of the Company/Start-up**
   - Doing R&D works in KONE Elevators
5. **Student team Details/Faculty Mentor:**

   1. N. Pradeep Kumar
   2. S. Praveen Kumar
   3. M. Muralikrishnan
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 10/09/2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Explore VBIND INNOVATION Products from its Developmental Stages, Hand Craft yourselves a Solution, that better Fits your Requirement and also your Pockets. Start Shaping your Future Prospects with the Ability to Empower yourselves with Automation and Power of Data. With our Products, We help you to align you on to the " Big Picture" that you have Envisioned.

   Start your Journey of Growth with Our Offerings Such as
   - Karthavya's Comprehensive Pandemic Combat Systems and Devices.
   - Drone's with the Ability to Charter your toughest Protocols on Fighting Back this Pandemic.
   - R&D Projects to start Driving Change towards a Social Cause

Start-Up-158: Emsensing Technologies Private Limited

1. **Name of the Company/Start-up**: Emsensing Technologies Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Electronics, Health care

   Investment : 45,000

   Employment generated : 0

   Commercialized or not : Pitching done
3. **Impact it will create (including social impact, if any)**
   - Functionality Validation Analysis:
   - We have performed on-site physical field trails with the device developed to monitor and control intravenous fluid flow rate as per the requirement

even from remote locations using a mobile phone-based application programming interface.

- Demonstration held in the premises of Post Operative Patient wards and Orthopedics ward for the various saline capacity and different time periods from 18th July 2022 to 20th July 2022.
- The observation made during the trials were documented and testimonials/comments/suggestions were received from the respective duty nurses concerned.
- It is noted that the device shows the capacity to monitor and control the fluid in the IV tube as per the commands executed by the user, accurately and found to be with various functional aspects, including setting flow rate, monitoring residual capacity, setting flow based on the time period, and empty bottle warning.
- The prototype can also do the desired tasks such as saline drip control per minute, Saline capacity in ml, capacity to infuse, timer, room temperature, humidity, real-time drips per minute status, consumed volume, remaining volume, and battery.

Business Summary:

- Exists the problem of manually monitored and controlled drip rate of intravenous infusion tube replaced by an autonomously monitoring and controlling utility.
- It is envisaged that product knowledge may be transformed to the customer in a matter of time or by showing the product as the problem is well known and still not been solved.
- Hospitals are the large customer base; reaching them will be performed through dealers, digital advertisements, coopetition, and direct marketing.

4. Current Status of the Company/Start-up

- Submitted Innovation Voucher Program, Start-up India Seed Grant, BIRAC BIG Grant

5. Student team Details/Faculty Mentor:

1. Dr. A. Balaji Ganesh

6. Establishment date of the Company/Start-up/Commercialization:

- 18/08/2021

7. **One paragraph on the Company/Start-Up covering all the points.**

   Emsensing Technologies is an Electronic Product and Solutions offering company founded in 2021 based in Chennai, India. Our Product Development and Solution Offering Engineering Team has talented skills on industry domains and platforms such as medical & healthcare, automotive, Industrial Automation that helps to reduce development risk and offer time and cost to market advantage. We research, investigate, understand the technology, and give our clients a competitive cutting edge solution . Understanding the technology and market trends give Emsense a key advantage in helping and deciding customers in realizing their dream of new products which are successful in their launch.

Start-Up-159: HATSUTECH Private Limited

1. **Name of the Company/Start-up**: HATSUTECH Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 30,000

   Employment generated : 0

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)** It is relevant and required to utilize the technology of UAV for the safety of human, especially woman and it should be capable of recognizing the abnormal events which threaten the safety, an alert notification issued, autonomously.
4. **Current Status of the Company/Start-up**
   - Corporate Identity Number of the company is U72900KA2022PTC168895
5. **Student team Details/Faculty Mentor:**

   1. Rakhul K. R.
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 12/12/2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - To design and develop consumer grade robotics and associated software and technology.
   - To develop innovative solutions to operational challenges faced in the field of robotics.

- To design, structure and establish design solutions optimised for manufactory of consumer grade robots.
- To develop, distribute, maintain, license and implement software technologies providing solutions to robotic functions such as navigation, interaction, perception, cognition and related functions.
- To handle the maintenance, marketing, distribution and licensing of line up of robotic products.

Start-Up-160: Dharshan Brothers Technologies Private Limited

1. **Name of the Company/Start-up**: Dharshan Brothers Technologies Pvt. Ltd.
2. **Highlights of the Company/Start-up**:

   Product/Service : Energy and Smart Products

   Investment : Rs. 30,000

   Employment generated : 0

   Commercialized or not : Pitching in Progress
3. **Impact it will create (including social impact, if any):** Our product in particular the smart stove will save fuel consumption and improve the gas utilization. Currently no cooking stove having energy star rating in market. Our product will reach the market with 4 star rating first time in India.

   Business Summary: Our business focusing on innovative product developments for the benefit of society. Currently we are working on Smart Stove.
4. **Current Status of the Company/Start-up**
   - Submitted Innovation Voucher Program.
5. **Student team Details/Faculty Mentor:**

   1. S. Baskara Sethupathy
6. **Establishment date of the Company/Start-up/Commercialization:** 25/04/2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   Dharshan Brothers Technologies is Energy related smart Product and Solutions offering company founded in 2023 based in Chennai, India. Our Product Development and Solution Offering Engineering Team has talented skills on industry domains and platforms such as Home appliances, Industrial products, automotive to improve productivity.

Start-Up-161: PP-VAC Engineering Solutions Pvt. Ltd.

1. **Name of the Company/Start-up**: PP-VAC Engineering Solutions Pvt. Ltd.
2. **Highlights of the Company/Start-up**:

   Product/Service : Energy Devices

   Investment : Plan for Loan or getting from investor

   Employment generated : Plan to give employment

   Commercialized or not : Shortly
3. **Impact it will create (including social impact, if any)**
   - It will create some employment for young engineers
4. **Current Status of the Company/Start-up**
   - Start-up registered
   - **PP-VAC Engineering Solutions Private Limited**
   - Corporate Identity Number : **U27900TN2023PTC163627**
5. **Student team Details/Faculty Mentor:**

   1. V. Chandran
6. **Establishment date of the Company/Start-up/Commercialization:**
   - **14.9.2023**
7. **One paragraph on the Company/Start-Up covering all the points.**

   PP-VAC Engineering Solutions is an electrical and energy related Product manufacturing and Solutions offering company founded in 2023 based in Chennai, India. Our Product Development and Solution Offering Engineering Team has talented skills on industry domains and platforms such as energy, mechatronics, electrical, automotive, Industrial Automation that helps to reduce development risk and offer time and cost to market advantage. We research, investigate, understand the technology, and give our clients a competitive cutting edge solution with understanding the market trends and appropriate technology a key advantage in helping and deciding customers in realizing their vision of the new products which are successful in their domain.

12) Sphoorthy Engineering College, Hyderabad

Start-Up-162: SPIONAGE Technologies Private Limited

1. **Name of the Company/Start-up**: SPIONAGE Technologies Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Smart Alerting Seat

   Investment : Self-Funded

   Employment generated : 1

   Commercialized or not : Not
3. **Impact it will create (including social impact, if any)**
   - This company device is a retro fit to the driving seats of Heavy load vehicles which alerts the driver through seat vibration. This will reduce the no. of road accidents caused due to drowsiness
4. **Current Status of the Company/Start-up**
   - Device under Testing
5. **Student team Details/Faculty Mentor:**

   1. V. Harideep
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 19th June 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company works on different types of Dc Motors in developing applications related to actuations. This company aims to develop a safe and healthy travelling & their first idea is to avoid accidents because of Drowsiness. They are also trying to implement few other projects inline with Transportation.

Start-Up-163: Chipsets and technologies

1. **Name of the Company/Start-up**: Chipsets and technologies
2. **Highlights of the Company/Start-up**:

   Product/Service : Embedded devices-Turbo Clean & IR locks

   Investment : Self-Funded

   Employment generated : 1

   Commercialized or not : Not
3. **Impact it will create (including social impact, if any)**
   - This company's device changes the way people clean their over head Tanks.

4. **Current Status of the Company/Start-up**
   - Device under Comercialization.
5. **Student team Details/Faculty Mentor:**

   1. Kotapati Pratyush
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 19th June 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is aimed to solve local society needs of the people and their first invention to clean the over-head Tank cleaning System. They are also trying to build a Smart Lock system.

Start-Up-164: InvadoTechs Private Limited

1. **Name of the Company/Start-up**: InvadoTechs Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Smart Billing Cart for Super Markets

   Investment : Self-Funded

   Employment generated : 3

   Commercialized or not : Working Model Ready
3. **Impact it will create (including social impact, if any)**
   - This IoT based Smart Cart will eliminate the Queues in Shopping mall and Super markets as it provides billing at the cart.
4. **Current Status of the Company/Start-up**
   - Working Model Ready
5. **Student team Details/Faculty Mentor:**

   1. K. Pranav Sarma
   2. K. Nanda Gopal
   3. Konnagula Srikanth
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 27th June 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This Company works on IoT and Cloud based Technology, their first project on Smart billing Cart to avoid the long queus in the Super Markets.is associ-

ated with the same technology. Also they are trying to implement Smat Security systems in the same lines.

Start-Up-165: Sakisighs Technologies Private Limited

1. **Name of the Company/Start-up**: Sakisighs Technologies Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Virosafe-Disinfection systems & Robots

   Investment : Self-Funded

   Employment generated : 1

   Commercialized or not : Working Model Ready
3. **Impact it will create (including social impact, if any)**
   - This company develops solutions for different kinds of disinfection systems such as automated Sanitizer sprayers, U V disinfection system Sanitizer sprayer Robots and Medicine dispensing Robot
4. **Current Status of the Company/Start-up**
   - Working Model Ready
5. **Student team Details/Faculty Mentor:**

   1. Priyanshu Sethi
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 28th June 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is working on non-contact Sanitization solution and one of their project is Ai based robot spraying the Sanitizer in hospitals, educational institutions, etc

Start-Up-166: NVEEAS Labs Private Limited

1. **Name of the Company/Start-up**: NVEEAS Labs Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Audio Interface devices (Noise cancellers, Notch Filters, Gain control devices)

   Investment : Rs. 30,000

   Employment generated : 2

   Commercialized or not : Product is in Amazon

3. **Impact it will create (including social impact, if any)**
   - This company majorly develops Low-cost Audio interface devices to handle Noise and Gain from the Amplifiers and also users of Audio transmitting devices. They change the way audio is listened by the users.
4. **Current Status of the Company/Start-up**
   - Start-Up
5. **Student team Details/Faculty Mentor:**

   1. N. Vijay
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 10th February 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company works on complete Adio interface devices and communication devices. Already one of their products are listed in online Amazon selling. This company is also working on Wireless power transfer device for day to day gadgets.

Start-Up-167: Akktago Technologies Private Limited

1. **Name of the Company/Start-up**: Akktago Technologies Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Water Monitoring and quality systems

   Investment : Self-Funded

   Employment generated : 0

   Commercialized or not : Working Model Ready
3. **Impact it will create (including social impact, if any)**
   - NANYATHA is a device which automatically tests the water purity levels such as turbidity, PH , temperature of the water sample which is collected form the main water supply of the drinking water.
4. **Current Status of the Company/Start-up:** Device under commercialization
5. **Student team Details/Faculty Mentor:**

   1. A. V. Sai Pranav Simha Reddy
   2. G. Sai Kaushik Reddy
   3. K. Sai Kumar
   5. T. Dinesh Kumar Reddy

6. **Establishment date of the Company/Start-up/Commercialization:**
   - 18th August 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is working on Local problems and Automation Solutions.

Start-Up-168: Clocker Olives Private Limited

1. **Name of the Company/Start-up**: Clocker Olives Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Portable Automatic Wire Cutter

   Investment : Self-Funded

   Employment generated : 2

   Commercialized or not : Ready to Commercialize
3. **Impact it will create (including social impact, if any):** This device breaks the conventional method of cutting wires with this portable low-cost Wire Cutter
4. **Current Status of the Company/Start-up:** Device ready to commercialize
5. **Student team Details/Faculty Mentor:**

   1. S. Pranathi
   2. D. Manogna
   3. G. Sathwika
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 14th June 2022
7. **One paragraph on the Company/Start-Up covering all the points.**

   This company works on handling automated tools for the Industry and locale. Their first product to solve the problem of local Cable Manufacturers and led lighting Indutries.

Start-Up-169: Octo Blooms Private Limited

1. **Name of the Company/Start-up**: Octo Blooms Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Wire Less stethoscope

   Investment : Self-Funded

   Employment generated : 2

   Commercialized or not : Not

3. **Impact it will create (including social impact, if any)**
   - This company works on developing medical devices and tools. A wireless Low cost Electronic Stethoscope can be widely used during the spread of Contagious diseases like viral and Corona.
4. **Current Status of the Company/Start-up**
   - Working Model Ready
5. **Student team Details/Faculty Mentor:**

   1. V. Sai Harshith
   2. G. Pravallika Reddy
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 17th June 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This Company works closely with Medical Devices and their enhancements as per the need and problem statements from the doctor. Their first product which is ready to commercialize falls in the same line .

Start-Up-170: Kartomatic Technologies Private Limited

1. **Name of the Company/Start-up**: Kartomatic Technologies Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Grocery Lift

   Investment : Self-Funded

   Employment generated : 2

   Commercialized or not : Not
3. **Impact it will create (including social impact, if any)**
   - This company works on developing an IoT based daily collectables for senior people living in Apartments and multi-floored buildings. This will impact the live of senior citizens from climbing stairs and reduce the Knee related problems.
4. **Current Status of the Company/Start-up**
   - Working Model Ready
5. **Student team Details/Faculty Mentor:**

   1. Y.Jeshwanth
   2. S.Abhinav

6. **Establishment date of the Company/Start-up/Commercialization:**
   - Company name approved Waiting for CIN.
7. **One paragraph on the Company/Start-Up covering all the points.**

   This company Works in solving the problems of Elderly People especially to develop something smart for their needs.their first project Grocery lift is to help elderly people to lift the groceries automatically with a switch of a button from ground floor to top floors avoiding them to climb and step down and use force to pull the bucket up and down.

Start-Up-171: THREATRECON Private Limited

1. **Name of the Company/Start-up**: THREATRECON Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Smart Protective face shield for Municipal Workers.

   Investment : Recently selected for MSME start-up grant for Commercialization

   Employment generated : 01

   Commercialized or not : Not
3. **Impact it will create (including social impact, if any)**
   - This company impacts the lives of municipal Workers especially in the sanitization department who are prone to harmful gases.
4. **Current Status of the Company/Start-up**
   - Working Model Ready
5. **Student team Details/Faculty Mentor:**

   1. Sushant Tiwary
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Company name approved Waiting for CIN.
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company works on local society problems generally associated with Municipal corporation such as wate management, waste tracking system, protective face sheld to avoid exposure of harmful gases to municipal workers.

Start-Up-172: Robot operated systems

1. **Name of the Company/Start-up**: Robot operated systems
2. **Highlights of the Company/Start-up**:

   Product/Service : Robot operated systems.

   Investment : 0

   Employment generated : 0

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - This devices will Automate the manual Services and reduce the Labour being required for a organization.
4. **Current Status of the Company/Start-up:** Prototype finished
5. **Student team Details/Faculty Mentor:**

   1. P. Jessica
   2. G. Abhinav Charan
   3. G. Bhuvana Sri
   4. Md. Amer Khan
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Establishment under progress
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company works in creating Robot related models in automating process, increasing the accuracy and efficiency of the Work by deploying suitable root systems replacing Human Labour.

Start-Up-173: StellaCemaro Solutions LLP

1. **Name of the Company/Start-up**: StellaCemaro Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 1

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - If the Monitoring systems being deployed and used by the government regularly, it helps in maintaining the industrial emission levels constantly.

4. **Current Status of the Company/Start-up**
   - Prototype finished
5. **Student team Details/Faculty Mentor:**
   1. Swapnil Shinde
   2. Kkshitij Singh Thakur
   3. Mohammed Naseruddin Ruman
   4. Aqib Nazer Mohammed
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is mostly working on Pollution cause detections using Drone and different Technologies to detect it and make sure the regulations are being followed. Apart from this, They are also working on Waste reusability and recreation.

Start-Up-174: IoT Electrics LLP

1. **Name of the Company/Start-up**: IoT Electrics LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 3

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - It will help the user know about his Electricity consumption, so that he can optimize the usage therby saving the Power of the Country and its requirement and indirectly pollution.
4. **Current Status of the Company/Start-up**
   - Prototype Finished
5. **Student team Details/Faculty Mentor:**
   1. S. Shreyas
   2. T. Sai Kumar Goud
   3. Harshitha.C
   4. Nikhil .C

6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is working on Energy Monitoring and Tracking Hardwate and Software systems to effectively utilize the Energy Generated.

Start-Up-175: Nexaspirants LLP

1. **Name of the Company/Start-up**: Nexaspirants LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : product

   Investment : 0

   Employment generated : 0

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - This will increase the Production of Stuffed Bread makers by reducing the Labour and catering the demand.
4. **Current Status of the Company/Start-up**
   - Prototype finished
5. **Student team Details/Faculty Mentor:**

   1. G. Vighneshwar Reddy
   2. G. Ajay
   3. E. Pavan Kumar
   4. Sarikonda Sumanth Raju
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is working on Automating the food making process of Local Instant Food using semi-automated portable machines and trying to reduce the dependency of Labour.

Start-Up-176: Senshiitake LLP

1. **Name of the Company/Start-up**: Senshiitake LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : product

   Investment : 0

   Employment generated : 1

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - It will allow the yield of Mushroom to increase therby decreasing the losses in mushroom production.
4. **Current Status of the Company/Start-up**
   - Proto-Type Finished
5. **Student team Details/Faculty Mentor:**

   1. K. Tanusha
   2. V. Poojitha
   3. P. Shreya
   4. T. Sravani
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is working on growth of Plants in Green House Environment creating Artificial Conditions and increasing the yield and Productivity of mushrooms and other useful yields.

Start-Up-177: DreamFluff Innovators LLP

1. **Name of the Company/Start-up**: DreamFluff Innovators LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 2

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - It will help the autistic people to be in a normal sense and feel secure.

4. **Current Status of the Company/Start-up**
   - Prototype
5. **Student team Details/Faculty Mentor:**
   1. M. Umadevi
   2. Sushant Kumar
   3. B. Shashi Varun
   4. P. V. V. S. Murthy
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is Working on Health Care devices mainly for Physicaly and Mentally Affected Students.Thier current protoype is being tested on Autism Children.

Start-Up-178: Protecrop System LLP

1. **Name of the Company/Start-up**: Protecrop System LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 0

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - It will create an impact in farmers protecting Harvested crop.
4. **Current Status of the Company/Start-up**
   - Prototype finished
5. **Student team Details/Faculty Mentor:**
   1. Y. Geetha Madhuri
   2. K. Chandana
   3. K. Eshvitha
   4. B. Harshitha
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN

7. **One paragraph on the Company/Start-Up covering all the points.**
    - This Company is working on saving the Crop yelds,helping Farmers to secure their yield and also working on Farmer network improvements for selling their yields at right Time.

Start-Up-179: Novophoenix LLP

1. **Name of the Company/Start-up**: Novophoenix LLP
2. **Highlights of the Company/Start-up**:

    Product/Service : Product

    Investment : 0

    Employment generated : 1

    Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
    - It will reduce the accidents caused due to fire accidents and also save the lives of the people in the shopping complexes.
4. **Current Status of the Company/Start-up**
    - Prototype finished
5. **Student team Details/Faculty Mentor:**

    1. Maram Anusha
    2. V. Saritha
    3. Ireddy Sriya Reddy
    4. Bendi Mrudula
6. **Establishment date of the Company/Start-up/Commercialization:**
    - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
    - This company is working on Novel IoT tech devices for Urban society solutions. They are working on a safety and fast rescue intimation systems for Shopping Malls , small shop and other business units working with flammable Materials. Under the guidance of Local Municipal Officers for the better suitable poduct.

Start-Up-180: Saptarshidvipa Innovations LLP

1. **Name of the Company/Start-up**: Saptarshidvipa Innovations LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 0

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - It will help the patience especially in Emergency to reach right place(hospital) where there are beds available.
4. **Current Status of the Company/Start-up**
   - Prototype finished
5. **Student team Details/Faculty Mentor:**

   1. S. Shiva Yadav
   2. K. Sai Kumar Reddy
   3. V. Raghavendra
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is Working on medical software solutions to ease the gap and Communication between customer/ the Pateint and Hospitals.

Start-Up-181: Agrifuturix

1. **Name of the Company/Start-up**: Agrifuturix
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 0

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - This project will be used for farmers for Harvesting Mirchi, It will reduce the labour cost.
4. **Current Status of the Company/Start-up:** Prototype finished

5. **Student team Details/Faculty Mentor:**
   1. M. Sri Lakshmi Priya
   2. M. Saketh
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is Working on different techniques to Harvest Various Crops where large amount of Labour and Wages are required. They are Working on Robot automated Solutions to Harvest the Crops.

Start-Up-182: Zenitsu LLP

1. **Name of the Company/Start-up**: Zenitsu LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 2

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - This is a product developed to ease the mobility of Physically Handicapped People.
4. **Current Status of the Company/Start-up**
   - Prototype finished
5. **Student team Details/Faculty Mentor:**
   1. M. V. Achyuth Siva Rao
   2. Malreddy Vijay Kumar Reddy
   3. Bodramoni Balu
   4. Chittimeni Mahesh Veera Ramana
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is working on Electrical Vehicle usage for physically Handicapped People.

Start-Up-183: Crestofolios LLP

1. **Name of the Company/Start-up**: Crestofolios LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : software Product and service

   Investment : 0

   Employment generated : 0

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - This is a Web Application created to build Portfolios and get linked to Companies and Clients.
4. **Current Status of the Company/Start-up**
   - Prototype finished
5. **Student team Details/Faculty Mentor:**

   1. Harshitha Sanaka

   2. Akshaya Padala
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**

   This company is working on a software Web application to create a platform for job seekers, freelancers connecting to business units.

13) GLA University, Mathura

Start-Up-184: Tredmolen E-Cycle Private Limited

1. **Name of the Company/Start-up**: Tredmolen E - Cycle Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Electric Cycle (Product)

   Investment : Rs. 7,00,000

   Employment generated : 12 Persons

   Commercialized or not : In Process
3. **Impact** it **will create (including social impact, if any)**

   We are offering health to our customers by providing them a unique treadmill which can be used as an e-bike as well as cycle. The lack of time availability in today's scenario due to which people are not concerning to their health?

CheapPrice, three in one concept offering three different products in single one (i.e. astreadmill, bicycle, and an e-bike).

4. **Current Status of the Company/Start-up**
   - Private Limited Company
5. **Student Team Details/Faculty Mentor:**
   1. Sachin Singh Sengar
   2. Tejas Singh
   3. Himanshu Mishra
   4. Karanjeet Singh Randhawa
   5. Gaurav Verma
   6. Ravi kumar Shukla
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 02 /05/2019
7. **One paragraph on the Company/Start-Up covering all the points**.

   This is a manufacturing unit in which we manufacture and sell the product names “Tred-E-cycle “and company is registered as Tredmolen-E-Cycle Pvt. Ltd. Manufacturer of a product named Tred-e cycle which is an electric treadmill bicycle with three? transmissions and can be used as three products in single product i.e., Bicycle, treadmill and e-bike in single Tred-e cycle.

Start-Up-185: Digi Lab

1. **Name of the Company/Start-up**: Digi Lab
2. **Highlights of the Company/Start-up**:

   Product/Service : Service

   Investment : Rs. 2,00,000

   Employment generated : 3 Persons

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any): NA**
4. **Current Status of the Company/Start-up**: Non-Registered Company
5. **Student team Details/Faculty Mentor:**
   1. Mr. Piyush Khandelwal
   2. Sagar Goyal
   3. Sarthak Garg

6. **Establishment date of the Company/Start-up/Commercialization:**
   - 12/10/2022
7. **One paragraph on the Company/Start-Up covering all the points**.
   - Environment friendly solution for real time tracking.

Start-Up-186: Sayrnew Private Limited

1. **Name of the Company/Start-up**: Sayrnew Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : SI Phase Locator (Product)

   Investment : Rs. 1,50,000

   Employment generated : 4 Persons

   Commercialized or not : In Process
3. **Impact it will create (including social impact, if any)**
   - We can detect phase with a distance of 1cm. human safety against electric shock.
4. **Current Status of the Company/Start-up**
   - Private Limited Company
5. **Student team Details/Faculty Mentor:**

   1. Ms. Suzanne Sharma

   2. Mr. Atul Kumar Maurya
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 29/09/2021
7. **One paragraph on the Company/Start-Up covering all the points**.

   It is a device which detects the phase on the insulated wire by the LED, which we use as an indicator, we get to know the presence of current. We can detect phase with a distance of 1cm. human safety against electric shock with the use of SI Phase locator. It is the cheapest and easy to use. It detects the high voltage in spark plugs of vehicles. Easily detect the fault in bull's series connection it easily detects high voltage area. Its operation is on very low battery consumption. It works for several months.

Start-Up-187: LIFEEZY Products Private Limited

1. **Name of the Company/Start-up**: LIFEEZY Products Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : AASAWAN Water Purifier (Product)

   Investment : Rs. 2,50,000

   Employment generated : 8 Persons

   Commercialized or not : In Process
3. **Impact it will create (including social impact, if any)**
   - Our primary objective is to showcase our idea with working prototype beneath several government bodies for tests and certifications. meanwhile we also plan to present public demos in order to arise awareness amongst users regarding our product.
4. **Current Status of the Company/Start-up** Ongoing
5. **Student team Details/Faculty Mentor:**

   1. Mr. Kustubh Srivastava
6. **Establishment date of the Company/Start-up/Commercialization**: In Proces
7. **One paragraph on the Company/Start-Up covering all the points**.

   Asswan is Hindi translation of distillation. Asswan water purifier works on advance distillation-based technology which ensures pure water enriched with allthe necessary minerals to chinch optimum quality of water to the user. As the working principle of ASSWAN water purifier is based on distillation in which water changes its phase and converts into steam which is the purest form of water which could be extracted, ASSWAN water purifier is also capable in eliminating problems associated with other water filtration techniques i.e. dealingwith high TDS values, water wastage, etc.

Start-Up-188: ML Volt Private Limited

1. **Name of the Company/Start-up**: ML Volt Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Modified Fitness Band (Product/Service)

   Investment : Rs. 2,00,000

   Employment generated : 04 Persons

   Commercialized or not : In Process

3. Impact it will create (including social impact, if any)
   - Our primary objective is to showcase our idea with working prototype beneath several government bodies for tests and certifications. meanwhile we also plan to present public demos in order to arise awareness amongst users regarding our product.
4. **Current Status of the Company/Start-up**
   - Ongoing
5. **Student team Details/Faculty Mentor:**

   1. Mr. Prince Gupta
   2. Mr. Ayushman Agrahari
6. **Establishment date of the Company/Start-up/Commercialization**:
   - 17-08-2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Our Mission for starting this StartUp is to provide technical support to those creative entrepreneurs who have a product idea but don't know to build it practically due to lack of technical knowledge and limited project budget. Our team has highly experienced in Electronics Engineers, Mechanical engineers, Android app developers, web developers and graphics designers. Which plan and develop your idea into a tangible product at the minimum development budget.

Start-Up-189: METGE

1. **Name of the Company/Start-up**: METGE
2. **Highlights of the Company/Start-up**:

   Product/Service : IoT enabled Medical ERP

   Investment : Rs. 1,25,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - 24*7 Patient Monitoring through app/software
   - IoT enabled smart hospitals
   - Creating Data sets for insurance company
4. **Current Status of the Company/Start-up:** MVP Stage

5. **Student team Details/Faculty Mentor:**
   1. Ashishi Soni
   2. Aditya Saraswat
6. **Establishment date of the Company/Start-up/Commercialization:**
   - June 2022
7. One paragraph on the Company/Start-Up covering all the points.
   - Due to more patients and less staff in hospitals the problem of monitoring the patient arises. Metge's software and IoT devices will help staff to monitor the patient supplies like oxygen and IV fluid in real-time and in hand

Start-Up-190: Vermicompost Production

1. **Name of the Company/Start-up**: Vermicompost Production
2. **Highlights of the Company/Start-up**:

Product/Service	: Product
Investment	: Rs. 4,00,000
Employment generated	: 05
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - fruit market waste and all other bios degradable waste with the help of earthworms to produce the vermicompost and vermiwash
4. **Current Status of the Company/Start-up**
   - Non-Registered Company
5. **Student team Details/Faculty Mentor:**
   1 . Karan Tyagi
6. **Establishment date of the Company/Start-up/Commercialization:**
   - January, 2023
7. **One paragraph on the Company/Start-Up covering all the points**.
   - Vermicomposting is the decomposition of Cattle dung (except the pig, poultry and goat), farm wastes, crop residues, vegetable waste, agro-industrial waste.

Start-Up-191: Anas Indigenous Private Limited

1. **Name of the Company/Start-up**: Anas Indigenous Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 4,00,000

   Employment generated : 04

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   To carry out business by setting up Molecular & cell Biology laboratory by collaboration with institutions in this field. To carryout Research & Development activity in the field of manufacture, formulate process, develop, refine, import, export Wholesale and /(or) retail trade all kinds of Diagnostic kits, pharmaceuticals, antibiotics, drugs, medicines, biological, Nutraceuticals, Health-care, ayurvedic and dietary supplement products, medicinal preparations, vaccines, dry salters. To carry out Research & Development in the area of clinical, biomedical research & it's application in various field such as Microbiology, Molecular biology, virology, cell biology etc... To develop technologies and Transfer the technologies provide consultancy outsourcing, culture depository and marketing in the technologies and the product developed through this technology.
4. **Current Status of the Company/Start-up:**

   Registered in Private Limited
5. **Student team Details/Faculty Mentor:**

   1. Manthena Navabharath

   2. Ayushi Sharma
6. **Establishment date of the Company/Start-up/Commercialization:**

   23/01/2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   - The startup has a team of experienced Allopathic and Ayurvedic practitioners and scientists who work together to create formulations that are effective and safe for consumers.

- The main objectives of our company are to create self-sufficiency in respect of essential lifesaving medicines, to free the country from dependence on imports and to provide medicines to the millions at affordable prices.
- The company also invests in research and development to continuously improve its products and stay ahead of the competition.
- The main concern is to earn profits but to encourage indigenous production of tuberculosis drugs and to support various health programs of the Central Government

Start-Up-192: Atirun Techs Private Limited

1. **Name of the Company/Start-up**: Atirun Techs Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Service

   Investment : Rs. 2,00,000

   Employment generated : 05

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Atirun Techs is a full-service software development company that specializes in creating innovative software solutions, compelling content, and successful product launches. We have a team of experienced developers, writers, and marketers who work closely with clients to understand their unique needs and develop custom software, content, and launch strategies that meet those needs.
4. **Current Status of the Company/Start-up:**
   - Registered in Private Limited
5. **Student team Details/Faculty Mentor:**

   1. Gaurav Singh

   2. Rishabh Saxena
6. **Establishment date of the Company/Start-up/Commercialization:**

   22/03/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Introducing a revolutionary fitness and healthcare app that seamlessly integrates with your smartwatch to provide you with a complete picture of your

health and wellness. With this app, you can easily track and record all of your body activities and receive a detailed report on your data analysis through advanced machine learning algorithms.

- Not only that, but you can also choose a doctor at the time of registration who will receive your data in real-time and contact you for further precautions or treatment if necessary. With this app, you can take control of your health and get personalized care like never before.

Start-Up-193: SAS Electronix stands for System and Support Electronics

1. **Name of the Company/Start-up**: SAS Electronix stands for System and Support Electronics
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 1,00,000

   Employment generated : 03

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - We are targeting each individual, students, offices, industries, etc.
4. **Current Status of the Company/Start-up:** University Startup
5. **Student team Details/Faculty Mentor:**

   1. Shubham Yadav
   2. Abhiraj Mishra
   3. Shikhar Agarwal
6. **Establishment date of the Company/Start-up/Commercialization:**

   20-07-2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   They will design the easiest solution of a particular problem so that the user can get the best solution regarding their problem. The goal is to create gadgets that seamlessly integrate into users' lives, enhancing their daily routines without overwhelming them with unnecessary complexity. **They will also provide the solution for a certain client's desired problem and will design a gadget to solve that problem for the client. They will focus on Less Profit and high Sales.**

14) Univeristy of Kashmir, Kashmir

No Outcome

15) Indian Institute of Technology (IIT), Guwahati

Start-Up-194: Amaletix Infotech Private Limited

1. **Name of the Company/Start-up**: Amaletix Infotech Private Limited
2. **Highlights of the Company/Start-up**:

   Product : Computer And Related Activities

   Investment : Rs. 6,00,000

   Employment Generated : 02

   Commercialized or not : NA
3. **Impact it will create (including social impact, if any):** NA
4. **Current Status of the Company/Start-up:** Active
5. **Student team Details/Faculty Mentor:**

   1. Rajiv Kumar Mishra
   2. Hanumant Singh
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Corporate Identification Number is (CIN) U72900UP2021PTC153516 and its registration number is 153516.
7. **One paragraph on the Company/Start-Up covering all the points.**

   The company has CIN U72900UP2021PTC153516 is Private company incorporated with MCA on 2021-10-07. AMALETIX Infotech Private Limited is listed in the class of Private company and classified as Non-govt company. This company is registered at Registrar of Companies (ROC), RoC-Kanpur with an Authorized Share Capital of ₹ 500000 and paid-up capital is ₹ 100000. The company directors/key management personal name are Rajiv Kumar Mishra – Director, Hanumant Singh Shekhawat – Director. AMALETIX INFOTECH Private Limited company registration number is 153516 and its Corporate Identification Number(CIN) provided from MCA is U72900UP2021PTC153516. As per MCA records AMALETIX INFOTECH Private Limited is involved in activities such as (Computer and related activities) Other computer related activities [for example maintenance of websites of other firms/ creation of multimedia presentations for other firms etc.].

Start-Up-195: Udot Braille Tech Private Limited

1. **Name of the Company/Start-up**: Udot Braille Tech Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Manufacturing (Machinery & Equipments) Domain

   Investment : Rs. 40,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - The company will manufacture machineries and equipments in medical, and other fields of interest.
4. **Current Status of the Company/Start-up**
   - Active
5. **Student team Details/Faculty Mentor:**

   1. Kaviraj Prithvi
6. **Establishment date of the Company/Start-up/Commercialization:**

   10 April, 2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   Udot Braille Tech Private Limited is an unlisted private company incorporated on 10 April, 2023. It is classified as a private limited company and is located in Karnataka. It's authorized share capital is INR 20,000.00 and the total paid-up capital is INR 20,000.00 The current status of Udot Braille Tech Private Limited is – Active. Details of the last annual general meeting of Udot Braille Tech Private Limited are not available. The company is yet to submit its first full-year financial statements to the registrar. Udot Braille Tech Private Limited has two directors - Ashok Srinivas and Coimbatore Ashok Kaviraj Prithvi. The Corporate Identification Number (CIN) of Udot Braille Tech Private Limited is U32909KA2023PTC172136. The registered office of Udot Braille Tech Private Limited is at No 8 And 9, 10th Cross, Celebrity Paradise, Doddatogur, Electronic City, Phase I Bangalore South, Karnataka.

16) Marwadi University, Rajkot

Start-Up-196: M/S. Technogic LLP

1. **Name of the Company/Start-up**: M/S. Technogic LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Smart stick for blind people

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : In Progress
3. **Impact it will create (including social impact, if any)**
   - The affordable smart blindstick helps visually impaired to guide the user to respective destination and avoiding to collide with the obstacles.
4. **Current Status of the Company/Start-up**
   - Partnership Firm and product development
5. **Student team Details/Faculty Mentor:**

   1. Mr. Krupal Jivrajani
   2. Mr. Bhavik Kalpesh
6. **Establishment date of the Company/Start-up/Commercialization:** 22.05.2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Technogic is a startup developing an innovative smart Blindstick which is designed for visually disabled people that improves navigation for visually disabled people. We here propose an advanced blindstick that allows visually challenged people to navigate with ease using disruptive technologies

Start-Up-197: Fantom Technocrats LLP

1. **Name of the Company/Start-up**: Fantom Technocrats LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Augmented, Virtual Reality and Digital Twin

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : In Progress.
3. **Impact it will create (including social impact, if any)**
   - It will provide the immersive experience to the learners.

4. **Current Status of the Company/Start-up**
   - In market
5. **Student team Details/Faculty Mentor:**
   1. Mr. Hetav Samani
   2. Mr. Bhargav Bagda
   3. Dr. Amit Sata
   4. Prof. Vivek Patel
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 24/11/2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - FANTOM TECHNOCRATS LLP is a limited liability partnership business entity registered under The LLP Act, 2008. Its incorporate as LLP limited company dated 24/11/2021. It's registered for pre-defined objects or activity Computer and related activities as per Activity Code mentioned under Company CIN Number AAZ-5979.
   - Fantom Technocrats develops Interactive Virtual reality environment for Industrial training and visualization purpose enabling institutes and industries to provide training with high level of safety standards. We also provide service on Industrial Internet of Things, Digital twinning and Augmented Reality based solutions for Mechanical, Architecture and civil.

Start-Up-198: IntelliHire LLP

1. **Name of the Company/Start-up**: IntelliHire LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Service

   Investment : Rs. 79,000

   Employment generated : 3

   Commercialized or not : In Progress
3. **Impact it will create (including social impact, if any)**
   - Assist students to check placement based on their nature.
4. **Current Status of the Company/Start-up**
   - Go to Market

5. **Student team Details/Faculty Mentor:**
   1. Mr. Parth Parmar
   2. Mr. Harsh Dhamecha
   3. Dr. R. B. Jadeja
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The startup is developing placement prediction algorithm.

Start-Up-199: Kalam Indigenous Technologies LLP

1. **Name of the Company/Start-up**: Kalam Indigenous Technologies LLP
2. **Highlights of the Company/Start-up**:

Product/Service	: Product and Service
Investment	: 200000
Employment generated	: 3
Commercialized or not	: In Progress

3. **Impact it will create (including social impact, if any)**
   - Assist students to check placement based on their nature.
4. **Current Status of the Company/Start-up**
   - Go to Market
5. **Student team Details/Faculty Mentor:**
   1. Mr. Mahek Rathod
   2. Mr. Kevin Virpariya
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 30.06.2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The startup is working in the domain of Industry 4.0 and Digital Twinning. Engineering ecosystem is being built to control and monitor the hardware over the internet. The machine can be operated through smart devices such as computers, smartphones, and Virtual Reality Headsets. which will help the industry to increase the overall product quality, and reduce material consumption..

Start-Up-200: Nishkaam Innovations LLP

1. **Name of the Company/Start-up**: Nishkaam Innovations LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Sanitary Pads and Disposable spoons

   Investment : Rs. 1,50,000

   Employment generated : 2

   Commercialized or not : In Progress.
3. **Impact it will create (including social impact, if any)**
   - It will increase the utilization of agro waste by developing disposable products such as sanitary pads, spoons, etc.
4. **Current Status of the Company/Start-up**
   - Prototype Development
5. **Student team Details/Faculty Mentor:**

   1. Ms. Foram Kundalia
   2. Mr. Khushal Katdare
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Nishkaam Innovations aims at development of bio-degradable sanitary pads from agro waste such as stubble.

Start-Up-201: Khumb Organics LLP

1. **Name of the Company/Start-up**: Khumb Organics LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Mushroom and its Farming

   Investment : Rs 2,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized.
3. **Impact it will create (including social impact, if any)**
   - Mushrooms demonstrate a great impact on agriculture and the environment, and they have great potential for generating a great socio-economic impact in human welfare on local, national, and global levels.

4. **Current Status of the Company/Start-up**
   - Revenue Generate
5. **Student team Details/Faculty Mentor:**
   1. Dr. Archana Sharma
   2. Mr. Dhaval Van
   3. Dr. Aditya Saran
6. **Establishment date of the Company/Start-up/Commercialization**
   - 06/05/2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Khumb organics cultivates the Mushrooms by organics farming technique since its been considered as a delicacy. Mashrooms are being used as food since time immemorial. From the nutrition point of view mashrooms are placed between meat and vegatables. It is rich in protein, carbohydrate and vitamins. Mashrooms are low in caloric value and hence are recommended for heart and diabetic patient.

Start-Up-202: IntelliInvest LLP

1. **Name of the Company/Start-up**: IntelliInvest LLP
2. **Highlights of the Company/Start-up**:

Product/Service	: Service
Investment	: Rs. 1,20,000
Employment generated	: 2
Commercialized or not	: In Progress

3. **Impact it will create (including social impact, if any)**
   - It helps investors to predict the future stocks
4. **Current Status of the Company/Start-up**
   - In Process
5. **Student team Details/Faculty Mentor:**
   1. Mr. Raj Panjawani
   2. Dr. R B Jadeja
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In Process

7. **One paragraph on the Company/Start-Up covering all the points.**
   - Stock price analysis has been a critical area of research and is one of the top applications of machine learning. Stock Price Prediction using machine learning helps you discover the future value of company stock and other financial assets traded on an exchange.

Start-Up-203: Concrete LLP

1. **Name of the Company/Start-up**: Concrete LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 1,00,000

   Employment generated : 2

   Commercialized or not : In Progress
3. **Impact it will create (including social impact, if any)**
   - Developing technology and system to utilize waste which is abundantly available.
4. **Current Status of the Company/Start-up**
   - Product Development
5. **Student team Details/Faculty Mentor:**

   1**.** Dr Ankur Bhogayata
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Startup aims at development of Material and Product for consumer oriented applications for general and special housing and construction purposes. The business will be dealing with the use of conventional and modern technologies for the production and manufacturing processes of materials, members and systems. A wide range of wastes resulting from the industrial processing, commercial, public, societal and personal activities, agricultural, fisheries and farming activities, demolition, disposal and dumping activities of refuse will be utilized in varying proportions, methods and processes towards the development of the sustainable materials and products.

Start-Up-204: PV Wellness LLP

1. **Name of the Company/Start-up**: PV Wellness LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : IoT Enabled Oxygen Concentrator

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : In Process
3. **Impact it will create (including social impact, if any)**
   - For hospitalized patients, a device will produce a certain amount of oxygen from the environment or from nearby nature. Additionally, it is a sustainable technology with an impact on society, and anytime there is an oxygen cylinder shortage in hospitals, it is highly beneficial in controlling the situation.
4. **Current Status of the Company/Start-up:** Product Developed
5. **Student team Details/Faculty Mentor:**

   1. Ms. Pragati Trambadiya
   2. Ms. Varsha Chauhan
   3. Dr. Amit Sata
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Internet of Things Enabled Oxygen Concentrator produce a certain amount of oxygen from the environment or from nearby nature. Additionally, it is a sustainable technology with an impact on society, & anytime there is an oxygen cylinder shortage in hospitals, it is highly beneficial in controlling the situation.
   - Its working based on IoT a Next Level of Industry.

Start-Up-205: Candeyleaf Treats LLP

1. **Name of the Company/Start-up**: Candeyleaf Treats LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Suger Free Treats (Product)

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

   Diabetic patients will receive suger-free treats and be able to eat as they normally would, improving their health and that of the community as a whole.

4. **Current Status of the Company/Start-up**
   - Revenue Generate
5. **Student team Details/Faculty Mentor:**

   1. Diya Vekaria
   2. Dev Vekaria
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 08/02/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Candeyleaf Treats is based on the concept of Sugar less Sweets. We have identified the growing rates of diabetic patients and hence had come up with the solution for the same. We are manufacturing the sweets that do not involve the sugar in its recipe/ manufacturing process. We are utilizing the Stevia as an alternative of the sugar. Also we identified the consequences of an artificial sugar that might results in various health issues and diseases.

Start-Up-206: Santript Aahar LLP

1. **Name of the Company/Start-up**: Santript Aahar LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Spirulina Based (Product)

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - It will Improve immunity System also Rich Amount of Vitamin B12, Vitamin-D, Protein, Fibers, etc.
4. **Current Status of the Company/Start-up**
   - In market and generating revenue.
5. **Student team Details/Faculty Mentor:**

   1. Ms. Ruchita Rathod
   2. Dr Gaurav Sanghvi

6. **Establishment date of the Company/Start-up/Commercialization:**
   - 11/04/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Start-up “Santrip Aahar” majorly aims to deliver its customers a healthy, tasty and nutritious diet. As we know that most of the nutrition rich food is animal based which cannot be consumed by many people. Targeting this, we at “Santrip Ahar” are here with a large-based product that is highly nutritious and vegan.

Start-Up-207: Shivaya Micromech LLP

1. **Name of the Company/Start-up**: Shivaya Micromech LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 1,00,000

   Employment generated : 2

   Commercialized or not : In Process
3. **Impact it will create (including social impact, if any)**
   - It will increase the life of slurry used in investment casting.
4. **Current Status of the Company/Start-up**
   - Product Development
5. **Student team Details/Faculty Mentor:**

   1. Ms. Dhwani Vaitha
   2. Dr. Amit Sata
   3. Mr. Shubham Boricha
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The shell-making process is one of the most critical sub-processes of investment castings, and has very high rejection level (nearly 35%) in shell making process.. The rejection in shell making is mostly driven by quality of mixing sand with binder as well as additives. Also, the prepared slurry needs to be prepared by maintaining predefined levels of viscosity, pH as well as specific gravity. It was observed that deviation of these values results in increasing

formation of microorganisms in ceramic slurry. This formation further affects the process of slurry making, quality of slurry, and in turn reducing life of slurry as well as cold strength of the mold.

Start-Up-208 : Approach Hydraulics LLP

1. **Name of the Company/Start-up**: Approach Hydraulics LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : In Process
3. **Impact it will create (including social impact, if any)**
   - Reduce the energy consumption in hydraulic devices.
4. **Current Status of the Company/Start-up**
   - Product Development
5. **Student team Details/Faculty Mentor:**

   1. Mr. Bhavin Bhimani

   2. Dr. Pinank Patel
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 24/05/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - We are modifying hydraulic system for it's efficiency improvement.

Start-Up-209: Shah Genome LLP

1. **Name of the Company/Start-up**: - Shah Genome LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 1,25,000

   Employment generated : 2

   Commercialized or not : In Process
3. **Impact it will create (including social impact, if any)**
   - It will help reuse the medicated masks with anti-microbial spray or liquid.
4. **Current Status of the Company/Start-up:** Product Development

5. **Student team Details/Faculty Mentor:**
   1. Ms. Amisha Patel
   2. Dr. Sejal Shah
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Antimicrobial Nano-coated Cotton Mask Elevator pitch We have identified that emerging infectious diseases caused by viruses have constituted the forefront of global health concerns in healthcare sector, and propose that antimicrobial mask through our unique approach of nano biotechnology.

17) Jawaharlal Nehru National College of Engineering, Shimoga

Start-Up-210: None

1. **Name of the Company/ Start-up**: None
2. **Highlights of the Company/Start-up ;**

   Product Name: "Cold Bituminous Mix for Roads"
   - For years there have been many proprietary cold bituminous patching materials on the market **that** claim to be "perfect" fix to the repair of bituminous concrete pavement potholes. Nevertheless, these products do not perform anywhere close to their claims. The construction and maintenance of road by traditional Hot Mix Technology will result in increased environmental pollution and energy consumption. The alternative to this problem is is Cold Mix Technology with increased use of Bitumen Emulsion.
   - The developed product is tested in highways and gave good results interms of ease of use, cost and durability. The product is branded as "JNNCE pothole patching mix and made available in small bags.
3. **Impact it will create (including social impact, if any):**
   - The primary problems with cold asphalt materials can be poor workability in stockpile/storage and on road, moisture susceptibility as evidenced by raveling, stripping, poor stability and overall inconsistent behavior during mixing preparation and application.
   - The product will be useful to all Government agencies like NHAI, PWD, SH, and PMGSY, and organization campuses.

4. **Current Status of the Company/Start-up:**
   - At present, Department of Civil Engineering, JNNCE, Shivamogga is preparing mixes for in house use and for testing purposes. Efforts are on to collaborate with a marketing agency.
5. **Student team Details/Faculty Mentor:**

   1. Tejaswini
6. **Establishment date of the Company/Start-up/Commercialization:**
   - --NA--

Start-Up-211: None

1. **Name of the Company/ Start-up**: None
2. **Highlights of the Company/Start-up ;**

   Product Name: “Smart Irrigation Controller”
   - Due to uncontrolled irrigation & water management, Over or under watering the crops results in various crop and soil related issues which directly effects yield & profit margin of the farmer. Irregular power supply makes it difficult for farmers to irrigate & control their farms at nighttime. High investment to adopt the advanced technology in farming & irrigation leaves agriculture backward.
   - Introducing Indigenous IoT technology enabled smart irrigation controlling and micro - management system for farming with an indigenous control algorithms, methods, and sensors. The product developed automates and Micro-manages the irrigation system with Smart Valves and Multi-layer soil sensing ensuring the crops get the right amount of water at the right time.
3. **Impact it will create (including social impact, if any):**
   - The developed Smart Irrigation Controller helps farmers to control irrigation through mobile app. Farmers can control this without visiting fields and during nights. Due to timely irrigation improves yield and yield quality. There is also savings in electricity upto 20% and reduction in water consumption upto 30%.
4. **Current Status of the Company/Start-up:**

   At present, the product is marketed by Ekathva Innovations run by one of the mentor and team member Mr. Koushik Udupa who is JNNCE Alumni.

5. **Student team Details/Faculty Mentor:**
   1. V. N. Gokul Krishna
   2. Umesh Ramesh Hugger
   3. Kishan S. N.
6. **Establishment date of the Company/Start-up/Commercialization:**
   - --NA--
7. **One paragraph on the Company/Start-Up covering all the points.**
   - --NA--

Start-Up-212: None

1. **Name of the Company/ Start-up**: None
2. **Highlights of the Company/Start-up ;**

   Product Name: “Composite Pavements”
   - A new type of pavement has been developedwhich is also known as semi-flexible pavement, where the surface course comprises a semi-flexible material that has the potential to combine some of the best qualities of flexible and rigid pavements. This eliminates joints and provides long life and high bearing capacity. The composite pavements comprise hydraulically bound materials as base and the surface comprises bituminous material to offer the advantages of both flexible and rigid pavements and reduces the cost and maintainable of of road construction.
3. **Impact it will create (including social impact, if any):**
   - Road construction and rehabilitation is normally undertaken by the use of three main types of pavements: flexible, rigid and semi-rigid (or composite). Flexible pavements are characterized by their immediate serviceability, good riding quality and absence of joints. Rigid pavements have an increased bearing capacity and a longer life span when properly designed but by compromising with comfort of users. he developed provides good protection against water ingress to the foundation since it has an impermeable surface.
4. **Current Status of the Company/Start-up:**
   - At present, Department of Civil Engineering, JNNCE, Shivamogga is preparing pavements and tested for its strenghth and durability. The results are

promising to be a useful product. Efforts are on to collaborate with a marketing agency.

5. **Student team Details/Faculty Mentor:**

   1. Sricharan R

6. **Establishment date of the Company/Start-up/Commercialization:**

   - --NA--

7. **One paragraph on the Company/Start-Up covering all the points.**

   - --NA--

Start-Up-213: None

1. **Name of the Company/ Start-up**: None
2. **Highlights of the Company/Start-up ;**

   Product Name: “Solar Heat Exchanger Cooker”

   - The solar cooking system designs available in the market are in general not user friendly. They depend the on the intensity of sun light which varies throughout the day also not available in nights. The heat exchanger cooker utilizes hot water from solar water heater to reduce fuel consumption. This provides an eco-friendly solution for the increasing energy demand of the domestic kitchen in India.

3. **Impact it will create (including social impact, if any):**

   - The experimentation on heat exchangers has been successfully carried and results obtained shows about 40% savings in fuel costs. Efforts are underway to improve design and to collaborate with a marketing agency.

4. **Student team Details/Faculty Mentor:**

   1. Vittal Amarnath Kathare
   2. Tarunkumar S
   3. Vishwaradhya Prasdimath
   4. Vedashree N Gowda

5. **Establishment date of the Company/Start-up/Commercialization:**

   - --NA--

6. **One paragraph on the Company/Start-Up covering all the points.**

   - --NA--

Start-Up-214: None

1. **Name of the Company/ Start-up**: None
2. **Highlights of the Company/Start-up ;**

   Product Name: "*Areca Plate Making Machine*"

   - Areca plates, also known as betel nut plates, are biodegradable plates made from the areca palm tree's leaves. These plates are eco-friendly and are an excellent substitute for plastic and paper plates. The process of making these plates is time-consuming and requires a lot of labour. However, with the advancement in technology, areca plate machines have been developed, which make the process much faster and efficient. The machine developed helps in increasing the productivity of areca plate making.
3. **Impact it will create (including social impact, if any):**
   - As the developed machine's design is based on the user's requirements, it helps in process control in areca plate making and thus increases the productivity. The machine is cost-effective, environmentally friendly, and easy to operate and maintain. This aspect provides a competitive edge to the user of this machine.
4. **Current Status of the Company/Start-up:**
   - At present, the product is used and marketed by one of the areca plates making unit viz., Nirjara Sahavartimentor run by one of the mentors of the team Mr. Manoj G R who is JNNCE Alumni.
5. **Student team Details/Faculty Mentor:**

   1. Shashanth Shetty
   2. Mohammed Bilal K
6. **Establishment date of the Company/Start-up/Commercialization:**
   - --NA--
7. **One paragraph on the Company/Start-Up covering all the points.**
   - --NA--

Start-Up-215: None

1. **Name of the Company/ Start-up**: None
2. **Highlights of the Company/Start-up ;**

   Product Name: "*Areca Nut Dehusking Machine*"

   - The main objective was to develop a novel areca nut dehusking machine that will give good results compare to dehusking by manual methods using knifes and other existing instruments and/or machines. An important aspect of the proposed machine is that it emphasizes its suitability for dehusking variety of sizes of Areca nut. Further the drive systems components and its timings are designed in such a way that the areca nut will be oriented in horizontal position at the instant of dehusking process and thus cutter blade will peel the husk without damaging the nut or breaking the nut. Thus, rejection of nut will be minimized to the large extent and yield of the dehusked arecanut will increases.
3. **Impact it will create (including social impact, if any):**
   - Existing de-husking of areca nut is either labour intensive or it is by using various mechanisms that ever hampered the efficiency and quality of areca nut processing. In developing this machine care is taken to handle different sized and shaped arecanuts that ensures improved efficiency and high production rate of areca nut.
4. **Current Status of the Company/Start-up:**
   - At present, the product is used and marketed by Green Care Technologies & Engineering.
5. **Student team Details/Faculty Mentor:**

   1. Rahul M P
   2. Rahul N
   3. Sumukh Raj
   4. Preetham D
6. **Establishment date of the Company/Start-up/Commercialization:**
   - --NA--
7. **One paragraph on the Company/Start-Up covering all the points.**
   - --NA--

Start-Up-216: None

1. **Name of the Company/ Start-up**: None
2. **Highlights of the Company/Start-up ;**

   Product Name: “Areca Sheath Tempering Unit”

   - Areca sheath is a by product of areca cultivation. This biomass is a waste and in earlier days was thrown which subsequently leads its slow decomposition. This waste was found a great monetary value when there was need for replacement of plastic plates used for food consumption. Many operators started making plates from this sheath which are mostly exported. However, the storage of areca sheath requires a tempering process to mould it into required shape. High humidity and moisture level cause spoilage and fungal growth on the sheath. Hence a controlled environment contains automatic cooling and fogging system to control the humidity and moisture levels. Hence this attempt aimed at developing a unit that controls tempers the areca sheath and increases its shelf life.
3. **Impact it will create (including social impact, if any):**
   - The cooling and fogging system is effective in controlling the humidity and moisture levels of areca leaves in the controlled environment. The system maintains the desired temperature and humidity levels, which prevents fungal growth and spoilage of the leaves. This cooling system provides desired flexibility of areca sheath which makes comfortable for the workers who handles it. Reduction of water usage, Power consumption, labour, and cycle time.
4. **Current Status of the Company/Start-up:**
   - At present, the product is used and marketed by one of the areca plates making unit viz., Nirjara Sahavartimentor run by one of the mentors of the team Mr. Manoj G R who is JNNCE Alumni.
5. **Student team Details/Faculty Mentor:**

   1. Anup R Hegde
   2. Areeb Imtiaz Ahmed
6. **Establishment date of the Company/Start-up/Commercialization:**
   - --NA--
7. **One paragraph on the Company/Start-Up covering all the points.**
   - --NA--

18) Datta Meghe Institute of Medical Sciences, Wardha

Start-Up-217: Atmen Technovention Pvt. Ltd.

1. **Name of the Company/ Start-up**: Atmen Technovention Pvt. Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : Endotracheal tube obstruction monitoring Device

   Investment : Rs. 1,00,000

   Employment Generated :

   Commercialized or not : in process
3. **Impact it will create (including social impact, if any):**
   - Endotracheal tube obstruction monitoring Device will help in monitoring of critically ill patients and help save lives in ICUs by providing timely alerts to healthcare providers inturn saving lives.
4. **Current Status of the Company/Start-up:**
   - Active
5. **Student team Details/Faculty Mentor:**

   1. Ashutosh Dinanath Bagde
6. **Establishment date of the Company/Start-up/Commercialization:**

   13 February 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   Atmen Technovention Pvt. Ltd. is a start-up incorporated for the product Endotracheal tube obstruction monitoring device by Mr Ashutosh Dinanath Bagde on 13 February 2019

Start-Up-218: INNOQUIP Instruments LLP

1. **Name of the Company/ Start-up**: INNOQUIP Instruments LLP
2. **Highlights of the Company/Start-up ;**

   Product : Spine dhar yentra

   Investment : Rs. 6,00,000

   Employment Generated :

   Commercialized or not : in process
3. **Impact it will create (including social impact, if any):**
   - Automated Dhara Device for treatment and ayurvedic procedures
4. **Current Status of the Company/Start-up:** Active

5. **Student team Details/Faculty Mentor:**

   1. Devendra Yadaorao Shahare

6. **Establishment date of the Company/Start-up/Commercialization:**

   12 October 2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   - INNOQUIP Instruments LLP is a start-up incorporated for the product Spine dhar yantra by Mr Devendra Yadaorao Shahare on 12 October 2020

Start-Up-219: IRA Medical Technology Private Limited

1. **Name of the Company/Start-up**: IRA Medical Technology Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Device for sleep apnoea

   Investment : Rs. 2,00,000

   Employment generated :

   Commercialized or not :

3. **Impact it will create (including social impact, if any)**

   - It will provide a unique solution to patients suffering from sleep apnoea

4. **Current Status of the Company/Start-up**

   - Active

5. **Student team Details/Faculty Mentor:**

   1. Vikram Belkhode

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 31 August 2021

7. **One paragraph on the Company/Start-Up covering all the points.**

   - IRA Medical Technology Private Limited is a start-up incorporated for the product Device for sleep apnoea by Vikram Belkhode on 31 August 2021

Start-Up-220: Precisurg Private Limited

1. **Name of the Company/Start-up**: Precisurg Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Reusable and adjustable surgical cutting guide for fibula free flap surgery in Mandibular reconstruction

   Investment : Rs. 5,00,000

   Employment generated : 02

   Commercialized or not :
3. **Impact it will create (including social impact, if any)**
   - A Reusable and adjustable solution for mandibular reconstruction surgeries and will save precious surgical time & costs
4. **Current Status of the Company/Start-up**
   - Active
5. **Student team Details/Faculty Mentor:**

   1. Sandeep Dahake
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 24 July 2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Precisurg Private Limited is a start-up incorporated for the product Reusable and adjustable surgical cutting guide for FIBULA FREE FLAP SURGERY in mandibular reconstruction Sandeep Dahake on 24 Jul 2021

Start-Up-221: Visgenic Analytica LLP

1. **Name of the Company/Start-up**: Visgenic Analytica LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Smartphone enabled Urinary Tract Infection detection, using colorimetric Analysis of urine dipstick

   Investment : Rs. 1,00,000

   Employment generated : 01

   Commercialized or not :
3. **Impact it will create (including social impact, if any)**
   - It will be point of care invitro diagnostic device for UTI screening. It will help a lot of patients suffering from UTIs & related issues

4. **Current Status of the Company/Start-up**
   - Active
5. **Student team Details/Faculty Mentor:**

   1. Jayalakshmi Jayakumar
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 07 June 2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Visgenic analytica LLP is a start-up incorporated for the product Smartphone enabled Urinary Tract Infection detection, using colorimetric analysis of urine dipstick by Jayalakshmi Jayakumar on 07 June 2021

Start-Up-222: Humen Edutech LLP

1. **Name of the Company/Start-up**: Humen Edutech LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : An apparatus for facilitating Ultrasound based soft

   Investment : Rs. 01.00 Lakhs

   Employment generated :

   Commercialized or not :
3. **Impact it will create (including social impact, if any)**
   - The device will help physiotherapists to provide better treatment to the patients and better outcome
4. **Current Status of the Company/Start-up**
   - Active
5. **Student team Details/Faculty Mentor:**

   1. Waqar Naqvi
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 05 August 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Humen Edutech LLP is a start-up incorporated for the product an apparatus for facilitating Ultrasound based soft by Waqar Naqvi on 05 August 2021

Start-Up-223: Sindicolpo Private Limited

1. **Name of the Company/ Start-up**: Sindicolpo Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Portable handheld colcoscope

   Investment : Rs. 1,00,000

   Employment Generated :

   Commercialized or not : in process
3. **Impact it will create (including social impact, if any):**
   - Our device, the Indigenous Digital Colposcope, is hand held, can be used on any Android or IOS smartphone with required specifications, and is a portable, user-friendly, cost-effective device that gives accurate high-definition zoomed images of the cervix.
4. **Current Status of the Company/Start-up:**
   - Active
5. **Student team Details/Faculty Mentor:**

   1. Anupama Baburao Bhute
6. **Establishment date of the Company/Start-up/Commercialization:**

   29 July 2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - A revolutionary device in the detection of cervical cancer. Cost-effective. Sindicolpo, a handheld device, reduces manufacturing and production costs by a lot of margin. Unique Cervical Cancer screening. Our device enables a patient to have themselves diagnosed at the comfort of their homes.

19) Chitkara University, Rajpura

Start-Up-224: Intellights – 3D smart traffic light

1. **Name of the Company/ Start-up**: Intellights – 3D smart traffic light
2. **Highlights of the Company/Start-up ;**

   Product : Data Science based Intelligent Traffic Management System

   Investment : Rs. 25,00,000/-

   Employment generated : 4

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):**

   It will reduce traffic density at traffic signals, it will reduce pollution and it will generate useful data about automobiles that will be useful for the authorities (for implementing policies) as well as companies (for developing marketing strategies). For more information visit - https://newgeniedc.chitkara.edu.in/project/intelights-3d-smart-traffic-lights/

4. **Current Status of the Company/Start-up:**
   - They have deployed their product at many places in the field
   - Their product is already commercialized and they have funding.

5. **Student team Details/Faculty Mentor:**

   1. Gaurav Goyal
   2. Karamdeep Singh
   3. Rahul Goyal
   4. Hardeep Singh
   5. Karanveer Singh
   6. Rishabh Malra
   7. Sumit Kumar Patel

6. **Establishment date of the Company/Start-up/Commercialization**: 2019

7. **One paragraph on the Company/Start-Up covering all the points.**

   Anukai Solutions Private Limited is a promising start up mentored by Centre for Entrepreneurship Education & Development at Chitkara University. The startup was founded by the faculty of Chitkara University, Mr. Gaurav Goyal. The startup works in the domain of Urban Mobility for Smart Cities, and provides “Integrated Traffic Management & Road Infrastructure planning” solutions that not only help to decongest traffic but also provide high quality & real-time traffic movement insights to potential businesses. The startup has played a crucial role in reducing the average wait time of commuters at traffic signals by approximately 15%. Punjab state government has adopted the product developed by the startup and the systems are getting installed at different locations of Punjab. Currently, Anukai is at a growing stage where they have raised an investment from Pre-Series Funding, and will be completing installations of 8 nodes in Ludhiana, Punjab.

Start-Up-225: Two Decimal Pvt. Ltd.

1. **Name of the Company/ Start-up**: Two Decimal Pvt. Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : A Device for Generating Weather Forecast

   Investment : Rs. 25,00,000

   Employment generated : 3

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   It will help the farmers by predicting the rain in advance that way their crops will not go bad/waste as it will allow them to take preventing action. For more details visit-https://newgeniedc.chitkara.edu.in/project/bhugoal-predicting-moods-of-india/
4. **Current Status of the Company/Start-up:**
   - Their company is incubated in IIM Bangalore
   - They have won several awards, funding, recognition
5. **Student team Details/Faculty Mentor:**

   1. Rahul Kinra
   2. Kartik Vij
   3. Nitin Saluja
6. **Establishment date of the Company/Start-up/Commercialization:** 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   Too Decimal Private Limited provides precise weather monitoring at the local level. We augment traditional weather data sources by collecting millions of data points from multiple sources. Empowering people and businesses to outsmart weather events by planning and taking prior actions.To know more about us, write to us at support@toodecimal.com, Website: https://www.toodecimal.com

Start-Up-226: Dagriation Solutions Private Limited

1. **Name of the Company/ Start-up**: Dagriation Solutions Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : 2 Products – Paperless erasable magnetic braille slate and a portable braille device and intelligent urea spreading machine

   Investment : Rs. 7,00,000/-

   Employment generated : 2

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**

   An education kit for visually impaired children to learn and get educated. For more details visit - https://newgeniedc.chitkara.edu.in/project/briltab-edukit-1/

   Limited or essential use of urea in the agriculture fields in controlled manner, less health hazards. For more details visit - https://newgeniedc.chitkara.edu.in/project/intelligent-urea-spreading-machine/
4. **Current Status of the Company/Start-up:**
   - They presented their learning kit product at the United Nations Technology Innovation Labs, New Delhi
   - They have won several competitions and received funding offers from several places including - Ingenuity 2018 China
5. **Student team Details/Faculty Mentor:**

   1. Virender Kadyan
   2. Puneet Bawa
   3. Gourav
6. **Establishment date of the Company/Start-up/Commercialization:** 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   Dagriation Solutions Private Limited works in the area of developing innovative electronics products for variety of applications in the fields of agritech and edtech. Their “Briltab Edukit-1” signifies innovating an electronic and advanced device that can be utilised by visually impaired children and their surrounding community to ensure inclusive and equitable quality education. It promotes lifelong learning opportunities. And their Intelligent Urea Spreading Machine’ is a product focused on the structuring and manufacturing of fertiliser spreaders. It

uses image recognition to detect the presence of green crops and initiates spraying of the fertiliser from the electronic device.

Start-Up-227: Ramanuj Technologies Pvt. Ltd.

1. **Name of the Company/ Start-up**: Ramanuj Technologies Pvt. Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : Video Laryngyoscope

   Investment : Rs. 1,00,000

   Employment generated : 1

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**

   A video laryngoscope improves the laryngeal view as compared to direct laryngoscopy in patients with suspected difficult intubation and simulated difficult airway scenarios. Video laryngoscopy is easy to use for both beginners and experienced anesthesiologists. This device can store video information on the Google Cloud for future references, and video can be seen from a remote location during intubation. Visit https://newgeniedc.chitkara.edu.in/project/video-laryngoscope/ for more details
4. **Current Status of the Company/Start-up:**
   - They are developing a lot medical assistive products with support from medical experts. But they are yet to reach the commercialization stage.
5. **Student team Details/Faculty Mentor:**

   1. Amit Sundas
   2. Rajesh Kaushal
   3. SN Panda
6. **Establishment date of the Company/Start-up/Commercialization:** 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   Ramanuj Technologies Pvt. Ltd is a Chitkara University incubated and mentored startup working on Healthcare Innovation for a better tomorrow. They work in the area of developing smart IoT based assistive medical devices.

Start-Up-228: 6DOF Solutions Pvt. Ltd.

1. **Name of the Company/ Start-up**: 6DOF Solutions Pvt. Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : Learn-o-Little – AR/VR based learning kit for Kindergarten kids

   Investment : Rs. 7,00,000/-

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   Learn-O-Little is an interactive learning kit for kindergarten kids to help them learn the alphabet, word building and practice various interactive quizzes. It enables all round learning for kindergarten kids, will increase their curiosity and interest in the subjects. For more details visit - https://newgeniedc.chitkara.edu.in/project/learn-o-little/
4. **Current Status of the Company/Start-up:**
   - They have more than one product in Edtech, which have been commercial-ized.
5. **Student team Details/Faculty Mentor:**

   1. Neha Tuli
6. **Establishment date of the Company/Start-up/Commercialization:** 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Neha Tuli - Founder of 6DOF Solutions Pvt. Ltd. (an EdTech startup) incubated by Chitkara University, Punjab, was honoured with the prestigious 'Women Entrepreneur of the year' award by Software Technology Parks of India, Mohali & TIECON 2022 at its Annual STPI Awards 2022 . 6DOF Solutions Pvt. Ltd. provides immersive tech solutions for the EdTech industry using technologies like Augmented Reality and Virtual Reality. The startup is supported by Chitkara Innovation Incubation Foundation(CIIF) with a MEITY TIDE 2.0 grant support of INR 7 lakhs.

Start-Up-229: Dream Deor Pvt.Ltd.

1. **Name of the Company/ Start-up**: Dream Deor Pvt.Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : HyperSpace – AR based mathematics teaching platform

   Investment : Rs. 1,00,000/-

   Employment generated : 0

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**

   Augmented Reality gives a three-dimensional free view of mathematical functions for better understanding, while Virtual Reality can be used for visualising non-Euclidean dimension because there are no limitations of the spaces created in it. For more details visit - https://newgeniedc.chitkara.edu.in/project/hyperspace/
4. **Current Status of the Company/Start-up:**
   - It was an Edtech based start-up
5. **Student team Details/Faculty Mentor:**

   1. Gurwinder Singh
   2. Shivam Dhall
6. **Establishment date of the Company/Start-up/Commercialization:** 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Dream Deor Pvt. Ltd. was working toward developing AR/VR based Edtech solutions. They developed a visualisation kit in Augmented Reality and Virtual Reality of complex mathematical concepts such as Linear Algebra, Differential Calculus, Knot theory and Hyperspace geometry. Our focus is on graduate and postgraduate students, converting applied mathematics from computation to visualisation.

Start-Up-230: 80 Wash LLP

1. **Name of the Company/ Start-up**: 80 Wash LLP
2. **Highlights of the Company/Start-up ;**

   Product : The PIED PIPER

   Investment : Rs. 10,00,000+

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   It will be an ideal tool for industrial environment like hotels, restaurants, warehouses, etc. for automatic removal of rodents in humanely and touchless manner. For more details visit - https://newgeniedc.chitkara.edu.in/project/the-pied-piper-lure-the-rats-away-smartly/
4. **Current Status of the Company/Start-up:**
   - The start-up is currently building many such utility products for the industrial environment.
   - They have won several grants and competitions to raise funding, including DST sponsored IICDC Conclave.
5. **Student team Details/Faculty Mentor:**

   1. Rouble Gupta
   2. Nitin Saluja
6. **Establishment date of the Company/Start-up/Commercialization:** 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   80wash Llp is a Limited Liability Partnership firm incorporated on 11 March 2021. Two of its major products include – 1) A MOUSE TRAP **-** Rats are responsible for 40% of disease transmission in developing countries. Pied-Piper is a trending patented trap, which is completely free from human touch, with its AI-based autonomous traveling to dump rats/mice outside at specified places. Pied-Piper traps multiple rats at once. E-Pinjra is also termed “The Piped Piper.”, 2) The waterless 80-wash transforms the 3-star hotels/salons/hospitals to 7-star hotels/salons/hospitals business. The technology is economical than the normal laundry. The machine is affordable to 3-star businesses and reduces the cost for 5-star and 7-star businesses. The real magic of 80-wash can be seen by using it.

Start-Up-231: M/s. Atma Singh Commission Agent

1. **Name of the Company/ Start-up**: M/s. Atma Singh Commission Agent
2. **Highlights of the Company/Start-up ;**

   Product : Grain Paddy Dryer

   Investment : Rs. 10,00,000+

   Employment generated : 5

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**

   Reduces moisture content of the harvested crops in the fields itself, less losses to the farmers, higher yield, etc. For more details visit - https://newgeniedc.chitkara.edu.in/project/grain-paddy-dryer/
4. **Current Status of the Company/Start-up:**
   - They have developed a prototype of a grain drying machine, which they are waiting to commercialise with industry support.
5. **Student team Details/Faculty Mentor:**

   1. Gurasees Singh

   2. K Z Molla
6. **Establishment date of the Company/Start-up/Commercialization:** 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   M/s. Atma Singh Commission Agent was started as a commission agent firm in grain market by Gurasees Singh, who is also a Mechanical Engineer from Chitkara University. Looking at a problem of grain drying, he has developed a grain drying machine with support from NewGen IEDC, which he is waiting to commercialise with support from an industry partner. He is on a look out for an industry partner.

Start-Up-232: Farsight Innovations Pvt. Ltd.

1. **Name of the Company/ Start-up**: Farsight Innovations Pvt. Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : Driving Test Simulator

   Investment : Rs. 1,00,000/-

   Employment generated : 0

   Commercialized or not : No

3. **Impact it will create (including social impact, if any):**

   Learning driving through VR technology before driving on roads. Convenient for both learners and ensures road safety. For more details visit, https://newgeniedc.chitkara.edu.in/project/driving-test-simulator/

4. **Current Status of the Company/Start-up:**

   - The start-up is currently in its initial stage, looking to commercialize its first product.

5. **Student team Details/Faculty Mentor:**

   1. Shivam Sharma
   2. Archana Mantri

6. **Establishment date of the Company/Start-up/Commercialization:** 2022

7. **One paragraph on the Company/Start-Up covering all the points.**

   Farsight Innovations Pvt. Ltd. is a newly established company, which is committed to develop AR/VR based solutions for variety of applications. Their first product, which they intend to commercialise is A DRIVING TEST SIMULATION APPARATUS - The proposed idea is a VR (Virtual Reality) – based Driving Test Simulator. The application will be installed on an Android device and used together with a virtual reality headset. The simulator includes a custom-made steering wheel and pedals (including accelerator and brake) for interaction in the VR environment. The user will drive the car in a virtual 3D city environment where he/ she will encounter real-life challenges, different road conditions, traffic signs, and signals. Evaluation will be conducted based on the users' responses and their efficiency in following traffic rules. The proposed solution would help us examine the necessary skills required to ensure a safe driving experience.

Start-Up-233: Active WTR Wellness Beverage LLP

1. **Name of the Company/ Start-up**: Active WTR Wellness Beverage LLP
2. **Highlights of the Company/Start-up ;**

   Product : ACTIVECAP- Stay Active be Healthy

   Investment : Rs. 1,00,000/-

   Employment generated : 3

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   The product has a potential to revolutionize the beverage packaging industry. For more details visit, https://newgeniedc.chitkara.edu.in/project/activecap-stay-active-be-healthy/
4. **Current Status of the Company/Start-up:** They are currently trying to get beverage packaging as well as beverage manufacturing industries interested in their product, which is commercially available in the market today.
5. **Student team Details/Faculty Mentor:**

   1. Pintu Kumar
   2. Anshej Kaushik
6. **Establishment date of the Company/Start-up/Commercialization**: 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Active Wtr Wellness Beverage LLP is a Jharkhand based Manufacture of food products and beverages company. The company's vision is to create the best infusion cap technology in the world. Using its unique solutions, Activecap assists other companies in a variety of industries in expanding their product lines and generating growth. It is a revolutionary method of storing and protecting vital ingredients until they are consumed.

Start-Up-234: Murph Technologies Private Limited

1. **Name of the Company/ Start-up**: Murph Technologies Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Driverless Vehicle

   Investment : Rs. 7,00,000/-

   Employment generated : 4

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):**

   The final product is going to be an indigenous unmanned vehicles that could be used at Chitkara University. The car will be capable of making a map of its surroundings using a LIDAR sensor. The model will be electrically operated and have a speed of 12 kmph. Based on GPS, the vehicle will have its own geographical database. The car will be programmed to follow traffic light signals and traffic signs using image processing and artificial intelligence. For more details visit, https://newgeniedc.chitkara.edu.in/project/activecap-stay-active-be-healthy/

4. **Current Status of the Company/Start-up:**
   - The start-up has transformed itself into robotic kits development and educational kits (based on embedded systems) Development Company.
   - They have commercialized this product as a robotic development kit.
5. **Student team Details/Faculty Mentor:**

   1. Karan Aggarwal
   2. Gurpreet Singh
6. **Establishment date of the Company/Start-up/Commercialization: 2022**
7. **One paragraph on the Company/Start-Up covering all the points.**

   Murph Technologies Private Limited is an Ambala, Haryana based start-up that deals in embedded system educational kits for schools and colleges. They work on Arduino, Raspberry PI and other open source embedded system platforms for development of robotic as well as embedded kits.

Start-Up-235: SUSTAINERGIC TECH Private Limited

1. **Name of the Company/ Start-up**: SUSTAINERGIC TECH Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Hybrid Tea Brewer

   Investment : Rs. 7,00,000/-

   Employment generated : 4

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**

   Tea is one of the most traditional beverages in India. This hot beverage is a regular entertainer, a source of living, a refreshing drink, an excuse for

discussions, a part of Indian culture, and a household hospitality tradition. Now the tea has many flavours based on the addition of Indian herbs during its preparation. In India, there is no machine available that can provide tasty and hygienic brewed tea. We are developing a smart tea/coffee brewer that works on both electrical energy and solar energy. For more details, visit - https://newgeniedc.chitkara.edu.in/project/hybrid-tea-brewer/

4. **Current Status of the Company/Start-up:**
   - The company's portfolio is quite wide and diverse. The Hybrid Tea Brewer is one of the products, which they are going to commercialize soon.
5. **Student team Details/Faculty Mentor:**
   1. Meena Pundir
   2. Prateek Srivastava
6. **Establishment date of the Company/Start-up/Commercialization: 2021**
7. **One paragraph on the Company/Start-Up covering all the points.**

   Sustainergic Tech Pvt. Ltd. is a sustainability advisory firm, focused in sustainable technologies and green buildings. Sustainergic Tech can manage the complete project from initial feasibility investigations, concept development, preliminary planning, and preparation of client brief, preparation of specification, energy efficient building design, green building certification, energy simulation, day light simulations, drawings and contract documentation, procurement of equipment, validating testing, commissioning and energy audit. Sustainergic Tech is one stop solution for all advance HVAC design and development, low energy cooling systems, radiant cooling system, customized vapor absorption machines (VAM), psychrometric chamber, and centralized air conditioning plant optimization, HAVC labs for research.

Start-Up-236: Hanuven Healthcare Products Private Limited

1. **Name of the Company/ Start-up**: Hanuven Healthcare Products Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Dequani – Counterfeit Detector

   Investment : Rs. 1,00,000/-

   Employment generated : 1

   Commercialized or not : No

3. **Impact it will create (including social impact, if any):**

   The technology can be very effective in large scale detection of fake products. It can be very useful in today's e-commerce scenario. For more details visit, https://newgeniedc.chitkara.edu.in/project/dequani/.

4. **Current Status of the Company/Start-up:**
   - This start-up develops healthcare products and they themselves are going to utilize this technology of Dequani – Counterfeit Detector, to prevent the counterfeiting of their products.

5. **Student team Details/Faculty Mentor:**

   1. Mohit Chachra
   2. Ishika Garg
   3. Sujeet Yadav

6. **Establishment date of the Company/Start-up/Commercialization**: 2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   The company aims at bringing back our rich traditional values into reality for solving modern problems by developing healthcare products based on Ayurveda. They are going to utilize this technology of Dequani – Counterfeit Detector, to prevent the counterfeiting of their products.

Start-Up-237: GDPUNRAK Solutions Private Limited

1. **Name of the Company/ Start-up**: GDPUNRAK Solutions Private Limited

2. **Highlights of the Company/Start-up ;**

   Product : Portable Heat Treatment and Muffle Furnace

   Investment : Rs. 1,00,000/-

   Employment generated : 4

   Commercialized or not : No

3. **Impact it will create (including social impact, if any):**

   This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc. For more details visit, https://newgeniedc.chitkara.edu.in/project/portable-heat-treatment-and-muffle-furnace/

4. **Current Status of the Company/Start-up:**
   - They are currently developing the prototype.

5. **Student team Details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Establishment date of the Company/Start-up/Commercialization: 2023**
7. **One paragraph on the Company/Start-Up covering all the points.**

   It is a new company and they are establishing themselves. Portable Heat Treatment and Muffle Furnace is their first product that they are developing. Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.

Start-Up-238: Core Idea Innovations Private Limited

1. **Name of the Company/ Start-up**: Core Idea Innovations Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Virtual Reality Based Home Eye Testing Device for measuring spectacle power of the eye virtual reality based home eye testing device for measuring spectacle power of the eye

   Investment : Rs. 20,00,000/-

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   It will give a privilege of eye testing to countless people living in rural areas. For more details, visit https://newgeniedc.chitkara.edu.in/project/virtual-reality-based-home-eye-testing-device-for-measuring-spectacle-power-of-the-eye/
4. **Current Status of the Company/Start-up:**
   - Their product is in the pilot stage.
5. **Student team Details/Faculty Mentor:**
   1. Maheswari Srinivasan
   2. Arshdeep Kaur
   3. Keerti Bhusan Pradhan

6. **Establishment date of the Company/Start-up/Commercialization**: 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   There are only 12000 ophthalmologists in India, for a population of 136 crore. In some of the rural areas of India, there are no eye care facilities. Hence, a device for tele-eye consultation and tele-eye testing was required. Our innovation is a virtual reality-based device that can connect clinicians and patients through cloud systems. The device tests the spectacle power of the eye and sends the prescription remotely. It helps the patients reach out to the ophthalmologists easily across countries.

Start-Up-239: Powered Electron Private Limited

1. **Name of the Company/ Start-up**: Powered Electron Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Schottky Junction Printable Solar Cell

   Investment : Rs. 7,00,000/-

   Employment generated : 4

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**

   The flexible solar cells will be used in a variety of applications, especially wearable electronics, in future. For more details, visit https://newgeniedc.chitkara.edu.in/project/schottky-junction-printable-solar-cell/
4. **Current Status of the Company/Start-up:**
   - Their product is in testing and validation.
5. **Student team Details/Faculty Mentor:**

   1. Nikhil Shrivastav
   2. Rahul Pandey
   3. Jaya Madan
6. **Establishment date of the Company/Start-up/Commercialization: 2021**
7. **One paragraph on the Company/Start-Up covering all the points.**

   Powered Electron is an Indian Solar Power Company registered under the MCA, Government of India. Our company is at the prototyping stage where we are currently performing an R&D on a new concept, idea and technology for Printable Solar Cells & Modules.

Start-Up-240: GFF Innovations Private Limited

1. **Name of the Company/ Start-up**: GFF Innovations Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Rodent Surgical Table

   Investment : Rs. 10,00,000/- plus

   Employment generated : 4

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):** Rodent surgical tables are used for animals' examinations or surgeries by a veterinary surgeon or pre-clinical researchers. It is important to provide an accurate position and height of the working table for surgery with proper temperature regulation, which enables the veterinarian to be in a precise position rather than kneeling or crouching to treat the animal on the floor. For more details, visit https://newgeniedc.chitkara.edu.in/project/rodent-surgical-table/
4. **Current Status of the Company/Start-up:**
   - The company has a diverse portfolio of products for variety of applications. Most of their products are based on smart (sensors oriented) machineries to overcome inefficient practices of traditional methods.
5. **Student team Details/Faculty Mentor:**

   1. Nikhil Garg
   2. Onkar Bedi
   3. Thakur Gurjeet Singh
6. **Establishment date of the Company/Start-up/Commercialization: 2018**
7. **One paragraph on the Company/Start-Up covering all the points.**

   Microwave are bad for health. We use the badness to kill the bads. Do you believe in magic? We believe in it and have created magical machines. You write to us to know more

   i. Can you deliver the drugs to IV without piercing the skin. We deliver the insulin without injections or oral deliveries. ii. We can kill the weeds in your garden without chemical weedicides iii. We instantly convert your wet waste/industrial waste/agriculture waste into dried powder which you can use for multiple purposes. iv. We wash your clothes without water.

   Website - http://www.gffinnov.com

20) Mar Ephraem College of Engineering & Technology, Elavuvilai

Start-Up-241: **Semi Auto Tea-Enterprise**

1. **Name of the Company/ Start-up**: Semi Auto Tea-Enterprise
2. **Highlights of the Company/Start-up ;**

   Product : TeaMaker Machine

   Investment : Rs. 4,00,000

   Employment generated : 04

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Productivity & taste of the tea is increase, thus the profit of business is improved
4. **Current Status of the Company/Start-up:**
   - We registered in MSME, Currently 4 employees were working.
   - The generated income is enough to give the salary for the workers, Now we are planning to update The company with advanced machineries. And planning to employ 8 staffs.
5. **Student team Details/Faculty Mentor:**

   1. Mr. Alphin
6. **Establishment date of the Company/Start-up/Commercialization:**

   08 Jan 2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   We manufacture the Tea making machine. The tea blending machine creates Productivity & taste of the tea is increase, thus the profit of business is improved. Productivity & taste of the tea is increase, thus the profit of business is improved. Our targeted customers are tea shops and Hotels.

Start-Up-242: Future Tech

1. **Name of the Company/ Start-up**: Future Tech
2. **Highlights of the Company/Start-up ;**

   Product : Future Tech

   Investment : Rs. 1,00,000

   Employment generated : 04

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - This system will give economic benefits to the farmers by reducing the feeding cost, Manual intervention and also it will increase the green fodder yield and reduce the expense of fodder production by one third, thus creating the profit.
   - This system will help to reduce the requirement of cattle rearing grass land.
   - Using this system the farmer can able to provide high nutrient green fodder will maintain the health of the cattle and increase the yield, hence fetching more income to the farmers.
   - Cattle rearing are made possible even for small land holders.
4. **Current Status of the Company/Start-up:**
   - We registered in MSME, Currently 3 employees were working.
   - The generated income is enough to give the salary for the workers. Now we are planning to update The company with advanced machineries. And planning to employ more staffs.
5. **Student team Details/Faculty Mentor:**

   1. Mr. Aromal Vijay
   2. Mr. Abin T Wilson
6. **Establishment date of the Company/Start-up/Commercialization:**

   23 Jan 2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   IT is like a domestic cattle farming system as the farmers feel that it is a profitable. The main challenges of cattle farming is grass collection, feeding the cattle, washing the cattle's and cleaning its shed. The product of automated hydroponics cattle feeder system will help to rectify the above said challenges. Automated hydroponics cattle feeder system is a interdisciplinary project which applies Science and Technology for the easiness of feeding the cattle in farms.

Start-Up-243: ELECTRICCA

1. **Name of the Company/ Start-up**: ELECTRICCA
2. **Highlights of the Company/Start-up ;**

   Product : Lithium Battery

   Investment : Rs. 1,00,000

   Employment generated : 03

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Our products are affordable and long lasting, thus more customers prefer our products
4. **Current Status of the Company/Start-up:**
   - We registered in MSME, filing GST. Currently 3 employees were working.
   - The generated income is enough to give the salary for the workers, thus the company is no profit/loss stage. Successfully completed a year. Now we are planning to update the company with advanced machineries. And planning to employ eight staff. So we are trying for a loan amount of 500000/-.
5. **Student team Details/Faculty Mentor:**

   1. Mr. Jijin Raj
6. **Establishment date of the Company/Start-up/Commercialization:**

   15 April, 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   We manufacture the battery for house hold appliances to Electric vehicles. We provide sales distribution and customer service in all over India, through online and offline mode.

Start-Up-244: Smart Cosc Me Pvt. Ltd.

1. **Name of the Company/ Start-up**: Smart Cosc Me Pvt. Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : Coconut Scrubber and milk Extractor

   Investment : Rs. 2,00,000

   Employment generated : 03

   Commercialized or not : No

3. **Impact it will create (including social impact, if any):**
   - Our products are affordable and long lasting ,thus more customers prefer our products
4. **Current Status of the Company/Start-up:**
   - We registered in MSME. Currently 3 employees were working.
   - The generated income is enough to give the salary for the workers, thus the company is no profit/loss stage. Successfully completed a year. Now we are planning to update. The company with advanced machineries. And planning to employ 5 staffs. So we are trying for a loan amount of 500000/-.
5. **Student team Details/Faculty Mentor:**

   1. Mr. Sajan
6. **Establishment date of the Company/Start-up/Commercialization:**

   15 April 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   We manufacture the battery for house hold appliances to Electric vehicles. We provide sales distribution and customer service in all over India, through online and offline mode.

Start-Up-245: JB Smart Irrigations Pvt. Ltd

1. **Name of the Company/ Start-up**: JB Smart Irrigations Pvt. Ltd
2. **Highlights of the Company/Start-up ;**

   Product : Smart Solutions for Agro Practices

   Investment : Rs. 80,000

   Employment generated : 02

   Form No : AA13598023

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**
   - Our products are affordable and long lasting ,thus more customers prefer our products.
4. **Current Status of the Company/Start-up:**
   - We registered as private limited, currently 2 employees were working.

- The generated income is enough to give the salary for the workers, thus the company is no profit/loss stage. Successfully completed a year. Now we are planning to update.
- The company with advanced machineries. And planning to employ 5 staffs. So we are trying for a loan amount of 500000/-.

5. **Student team Details/Faculty Mentor:**

   1. Abi Jashiya J

6. **Establishment date of the Company/Start-up/Commercialization:**

   11 March 2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   Smart solutions for agro practices (Single owner)

Start-Up-246: AJP Automations Pvt. Ltd

1. **Name of the Company/ Start-up**: AJP Automations Pvt. Ltd
2. **Highlights of the Company/Start-up ;**

   Product : Automations in agriculture sector, Separation of value added products, Manufacturing of smart equipment's.

   Investment : Rs. 1,00,000

   Employment generated : 02

   Form No : AA1359666

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**
   - AJP Automation focuses on developing automation related products and smart equipment which would make the life easier.
4. **Current Status of the Company/Start-up:**
   - We registered as private limited, currently 2 employees were working.
   - The generated income is enough to give the salary for the workers, thus the company is no profit/loss stage. Successfully completed two year. Now we are planning to update the company with advanced machineries. And planning to employ 6 staffs. So we are trying for a loan amount of 500000.
5. **Student team Details/Faculty Mentor:**

   1. Ms. Ajisha

6. **Establishment date of the Company/Start-up/Commercialization:**
   22 February 2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   Automations in agriculture sector, Separation of value added products, Manufacturing of smart equipment's.

Start-Up-247: Gracious Electronics Pvt. Ltd

1. **Name of the Company/ Start-up**: Gracious Electronics Pvt. Ltd
2. **Highlights of the Company/Start-up ;**
   Product : Separation of value added products, Manufacturing of smart equipment's.
   Investment : Rs. 1,00,000
   Employment generated : 00
   Form No. : AA13593623
   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**
   - This startup created home automation and smart electronic gadgets which would make the life easier.
4. **Current Status of the Company/Start-up:**
   - We registered as private limited, currently 1 employee were working.
   - The generated income is enough to give the salary for the workers, thus the company is no profit/loss stage. Now we are planning to update the company with advanced machineries. And planning to employ 4 staff. So we are trying for a loan amount of 100000.
5. **Student team Details/Faculty Mentor:**
   1. Ms. Anisha V
6. **Establishment date of the Company/Start-up/Commercialization:**
   22 February 2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   Separation of value added products, Manufacturing of smart equipment's

Start-Up-248: JT Nutri culture Pvt. Ltd

1. **Name of the Company/ Start-up**: JT Nutri culture Pvt. Ltd
2. **Highlights of the Company/Start-up ;**

   Product : Nutri Test

   Investment : Rs. 1,00,000

   Employment generated : 01

   Form No. : AA1359956

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**
   - This startup produce automation related and smart electronics with special concentration on Agriculture
4. **Current Status of the Company/Start-up:**
   - We registered as private limited, currently 1 employee were working.
   - The generated income is enough to give the salary for the workers, thus the company is no profit/loss stage. Successfully completed a year. Now we are planning to update the company with advanced machineries. And planning to employ 8 staff. So we are trying for a loan amount of 100000.
5. **Student team Details/Faculty Mentor:**

   1. Mr. Siva Kumar
6. **Establishment date of the Company/Start-up/Commercialization:**

   22 February 2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   Separation of value added products, Manufacturing of smart equipment's

Start-Up-249: GO BYTES LLP

1. **Name of the Company/ Start-up**: GO BYTES LLP
2. **Highlights of the Company/Start-up ;**

   Product :

   Investment : Rs. 1,00,000

   Employment generated : 02

   Form No. : M27657627

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):** NA

4. **Current Status of the Company/Start-up:**
   - Name approval under Process.
5. **Student team Details/Faculty Mentor:**

   1. Mr. Shine
6. **Establishment date of the Company/Start-up/Commercialization:**

   22 February 2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   Separation of value added products, Manufacturing of smart equipment's.

Start-Up-250: JF Heritage Pvt. Ltd.

1. **Name of the Company/ Start-up**: JF Heritage Pvt. Ltd.
2. **Highlights of the Company/Start-up ;**

Product	: Coconut Deshelling and Grating Ma
Investment	: Rs. 1,00,000
Employment generated	: 01
Form No.	: AA1359535
Commercialized or not	: No

3. **Impact it will create (including social impact, if any):**
   - The startups created a smart coconut deshelling machine which would ease the process of coconut deshelling
4. **Current Status of the Company/Start-up:**
   - We registered as private limited, currently 1 employee was working.
   - The generated income is enough to give the salary for the workers, thus the company is no profit/loss stage. Successfully completed a year. Now we are planning to update the company with advanced machineries. And planning to employ 3 staffs.
5. **Student team Details/Faculty Mentor:**

   1. Mr. Muhammed Fazil
6. **Establishment date of the Company/Start-up/Commercialization:**

   22 February 2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   Separation of value added products, Manufacturing of smart equipment's

Start-Up-251: JTR Fibers Pvt. Ltd

1. **Name of the Company/ Start-up**: JTR Fibers Pvt. Ltd
2. **Highlights of the Company/Start-up ;**

   Product : JTR Fibers

   Investment : Rs. 1,00,000

   Employment generated : 01

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**
   - Our products are affordable and long lasting , thus more customers prefer our products
4. **Current Status of the Company/Start-up:**
   - We registered as private limited, currently 1 employee was working.
   - The generated income is enough to give the salary for the workers, thus the company is no profit/loss stage. Successfully completed a year. Now we are planning to update the company with advanced machineries. And planning to employ 85staffs. So we are trying for a loan amount of 1,00,000.
5. **Student team Details/Faculty Mentor:**

   1. Mr. Arun Lijo
6. **Establishment date of the Company/Start-up/Commercialization:**

   22 February 2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   Separation of value added products, Manufacturing of smart equipment's

Start-Up-252: G-STICK

1. **Name of the Company/ Start-up**: G-STICK
2. **Highlights of the Company/Start-up ;**

   Product : G-Stick: A smart Guide Stick for blind with navigation Support

   Investment : Rs. 2,50,000

   Employment generated : 01

   Commercialized or not : No

3. **Impact it will create (including social impact, if any):**
   - Our products are affordable and long lasting , thus more customers prefer our products
4. **Current Status of the Company/Start-up:**
   - Waiting for Company Name approval.
5. **Student team Details/Faculty Mentor:**

   1. Mr. Anton James
6. **Establishment date of the Company/Start-up/Commercialization:**

   In Process
7. **One paragraph on the Company/Start-Up covering all the points.**

   The project proposed the design and architecture of a new concept of G-STICK for blind people. The blind stick proposed in this project can aid the visually impaired user by helping him/her navigate through different terrains and obstacles. The advantage of the system lies in the fact that it can prove to be very fast response solution to millions of blind persons worldwide. The proposed combination of various working units makes a real-time system that monitors positions of the user and provide feedback navigation more safe and secure

Start-Up-253: S-Cart Private Ltd.

1. **Name of the Company/ Start-up**: S-Cart Private Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : G S-Cart – Solar Dhobi Cart

   Investment : Rs. 50,000

   Employment generated : 01

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Solar cart for dhobi people
4. **Current Status of the Company/Start-up:**
   - Waiting for Company Name approval.
5. **Student team Details/Faculty Mentor:**

   1. Ms. Jerlin Prabha
6. **Establishment date of the Company/Start-up/Commercialization:**

   In Process

7. **One paragraph on the Company/Start-Up covering all the points.**
    - Dhobi cart is designed with features like automatic rain guard, sliding chair, storage decks for clothes.
    - Automatic rain guard is implemented to detect the continuous rain level and operates automatically.
    - Handle with lever arrangement and braking is designed for easy angular motion control

Start-Up-254: S-Patio Private Ltd

1. **Name of the Company/ Start-up**: S-Patio Private Ltd
2. **Highlights of the Company/Start-up ;**

    Product : S- Patio: A Portable Solar Power Harvesting Unit

    Investment : Rs. 50,000

    Employment generated : 01

    Commercialized or not : No
3. **Impact it will create (including social impact, if any):**
    - Makes trekking easier
4. **Current Status of the Company/Start-up:**
    - Waiting for Company Name approval.
5. **Student team Details/Faculty Mentor:**

    1. Ms. Lafni
6. **Establishment date of the Company/Start-up/Commercialization:**

    In-Process
7. **One paragraph on the Company/Start-Up covering all the points.**
    - Flexible Solar panel is integrated which can capture solar energy during outdoor camps.
    - Patio designed for compact, and easy to carry, making them ideal for backpackers who need a portable shelter during multi-day trips

Start-Up-255: SS Sign Private Ltd.

1. **Name of the Company/ Start-up**: SS Sign Private Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : Sign language recognition with Machine learning

   Investment : Rs. 45,000

   Employment generated : 01

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**
   - Helps the people who are visually challenged
4. **Current Status of the Company/Start-up:**
   - Waiting for Company Name approval.
5. **Student team Details/Faculty Mentor:**

   1. Ms. Sham Nijin S
6. **Establishment date of the Company/Start-up/Commercialization:**

   In-Process
7. **One paragraph on the Company/Start-Up covering all the points.**

   The project addresses the challenges faced by sign language users in maintaining a seamless flow of communication with individuals who rely on spoken language. Traditionally, these two communities have experienced difficulties in understanding each other due to the differences in their respective communication methods. This recognition application offers a technological solution to this problem, enabling effective communication between sign language and spoken language users.

Start-Up-256: Azolla Aswin Private Ltd

1. **Name of the Company/ Start-up**: Azolla Aswin Private Ltd
2. **Highlights of the Company/Start-up ;**

   Product : IoT based Smart Azolla Bed

   Investment : Rs. 1,20,000

   Employment generated : 01

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**
   - Helps the production of Azolla as a natural feed

4. **Current Status of the Company/Start-up:**
   - Waiting for Company Name approval.
5. **Student team Details/Faculty Mentor:**

   1. Ms. L. Mersheba Fred
6. **Establishment date of the Company/Start-up/Commercialization:**

   In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Azolla possesses the desired qualities of a green manure crop, likequick growth, large biomass production, higher nitrogen content, and easy decomposability in the soil. However, Azolla cultivation is a labor-intensive technology, Smart Azolla Bed can change the intensive pressure on farmers.
   - We are have used vibration and shock technology to impair the snail and emancipate the plant from the snail. Every 15 minutes it will vibrate for 30 seconds. A concrete vibrator with needle is used to vibrate the azolla bed. The set-up is done using the required components including relay driver and wires. The program is uploaded to Node MCU and it acts accordingly.
   - Temperature sensor is used to detect the temperature of water and is monitored using a blynk software. And using a temperature sensor the temperature of water is checked all time and if the temperature exceeds 40 degree Celsius, alarm sound will be heard and the people responsible for the care of azolla does necessary arrangements which will help the azolla to grow in a healthy environment..

21) Nehru Institute of Engineering & Technology, Coimbatore

Start-Up-257: Orbcrux

1. **Name of the Company/Start-up**: Orbcrux
2. **Highlights of the Company/Start-up;**

Product	: Soap Water Filtration System
Investment	: Rs. 2,00,000/
Employment generated	: 02
Commercialized or not	: Under Process
3. **Impact it will create (including social impact, if any)**: Nil
4. **Current Status of the Company/Start-up**: MSME Registered

5. **Student team Details**

   1. Shahrooque Shahjahan

6. **Establishment date of the Company/Start-up/Commercialization**: 30.09.2021

7. **One paragraph on the Company/Start-Up covering all the points**: Soap Water Filtration System (SOWAFIS) provides unique way of filtration processes with clustering up of modern and traditional filtration processes in a reasonable low cost with easy implementation. The filtration methods help to recycle the soapy waste water with removing the contaminating elements and obtain water with sufficient quality to be used to wash the utensils, to reuse the swimming pool water and also for the irrigation purpose.

Start-Up-258: Brahmastra Bioenergy Private Limited

1. **Name of the Company/Start-up**: Brahmastra Bioenergy Private Limited

2. **Highlights of the Company/Start-up** ;

   Product : RE-CHAR-GE (REcycled hydro CHAR GEneration) BIOMASS

   Investment : Rs. 3,00,000

   Employment generated : 03

   Commercialized or not : Under Process

3. **Impact it will create (including social impact, if any**): Nil

4. **Current Status of the Company/Start-up**: MSME Registered

5. **Student team Details/Faculty Mentor:**

   1. Subash P K

6. **Establishment date of the Company/Start-up/Commercialization**: 03.02.2021

7. **One paragraph on the Company/Start-Up covering all the points**: Brahmastra Bioenergy is a futuristic Bio Renewable energy mainly concentrates on the Municipality Solid Waste Management, Bio Renewable energy, Pollution control and Reduction of Greenhouse Gases emission from Landfills of the country. The Main product of the company is Bio renewable Hydrochar.

Start-Up-259: Pairme

1. **Name of the Company/Start-up**: Pairme
2. **Highlights of the Company/Start-up** ;

   Product : Portable Dual Screen Attachments for Laptops

   Investment : Rs. 3,00,000/

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any)**: Nil
4. **Current Status of the Company/Start-up**: MSME Registered
5. **Student team Details**

   1. Cyril Joseph
6. **Establishment date of the Company/Start-up/Commercialization:** 23.11.2021
7. **One paragraph on the Company/Start-Up covering all the points**: A user convenient laptop attachment intended for professional designers and business purpose, proposed project implements dual screen laptop in retractable configuration to handle dual PC Streaming. It also removes the common back pain issues that many laptop users complain while using laptops for long period of time. It implements it by placing the secondary screen the normal line of sight and maintains normal sitting postures. Proposed model can be implemented as individual part compatible with latest laptop models or as a complete new computer assembly.

Start-Up-260: Furitech Innovations

1. **Name of the Company/Start-up**: Furitech Innovations
2. **Highlights of the Company/Start-up** ;

   Product : Automated Portable Vertical Solar Stacker

   Investment : Rs. 2,50,000/

   Employment generated : 01

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: MSME Registered
5. **Student team Details**

   1. Anas Mohammed Ali

6. **Establishment date of the Company/Start-up/Commercialization**: 21.10.2021
7. **One paragraph on the Company/Start-Up covering all the points**: Automated and Portable Vertical Solar Stacker (APVSS) is a mechanical design used to increase the space efficiency in installing the solar panels. In today's world, solar energy became a very important source of renewable energy. A large area of land is utilised for installing the solar panelsfor high scale renewable energy production. It works on the principle of reflection by the mirrors.

Start-Up-261: Measurey

1. **Name of the Company/Start-up**: Measurey
2. **Highlights of the Company/Start-up** ;

   Product : Overhead Distribution Line Fault Detection System

   Investment : Rs. 1,50,000/

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: MSME Registered
5. **Student team Details/Faculty Mentor:**

   1. Cyril Joseph
6. **Establishment date of the Company/Start-up/Commercialization**: 09.12.2021
7. **One paragraph on the Company/Start-Up covering all the points**: Automatic power line fault detection is a device that detects, identifies and locates the fault present in the power distribution line caused by various natural or manmade forces. This project mainly focuses on the section of power line that connects the transformer with customers. These faults are directly affects the customers so that it must be found out and rectified as fast as possible.

Start-Up-262: Lewenholk Technologies

1. **Name of the Company/Start-up**: Lewenholk Technologies
2. **Highlights of the Company/Start-up** ;

   Product : Advanced PCB Printing Technology without Etching

   Investment : Rs. 3,50,000/

   Employment generated : 01

   Commercialized or not : Under Process

3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: MSME Registered
5. **Student team Details/Faculty Mentor:**

   1. Akshay M S
6. **Establishment date of the Company/Start-up/Commercialization**: 04.11.2021
7. **One paragraph on the Company/Start-Up covering all the points**: PCB is one of the base factors of electronics. Conventionally we print these by marking and etching method. But this method is highly costly, causes pollution, it takes more time to print a single piece, and it makes material wastage also. In our technology we avoid etching process and make the printing faster and cheaper. It causes less pollution and low material wastage.

Start-Up-263: Kaliru Technologies

1. **Name of the Company/Start-up**: Kaliru Technologies
2. **Highlights of the Company/Start-up** ;

Product	: Smart Number Plate
Investment	: Rs. 2,00,000/
Employment generated	: 02
Commercialized or not	: Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: MSME Registered
5. **Student team Details/Faculty Mentor:**

   1. Karthik M
6. **Establishment date of the Company/Start-up/Commercialization**: 10.12.2021
7. **One paragraph on the Company/Start-Up covering all the points**: An innovation in this product is simple smart system which will replace or reduce the human work. This technology can be implemented in both the two-wheeler and four-wheeler in a smart way. It is easy for the police and other departments to identify which vehicle has the proper documents. Also, it will lead to reduce the crimes happening.

Start-Up-264: ReGen Technologies

1. **Name of the Company/Start-up**: ReGen Technologies
2. **Highlights of the Company/Start-up** ;

   Product : Rapid Detection of Snake Venom

   Investment : Rs. 1,00,000/

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: MSME Registered
5. **Student team Details**

   1. Saranya N
6. **Establishment date of the Company/Start-up/Commercialization**: 02.12.2021
7. **One paragraph on the Company/Start-Up covering all the points**: Our idea is to develop antibodies against four common poisonous snake in India through bi-osensor kit for the detection of specific snake bite. Principle behind our project is to develop kit /biosensor which can detect the type of snake bite by analysing its venom. In a year, more than 1,00,000 peoples are dead by the snake bite. The biosensor is used, on purpose, to decrease mortality caused by the snake bite.

Start-Up-265: KH Electronics

1. **Name of the Company/Start-up**: KH Electronics
2. **Highlights of the Company/Start-up** ;

   Product : Dual Mode Dishwasher

   Investment : Rs. 2,50,000/

   Employment generated : 03

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporation Under Pro-cess
5. **Student team Details**

   1. Kamaleshwari V
6. **Establishment date of the Company/Start-up/Commercialization**: 29.10.2021

7. **One paragraph on the Company/Start-Up covering all the points**: Our start up idea is to design a Dual Mode Dishwasher. This is very useful for society and Women's. We can able to save water by Dual Mode Dishwasher than normal one. It will be Portable so it can be place in house kitchen and easy to maintain.

Start-Up-266: DRAAS Global

1. **Name of the Company/Start-up**: DRAAS Global
2. **Highlights of the Company/Start-up** ;

   Product : Automated Soup Vending Machine

   Investment : Rs. 3,50,000/

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporation Under Process
5. **Student team Details**

   1. Akshai Krishna S
6. **Establishment date of the Company/Start-up/Commercialization**: 06.01.2022
7. **One paragraph on the Company/Start-Up covering all the points**: Our start up idea is to design and manufacturing soup vending machine. The main aim of the project is to replace unhealthy soft drinks like Pepsi, coke, 7up etc. So, we planned to introduce healthy tasty soup via vending machine to crowd places like Offices, Malls, Theatres, Restaurant, School and College canteen etc. This project reduces manual work for making mass Production of soup.

Start-Up-267: Smartagri Enterprises

1. **Name of the Company/Start-up**: Smartagri Enterprises
2. **Highlights of the Company/Start-up** ;

   Product : Battery-Powered Smart Agrochemical Sprayer

   Investment : Rs. 2,75,000/

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil

4. **Current Status of the Company/Start-up**: Company Incorporation Under Process
5. **Student team Details**

   1. Sanam Siva Krishna Raju
6. **Establishment date of the Company/Start-up/Commercialization**: 02.02.2022
7. **One paragraph on the Company/Start-Up covering all the points**: The Startup idea which is to design and manufacture an intelligent product called Smart Sprayer, which was designed with Machine Learning Technologies. It will adjust its Nozzle Patterns automatically for better focussing and spraying on infected areas effectively, which leads to reduce agrochemical wastages and environmental pollution as well. This is a very useful and demanding product to farmers.

Start-Up-268: RCC Innovations

1. **Name of the Company/Start-up**: RCC Innovations
2. **Highlights of the Company/Start-up** ;

   Product : Automatic Livestock Monitor

   Investment : Rs. 2,05,000/

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any)**: Nil
4. **Current Status of the Company/Start-up**: Company Incorporation Under Process
5. **Student team Details/Faculty Mentor:**

   1. Chandraprakash K
6. **Establishment date of the Company/Start-up/Commercialization**: 21.10.2021
7. **One paragraph on the Company/Start-Up covering all the points**: The idea of the project is to develop Automatic livestock barn monitoring system based on wireless communication networks in dairy farms to replace traditional manual data collection.To monitor the vital parameters of a livestock, the Livestock Barn Monitoring System (LBMS) with temperature detector, vital sign detector, three axis measuring device detector and wetness detector has been developed. The system can even be used for analyzing the strain level admire Thermal Humidity

Index (THI). The target of this project is to develop an associate to support the Automatic Veterinary System (AVS) in monitoring each livestock and AVS could support the entire veterinary system in Tamilnadu for digital storage of acquired data for research purposes, to spot closest hospitals and to make it convenient for veterinarian. The data acquired consists of the full detail of the animal from birth, medication given to the animal so that the further consulting doctor will refer those detail for clarity and provides necessary medication and immunogenic. The projected module consists of Arduino Uno Microcontroller, Sensors, WI-FI to realize a cattle's sickness, WLAN MODULE is developed to observe the cattle's daily activities.

Start-Up-269: LANS Flooring

1. **Name of the Company/Start-up**: LANS Flooring
2. **Highlights of the Company/Start-up** ;

   Product : Manufacturing of tile using waste rubber

   Investment : Rs. 1,35,000/

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporation Under Process
5. **Student team Details/Faculty Mentor:**

   1. Akhilraj A R
6. **Establishment date of the Company/Start-up/Commercialization**: 30.11.2021
7. **One paragraph on the Company/Start-Up covering all the points**: Our start up idea is to design and manufacture a rubber tile. By this method of tile making we can minimize waste rubber. It reduces the usage of sand and ceramic products. Reduction in cost oftile manufacturing .It reduces the burning of waste rubber and there by which controls the emission of Carbon-di-oxide. It also reduces the dumping of waste rubber on to the ground which helps in the control of soil pollution and hence improves ground water table.

Start-Up-270: Smart Agrolla

1. **Name of the Company/Start-up**: Smart Agrolla
2. **Highlights of the Company/Start-up** ;

   Product : Manufacturing of tile using waste rubber

   Investment : Rs. 1,00,000/

   Employment generated : 01

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporation Under Process
5. **Student team Details/Faculty Mentor:**

   1. Kaviya S
6. **Establishment date of the Company/Start-up/Commercialization**: 28.12.2021
7. **One paragraph on the Company/Start-Up covering all the points**: Our start up idea is to design and manufacture a rubber tile. By this method of tile making we can minimize waste rubber. It reduces the usage of sand and ceramic products. Reduction in cost oftile manufacturing .It reduces the burning of waste rubber and there by which controls the emission of Carbon-di-oxide. It also reduces the dumping of waste rubber on to the ground which helps in the control of soil pollution and hence improves ground water table.

Start-Up-271: Geoxs Biotech Private Limited

1. **Name of the Company/Start-up**: Geoxs Biotech Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Enzyme Production for degrading plastic bag

   Investment : Rs. 4,00,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Hiba
6. **Establishment date of the Company/Start-up/Commercialization**: 30.09.2022

7. **One paragraph on the Company/Start-Up covering all the points**: GEOXU, is the company planned to launch on the basis production of enzyme PETase extracted from the microorganism Ideonella sakaiensis by the process of culturing and centrifugation to degrade the polythene to MHET that will later hydrolysed into the monomers. Moreover, this start up emphasizes on the ability of insects gut microbial consortium to degrade synthetic plastic wastes.

   Vision:

   - To be a vehicle of consciousness in the global market by creating a holistic, sustainable business modality, which inspires, promotes and supports true wellness and respect for all beings and for mother's nature.

   Mission:

   - To comprehensively highlight the role of microbes, with special emphasis on algae, on the entire plastic biodegradation process focusing on the depolarization of various synthetic plastic types.

Start-Up-272: Herbeeday Beverages Private Limited

1. **Name of the Company/Start-up**: Herbeeday Beverages Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Development of a Natural Soft Drink Incorporated with Betel and Sarsaparilla Extracts

   Investment : Rs.4,00,000

   Employment generated : 03

   Commercialized or not : Yes, Commercialized
3. Impact it will create (including social impact, if any): Nil
4. Current Status of the Company/Start-up: Company Incorporated
5. **Student team Details**

   1. Indhu S.
   2. Deepika A.
6. **Establishment date of the Company/Start-up/Commercialization**: 30.09.2022
7. **One paragraph on the Company/Start-Up covering all the points**: The proposed drink is a lemon-based drink incorporated with betel and sarsaparilla extracts. The addition of betel and sarsaparilla will make the drink have medicinal properties such as anti-diabetic, anti-carcinogenic, anti-

inflammatory, anti- microbial, anti-diuretic, and indigestion preventive. It will be a refreshing, post/pre-meal soft drink with a well-known and acceptable taste profile suitable for all age groups. It aims to develop products for the health of society and also to preserve and document our natural traditional sources.

Vision:

- Taking inspiration from our traditional way of life for the betterment of our future generations and to perceive people's fondness to create a better standard of living naturally.

Mission:

- To refresh the world naturally
- To create a healthy and refreshing life by joining hands with the nature.

Start-Up-273: Nitans Paver Blocks Private Limited

1. **Name of the Company/Start-up**: Nitans Paver Blocks Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Paverblocks using Oyster Shell

   Investment : Rs.4,00,000/

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Sharath R.S
6. **Establishment date of the Company/Start-up/Commercialization**: 03.10.2022
7. **One paragraph on the Company/Start-Up covering all the points**: Our Start up idea is to manufacture low cost interlock pavers from waste materials like oysterlocks and arecanut fibre which can replace the present interlocks in market and it is an initiative step in showing how the materials around us can be used in construction field without exploiting nature for construction materials.

Start-Up-274: Tronix

1. **Name of the Company/Start-up**: Tronix
2. **Highlights of the Company/Start-up** ;

   Product : Pro Comp Projector

   Investment : Rs. 3,00,000/

   Employment generated : Under Process

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any)**: Nil
4. **Current Status of the Company/Start-up**: Company Incorporation Under Process
5. **Student team Details**

   1. Richard R
   2. Kamatam Krishna Kaanth
   3. Bharath A
   4. Chinnakotla Sreeharsha
6. **Establishment date of the Company/Start-up/Commercialization**: 21.04.2022
7. **One paragraph on the Company/Start-Up covering all the points**: Our start up idea is to design and manufacture Computer Projector. It is designed to give dual performance. It has inbuilt WIFI and Bluetooth for Wireless Connection. It won't consume high electric current like desktop and projector. A mobile adapter is enough to power up this projector. It is light weighted we can carry this product anywhere.

   Vision:

   - To Design, Inspire and Promote PRO-COMP Projector to make Productive andSuccessful Business

   Mission:

   - To have better Ads in all social Media, Free demonstration to all retailer shops and schools and colleges, Highlight and Motivate peoples to showcase the features of our product as compared with existing product.
   - To have positive impact to Customers to practise for better quality of Services
   - To develop lasting customer relations by providing quality PRO-COMP Projector.

Start-Up-275: Pops Soup Mix

1. **Name of the Company/Start-up**: Pops Soup Mix
2. **Highlights of the Company/Start-up** ;

   Product : Water Melon Seed Instant Soup Mix

   Investment : Rs. 3,00,000/

   Employment generated : Under Process

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: DPIIT Registration Under Process
5. **Student team Details/Faculty Mentor:**

   1. Denuja S
6. **Establishment date of the Company/Start-up/Commercialization**: 10.05.2022
7. **One paragraph on the Company/Start-Up covering all the points**: Start up idea is to design and manufacture soup product which is developed from waste food, under the process of waste food management. Watermelon Seed Instant soup mix, specially made for children, soup lovers and for parents who are interested in serving their children both healthy and tasty food product. This product is prepared under all rules and regulations, without adding heavy flavourings. And By this product we are going to create awareness about reducing plastic usage by covering our product by cloth covering from our company and by attaching one seed per packet, we are going to enhance growing of plants. Innovations are utilizing the waste food product to a value added product.

   Vision:

   - To develop value added products from food waste thus to help in food wastemanagement.

   Mission:

   - To develop good quality and healthy products from the waste and bye products offood industry.
   - To create awareness on planting trees and to help in reducing plastic usage.

Start-Up-276: Plantango

1. **Name of the Company/Start-up**: Plantango
2. **Highlights of the Company/Start-up** ;

   Product : Usefulness of Banana waste in manufacturing Value added Bio-products

   Investment : Rs. 2,50,000/

   Employment generated : Under Process

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: DPIIT Registration Under Process
5. **Student team Details/Faculty Mentor:**

   1. Likhitha K K
6. **Establishment date of the Company/Start-up/Commercialization**: 09.05.2022
7. **One paragraph on the Company/Start-Up covering all the points**: Banana is one of the important fruit crops grown almost in every state of India. After harvesting it generates huge quantity of waste in the form of pseudostem, which are cut in and Left in the Fields. On an average about 60 to 80 tones/ha of pseudostem are thrown away annually. Disposal of pseudostemin a routine ways causing environmental problems and making ecosystem imbalance. Therefore, an effective and economic way of reducing environmental problem by extraction of fibre and production of value added products like nursery trays and fertilizer from banana waste (pseudo stem) is ideal. In connection with this, fibre based seedling tray, vermicompost and fertilizers will be prepared and that could be effectively marketed due to its consistent size, easily degradable and it wont produce objectionable odour.

   Vision:

   - To assist the people by manufacturing the sustainable environment friendly organicproducts from waste that serves and safeguards Mother Nature.

   Mission:

   - To broaden the concept of green technology.
   - To uplift the future of organic products around the cluster area.

Start-Up-277: Prakenav's Production Unit

1. **Name of the Company/Start-up**: Prakenav's Production Unit
2. **Highlights of the Company/Start-up** ;

   Product : Bioenzymatic Healthcare Products

   Investment : Rs. 3,50,000/

   Employment generated : 03

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: MSME Registered
5. **Student team Details**

   1. Karthika S P
   2. Dixith K A
   3. Gokul S
6. **Establishment date of the Company/Start-up/Commercialization**: 09.05.2022
7. **One paragraph on the Company/Start-Up covering all the points**: Enzymes are essential components of animals, plants, and microorganisms, due to the fact that they catalyze and co-ordinate the complex reactions of cellular metabolism. Up until the 1970s, most of the commercial applications of enzymes involved animal and plant sources. Bulk enzymes were generally only used within the food-processing industry, and enzymes from animals and plants were preferred, as they were considered to be free from the problems of toxicity and contamination that were associated with enzymes of microbial origin. Bio-enzymatic production is the fermented product of organic substances (solid fruit wastes) yielding by the secondary metabolites known as bioactive compounds or phytochemicals. This leads to an innovative approach to the production of enzymes over the conventional methods that require costly solvents and possible degradation of heat-labile compounds.

   Vision:

   - To create a better life for people and to make the earth a better place to live.

   Mission:

   - To produce and sell high quality household healthcare products that will be cherished andwill make life healthy without using any chemicals.

Start-Up-278: Musa Foods

1. **Name of the Company/Start-up**: Musa Foods
2. **Highlights of the Company/Start-up** ;

   Product : Incorporation of raw banana peel powder in the preparation of Healthy Millet Bar

   Investment : Rs. 4,20,000/

   Employment generated : Under Process

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any)**: Nil
4. **Current Status of the Company/Start-up**: MSME Registration Under Process
5. **Student team Details**

   1. Mahalakshmi G
   2. Liberna B
   3. Kousiga A
   4. Sivasankari B
6. **Establishment date of the Company/Start-up/Commercialization**: 11.05.2022
7. **One paragraph on the Company/Start-Up covering all the points**: Our start up idea is to develop a new product based upon millets in which raw bananapeel powder is added. This product is a healthy bar in which calcium, fiber can be supplemented to the customers. Apart from new product development, this product also has one advantage, where waste to wealth concept has been applied.

   Vision: To make our customers friendly and to fulfill their tasty needs.Mission

   - To reduce the wastage of food from the country.
   - To control the environmental issues and establish waste to wealth concept.

Start-Up-279: Infinite Creators

1. **Name of the Company/Start-up**: Infinite Creators
2. **Highlights of the Company/Start-up** ;

   Product : Smart body temperature, Mask and Facial Recognition detector

   Investment : Rs. 1,00,000/

   Employment generated : 02

   Commercialized or not : Under Process

3. **Impact it will create (including social impact, if any)**: Nil
4. **Current Status of the Company/Start-up**: MSME Registered
5. **Student team Details**

   1. R. Raghul Prasad
6. **Establishment date of the Company/Start-up/Commercialization**: 02.12.2022
7. **One paragraph on the Company/Start-Up covering all the points**: Our start-up idea is to craft a device that is technologically advanced and easily usable for any present or upcoming pandemic period. It is developed to record an employee's face, status of facial mask & body temperature and upload the data to the cloud that will be easily accessible to the company. The main goal is to produce a completely safe automated environment.

   Vision:

   - To create the MR Innovations aspire to be a preferred value creator for the customers through innovative and efficient electronic manufacturing services.

   Mission:

   - Committed to provide innovative, mission critical technologies that protect people and communities.
   - To create a better everyday life foe many people by offering a wide range of well designed, functional products and steadily upgrade the technology and infrastructure so as to meet the customer expectations.

Start-Up-280: I Chakkar

1. **Name of the Company/Start-up**: I Chakkar
2. **Highlights of the Company/Start-up** ;

   Product : Smart and Self Relient Two Wheelers

   Investment : Rs. 2,00,000/

   Employment generated : Under Process

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**):

   Nil
4. **Current Status of the Company/Start-up**: Company Incorporation Under Process

5. **Student team Details/Faculty Mentor:**

   1. Karthick M

6. **Establishment date of the Company/Start-up/Commercialization**: 02.05.2022
7. **One paragraph on the Company/Start-Up covering all the points**: Our start up idea is to design and manufacture an intelligent product which would make our two wheelers simply smart and self reliant. This IOT based system makes the two wheeler, self balancing, protects from theft by incorporating Biometric and voice control based locking system and more over safeguards the two wheeler and passengers with the help of intelligent accident prevention and alert system.

Start-Up-281: Aamten Avinyasankethik Private Limited

1. **Name of the Company/Start-up**: Aamten Avinyasankethik Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Bluetooth to IR Remote Technology

   Investment : Rs. 5,00,000

   Employment generated : 02

   Commercialized or not : Under Process

3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Ajith Shaijan

6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: BiR is a technology which is designed to overcome the limitation to control old set-top box. Older IR remote is replaced by adding a external bluetooth smart remote which is connected to the settop box using a converter(Bluetooth to IR) which is place just before the Set-top box's IR signal receiver. The device only replace the remote control method it doesn't replace the Set-top box

Start-Up-282: Sreesam Swastha Drink Private Limited

1. **Name of the Company/Start-up**: Sreesam Swastha Drink Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Green Synthesis of Nano Particles from Polyherbal formulation against Viral Infections to boost the immunity

   Investment : Rs. 4,00,000

   Employment generated : 03

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details**

   1. Sreejithmohan Kumar Nair
   2. Karthikeyan P
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Poly herbal formulations can enhance immunity and the Nanoparticles can be synthesized using poly herbal formulations that can fight against several viral infections including Corona Virus. After the synthesis of the Herbal nanoparticles, the shape and characteristic studies of nanoparticles can be done to standardize the formulation for herbal remedies. Herbal formulations can give more effective impact on the populations as it gives considerable good results without any side effects. It will also give good social benefits to the population.

Start-Up-283: Seedy Bio Products Private Limited

1. **Name of the Company/Start-up**: Seedy Bio Products Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Upscaling Agricultural Wastes-Value Addition to Jackfruit Seeds

   Investment : Rs. 3,20,000

   Employment generated : 03

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated

5. **Student team Details/Faculty Mentor:**
   1. Afsiya S
   2. Hathiqa Hussain Ali H
6. **Establishment date of the Company/Start-up/Commercialization**: 25.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: The main focus of the Seedy Bio-Products is to produce safe and quality bioproducts from locally available edible agricultural waste. This is a social enterprise which promotes economically viable bioproducts from underutilized agricultural waste, through which it promotes sustainable solution to the existing societal problem. Generally, seeds of the fruits are wasted without utilizing for any constructive purpose other than for the cattle feed. The jack fruit seeds are one among those seeds which can be consumed by the human being but in recent years they are underutilized and less acknowledged by people. Upscaling this edible agriculture waste to edible cutleries will provide an additional income to the farmers as well as reduce the landfilling by the plastic cutleries.

Start-Up-284: Santhoshi Infra Solutions Private Limited

1. **Name of the Company/Start-up**: Santhoshi Infra Solutions Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Instant pothole repair mix

   Investment : Rs. 3,80,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if a**ny): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**
   1. Sharan Sai P
6. **Establishment date of the Company/Start-up/Commercialization**: 27.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: It is a start-up firm with innovative ideas for various problems arising in the field of engineering. Potholes are one of the main source of inconvenience and major cause of accidents. My product mainly focuses on this aspect of repairing those potholes with a new approach of filling them with Non-Newtonian fluid rather than the oth-

er traditional methods in repairing those potholes as they require a lot of physical labour and my method is economically well driven ,requires less human effort.

Start-Up-285: Solsun Smart Inventors Private Limited

1. **Name of the Company/Start-up**: Solsun Smart Inventors Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Multi Purpose Smart Solar Cloth Dryer

   Investment : Rs. 4,80,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details**

   1. Sanjay C
6. **Establishment date of the Company/Start-up/Commercialization**: 27.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: It is very difficult to dry the clothes during the winter and rainy seasons. Improper drying during these seasons leads to an unpleasant smell rising and may give room for the fungal growth in the clothes. Also drying the clothes in the open atmosphere makes room for dirt during summer season. Keeping this in mind, a smart cloth dryer has been put forth by us which will overcome all the cloth drying problems throughout the year and all the seasons.

Start-Up-286: Meconova Power Solution Private Limited

1. **Name of the Company/Start-up**: Meconova Power Solution Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Design and Fabrication of Arduino based Solar Tracking System with Vertical Windmill

   Investment : Rs. 4,50,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**:

   Company Incorporated

5. **Student team Details/Faculty Mentor:**
   1. Shankar Shiju C
6. **Establishment date of the Company/Start-up/Commercialization**: 25.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: We are utilizing the renewable energy like solar, wind energy and convert it into electricity. Using fixed Photovoltaic panels extract maximum energy only during 12 noon to 2 PM in which results in less energy efficiency. Therefore, the need to improve the energy efficiency of PV solar panel through building a solar tracking system cannot be over-emphasized. We are using Vertical windmill to maximum energy at the same time solar is producing energy so both can be combined to form good amount of energy from same area.

Start-Up-287: PHDD Techo Innovations Private Limited

1. **Name of the Company/Start-up**: PHDD Techo Innovations Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Soil Fertilizer Recommender

   Investment : Rs. 3,50,000

   Employment generated : 03

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**
   1. Muppala Pooja
   2. Daivala Deepika
6. **Establishment date of the Company/Start-up/Commercialization**: 25.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Our start-up idea is to craft a device that is technologically advanced and easily usable for people who practice agriculture. It is developed to identify the level of nutrients present in the soil and inform the farmer about the requirements. It also identifies the soil moisture and PH level of the soil. The main goal is to automate Agricultural practices at affordable cost.

Start-Up-288: Prosopis Food Wrappz Private Limited

1. **Name of the Company/Start-up**: Prosopis Food Wrappz Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Bio-degradable food wrapping sheet by biofilms

   Investment : Rs. 3,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Gokulakannan MPR
6. **Establishment date of the Company/Start-up/Commercialization**: 25.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Our start-up idea is to make a food wrapping sheet that is bio-degradable and which also increases the food life. It is developed to eradicate plastic wrappers and to initiate the use of bio-degradable wrappers that doesn't affect the food. The main goal is to destroy thepyrosis juliflora and to create a healthy food life and good environment.

Start-Up-289: Gynorah Herblife Private Limited

1. **Name of the Company/Start-up**: Gynorah Herblife Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Development of Phytosome loaded herbal pain relief transdermal patch for Menstrual cramps

   Investment : Rs. 2,70,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Asish S
6. **Establishment date of the Company/Start-up/Commercialization**: 25.05.2023

7. **One paragraph on the Company/Start-Up covering all the points**: Our start-up idea is to develop a Phytosome loaded herbal pain relief transdermal patch by isolating the bio fraction from the bark of Saraca asoca which will be highly effective and easily used for mild to severe menstrual cramps. It is developed to provide a permanent pain relief for women during those difficult times of their menstrual cycles. Our main goal is to develop 100% effective, affordable and instant pain relief Phytosome loaded transdermal patch with ignorable side effects.

Start-Up-290: Orbitocure Innovations Private Limited

1. **Name of the Company/Start-up**: Orbitocure Innovations Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Bioplastic sheet from banana waste to replace single use plastic

   Investment : Rs. 3,90,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Rahul Joseph Saji
6. **Establishment date of the Company/Start-up/Commercialization**: 25.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: This innovation makes paper bags stronger, reusable and cheaper and most importantly its free from harmful effect for mankind and nature. The bags pose a problem when one tries to carry wet and moist things like milk packets vegetables and fish. Also paper bags are expensive owing to the production cost. But these bags are stronger than plastic carry bags and withstand as much as or more than that a plastic bag can carry, also these bags are suitable for carrying leaking or damp items, also most attractively these bags are reusable for a long period (if get wet we candry and use it again).

Start-Up-291: Zudoxia Private Limited

1. **Name of the Company/Start-up**: Zudoxia Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Biodegradable chitosan reinforced starch based bioplastic film

   Investment : Rs. 3,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**):

   Nil
4. **Current Status of the Company/Start-up**:

   Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Joel S P
6. **Establishment date of the Company/Start-up/Commercialization**:

   26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Bioplastics can be composed of starches, cellulose and biopolymers and variety of other materials. So, we are using Chitosan as a biopolymer which is use instead of normal Plastics. Most importantly for packaging of foods and vegetables. Chitosan is abundantly present in the shells and scales of fishes, which is extracted and used as source of chitosan in the project. Chitosan is one of the emerging materials for various applications. The most intensive studies have focused on its use as a biomaterial and for biomedical, cosmetic, and packaging systems. The research on biodegradable food packaging systems over conventional non- biodegradable packaging systems has gained much importance in the last decade. Chitosan is a naturally derived polymer, it is biodegradable and safe for human consumption. Food-focused researchers are exploiting the properties of chitosan to develop biodegradable food packaging systems.

Start-Up-292: Royaz.Ai Solutions India Private Limited

1. **Name of the Company/Start-up**: Royaz.Ai Solutions India Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Smart Glaucoma Predictor

   Investment : Rs. 4,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Mohamed Bayas A
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Early Detection and treatment of Glaucoma are important to prevent disease progression. Needto predict higher risk of developing visual field loss. Existing Instruments needs more and complex procedure to detect Glaucoma. To address this issue, this product Smart Glaucoma Predictor is planned to propose It will be more compact and portable Existence instruments cannot be used without the support of any additional experts / technicians.

Start-Up-293: Pachatech Solutions India Private Limited

1. **Name of the Company/Start-up**: Pachatech Solutions India Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Smell & Odour Monitoring Device

   Investment : Rs. 3,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Greena Sunny
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023

7. **One paragraph on the Company/Start-Up covering all the points**: An electronic device is proposed that can balance the unpleasant odour of the bathroom it can sense the odor with the help of an electronic nose and mark the level of odor in the room. If the odor exceeds its limit, there is a communication system that alerts the respected authority which can be helpful for the cleaning purpose. We are also installing a QR code for the customer's feedback. The idea proposed here has a base frame on the health & hygiene of comfort room atmosphere, our idea is a health-based idea that ensures safety from Saxon and other health problems, it is an electronic device which balances the odor in the atmosphere so whenever such a foul smell is experienced in the atmosphere the system will control that particular area and then apply the recovery procedure.

Start-Up-294: SMBP Ventures Curex Private Limited

1. **Name of the Company/Start-up**: SMBP Ventures Curex Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Diabetic Foot Ulcer Detector

   Investment : Rs. 4,50,000

   Employment generated : 04

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Wasim Khan S
   2. Baranitharan S
   3. Pavithran R
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Our start-up idea is to detect the foot ulcer diabetic neuropathy in earlier stage. The diabetics is becoming a great threat to mankind the diabetic study show that up to 15% of the diabetic individual will develop their foot ulcer during the lifetime. Our idea to design a product for detecting the food ulcer diabetic neuropathy. Investigation of foot ulcer is carried out by the vibratory motor. The normalized peak pressure can be calculated by pressure by placing motors at different points.

This proposed Idea gives complete information to examine the food ulcer which is highly required for the current situation.

Start-Up-295: Agrodrill Farm Mech Tech Private Limited

1. **Name of the Company/Start-up**: Agrodrill Farm Mech Tech Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Manual Vegetable Seeds Planter

   Investment : Rs. 3,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Prasanth M
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: It will plant the seed with definite depth and maintained the plant to plant and row torow spacing. No requirement of bullock, tractor power, and self-propelled. It is used to plant the seed on bed of four row which gives good yield and have better canopy for the plant.

Start-Up-296: Herbnibto Private Limited

1. **Name of the Company/Start-up**: Herbnibto Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Herbal Hand Wash

   Investment : Rs. 2,80,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details**

   1. Hrithika KV
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023

7. **One paragraph on the Company/Start-Up covering all the points**: The main aim of hand wash is to prevent the spread of infection. Washing hands with hand wash is better than using alcohol based sanitizer. At this pandemic situation, world is in need of better herbal hand wash, which is free from all harmful chemicals. The harmful chemicals leads to various skin ailments such as allergies, irritation, cancer etc. From younger to older, hand wash plays an important role, hence using a chemical free herbal hand wash is mandatory. Where our herbal hand wash includes the natural ingredients and free from all harmful chemical which are used in the hand washes available in the market. It is very effective and free from all skin ailments. At present, hand wash not only cleans your hands, but also saves' your life.

Start-Up-297: Transdio Automata India Private Limited

1. **Name of the Company/Start-up**: Transdio Automata India Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Vehicle Accident Alert System

   Investment : Rs. 4,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any):** Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details**

   1. Kesaav N A
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: This product is to develop an application based on IoT which is used to help the users for saving their life. This application will be adding on functions such as reconnection, SMS triggering and Geo Location to ease user to identify accident spot. Since nowadays most of the devices have GPS and GSM technology which is readily installed and fixed inside their IoT devices. This product focused mainly to the users who want to keep track on their belongings as they are moving around so that they would feel secure as this IoT would also be able to help users to search back their belongings as well.

Start-Up-298: KKMA Private Limited

1. **Name of the Company/Start-up**: KKMA Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Gesture Controlled Bluetooth Speaker

   Investment : Rs. 3,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up:** Company Incorporation ongoing
5. **Student team Details/Faculty Mentor:**

   1. Ajisha R
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Bluetooth speakers are the most widely used speakers these days. This gesture based speaker takes bluetooth to the next level by integrating touchless operation. This Bluetooth allows user to change music just by swiping their hand over the Bluetooth speaker. Also this speaker allows the user to adjust volume just by raising and lowering their hand over the speaker. The user can operate the complete speaker operation without even touching his/her mobile phone or the speaker.

22) S. R. M. Institute of Science & Technology, Kattankulathur

Start-Up-299: Kreator 3D printer and Solutions Pvt. Ltd.

1. **Name of the Company/Start-up**: Kreator 3D printer and Solutions Pvt. Ltd.
2. **Highlights of the Company/Start-up**:

   Product/Service : 3D printer, Bio 3D printer and Prototyping Services

   Investment : Rs. 10,00,000

   Employment generated : 6

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - Decentralization of manufacturing
   - Our tool will facilitate development of Artificial tissues and Organs which can revolutionize in vivo testing and Organ transplant
   - Our technology will make Manufacturing

4. **Current Status of the Company/Start-up**
   - Team of 6
   - Product 1 (A1 FDM) ready for launch
   - Product 2 (Bioform) Being tested in hospital for development
   - Prototyping Services: Running
   - Looking for Investment
5. **Student team Details/Faculty Mentor:**

   1. Zeeshan Mallick
   2. Anurag Atulya
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 16/4/2019
7. **One paragraph on the Company/Start-Up covering all the points.** Kreator3D is a deep tech start-up in the field of manufacturing. We make 3D printers, CNC, Bio Printer, and Cloud solutions for manufacturing. Recently won national innovation contest for country's first Bioprinter. We also provide prototyping solutions to industries such as the automobile, medical, and aviation sector

Start-up-300: Rizel Automotive Private Limited

1. **Name of the Company/Start-up**: Rizel Automotive Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Electric powertrain components including Motor, Controller, and Gearbox.

   Investment : Rs. 2,25,000

   Employment generated : 10

   Commercialized or not : Under customer trials.
3. **Impact it will create (including social impact, if any)**
   - On a Mission to make Electric Vehicles efficient and affordable. We are developing leading edge Electric Powertrain Technologies with High Efficiency at affordable costs for the Global Automotive Market.
4. **Current Status of the Company/Start-up**
   - We have started customer trails with few marquee Indian OEMs and well established startups.

5. **Student Team Details/Faculty Mentor:**
   1. BVN Madhu
   2. Karthik Donthula
   3. Shivam Bhatia
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Establishment date: 19th June 2017
7. **One paragraph on the Company/Start-Up covering all the points.**
   - At Rizel Automotive, we work towards making the world a more efficient consumer of energy. We are a tech company focussed on the R&D of highly efficient and cost-effective electric motors and drives with superior performance for Electric Vehicles. We aspire to be a prominent Automotive supplier by 2023. Having spent 48+months on Research and Development, we have filed several key technology patents addressing the bottle neck challenges of Electric Motors.

Start-Up-301: Yogya.ai (Monkwish)

1. **Name of the Company/Start-up**: Yogya.ai (Monkwish)
2. **Highlights of the Company/Start-up**:

Product/Service	: SAAS
Investment	: Rs. 2,25,000
Employment generated	: 5
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - yogya.ai, a smart engagement, learning, and enablement platform for remote teams. A unique learning experience for businesses to enhance their employees' capabilities by identifying skill-gaps and empowering them with AI tools to full fill those gaps faster seamlessly. Website: https://www.yogya.ai
4. **Current Status of the Company/Start-up**
   - In the market with six high end paying customers
5. **Student team Details/Faculty Mentor:**
   1. Sugam Malviya
   2. Agam Malviya

6. **Establishment date of the Company/Start-up/Commercialization:**
   - April 2019
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Yogya.ai is a platform for upskillng an organisation's workforce. For businesses, we are the world's first end to end solution for future-ready learning and development needs with unique skill collaboration engine, state-of-the-art curation engine, and tangible ROI.

Start-Up-302: Konwert India Motors

1. **Name of the Company/Start-up**: Konwert India Motors
2. **Highlights of the Company/Start-up**:

   Product/Service : EV retrofitting Kits

   Investment : Rs. 1,50,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - To make E-autos more affordable, we engineered powertrain solutions that can be retrofitted to existing vehicles. By converting existing ICE autos we reduce the upfront cost of the auto driver, keep the environment carbon negative, reduce scrapping and accelerate the adoption of EVs.
4. **Current Status of the Company/Start-up**
   - First prototype built, Going to Market
5. **Student team Details/Faculty Mentor:**

   1. Nickendra Manikandan
   2. Surya Rajendran
   3. Bettula Manoj Srijan
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 22 August 2019
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Konwert India Motors was incorporated in 2019, for the sole purpose of accelerating EV adoption in India. It is clear that EVs are the solution to our concerning air quality levels, yet the premium price of an EV is a hurdle for large scale adoption. We uniquely focus on developing and retrofitting ICE

3W to battle deteriorating air quality through a techno-economic model that allows auto drivers to purchase the product. Our business model is called EVwB, where we sell the drivetrain components and lease the battery over 5 years. To be able to sustain this and increase battery life, we deploy machine learning to increase longevity by gauging the battery performance against the effects of a multitude of ambient factors and by prescribing parameter optimisation for better performance and life. We are strategically approaching the aspect of building the ecosystem too by developing market-specific charging solutions that complement the customer behaviour and usage of the vehicle. To aid owners to adopt this solution we provide a SaaS monitoring system to account for income, lease collection, vehicle tracking, performance tracking, servicing and reporting

Start-Up-303: Thinkmetal Private Limited

1. **Name of the Company/ Start-up: Thinkmetal Private Limited**
2. **Highlights of the Company/Start-up;**

   Product : Metal 3D Printer

   Investment : Rs. 2,33,232.00

   Employment generated : 3

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: ThinkMetal is making significant strides in the manufacturing sector with its metal 3D printing technology. Traditional manufacturing processes are often time-consuming, and existing 3D metal printers are known for their high costs, sluggish operation, and bulky design, which can result in concerns related to print failures and increased expenses. To address these challenges, ThinkMetal is in the process of creating a comprehensive ecosystem that combines proprietary hardware and software solutions, offering an end-to-end solution for metal 3D printing.
4. **Current Status of the Company/Start-up:** Commercialized
5. **Student team Details/Faculty Mentor:**

   1. Sabyasachi Ghosh
   2. Arushi Sharma
6. **Establishment date of the Company/Start-up/Commercialization:** 23.03.2021

7. **One paragraph on the Company/Start-Up covering all the points.**

   ThinkMetal's strategic vision is closely aligned with the substantial growth potential of the Indian tooling market, which is projected to expand at a steady annual rate of 9 percent. We have set our sights on tapping into this lucrative market, specifically targeting Tier-1 toolmakers and prototype manufacturers serving Original Equipment Manufacturers (OEMs). This strategic approach translates to a sizable Total Addressable Market (TAM) of approximately USD 700 million, representing just a fraction of the overall market potential of metal additive manufacturing. We are currently ramping up our capacity to do trials and pilots with various manufacturing companies. We are committed to simplifying manufacturing. Come to print the future with us!"

Start-Up-304: CLOTECH Innovations Private Limited

1. **Name of the Company/ Start-up:** CLOTECH Innovations Private Limited
2. **Highlights of the Company/Start-up;**

   Product : MetaWear

   Investment : Rs. 2,00,963.00

   Employment generated : 3

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: Clotech Innovations Pvt. Ltd. is a global digital products studio for start-ups and enterprises alike, demanding the very best in enterprise web application development. Whether it is e-Commerce Web Application Development or Application Maintenance & Enhancement, we provide a wide range of digital services that are fully-flexible and available as and when you need them. Here are just a few reasons why you should choose Cotech Innovations when it comes to mobile application development services
4. **Current Status of the Company/Start-up:** Commercialized
5. **Student team Details/Faculty Mentor:**

   1. Sreenu Pathi
   2. Venkateswari Manne
   3. Kartik Rana
6. **Establishment date of the Company/Start-up/Commercialization**: 14.01.2019

7. **One paragraph on the Company/Start-Up covering all the points**: Cotech Innovations Pvt Ltd is a software services company providing clients with a full range of software services ranging from mobile based applications, Enterprise software, Web applications, IoT Solutions and Virtual Reality apps for VR devices. Our approach towards software engineering, passion for innovation and dedication for customer satisfaction makes us your preferred technology partner to meet your technological goals.

Start-Up-305: Zha Concrete Luminescence

1. **Name of the Company/ Start-up:** Zha Concrete Luminescence
2. **Highlights of the Company/Start-up;**

Product	: Social Need (Light Weight Concrete Canoe)
Investment	: Rs. 1,27,545.00
Employment generated	: 2
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: The main focus of the team was to achieve a relatively light weight concrete canoe. Team used Styrofoam as mould which no one in the history of the Institute has tried and succeeded. The team has done a tremendous and repeated mix design. There were about 26 mixes designed and casted with various combinations of materials and proportions. After testing, Materials were finalised those fulfilled our requirements. The concrete canoe is build using three different mixes for different purposes with reinforcement. The weight, thickness and density were reduced considerably compared to previous works.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Deepak Pugazhlendi
   2. Nagarjun Jeyachandran
6. **Establishment date of the Company/Start-up/Commercialization:** 10.11.2023

Start-Up-306: ASVRL

1. **Name of the Company/ Start-up:** ASVRL
2. **Highlights of the Company/Start-up:**

   Product : Electric Powertrain

   Investment : Rs. 2,23,040.00

   Employment generated : 1

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: ASVRL PVT. LTD is always keen in understanding the customers and their poorly met needs, and provides a novel solution through our expert team. We identify and prioritize in safeguarding the intellectual property out of the provided novel solution and support our customers to develop their business in a safe environment. At ASVRL, we provide novel and innovative solutions in the following fields,
4. **Student team Details/ Faculty Mentor:**

   1. Vijay Rathan Lingaa
5. **Establishment date of the Company/Start-up/Commercialization:**
6. **One paragraph on the Company/Start-Up covering all the points:** At ASVRL, we consistently ensure the development capability that swiftly converts the chosen ideas into a competitive product. We are into the process of developing strategy for prioritizing, selecting, and funding the most promising solution ideas.

Start-Up-307: Autoterrain Innovation

1. **Name of the Company/ Start-up:** Autoterrain Innovation
2. **Highlights of the Company/Start-up;**

   Product : Fablab UGV

   Investment : Rs. 2,47,500.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Current Status of the Company/Start-up**: MVP
4. **Student team Details/Faculty Mentor:**

   1. Nikhil Kumar
   2. Nisar Raunaq
   3. Dr. Joselin Retna Kumar

5. **Establishment date of the Company/Start-up/Commercialization**: 18/11/2023
6. **One paragraph on the Company/Start-Up covering all the points:** The prototype's successful development holds promise for various applications, such as autonomous logistics, surveillance, agriculture, or search and rescue missions, where precise movement based on geolocation and obstacle avoidance is critical for operational success.

Start-up-308: BrainwaveS Neurorehab Solutions Pvt. Ltd.

1. **Name of the Company/Start-up** : BrainwaveS Neurorehab Solutions Pvt. Ltd.
2. **Highlights of the Company/Start-up :**

   Product : Virtual Reality based stroke rehabilitation for motor impairment using bio/neurofeedback

   Investment : Rs. 10,82,853

   Employment generated : 01

   Commercialized or not : No
3. **Impact it will create (including social impact, if any) :**

   Enable stroke survivors with motor impairments to resume functional level
4. **Current Status of the Company/Start-up**

   Incorporated as a Startup, funding through NIDHI-Prayaas
5. **Student team Details/Faculty Mentor:**

   1. Dr. Bhasi Sukumaran
   2. Aniket Sahoo
6. **Establishment date of the Company/Start-up/Commercialization:** 21/09/2021
7. **One paragraph on the Company/Start-Up covering all the points.** Brainwaves was conceptualized first at the SIIC BMOE Bootcamp held in September 2019. A team of four Engineering students joined the faculty member from the Department of Clinical Psychology, Dr Bhasi Sukumaran, who had proposed a virtual reality based stroke rehabilitation program to address motor impairment in stroke survivors. In February 2000, BrainwaveS was approved for project funding under the NewGen IEDC SRM, sponsored by DST India. Seed money amount of 1,82,853 was provided which was utilised to purchase the equipment required. , BrainwaveS was shortlisted for the Hospital Accelerated Pre-Incubation Program (HAPI) at the Healthcare Technology Incubation Cell (HTIC) of IIT Madras. In August 2021, Brainwaves was selected for co- incubation with IIT M Incubation

Cell along with SIIEC. BrainWaves Neurorehab Solutions Pvt. Ltd was incorporated in September 2021 and the company signed MoUs with IIT MIC and SIIEC regarding the incubation process. The first employee of BrainwaveS is one of the students who had first joined the startup at the time of conception at the bootcamp and who had subsequently graduated, Mr. Aniket Sahoo officially joined on 21 January 2022.BrainwaveS applied for the NIDHI PRAYAS grant under the mentoring of the incubation program and was selected in February 2022 and granted an amount of Rs 7, 00,000. The first tranche payment of Rs. 2, 00,000 was received on 29 April, 2022. Brainwaves entered into an agreement with NUER Industries on 24 May, 2022 for the development of the VR content for the project. Currently, work is ongoing for the development of the first prototype of the VR based stroke rehabilitation program, after obtaining Institutional Ethics Committee approval for the design and development of the same.

Start-Up-309: Climec Labs

1. **Name of the Company/Start-up**: Climec Labs
2. **Highlights of the Company/Start-up**:

Product/Service	:	Air purifier
Investment	:	Rs. 1,70,000
Employment generated	:	2
Commercialized or not	:	No

3. **Impact it will create (including social impact, if any)**
   - We will be helping to bring Carbon-di-Oxide (CO2) levels in our atmosphere down in order to put a pause and in the future revert back the effect of global warming and climate change on our planet's environment.
   - Our single scaled-up model can capture Carbon-di-Oxide worth of 2500 trees on a daily basis which amounts to up to 25 tonnes of CO2 captured by one of our models.
   - Initially, the domestic model will be cleaning the air by getting rid of various harmful components present in the air ranging from PM2.5, PM10, VOC to other harmful bacteria by using a unique and customisable combination of inorganic filters(this can be selected by the customer on the basis of their needs and includes HEPA, Activated Carbon, Zirconium, and Bio filter) and then capturing 2.8 grams of Carbon-di-Oxide on a daily basis(when placed in

a room with CO2 air) and producing 25 trees worth of oxygen for the users. We have calculated the efficiency of this model to be 82.01 per cent. The domestic model will assist us in creating awareness regarding climate change among people and helping them take a step in the direction of climate conservation while using our product, and also sequestering excess CO2 accumulated in rooms and offices while providing oxygen-rich air for themselves and their loved ones.

- We are yet to develop a prototype for the scaled-up model and study its exact impact as this might require government permission to set up in public places

4. **Current Status of the Company/Start-up:** Incorporated
5. **Student team Details**

   1. Inderan Kannan
   2. Atul John Abraham

6. **Establishment date of the Company/Start-up/Commercialization:**
   - 20 June 2022
7. **One paragraph on the Company/Start-Up covering all the points.**

   PROBLEM WE ARE SOLVING

   - Global CO2 emissions as of 2021 are at 1.5 Gigatonnes.
   - Chronic Health Hazard due to breathing polluted air and air with a high concentration of CO2 found inside metropolitan households which were found to be as high as 3,900 parts per million (ppm)[DK1] globally
   - Health problems can be caused by exposure to CO2 levels as low as 1,000 parts per million (ppm) even for an hour or two.[DK2]
   - Deteriorating indoor air quality, and increase in carbon emissions leading to climate change and global warming.

   SOLUTION THAT WE OFFER

   - The domestic model of our air purifier contains a unique carbon capture technology which uses biofilters to convert carbon-di-oxide in the atmosphere into oxygen, thus solving the air quality problem for the customer base that exists.

   CUSTOMER BASE: This consists of our Domestic air-purifier market.

   - Financially middle class and better-to-do families (Annual income of 7000$ and above) [DK3] and different company's offices.
   - People Suffering from ailments caused by breathing polluted air.

- Residents of Urban areas which account for approximately 900million people globally.[DK4]
- Belonging to the age group of 22-65.[DK5]

The cost price of the air purifier that we are building will range between $200-$250 USD(one-time investment) and the annual maintenance charges will range between $29-$69(depending on the location of the customer and choose package of service). In the long run, we plan to have tie-ups with various industries producing concentrated Carbon-di-Oxide (for eg. cement companies and breweries) and build a strong working relationship with the central and state government of various countries to install the scaled-up model of our air purifier in public places of metropolitan cities to deliver free clean and Oxygen-rich air for everyone, all this while removing/scrubbing Carbon di Oxide from the air In India (or in the world)?

Start-Up-310: Airmotive Technologies

1. **Name of the Company/ Start-up:** Airmotive Technologies
2. **Highlights of the Company/Start-up:**

   Product : Compressed Air Engine

   Investment : Rs. 97,918.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Overall, the impact of compressed air engines could be significant in terms of reducing emissions, providing alternative power sources, and offering versatility in various applications. However, further development and technological advancements are necessary to optimize their efficiency and address associated challenges.
4. **Current Status of the Company/Start-up**: Before a month only they have started the stratup
5. **Student team Details/Faculty Mentor:**

   1. Dr. S. Senthilaraja
   2. Mr. K. Chitrarasan
6. **Establishment date of the Company/Start-up/Commercialization**: 20/11/2023
7. **One paragraph on the Company/Start-Up covering all the points**: Compressed air engines are often considered eco-friendly because they produce zero

emissions at the point of use. They don't burn fossil fuels directly, which means they can contribute to reducing air pollution and greenhouse gas emissions, especially when used in vehicles as an alternative to internal combustion engines. While the production of compressed air might require energy, the efficiency of these engines can be high, especially in applications like pneumatic tools or hybrid vehicles. They can potentially recover energy from braking in vehicles, storing it as compressed air for later use, which enhances overall energy efficiency.

Start-Up-311: IOTMATIC HUB LLP

1. **1. Name of the Company/ Start-up:** IOTMATIC HUB LLP
2. **Highlights of the Company/Start-up:**

Product	: DOT
Investment	: Rs. 49,484.00
Employment generated	: 3
Commercialized or not	: Not, Commercialized

3. **Impact it will create (including social impact, if any)**: The smart Inventory Management System leveraging IoT minimizes inventory losses for retailers by offering real-time updates on on-shelf inventory. Utilizing smart weighing scales to detect commodity weight and notify users of threshold breaches enhances inventory accuracy, reduces losses, and optimizes restocking, ensuring shelves are consistently stocked for improved customer satisfaction and increased
4. **Student team Details/Faculty Mentor:**

   1. Neel Desai
   2. Divyaansh Singh
   3. Rohit R. Nair
5. **One paragraph on the Company/Start-Up covering all the points:** We are building a smart Inventory management system based on IoT. We help retailers to reduce their inventory losses by providing them a real-time update about the on-shelves inventory. We do this by using a smart weighing scale that detects the weight of the commodities placed on the scale and notifying the user when the weight goes below the threshold value.

Start-Up-312: Zha Concrete Casting Moulds

1. **Name of the Company/ Start-up:** Zha Concrete Casting Moulds
2. **Highlights of the Company/Start-up:**

   Product : Concrete Casting Mould

   Investment : Rs. 1,35,650.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Usually Cast iron moulds which uses bolt and nuts take much large time for assembling and disassembling. Our solution for this is moulds made of HDPE with toggle clamps, this reduces the time at a larger margin that the entire casting can be done within a short span of 15 minutes.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

   1. Dr. Pradeep S.
   2. Anuwar Husain S.
   3. Deepak Pugazhlendi
   4. Nagarjun Jeyachandran
   5. Nirmal Kannan V. A.
6. **Establishment date of the Company/Start-up/Commercialization**: 10/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** RMC plants use the moulds for Quality assurance of the concrete. The mechanism of this mould can be used to erect columns, beams, foundations provided the dimensions are squared out.

Start-up-313: Lahari Enterprises India Private Limited

1. **Name of the Company/ Start-up:** Lahari Enterprises India Private Limited
2. **Highlights of the Company/Start-up:**

   Product : Manufacturing of Viral Transport Media for Covid-19

   Investment : Rs. 46,880

   Employment generated : 2

   Commercialized or not : Not Commercialized

3. **Impact it will create (including social impact, if any)**: Lahari Enterprises' focus on clean room consumables has a far-reaching impact, spanning from ensuring industry compliance and product quality to fostering innovation and safety across multiple sectors reliant on clean and sterile environments.
4. **Student team Details/Faculty Mentor:**
   1. Dr. D V L Sarada
   2. Mr. Aditya Lahari
5. **Establishment date of the Company/Start-up/Commercialization**: 27/10/2020
6. **One paragraph on the Company/Start-Up covering all the points**: Lahari Enterprises provide services & supplies for clean room Consumables Requirement . We cater our products and services to Pharmaceutical, Medical devices ,Biotech, Electronics, Semiconductor and Aerospace industry.

Start-Up-314: Network Without Borders (NWB)

1. **Name of the Company/ Start-up**: Network Without Borders (NWB)
2. **Highlights of the Company/Start-up:**

Product	: Surveillance System using Raspberry Pi
Investment	: Rs. 2,31,602.13
Employment generated	: 2
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: The camera determines the best shot of atarget face through detecting, tracking, capturing, grading, and selecting. The camera captures the face and outputs the details such as name, ID and time stamp for an attendance system, which can be easily extended to a smart door system. The camera uses a face exposure function to dynamically adjust the face area exposure of captures and ensures high face picture quality.
4. **Student team Details/Faculty Mentor:**
   1. Dr. Parthiban N
   2. Ms. Kaviyapriya
5. **Establishment date of the Company/Start-up/Commercialization**: 08/03/2021
6. **One paragraph on the Company/Start-Up covering all the points**: Empowered by deep learning algorithms, IRIS brings human and vehicle targets classification alarms to front- and back-end devices. The system is a face recognition

based attendance log / door lock system. IRIS is customizable as per user requirements and is an easy to use product.

Start-Up-315: Vembu

1. **Name of the Company/ Start-up**: Vembu
2. **Highlights of the Company/Start-up:**

   Product : Oxygen Concentrator

   Investment : Rs. 1,74,767

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: The impact of oxygen concentrators lies in their ability to provide accessible, cost-effective, and continuous oxygen therapy, significantly improving the quality of life for patients with respiratory conditions. As technology advances, more portable and efficient concentrators are being developed, further expanding their positive impact on healthcare.
4. **Current Status of the Company/Start-up**: Under Process
5. **Student team Details/Faculty Mentor:**

   1. Dr. K. Anbalagan
   2. Bhavya Ghorawat
   3. Kirubakaran D.
6. **Establishment date of the Company/Start-up/Commercialization**: 10/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Oxygen concentrators provide a sustainable source of oxygen for patients with respiratory conditions like COPD, asthma, or those recovering from surgery. They enable patients to receive oxygen therapy at home, reducing the need for hospital stays and increasing access to care, especially in remote or underserved areas.

Start-Up-316: ReFlow

1. **Name of the Company/Start-up**: ReFlow
2. **Highlights of the Company/Start-up :**

   Product/Service : Optimize Processes

   Investment : Rs. 2,50,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized

This empowers businesses to make informed decisions, optimize processes, and improve overall efficiency

3. **Impact it will create (including social impact, if any)**
   - Reflow Technologies creates a significant impact by providing precise measurements using IoT and industrial-grade sensors, along with a range of other essential features. This not only enhances operational efficiency and productivity for businesses but also generates social benefits and promotes a sustainable future.
   - On the operational front, Reflow Technologies' industrial-grade sensors and IoT-enabled data acquisition enable highly accurate measurements and real-time monitoring. This empowers businesses to make informed decisions, optimize processes, and improve overall efficiency. The centralized monitoring through a single dashboard further simplifies operations and enhances productivity. By offering comprehensive back-end support, Reflow Technologies ensures a seamless implementation and utilization of their automation and measurement systems.
   - Beyond operational impacts, Reflow Technologies also addresses social aspects. The emphasis on safety through accurate measurements and real-time monitoring helps mitigate risks, creating a safer working environment for employees. The company's commitment to environmental sustainability is reflected in optimized resource utilization, reduced waste, and lower energy consumption. By facilitating knowledge sharing and collaboration, Reflow Technologies fosters industry-wide improvements and promotes the adoption of sustainable practices.
   - In addition, Reflow Technologies contributes to economic growth by enhancing competitiveness and attracting investments. The creation of job opportunities, particularly in emerging roles related to automation, supports skills development and benefits the workforce. The company's holistic approach to societal impact ensures that the benefits extend beyond business efficiency, positively impacting the community and the environment.
   - Overall, Reflow Technologies' innovative solutions not only optimize operations, improve efficiency, and drive productivity but also create social value by

ensuring safety, promoting sustainability, supporting economic growth, and fostering collaboration.

4. **Current Status of the Company/Start-up**
   - As of the current status, Reflow Technologies has two verticals: commercial automation and industrial automation. In the commercial automation vertical, the company has developed a 3-channel sensor and Water Motor controller. These products cater to the needs of businesses in various sectors, offering automation solutions for improved efficiency and control. The development of these products indicates progress in providing commercial automation systems.
   - In the industrial automation vertical, Reflow Technologies is in the final stages of completing an industrial sensor. This sensor is designed to meet the specific requirements of industrial processes, aiming to enhance productivity, accuracy, and overall operational effectiveness. The near completion of the industrial sensor signifies advancements in developing automation and measurement systems tailored for industrial applications.
   - With both verticals, Reflow Technologies is actively working on expanding its product offerings and providing comprehensive solutions for diverse industries. The development of these sensors reflects the company's commitment to innovation and addressing the automation needs of businesses in different sectors.
5. **Student team Details**
   1. Chakreesh M.
   2. Rajkumar M.
   3. Harshit Singh
   4. Vishnu Murali
6. **Establishment date of the Company/Start-up/Commercialization**

   10th August 2022
7. **One paragraph on the Company/Start-Up covering all the points.**

   Reflow Technologies is a dynamic start-up operating in two verticals: commercial automation and industrial automation. With a strong focus on innovation, the company has successfully developed a range of products, including a 3-channel sensor and Water Motor controller for commercial automation, as well as an

industrial sensor that is nearing completion for industrial applications. By leveraging IoT and industrial-grade sensors, Reflow Technologies provides precise measurements, real-time monitoring, and a centralized dashboard, empowering businesses to optimize their operations, improve efficiency, and make data-driven decisions. With a commitment to safety, sustainability, and economic growth, Reflow Technologies not only enhances operational effectiveness but also creates social impacts by promoting a safer working environment, supporting environmental sustainability, and fostering collaboration within industries.

Start-Up-317: Airdonex's

1. **Name of the Company/Start-up**: Airdonex's
2. **Highlights of the Company/Start-up**

Product/Service	: Medical Delivery Drone
Investment	: Rs. 2,50,000
Employment generated	: 2
Commercialized or not	: No

3. **Impact it will create (including social impact, if any)**
   - Airdonex's Medical Delivery Drone, Beetle, has the potential to create a significant impact in both society and the healthcare industry. Here are some ways in which it can bring about positive changes:
   - **Enhanced** Accessibility: Beetle can reach remote or hard-to-reach areas that may have limited infrastructure or face challenges in traditional transportation methods. This accessibility ensures that essential medicines, particularly in emergency situations, can be delivered promptly to those in need, regardless of their location.
   - Improved Healthcare in Rural Areas: Many rural areas lack well-equipped medical facilities, making it difficult for residents to access necessary medications or organs for transplants. Beetle can bridge this gap by providing efficient and timely delivery services, thereby improving healthcare access and potentially saving lives.
   - Faster Delivery Times: Traditional transportation methods often face traffic congestion and delays, which can be critical when transporting time-sensitive

medical supplies or organs. Beetle's ability to bypass ground obstacles and traffic can significantly reduce delivery times, ensuring that medicines and organs reach their destinations quickly and efficiently.

- Increased Cost-effectiveness: The use of Beetle can potentially lower transportation costs compared to traditional methods. It eliminates the need for specialized vehicles or infrastructure, reducing expenses associated with operating a delivery network. This cost-effectiveness can have a positive impact on healthcare systems, especially in resource-constrained areas.
- Minimized Human Error: With Beetle's advanced navigation and automation capabilities, the risk of human error in medical deliveries is significantly reduced. The precise flight control and integrated safety features ensure secure transportation, minimizing the chances of mishaps during transit.
- Environmental Benefits: By utilizing drones for medical delivery, Beetle contributes to reducing carbon emissions and pollution associated with conventional transportation methods. This eco-friendly approach aligns with sustainability goals and supports a greener future for the healthcare industry.
- Research and Development: Airdonex's continuous efforts in drone technology for medical delivery contribute to advancements in the field. As the industry evolves, valuable insights and data gathered through Beetle's operations can drive further research and development, leading to improvements in drone capabilities and expanding their potential use in healthcare.

Overall, Airdonex's Medical Delivery Drone, Beetle, has the potential to revolutionize medical logistics, making healthcare more accessible, efficient, and cost-effective. By ensuring timely delivery of medicines and organs, Beetle can save lives, particularly in underserved areas, and positively impact the healthcare industry as a whole.

4. **Current Status of the Company/Start-up:** Airdonex's Medical Delivery Drone, Beetle, has completed a successful proof of concept (POC) and is now preparing for real-time testing in live environments. This significant milestone brings Beetle closer to practical implementation for medical deliveries. The team is focused on ensuring safety, optimizing operational efficiency, and collecting valuable data to refine the drone's capabilities. Airdonex is excited about the potential impact Bee-

tle can have on revolutionizing medical logistics and improving healthcare accessibility.

5. **Student team Details**

   1. Chandru Rajendran
   2. Cibhi Adhinath
   3. Abhishek
   4. Gargi Paul

6. **Establishment date of the Company/Start-up/Commercialization**

   Company has been incorporated as Airdonex Technologies Private Limited on 21st July 2021 and Certified by DPIIT as a Startup

7. **One paragraph on the Company/Start-Up covering all the points.**

   Airdonex, a pioneering drone startup, was established by Chandru and Cibhi on 21st July 2021. Since its inception, Airdonex has been committed to leveraging innovative drone technology to make a significant impact in the healthcare industry. With their Medical Delivery Drone, Beetle, Airdonex aims to revolutionize medical logistics and improve healthcare accessibility. The establishment of Airdonex marks a milestone in the pursuit of transforming the way essential medicines and organs are delivered, ultimately saving lives and making a positive societal impact.

Start-Up-318: BOSU BALL BIOFEEDBACK

1. **Name of the Company/ Start-up:** BOSU BALL BIOFEEDBACK
2. **Highlights of the Company/Start-up:**

   Product : Construct the Bio Feedback Device for Balance Training in Normal Individual's Using Bosu Ball

   Investment : Rs. 32,210

   Employment generated : 4

   Commercialized or not : Not Commercialized

3. **Impact it will create (including social impact, if any)**: Constructing a biofeedback device for balance training using a Bosu ball not only aids in physical fitness but also encourages technological advancements and promotes better health outcomes, impacting individuals' lives positively across various demographics and activity levels.

4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Aravind S.
   2. Raja Rishi
   3. Divyanshu Chourasiya
   4. Mr. Suresh J.
6. **Establishment date of the Company/Start-up/Commercialization**: 08/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** BOSU stands for “Both Sides Up.” When you first start balancing on a Bosu ball, place the flat side down so you stand on the rounded surface. Keeping your knees soft, stand with both feet on it. Progress to semi-squats, then full squats. Lunge forward, placing one foot in the center of the Bosu ball, then push up to balance on one foot. You can also throw a medicine ball against a wall or do some basic strength training while standing on the rounded surface of the Bosu ball. Standing on the flat surface of the Bosu ball can offer a different challenge to you balance. However, doing so while lifting weights is not recommended; the same recommendation holds true for the wobble board. Based upon this principle we planned to construct the device which is going to give bio feedback (auditory Feedback) which helps to alter the limb for weight bearing and to improve balance.

Start-up-319: COASTRACK

1. **Name of the Company/ Start-up:** COASTRACK
2. **Highlights of the Company/Start-up:**

Product	: COASTRACK
Investment	: Rs. 258,036.00
Employment generated	: 3
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: OCR (Optical Character Recognition) is a process of extracting text information from an image. It involves analyzing an image and identifying characters present in it, then converting those characters into machine-readable text. In our main model, the OCR will be implemented to classify the boats and ships based on their names and utility.

4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Dr. Selvakumar Samy
   2. Atulya Deep
   3. Gautam J.
   4. Brijesh Kumar
   5. Neelak Dasgupta
   6. Sounak Singh
6. **Establishment date of the Company/Start-up/Commercialization**: 07/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** We consider the problem of automatic accounting of the fishermen and fishing boats at sea in harbours in real time. We have created a custom database of normal and thermal images which in turn would be used for facial recognition at the coast and harbour. We are using CNN models to verify the data from the camera's modules installed at the harbours. We are also using object detection to keep track of the fishing boats that move in and out of the sea ports. A csv report is generated at last for saving the information and analytics.

Start-Up-320: YARD MAIN

1. **Name of the Company/ Start-up**: YARD MAIN
2. **Highlights of the Company/Start-up:**

Product	: AI based condition monitoring system for yard activities
Investment	: Rs. 160,516.00
Employment generated	: 3
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: The increasing temperature could be an indication of excessive friction, poor lubrication, or inadequate cooling, which can cause significant wear and tear on the motor components and ultimately lead to breakdowns. Therefore, it is important to monitor the temperature of the motor regularly and take appropriate measures to prevent overheating and breakdowns.

To mitigate the risk of breakdowns, steps such as ensuring proper lubrication, improving cooling, or reducing the load on the motor may be taken. Additionally, maintenance schedules could be established and followed to inspect and repair the motor as needed.

4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Sivaprasath S.
   2. Vibhu Jain
   3. Yash Goel
   4. N. Muhammad Fadil
6. **Establishment date of the Company/Start-up/Commercialization:**07/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Traditional manufacturing's lack of planned maintenance leads to costly unplanned down-time. Scheduled maintenance is proactive but increases non-operational time and costs. Industry 4.0 drives predictive maintenance (PdM). This project en-hances PdM with AI algorithms and sensors, reducing downtime costs and im-proving equipment availability.

Start-Up-321: EEL Motors Private Limited

1. **Name of the Company/ Start-up:** EEL Motors Private Limited
2. **Highlights of the Company/Start-up;**

Product	: Wireless Charging based Electric Skate Scooter
Investment	: Rs. 74,651.00
Employment generated	: 3
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: To combat congested commutes and reduce carbon emissions, we propose a low-cost, flexible electric scooter with wireless charging for short trips. Our project aims to design an E-skate scooter with wireless charging technology, offering a more efficient and maintenance-free alternative to traditional wired chargers.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. M. Yuvabharath

2. K. Sateesh Kumar
3. S. Raghavendran

6. **Establishment date of the Company/Start-up/Commercialization:**
7. **One paragraph on the Company/Start-Up covering all the points:** Inside the SRMIST campus, skate scooters are fully developed and tested to a range of 1500 km. The range of this vehicle is 25 kilometers per charge. The design of the vehicle body is an open source design that is only developed and manufactured in this project. The vehicle has been tested on various roads and congested areas and it performs well. But in some situations the stability of the vehicle is not good, because of design and manufacturing. The only thing left is the wireless charger. It has to be developed and installed in the vehicle. For wireless charging, the inverter is ready, remaining coil, rectification and CCCV controller need to be added.

Start-Up-322: SEVITHIRAN Application

1. **Name of the Company/ Start-up:** SEVITHIRAN Application
2. **Highlights of the Company/Start-up:**

Product	: SEVITHIRAN Application
Investment	: Rs. 1,01,391.00
Employment generated	: 3
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: This initiative has the potential to bring about positive changes by providing accessible, evidence-based rehabilitation for Tamil-speaking children with hearing loss, thereby fostering their development, communication skills, and overall well-being.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

1. P. Akshya
2. Sandesh Jain
3. Naman Sharma
4. Praveena J.
5. R. Rajkumar
6. P. A. Sridhar

6. **Establishment date of the Company/Start-up/Commercialization**: 11/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** This project develops a device to enable parent-monitored self-training for children using hearing aids. It supports parents without access to auditory training, offering evidence-based rehabilitation through pre- and post-rehabilitation assessments. The device offers a systematic intervention in Tamil, tailored for native Tamil-speaking children with hearing loss.

Start-Up-323: Integrals

1. **Name of the Company/ Start-up:** Integrals
2. **Highlights of the Company/Start-up:**

Product	: Smart Electricity conservation system
Investment	: Rs. 23,395.00
Employment generated	: 3
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: Conservation of energy is imperative for the development of the country. The critical electrical energy situation is one of the immense challenges in the developing nations of the globe. Though there are many ways of preservations, one of the simplest and efficient ways is to turn off the electricity when it is not needed. Many electricity conservation systems have been designed and developed for serving this purpose so far but all of these systems exist with sensors. An ideal conservation method would be to use the existing resources to save electric power so that additional equipment cost could be avoided.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Ms. S. Ushasukhanya
   2. Dr. T. Y. J. Naga malleswari
   3. Debaditya Sen
   4. Ritesh Bucha
6. **Establishment date of the Company/Start-up/Commercialization**: 08/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** The objective of this work is to devise a definite and robust smart device that detects a hu-

man in an indoor environment and manages the electric supply accordingly. The surveillance footage of different indoor environments is considered. Instead of using a sensor-based design to manage the electrical supply our work uses Existing CCTV surveillance to detect a human in the frames. CNN is used to classify the images with and without human. As the input is live CCTV surveillance video, enormous training was required. The model's hyper-parameters are tuned and are finally optimized which increases the average prediction accuracy by 0.92 in classifying the images. The model is evaluated on the CHOKEPOINT dataset. The model is embedded with an Arduino microcontroller, which turns the power supply on whenever a human is detected in a frame and switches it to off mode in the human's absence.

Start-Up9-324: LOTEX MICROTECHNOLOGIES

1. **Name of the Company/ Start-up**: LOTEX MICROTECHNOLOGIES
2. **Highlights of the Company/Start-up:**

   Product : Rhythm Monitor

   Investment : Rs. 89,666.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Advances in circadian rhythm measurement through technology offer a transformative impact on healthcare. Precise monitoring via wearables enables individuals to understand their unique patterns, aiding informed choices in sleep, exercise, and diet. For healthcare providers, these insights lead to tailored interventions addressing specific disruptions, enhancing treatment efficacy. Measures like CFI, IV, and RA afford detailed assessments, illuminating connections between circadian health and conditions like mood disorders. This evolving field promises more targeted interventions and improved health outcomes, heralding a future where technology fosters a deeper comprehension of circadian rhythms, empowering proactive health management tailored to individual needs.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

   1. Shalin N.

2. Jerome Samraj M.
3. Ashwin Raja S.
4. Shamunesh P.
5. Viveka M.

6. **Establishment date of the Company/Start-up/Commercialization**: 09/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Our "Rhythm Monitor" hardware tracks sleep, light, wrist temperature, activity, and environmental temperature, calculating circadian function indexes in the cloud. These indexes determine the user's circadian robustness, with a CFI value of zero indicating no rhythm and one indicating robust rhythmicity. Users can effectively monitor their circadian rhythm with this device.

Start-Up-325: AQUA SOFT BOTS

1. **Name of the Company/ Start-up**: AQUA SOFT BOTS
2. **Highlights of the Company/Start-up:**

Product	: Aquabot
Investment	: Rs. 1,90,124.00
Employment generated	: 2
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: Aquabots' emulation of aquatic animals for AUVs aims to surpass existing technology in ocean maneuverability. By studying animal behavior, this project seeks to unlock superior performance in varied ocean environments. The integration of natural systems into technology holds promise for groundbreaking advancements in underwater mobility and exploration.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Aryan Anand
   2. Shinjinee Maiti
   3. Sanka Karthik
6. **Establishment date of the Company/Start-up/Commercialization**: 18/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Aquabots is developing AUVs based on aquatic animal design and capability to improve

performance in a varied environment of the ocean. On comparison of aquatic animal's swimming performance to the conventional AUVs and ROVs demonstrate that natural systems still have maneuvering capability beyond the current state of technology. Hence the main aim of this project is to study and analyze the behavior and movement of different aquatic animals

Start-Up-326: DYV

1. **Name of the Company/ Start-up**: DYV
2. **Highlights of the Company/Start-up:**

   Product : Intelligent IoT Based Affordable Petroleum Soot Separator for Machines, Vehicles and other Industrial Equipments

   Investment : Rs. 38,316.16

   Employment generated : 4

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Soot separators are the inevitable component to remove the dirty particles that comes out from the exhaust hose. Our objective is to make the best use of any fuel that releases soot, and separate the soot particles of varying sizes completely from the exhaust hose. The proposed device will be based on the model of a cyclone separator. The IoT based intelligent algorithm will drive the gears into a particular type of separator based on the type of the particle.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

   1. Sachi Kumari
   2. S. Nithyashree
   3. C. S. Sanjay Krishna
   4. Anusmita Som
   5. Dr. P. Selvaraj
6. **Establishment date of the Company/Start-up/Commercialization:** 08/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Our goal is to optimize fuel utilization by effectively capturing soot particles emitted in exhaust. Using a cyclone separator model, our device aims to thoroughly segregate particles of varying sizes from the exhaust. This system integrates IoT-driven in-

telligent algorithms, dynamically adjusting gears to deploy specific separators based on particle type. By efficiently isolating soot, we aim to enhance environmental sustainability and engine efficiency, offering a tailored approach to soot particle removal in exhaust systems.

Start-up – 12-327: SBSAS

1. **Name of the Company/ Start-up:** SBSAS
2. **Highlights of the Company/Start-up:**

Product	: Sea Border Security Alert System
Investment	: Rs. 2,50,717.00
Employment generated	: 3
Commercialized or not	: Not Commercialized

3. **3. Impact it will create (including social impact, if any)**: The Sea Border Security Alert System revolutionizes maritime security. Utilizing advanced sensors and AI, it detects intrusions, suspicious vessels, or illegal activities, enabling prompt response by authorities. This system fortifies sea borders, curtails smuggling, and enhances surveillance, ensuring heightened security and swift action in safeguarding coastal boundaries.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Mr. G. Vibhu Kumaran
   2. Mr. Suraj ARS
   3. Dr. R. Rajkamal
6. **Establishment date of the Company/Start-up/Commercialization**:
   10/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** We propose a sea border security alert system to protect fishermen from cross-border conflicts. Using GPS and GSM, the system alerts authorities about fishermen's locations. A controller on the boat sends data to the base station for analysis, facilitating quick responses and safeguarding those at sea, especially during cyclone-prone periods.

Start-Up-328: FORETELL DATA LOG

1. **Name of the Company/ Start-up:** FORETELL DATA LOG
2. **Highlights of the Company/Start-up:**

   Product : Preventive maintenance of Electric vehicle

   Investment : Rs. 54,463.00

   Employment generated : 2

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Predictive maintenance in electric vehicles optimizes performance and reliability. Leveraging data analytics and AI, it forecasts potential faults, allowing preemptive repairs. This approach reduces downtime, enhances safety, and extends vehicle lifespan. Ultimately, it ensures efficient operation, boosts user confidence, and paves the way for a more sustainable, reliable electric vehicle future.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

   1. Adithya G.
   2. Nirmal Raj M. U.
   3. Adinath Jayanth Shirodkar
6. **Establishment date of the Company/Start-up/Commercialization**: 09/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Hardware which acquires vehicle data and computes vehicle health status using machine learning then predicts the fault in future and schedules maintenance service automatically

Start-Up-329: SEGURAX

1. **Name of the Company/ Start-up:** SEGURAX
2. **Highlights of the Company/Start-up:**

   Product : Women Safety Shoes

   Investment : Rs. 16,308.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Women's safety shoes address a critical need for comfortable yet protective footwear. These specialized

shoes offer enhanced safety features without compromising style, empowering women in various industries. By prioritizing safety alongside comfort and design, these shoes promote workplace confidence, reduce injury risks, and advocate inclusivity, contributing significantly to women's occupational safety and equality.

4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Kanav Malhotra
   2. Aditya Paul
   3. Shreyansh Kumar
   4. Ronit Roy
6. **Establishment date of the Company/Start-up/Commercialization**: 08/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Women's safety shoes revolutionize workplace comfort and protection, tailored to fit and prioritize women's safety needs. Combining durability with style, these shoes offer slip resistance, reinforced toes, and supportive soles, ensuring optimal safety in various industries. Beyond functionality, they empower women in traditionally male-dominated workplaces, promoting confidence and inclusivity. By addressing specific safety concerns while considering design preferences, these shoes not only reduce workplace hazards but also advocate for gender equality, fostering a more secure and equitable environment for women in diverse occupational settings.

Start-Up-330: Eco Habitat

1. **Name of the Company/ Start-up:** Eco Habitat
2. **Highlights of the Company/Start-up:**

   Product : Cost Effective Medium/Large format Sensor for Higher Resolution Camera

   Investment : Rs. 25,000.00

   Employment generated : 4

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Astronauts require a high-performance camera for capturing celestial bodies with exceptional sharpness, vivid colors, and intricate details. This advanced camera is ideal for video

production, low-light photography, cinematography, and content creation, delivering top-quality results. It can also cater to the film and mobile camera industries, enhancing customer satisfaction.

4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Aastha HarishKumar Patil
   2. Devansh Singh
   3. Divyansh Tyagi
   4. Dr. P. Selvaraj
6. **Establishment date of the Company/Start-up/Commercialization:** 08/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** The development of a cost-effective medium/large format sensor for high-resolution cameras signifies a leap in imaging technology. This innovation allows for increased pixel density, enhancing image clarity and detail in larger formats. By optimizing sensor production, it facilitates more accessible high-resolution cameras, benefiting various industries like cinematography, aerial imaging, and professional photography. The sensor's affordability expands accessibility to superior image quality, previously restricted to high-end systems. This breakthrough democratizes higher-resolution capabilities, empowering creators and industries with sharper, more detailed imaging solutions without the exorbitant costs typically associated with larger format sensors.

Start-Up-331: Kavin Designs

1. **Name of the Company/ Start-up:** Kavin Designs
2. **Highlights of the Company/Start-up:**

Product	: Vehicle saving driver during emergency
Investment	: Rs. 60,253.00
Employment generated	: 4
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: Introducing a groundbreaking safety feature in autonomous vehicles, our model prioritizes passenger health. By seamlessly transitioning to autonomous mode during driver health emergencies, it ensures immediate action. This innovation not only navigates the

vehicle to the nearest hospital, potentially saving crucial time, but also minimizes road hazards caused by incapacitated drivers. Redefining safety standards, this proactive approach not only saves lives but also reassures passengers, fostering trust in autonomous technology. This pivotal enhancement represents a significant leap towards comprehensive vehicle safety, addressing health crises swiftly and decisively, potentially revolutionizing emergency response on the roads.

4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Dr. K. Vadivukkarasi
   2. Sumadeep Juvvalapalem
   3. Marada Rajeev
   4. Edidi Sai Anant
6. **Establishment date of the Company/Start-up/Commercialization:**
7. **One paragraph on the Company/Start-Up covering all the points:** Autonomous vehicles have made significant progress, but addressing driver health emergencies remains a challenge. Our proposed model goes beyond alerting and, in case of unconsciousness due to health issues, the vehicle takes control and directs itself to the nearest hospital, potentially saving lives while waiting for an ambulance.

Start-Up-332: EFFORTEDGE Technologies

1. **Name of the Company/ Start-up:** EFFORTEDGE Technologies
2. **Highlights of the Company/Start-up:**

Product	: Optical Head Mounted Display
Investment	: Rs. 62,431.00
Employment generated	: 2
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: The Optical Head Mounted Display (OHMD) integrates augmented reality into daily life, merging virtual images with the real world. It revolutionizes education, healthcare, retail, and professional sectors, enhancing experiences and productivity by overlaying information and visuals seamlessly, fostering a more immersive and efficient
4. **Current Status of the Company/Start-up**: MVP

5. **Student team Details/Faculty Mentor:**
   1. Shivansh
   2. Dhruv Sikka
   3. Harsavardhan S.
   4. Shashank Patel
   5. Harsh Vardhan
6. **Establishment date of the Company/Start-up/Commercialization:**
7. **One paragraph on the Company/Start-Up covering all the points:** An Optical Head Mounted Display (OHMD) is a wearable device that combines projected images with real-world vision. It uses silvered mirrors to reflect artificial images and allow users to see through it, offering an augmented reality experience through visual and audio inputs for enhanced daily life convenience.

Start-Up-333: ZHA Impact Resistant Precast Concrete

1. **Name of the Company/ Start-up:** ZHA Impact Resistant Precast Concrete
2. **Highlights of the Company/Start-up:**

   Product : Portable Light Weight Prefabricated Bullet Proof Wall for Defence

   Investment : Rs. 2,48,695.26

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: The development of a portable, lightweight, prefabricated bulletproof wall represents a paradigm shift in defense strategies. This innovation offers rapid deployment in conflict zones or crisis situations, fortifying defense perimeters swiftly. Its versatility enables strategic positioning, safeguarding military personnel and critical infrastructure against ballistic threats. Moreover, its mobility and ease of assembly redefine defense tactics, ensuring adaptable protection where needed, potentially saving lives and bolstering defense capabilities in dynamic and high-risk scenarios.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. K. V. Kannan
   2. L. vaishnavi

3. Sakthi Avinash

6. **Establishment date of the Company/Start-up/Commercialization:** 10/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Bullet proof panels with lesser weight and lesser thickness. Incorporation of the Kevlar fiber provide high strength, ductility and flexural stiffness. Replacement of the cement by metakaolin and silica fume gives reduced density and portable properties will be obtained. Addition of the GONS dispersion as enhancer will provide energy absorbing property and flexibility to the cement mortar. These sandwiched material makes the bullet proof wall panel with high protection in war units.

Start-Up-334: ZHA Pre-Fabricated Toilets

1. **Name of the Company/ Start-up:** ZHA Pre-Fabricated Toilets
2. **Highlights of the Company/Start-up:**

Product	: Low Cost Lightweight Pre-Fabricated Toilet
Investment	: Rs. 146,984.00
Employment generated	: 3
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: A low-cost, lightweight, pre-fabricated toilet addresses crucial sanitation needs globally. Its affordability and easy assembly make it accessible in remote or underserved areas, improving hygiene and preventing diseases. This innovation promotes dignified sanitation, particularly in emergencies or areas lacking infrastructure, positively impacting public health, gender equality, and community well-being by providing a fundamental amenity for better living conditions
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

   1. P. Deepak
   2. K. V. Kannan
   3. L. Vaishnavi

6. **Establishment date of the Company/Start-up/Commercialization**: 10/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** The twin pit toilet system is a quick-to-install prefab structure with two underground cham-

bers for fecal sludge. It's efficient and easy to set up, with pits lined with open jointed brickwork. Each pit is designed to hold a year's worth of sludge, promoting sanitation and easy waste management.

Start-Up-335: Projection HESS Chart

1. **Name of the Company/ Start-up:** Projection HESS Chart
2. **Highlights of the Company/Start-up:**

   Product : Construction and Validation of Portable Projectable Hess Chart

   Investment : Rs. 79,616.00

   Employment generated : 2

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: The construction and validation of a portable, projectable Hess chart signifies a transformative step in ophthalmic care. This innovation offers convenient and accurate assessment of eye movement disorders, aiding in diagnosing and treating conditions like strabismus. Its portability facilitates on-the-go examinations, enhancing access to care in remote areas. Additionally, it streamlines assessments in clinical settings, improving efficiency and precision in eye care, ultimately leading to timely interventions and better outcomes for patients with visual disorders.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

   1. Ms. Indirakumari P.
   2. Ms. Pragathi B.
   3. Mr. Kamalesh K.
   4. Ms. Divya S.
   5. Dr. Aiswaryah Radhakrishnan
6. **Establishment date of the Company/Start-up/Commercialization:** 11/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** The Hess Screen is a diagnostic tool for assessing eye deviation in patients with double vision, muscle paralysis, or nerve issues. It employs a wall-mounted chart with curved grid lines and red marks at 15° and 30° from the center. Patients, wearing

red and green goggles, use a green laser pointer to identify these marks from 50cm away.

Start-Up-336: Zero Meat

1. **Name of the Company/ Start-up:** Zero Meat
2. **Highlights of the Company/Start-up:**

   Product : Plant based meat products in regional cuisines of India

   Investment : Rs. 2,50,000.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Integrating plant-based meat into regional Indian cuisines holds immense potential. It respects cultural diversity while offering healthier, sustainable options. This fusion could address dietary preferences and religious considerations, reducing reliance on animal products. It promotes eco-friendly practices, mitigates environmental impact, and supports food security. Furthermore, it introduces novel tastes, attracting wider audiences and fostering a shift towards more ethical and environmentally conscious eating habits, potentially revolutionizing India's culinary landscape towards a more sustainable future.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

   1. Manvi Shrimal
   2. Devkiran Banik
   3. Sharvanika Narayanan
6. **Establishment date of the Company/Start-up/Commercialization:**
7. **One paragraph on the Company/Start-Up covering all the points:** We provide the world, an efficient tool to battle climate change while offering its people a culinary ticket into the underexplored regional cuisines of India via plant-based meat products.

Start-Up-337: Energy Conservative Technologies

1. **Name of the Company/ Start-up:** Energy Conservative Technologies
2. **Highlights of the Company/Start-up:**

   Product : Smart Campus

   Investment : Rs. 80,000.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Implementing a cost-effective smart parking system in India promises a transformative impact. By leveraging IoT technology, it optimizes parking space allocation, reducing congestion and curbing fuel wastage caused by endless circling for parking spots. Real-time updates through a mobile app enhance driver convenience, saving time and minimizing stress. This innovation not only improves urban mobility but also fosters sustainable practices by reducing carbon emissions associated with unnecessary vehicle movement. Ultimately, it enhances city infrastructure, promoting efficient resource utilization and enhancing the overall urban experience for residents and visitors alike.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

   1. Dr. M. Saravanan
   2. Dr. C. Fancy
   3. Raghav Gupta
6. **Establishment date of the Company/Start-up/Commercialization:** 11/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Smart parking employs technology to enhance driver convenience, conserving fuel and time. In India, a cost-effective smart parking system is under development, leveraging IoT. Utilizing sensors and a mobile app, it efficiently allocates parking spaces by providing real-time availability updates and enabling users to book and navigate to their reserved spots, streamlining parking operations.

Start-Up-338: Aerocraft Solutions

1. **Name of the Company/ Start-up:** Aerocraft Solutions
2. **Highlights of the Company/Start-up:**

   Product : Surveillance UAV

   Investment : Rs. 1,80,000.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Overall, the impact of surveillance UAVs is extensive, spanning various sectors. While they offer numerous advantages in terms of efficiency, safety, and data collection, their usage requires careful consideration of ethical, legal, and privacy implications.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

   1. Manvi Shrimal
   2. Devkiran Banik
   3. Sharvanika Narayanan
6. **Establishment date of the Company/Start-up/Commercialization:** 09/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Development of Unmanned Aerial System (UAS) by SRMUAV capable of semi-autonomous flight and imagery. The team has taken steps to achieve a multi-disciplinary engineering solution to be a part of the aerial surveillance technology of the future. Safety, efficiency and accuracy have been the cornerstones for the team's development towards the system.

Start-Up-339: EVGOO

1. **Name of the Company/ Start-up:** EVGOO
2. **Highlights of the Company/Start-up:**

   Product : Dynamic wireless power transfer system applicable to a stationary system

   Investment : Rs. 1,99,063.00

   Employment generated : 4

   Commercialized or not : Not Commercialized

3. **Impact it will create (including social impact, if any)**: However, challenges such as efficiency losses over distance, standardization of charging protocols, and ensuring safety standards are met need to be addressed for widespread adoption. Overall, a dynamic wireless power transfer system for stationary applications has the potential to revolutionize the way we power and interact with devices, offering convenience, efficiency, and adaptability.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Dr. R. Narayanamoorthi
   2. Arpan Mandal
   3. Anirban Gangully
   4. Soumalya Pal
6. **Establishment date of the Company/Start-up/Commercialization:** 14/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Basic idea is to remove the long charging time required by electric vehicles by removing the need for the vehicle to be stationary. There will be two coils one in vehicle another on the path of its travel which will charge the vehicle while it is moving. This will extend the range of vehicle operation and also solve problem of charging.

Start-Up-340: Wirelesscharge Innovation

1. **Name of the Company/ Start-up:** Wirelesscharge Innovation
2. **Highlights of the Company/Start-up:**

   Product : IoT based authentication and billing for dynamic wireless electric vehicle charging system

   Investment : Rs. 160,000.00

   Employment generated : 5

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Overall, integrating IoT-based authentication and billing into dynamic wireless EV charging systems can significantly enhance the adoption, efficiency, and sustainability of electric vehicles, contributing to a cleaner and more efficient transportation ecosystem.
4. **Current Status of the Company/Start-up**:

   MVP

5. **Student team Details/Faculty Mentor:**
   1. Dr. R. Narayanamoorthi
   2. Dr. R. Raj Kumar
   3. Dr. Bala Subramaninan
   4. Mukilan
   5. Athota Vamsi
   6. Devesh Karwasra
6. **Establishment date of the Company/Start-up/Commercialization:** 10/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Electric vehicles (EVs) are gaining prominence as a solution to environmental concerns and energy scarcity. However, inadequate charging infrastructure hinders their adoption. Dynamic wireless charging (DWC) via on-road charging segments can alleviate range anxiety. To ensure efficient use, an Internet of Electric Vehicles (IoEV) facilitates communication and coordination between EVs and charging networks, offering services like scheduling, load management, and secure payments. Establishing authentication for dynamic EV charging is challenging due to mobility and brief contact times. This paper presents a lightweight authentication mechanism, starting with key pre-distribution and followed by hash chain and digital signature-based registration. It reduces computational costs and enhances security, ensuring authenticated EVs can charge securely and efficiently.

Start-Up-341: SUBSEA Explorer

1. **Name of the Company/ Start-up:** SUBSEA Explorer
2. **Highlights of the Company/Start-up:**

Product	: Autonomous underwater vehicle
Investment	: Rs. 2,53,200.00
Employment generated	: 9
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: However, challenges such as limited energy capacity, communication limitations underwater, and the high cost of AUV development and deployment need to be addressed for wider adoption and increased effectiveness. Despite these challenges, AUVs hold im-

mense promise in revolutionizing our understanding of the oceans and their applications across various fields.

4. **Current Status of the Company/Start-up**: Prototype
5. **Student team Details/Faculty Mentor:**
   1. Sai Shiva Tej T.
   2. B. Pranitha
   3. Bhavya Yadav
   4. Shourya Sharma
   5. Harsh S. Menon
   6. Aditya Ganesh
   7. Tejas Gnanasekar
   8. Jose Kevin
   9. Dr. Annapurani P.
6. **Establishment date of the Company/Start-up/Commercialization:** 09.11.2023
7. **One paragraph on the Company/Start-Up covering all the points**: An Autonomous Underwater Vehicle (AUV) is an unmanned, pre-programmed vehicle designed for tasks in hazardous and inaccessible areas. Developed by interdisciplinary students, it's equipped for deep-sea expeditions, torpedoes, and rescue operations, featuring an onboard computer, machine learning-assisted image processing, and protective housing for electrical components. AUVs find applications from entertainment to defense.

Start-Up-342: ROTONICS

1. **Name of the Company/ Start-up**: ROTONICS
2. **Highlights of the Company/Start-up:**

   Product : IoT Enabled Smart Bidirectional Wireless Power Transfer System for Electric Vehicle-to-Home Applications

   Investment : Rs. 189,741.00

   Employment generated : 4

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Challenges such as standardization, interoperability, cybersecurity, and regulatory frameworks need to be addressed to ensure the safe and efficient deployment of V2H systems.

Overall, the implementation of IoT-enabled bidirectional wireless power transfer systems for Electric Vehicle-to-Home applications has the potential to revolutionize energy usage, promote sustainability, and enhance grid resilience.

4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Dr. R Narayanamoorthi
   2. Harshvardhan Singh
   3. Omm Aryan
   4. Shivaditya Singh
6. **Establishment date of the Company/Start-up/Commercialization:** 09/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** The evolution of electric capacity in the current generation is driving the development of modern infrastructure to support the electric system. Government initiatives promoting Electric Vehicles (EVs) necessitate a modern, sustainable infrastructure. Bidirectional Wireless Power Transfer Systems, which enable power flow from the vehicle to the home or grid, play a crucial role. These bidirectional EVs can store and provide energy, offering resilience and demand-response capabilities to buildings. They serve as backup power sources through Vehicle-to-Building (V2B) charging or contribute power to the grid via Vehicle-to-Grid (V2G) charging. IoT enhances these systems, allowing smart and automated power management via mobile or remote control, making them more efficient and adaptable to various energy resources and emergency situations

Start-Up-343: E-Mobility Research Solutions

1. **Name of the Company/ Start-up:** E-Mobility Research Solutions
2. **Highlights of the Company/Start-up:**

Product	: Multidel
Investment	: Rs. 2,00,000.00
Employment generated	: 6
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: MULTIDEL's implementation stands to significantly impact the delivery landscape by improving efficien-

cy, reducing environmental footprint, and advancing the evolution of autonomous delivery systems.

4. **Current Status of the Company/Start-up**: Product ready for market
5. **Student team Details/Faculty Mentor:**
   1. Anirudha Sharma
   2. Abhinav Srinivasan
   3. Devanshi Sheth
   4. Precious Morenikeji
   5. Tushar Goel
   6. Vikash PR
6. **Establishment date of the Company/Start-up/Commercialization:** 16/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** The MULTIDEL is an autonomous delivery vehicle equipped with solar panels and wireless charging, making it environmentally friendly and efficient. It can be used in various settings such as college campuses, hospitals, e-commerce and logistics industry, and crowded urban areas. The MULTIDEL is completely autonomous and would require the least amount of human intervention. It will also be equipped with advanced navigation technology, allowing it to deliver packages safely and efficiently to its destination.

Start-Up-344: AMPX Wireless Solutions

1. **Name of the Company/ Start-up:** AMPX Wireless Solutions
2. **Highlights of the Company/Start-up:**

Product	: Wireless Powered EV Drive Train
Investment	: Rs. 2,24,000.00
Employment generated	: 3
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: Optimizing wireless power transmission efficiency, ensuring safety standards, infrastructure development for widespread adoption, and cost-effectiveness need to be addressed for successful implementation and acceptance of this innovative drive train system. a wireless powered in-wheel drive train has the potential to revolutionize EV

technology by offering improved efficiency, range, and design flexibility, contributing to the mainstream adoption of electric vehicles.

4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Dipankar Kahali
   2. Priyanshu Lalchandani
   3. Sanksar Seetlani
   4. Thaaneshvaran P. D.
   5. Dinesh Kumar S.
6. **Establishment date of the Company/Start-up/Commercialization:** 16/11/2023
7. **One paragraph on the Company/Start-Up covering all the points**: A wireless powered in-wheel drive train is a type of EV propulsion system in which the electric motor is integrated into the wheel hub, and the energy required to power the motor is transmitted wirelessly. This eliminates the need for a battery within the wheel hub, reducing the overall weight and complexity of the drive train. The electric vehicle will receive the power wirelessly from the primary source of the WPT which is placed on the ground and the secondary source will be connected to the vehicle. This type of drive train allows for greater flexibility in vehicle design and can potentially improve the overall efficiency and range of the vehicle.

Start-Up-345: Aegis Cyber Corps

1. **Name of the Company/ Start-up:** Aegis Cyber Corps
2. **Highlights of the Company/Start-up:**

Product	: Cyber Hornet
Investment	: Rs. 2,25,000.00
Employment generated	: 3
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: Challenges such as maintaining system reliability in diverse environments, addressing legal and ethical considerations related to disrupting drone operations, and ensuring compatibility with evolving drone technologies may need to be addressed for widespread adoption and success of your system.
4. **Current Status of the Company/Start-up**: MVP

5. **Student team Details/Faculty Mentor:**
   1. Raghunath VM
   2. Dr. Balaji Srikaanth
6. **Establishment date of the Company/Start-up/Commercialization:** 09/11/2023
7. **One paragraph on the Company/Start-Up covering all the points**: Our project takes on a novel approach by incorporating SDR along with radar and electro-optical sensors. This employs a range of advanced technologies to detect and disrupt the operation of drones in a targeted and efficient manner, while minimizing the risk of collateral interference with other devices.

Start-Up-346: Illuminator

1. **Name of the Company/ Start-up:** Illuminator
2. **Highlights of the Company/Start-up:**

   Product : Development of Low Cost Portable Salt Water Lamp Using Electrochemical-Microfluidic Approach

   Investment : Rs. 1,50,000.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: The low-cost portable saltwater lamp, employing electrochemical-microfluidic tech, offers sustainable, affordable lighting. Ideal for remote areas and emergencies, it's eco-friendly, versatile, and empowers communities lacking electricity access. Its innovative approach revolutionizes lighting solutions, promising a brighter future for underserved regions worldwide.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. G. Keerthiga
   2. Kanishka G.
   3. A. Muthu Venkatesh
6. **Establishment date of the Company/Start-up/Commercialization:** 14/11/2023
7. **One paragraph on the Company/Start-Up covering all the points**: When you put salt in water, the water molecules pull the sodium and chlorine ions apart so they are floating freely, increasing the conductivity. These ions are what carry

electricity through the water with an electric current. In short, saltwater (water + sodium chloride) can help to produce electricity.

23) C. V. R. College of Engineering, District: Ranga Reddy

Start-Up-347: Planet Green India

1. **Name of the Company/ Start-up**:Planet Green India
2. **Highlights of the Company/Start-up**;

   Product : biodegradable eco paper straws and paper products

   Investment : Rs. 5,00,000

   Employment generated : 20

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Pioneering a plastic-free future.
   - Support sustainable green alternatives
   - Planet Green products are made of Naturally sourced materials and drink safe ink.
   - Theseproducts are a safe and extremely suitable alternative to plastic.
4. **Current Status of the Company/Start-up:**
   - The company has started exporting its products to Asia, Australia, Central / South America, Eastern Europe, Mid East/Africa, North America, Western Europe.
5. **Student team Details/Faculty Mentor:**

   1. Hari Hara Reddy Punuru
6. **Establishment date of the Start-up**:21 September 2019
7. **One paragraph on the Company/Start-Up covering all the points**.

   Mr. Punuru Hari Hara Reddy is founder of PLANET GREEN INDIA. It is a Proprietorship with its office registered in Telangana. The company carries out its major operations from Telangana.The company got registered under GST on September 21, 2019 and was allotted 36DLYPP7188A1ZC as the GST Number. The status of this GSTIN is Active. This company is a Regular taxpayer. The products manufactured are Paper straw, Paper Cups & Paper Plates - Manufacturer. Lithium battery recycling.

Start-Up-348: Hopnet Communications LLP

1. **Name of the Company/ Start-up**: Hopnet Communications LLP
2. **Highlights of the Company/Start-up**;

   Product : IIoT, digital manufacturing, and software design and development solutions.

   Investment : Rs. 4,00,000

   Employment generated : 25

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: Hopnet Communications Llp is India-based software development firm, on a mission to revolutionize enterprises into industry leaders through cutting-edge IoT, digital manufacturing, software design and development. Commitment lies in providing solutions that prioritize speed, scalability, security, and innovation, empowering businesses to thrive in the digital age.
4. **Current Status of the Company/Start-up**: It is a leading provider of IIoT, digital manufacturing, and software design and development solutions. The company's expertise lies in seamlessly merging engineering, strategic planning, and cutting-edge design to revolutionize enterprises and propel technology innovators to the forefront of the digital business landscape.Collaborating with forward-thinking companies, the company specializes in delivering solutions that demand rapid execution, scalability, robust security, and groundbreaking innovation for their most pivotal digital products and business imperatives.
5. **Student team Details/Faculty Mentor:**

   1. Tushar Malpani
6. **Establishment date of the Start-up**:20 June 2021
7. **One paragraph on the Company/Start-Up covering all the point**: Hopnet Communications Llp is a Limited Liability Partnership firm incorporated on 20 July 2021. It is registered at Registrar of Companies, Hyderabad. Designated Partners of Hopnet Communications Llp are Tushar Malpani and Moullick Mehra. It provides efficient lean IIoT, digital manufacturing, and software design and development solutions.

Start-Up-349: Pravysva Innovations Private Limited

1. **Name of the Company/ Start-up**: Pravysva Innovations Private Limited
2. **Highlights of the Company/Start-up**;

   Product : Renewable Energy Semiconductor

   Investment : Rs. 10,00,000

   Employment generated : 8

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: The company is into building products to solve air pollution, decarbonization and global warming at scale.Specialties of the company are Carbon capture, Tailpipe emissions, plastic pollution control, air pollution control, air pollution monitoring, Emission reduction technologies, Science based targets, climate change, global warming, and social impact.
4. **Current Status of the Company/Start-up**: Pravysva Innovations Private Limited is involved in manufacture of general purpose machinery. As regarding the financial status on the time of registration of Pravysva Innovations Private Limited Company its authorized share capital is Rs. 1000000 and its paid up capital is Rs. 50000.
5. **Student team Details/Faculty Mentor:**

   1. KallakuriYeshwanth Surya
6. **Establishment date of the Start-up**:19 July 2021
7. **One paragraph on the Company/Start-Up covering all the points**: Pravysva Innovations Private Limited is an unlisted private company incorporated on 19 July, 2021. It is classified as a private limited company and is located in Hyderabad, Telangana. The longest serving directors currently on board are Sriran-gapatna Ranga Prasad Pranav Hebbar and Kallakuri Yeshwanth Surya who were appointed on 19 July, 2021. They have been on the board for 2 years and 2 months. It is into building solutions to combat air pollution and global warming.

Start-Up-350: CodingForAll

1. **Name of the Start-up**: CodingForAll
2. **Highlights of the Company/Start-up**;

   Product : Digital Literacy learning Platform for underprivileged students

   Investment : Rs. 1,00,000

   Employment generated : 28

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any)**:CodingForAll runs its flagship program in government & affordable private schools to teach coding to secondary students and also equip them with other ancillary skills required for career readiness. Each of our students is part of our 'class to career pipeline' and our intervention with our students is for 8 years starting in secondary school, continuing through college, and supporting them till they land their first dream job.
4. **Current Status of the Company/Start-up**: It has got funding from SVP India Rs 4,00,000 as early stage funding.
5. **Student team Details/Faculty Mentor:**

   1. Alahari Virinchi
6. **Establishment date of the Start-up**: 01/10/2021
7. **One paragraph on the Company/Start-Up covering all the points**: CodingForAll imparts digital literacy and coding skills to those 425 million children in India who do not have access to a computer. CodingForAll is a non-profit leading the digital inclusion movement in India by teaching coding in regional Indian languages to students who do not have access to a computer.Coding For All Clubs are free after-school programs for 8-10th grade students who are not part of a Coding For All intervention school but want to join our community and access our learning material to teach and explore coding and computer science with their peers in their own school.

Start-Up-351: Tarana Media (Opc) Private Limited

1. **Name of the Company/Start-up**: Tarana Media (Opc) Private Limited
2. **Highlights of the Company/Start-up**:

   Products : Mobile app and computer website designing

   Investment : Rs 10,00,000

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: Tarana is a mobile application that provides users with music-related content. It immerse users in completely new music-related experiences with this application. The algorithm that has been developed is extremely powerful in that it provides relevant music content to the user based on his or her interests.
4. **Current Status of the Company/Start-up**: Its in early start-up stage. It has authorized share capital of Rs.1,000,000 and has paid up capital of Rs.1,000,000.
5. **Student team Details**

   1. Sangi Dileep Chakravarthi
6. **Establishment date of the Company/Start-up/Commercialization**:

   04 May 2021
7. **One paragraph on the Company/Start-Up covering all the points**: Tarana Media (Opc) Private Limited incorporated with MCA on 04 May 2021. The Tarana Media (Opc) Private Limited is listed in the class of company and classified as Non Govt Company. This company is registered at Registrar of Companies(ROC), Telangana with an Authorized Share Capital of Rs. 10 LAC and its paid up capital is 10 LAC. The company has 1 directors/key management personal Dileep Chakravarthi Sangi . The company is into mobile application as well as in Other computer related activities [for example maintenance of websites of other firms/ creation of multimedia presentations for other firms etc.]

Start-Up-352: EForge NexGen Innovations

1. **Name of the Company/Start-up**: EForge NexGen Innovations
2. **Highlights of the Company/Start-up**:

   Product/Service : Digital precision farming system and pump controller

   Investment : Rs. 3,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it willc reate (including social impact,if any)**

   Precision farming can help farmers to be more efficient and cost-effective in their operations, as well as to improve the environmental sustainability of their farming practices. It can also help farmers to produce higher-quality crops by optimizing the growing conditions for specific types of crops. The proposed work will create awareness to the farmers about the limited usage of required resources that will impact in precision farming.
4. **Current Status of the Company/Start-up:**

   The start-up is in the initial stages of targeting the customers and creating awareness among the customers regarding the product through various promotional strategies.
5. **Student team Details**

   1. Gaddam Vivek
   2. Sahithi Vangala
   3. Gopu Saikiran
   4. Dudekula Anwar Baasha
   5. Pulijala Bharath Chandra
   6. Kurukuti Yasash
6. **Establishment date of the Company/Start-up/Commercialization:** 9.1.2023
7. **One paragraph on the Company/Start-Up covering all the points.** EForge NexGen INNOVATIONS was established on 9/01/2023. It is a private limited company. CEO of the company is Gaddam Vivek. There are 5 directors. The vision of the company is to “Precision farming for farmers” and pump controller. The products being developed is Digital precision farming system. Target customers are farmers. It was started with an initial investment of Rs 3 lakhs.

   Future plans are

- to add more products
- to penetrate deep into the market
- to attract more investments from investors
- to break even in a span of 4 years
- to make it a 10 crore business in a span of 5 years.

Start-Up-353: Becoba Energy Systems INDIA Private Limited

1. **Name of the Company/Start-up**: Becoba Energy Systems India Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Power banks, Market Yard Lamps

   Investment : Rs. 75,00,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any)**
   - It will reduce the batterie cost and increases its usability & adds sustainability.
4. **Current Status of the Company/Start-up**
   - Registered
   - MOU Signed
   - Grants Received.
   - Funding Round finished.
5. **Student team Details**

   1. K. Vigneshwar
   2. D. Venkata Sarath Sai
   3. B. Preethika
6. **Establishment date of the Company/Start-up/Commercialization**: 11-04-2023
7. **One paragraph on the Company/Start-Up covering all the points.** Becoba Energy Systems INDIA Private Limited was established on 11-04-2023. It is a private limited company. CEO of the company is K. Vigneshwar. There are 5 directors. The vision of the company is to “Cost effective energy conservation for better environment”. The company has got seed funding of Rs 4 lakhs from Incubation Center, ICFAI and also in the process of getting 50 lakhs from HDFC Bank. The products being developed are Power banks and Market Yard Lamps. Target customers for Market Yard Lamps are vendors and shop keepers. The

target customers for Power Banks are frequent travelers and students staying in remote areas. Future plans are to add more products and to penetrate deep into the market to make it a 50 crore business in a span of 5 years.

Start-Up-354: Exitodigitech Private Limited

1. **Name of the Company/Start-up**: Exitodigitech Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : E-ink Display boards

   Prototype Grant : Rs 2,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any)**

   Displaying of information is vital and critical task, in various places such as like railway stations, bus stations, airports and colleges in the form of notice boards. These displaying of relative information to the field has been happening by using paper or old fashion display technologies such as like p10,p3 matrices and by using paper displays. These display techs come with their own disadvantages such as like over brightness which can harm eyes, bulky setups, continuous power consumption. So, we propose a display using the latest e-paper display technology which is light weighted and has less power consumption.
4. **Current Status of the Company/Start-up**:

   The start-up is in the initial stages of targeting the customers and creating awareness among the customers regarding the product through various promotional strategies.
5. **Student team Details**

   1. Kunti Aruna

   2. Ajith Reddy
6. **Establishment date of the Company/Start-up/Commercialization**:6/07/2023
7. **One paragraph on the Company/Start-Up covering all the points**.: Exitodigitechis a private limited company, our company name and documents approved on 06/07/2023. Kunti Arunais CEO of our company. There are 3 directors and 2 interns. The vision of the company is to introduce and commercialize the E-ink display technology. The products being developed are for advertisings,

Shelf displays and watches. The USP is that there is low power energy consumption and reduces eye strain. Target customers are Malls and Advertising agencies. It was started with an initial prototype fund given by NewGen IEDC.

Future plans are

- to add more products.
- to penetrate deep into the market.
- to attract more investments from investors.
- to break even in a span of 4 years.
- to make it a 10-crore business in a span of 5 years.

Start-Up-355: Farmex Innovations Private Limited

1. **Name of the Company**: Farmex Innovations Private Limited
2. **Highlights of the company/start-up**:

   Product/Service : IoT based storage of fruits and vegetables

   Prototype Grant : Rs 2,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: It will increase the shelf life of fruits and vegetables. This will help the farmers to reduce their losses incurred from decaying of fruits and vegetables.
4. **Current Status of the Company/Start-up**: The start-up is in the initial stages of targeting the farmers and creating awareness among the farmers regarding the product through various promotional strategies.
5. Students team details:

   1. Sri Sai Nandini
   2. Nukala Rikitha
   3. Unmesh Peri
   4. Nandipati Jyothsna Santhoshi
   5. Sana Amreen
6. **Establishment date of the Company/Start-up/Commercialization**:

   14 July 2023
7. **One paragraph on the Company/Start-Up covering all the points**: Farmex Innovations Private Limited is a private limited company. Company name and doc-

uments approved on 14/07/2023..Sri Sai Nandiniis CEO of our company. There are 4 directors. The vision of the company is to introduce and commercialize the IoT based storage technology to increase shelf life of fruits and vegetables. The USP is that there is low power energy consumption and less maintenance is required. Target customers are farmers. It was started with an initial prototype fund given by NewGen IEDC.

Future plans are

- to add more products.
- to penetrate deep into the market.
- to attract more investments from investors.
- to break even in a span of 5 years.
- to make it a 5-crore business in a span of 5 years.

Start-Up-356: TYCHE Digital Solutions Pvt Ltd.

1. **Name of the Company/Start-up**: TYCHE Digital Solutions Pvt Ltd.
2. **Highlights of the Company/Start-up**:

   Product/Service : E-ink Display boards

   Prototype Grant : Rs 2,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any)** Displaying of information is vital and critical task, in various places such as like railway stations, bus stations, airports and colleges in the form of notice boards. These displaying of relative information to the field has been happening by using paper or old fashion display technologies such as like p10,p3 matrices and by using paper displays. These display techs come with their own disadvantages such as like over brightness which can harm eyes, bulky setups, continuous power consumption. So, we propose a display using the latest e-paper display technology which is light weighted and has less power consumption.
4. **Current Status of the Company/Start-up:**

   The start-up is in the initial stages of targeting the customers and creating awareness among the customers regarding the product through various promotional strategies.

5. **Student team Details/Faculty Mentor:**
   1. A. Ajith Reddy
   2. Sri Chandana
   3. Adithya Srinivas
   4. K. Aruna
6. **Establishment date of the Company/Start-up/Commercialization:** 6/07/2023
7. **One paragraph on the Company/Start-Up covering all the points: Exito digitech** is a private limited company, our company name and documents approved on 06/07/2023. **Kunti Aruna** is CEO of our company. There are 3 directors and 2 interns. The vision of the company is to introduce and commercialize the E-ink display technology. The products being developed are for advertisings, Shelf displays and watches. The USP is that there is low power energy consumption and reduces eye strain. Target customers are Malls and Advertising agencies. It was started with an initial prototype fund given by **NewGen IEDC.**

   Future plans are
   - To add more products.
   - To penetrate deep into the market.
   - To attract more investments from investors.
   - To break even in a span of 4 years.
   - To make it a 10-crore business in a span of 5 years.

Start-Up-357: Wattron Innovations Pvt. Ltd.

1. **Name of the Company/Start-up**: Wattron Innovations Pvt. Ltd.
2. **Highlights of the Company/Start-up**:

Product/Service	: BTMS in EV Batteries
Investment	: Rs 3,00,000
Employment generated	: 05 people
Commercialized or not	: Yes, Commercialized
3. **Impact it will create (including social impact,if any):**

   It will improve the charging and discharging efficiency of the EV batteries.
4. **Current Status of the Company/Start-up:** It is registered and in the process of getting financial support from bank also. It is in its early stages of commercialization process.

5. **Student team Details**
   1. M. Sai Vamshi Reddy
   2. Alapakam Nikil
   3. Sainath Beemanapally
6. **Establishment date of the Company/Start-up/Commercialization: 06/07/2023**
7. **One paragraph on the Company/Start-Up covering all the points.:** Wattron Innovations Pvt. Ltd is a private limited company established on 6/07/2023. CEO of the company is Sai Vamshi. There are 4 Directors of the company. The vision of the company is “Safety of Electric Vehicles”. The product being developed is Liquid-cooled battery thermal management system. USP is self-cooling technology when the battery is under load conditions. Target customers are Battery manufacturing companies of passenger and commercial vehicles. Future plan is to expand the business to a 10 crore valuation in a span of five years.

Start-Up-358: TRAINIFY Innovations Private Limited

1. **Name of the company**: TRAINIFY Innovations Private Limited
2. **Highlights of the company/start-up**:

   Product/Service : Software for exercise tracking

   Prototype Grant : Rs 2,00,000

   Employment generated : 6

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any**: It will help in tracking of exercise and yoga through software. This will help individuals to improve their postures while exercising.
4. **Currrent Status**: It is in early Stage.
5. **Students team details**
   1. T. Akhilender Reddy
6. **Establishment date of the Company/Start-up/Commercialization**: 31.07.2023
7. **One paragraph on the Company/Start-Up covering all the points**: TRAINIFY Innovations Private Limited is a private limited company. Company name and documents approved on 31/07/2023.T. Akhilender Reddyis CEO of our company. The vision of the company is “improve exercise postures for fitness’.The USP is

dynamic pose recognition. Target customers are those into fitness. It was started with an initial prototype fund given by NewGen IEDC.

Future plans are:

- to add more products.
- to penetrate deep into the market.
- to attract more investments from investors.
- to break even in a span of 5 years.
- to make it a 30-crore business in a span of 5 years.

24) Sumathi Reddy Institute of Technology for Women, Warangal Urban

Start-Up-359: Magic Eye

1. **Name of the Company/Start-up** : Magic Eye
2. **Highlights of the Company/Start-up;**

   Product : Alcohol detector – Magic eye

   Investment : Rs. 12,000

   Employment generated : Not Yet

   Commercialized or not : Not Yet
3. **Impact it will create (including social impact, if any):** Drunk and drive is a major hazard on Indian roads. Currently, police are using breathalyzers to check the menace. However, that is subject to a police force check and does not prevent a drunk person from driving a car till he is physically caught.
4. **Current Status of the Company/Start-up** : Will start product production and commercialization
5. **Student team Details**

   1. P. Madhurya
   2. P. Chandana
   3. T. Kavya
   4. A Sri Veneela
   5. Rehana Begum
6. **Establishment date of the Company/Start-up/Commercialization**:

   20/02/2020

Start-Up-360: Pond Skimmer

1. **Name of the Company/Start-up** : Pond Skimmer
2. **Highlights of the Company/Start-up**;

   Product : Pond Skimmer – Filter

   Investment : Rs. 12,000

   Employment generated : Not Yet

   Commercialized or not : Not Yet
3. **Impact it will create (including social impact, if any)** : It is using to collect dust in ponds of Zoological park in Warangal.
4. **Current Status of the Company/Start-up** : Will start product production and commercialization
5. **Student team Details**

   1. M. Lakshmi
   2. M. Veda Sreshta
   3. P. Bindhu Sree
6. **Establishment date of the Company/Start-up/Commercialization**: 25/02/2020

Start-Up-361: Know me – A Smart Mover

1. Name of the Company/Start-up : Know me – A Smart Mover
2. Highlights of the Company/Start-up;

   Product : Smart Mover

   Investment : Rs. 12000/-

   Employment generated : Not Yet

   Commercialized or not : Not yet
3. **Impact it will create (including social impact, if any)**: using in our college bus
4. **Current Status of the Company/Start-up** : Will start product production and commercialization
5. **Student team Details**

   1. Manichandaa
   2. Madhumitha. M
   3. G. Supriya
   4. M. Swetha
6. **Establishment date of the Company/Start-up/Commercialization**: 5/03/2020

Start-Up-362: Mikado Curative Solutions Private Limited

1. **Name of the Company/Start-up** : Mikado Curative Solutions Private Limited
2. **Highlights of the Company/Start-up**;

   Product : Human health activities

   Investment : Rs. 10,000

   Employment generated : Not Yet

   Commercialized or not : Not Yet
3. **Impact it will create (including social impact, if any)**: NA
4. **Current Status of the Company/Start-up** : Will start product production and commercialization
5. **Student team Details**

   1. Ananya Reddy Rajidi
   2. Nomula Deepthi
   3. Neeharika Vallabhaneni
6. **Establishment date of the Company/Start-up/Commercialization**: 19/03/2019

Start-Up-363: Eatrightly Services Private Limited

1. **Name of the Company/Start-up** : Eatrightly Services Private Limited
2. **Highlights of the Company/Start-up**;

   Product : Eatrightly Services Health products

   Investment : Rs. 10000/-

   Employment generated : Not Yet

   Commercialized or not : Not Yet
3. **Impact it will create (including social impact, if any)** : NA
4. **Current Status of the Company/Start-up** : Will start product production and commercialization
5. **Student team Details**

   1. Yerabati Abhigna
   2. M. Sravya
6. Establishment date of the Company/Start-up/Commercialization: 16/07/2019

Start-Up-364: Siddi's Pure Chocolate

1. **Name of the Company/Start-up** : Siddi's Pure Chocolate
2. **Highlights of the Company/Start-up**;

   Product : Chocolates

   Investment : Rs. 50,000

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: Some rural BPL people were attracted and earning their livelihood.
4. **Current Status of the Company/Start-up** : Running production
5. **Student team Details**

   1. B. Supriya
6. **Establishment date of the Company/Start-up/Commercialization**: 15/07/2019

Start-Up-365: StudyLab Labs Private Limited

1. **Name of the Company/Start-up**: StudyLab Labs Private Limited
2. **Highlights** of the Company/Start-up;

   Product : Solar smart watch

   Investment : Rs. 2,50,000

   Employment generated : 08

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: Solar smart watch which is useful for common people in the society to monitor the health conditions.
4. **Current Status of the Company/Start-up**: Revenue Generation Stage
5. **Student team Details**

   1. P. Laxmiprasanna

   2. P. Sammaiah
6. **Establishment date of the Company/Start-up/Commercialization**: 13/03/2021
7. **One paragraph on the Company/Start-Up covering all the points**.: Smart watch with solar energy which is continuously supplied and working in moon light and sun light. The strap and watch dial material is designed with liquid silicone rubber which is very flexible and durable.

Start-Up-366: Lean Bakers Pvt. Ltd.

1. **Name of the Company/Start-up**: Lean Bakers Pvt. Ltd.
2. **Highlights of the Company/Start-up**;

   Product : Millet based Chapatis made using fermentation tech.

   Investment : Rs. 1,00,000

   Employment generated : NA

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**: It will help people make better everyday food choices with convenience
4. **Current Status of the Company/Start-up** : Ready to start pilot production
5. **Student team Details**

   1. Nalini Kumar

   2. Krishna Kumar
6. **Establishment date of the Company/Start-up/Commercialization**:

   19-11-2020
7. **One paragraph on the Company/Start-Up covering all the points**: Levain Bakers is an innovative food tech company with a focus to provide healthy, convenient and ready-to-eat (RTE) flatbreads (Chapatti, Naan, Phulka) to its customers.We have developed everyday chapatis using fermentation technology and also by incorporating various millets. Our products, due to its unique process have health benefits for people with diabetes and digestive problems. For others, it is probiotic; increases foliate levels and help the body absorb more minerals. These convenient chapatis are healthier than the fresh chapatis made at home.

Start-Up-367: Maker Innovations Pvt Ltd

1. **Name of the Start-up:** Maker Innovations Pvt Ltd
2. **Highlights of the Start-up:**

   Product : Vision Nanny, a SaaS application that helps the parents and caregivers of children with Cortical Visual Impairment (CVI) to provide appropriate early intervention at the comfort of their homes.

   Investment : Rs 1,00,000

   Employment generated : 04

   Commercialized or not :

3. **Impact it will create:** 4 million children with Cortical Visual Impairment in India would receive appropriate intervention.
4. **Current Status of the Start-up:** The MVP is being piloted at LV Prasad Eye Hospital, Hyderabad and also is tested with the early adopters. We are currently looking for funding opportunities to accelerate the development and commercialization.
5. **Student TeamDetails**
   1. Vivian Manohar
   2. PrathyushaPotharaju
   3. Nivedha Christabel
   4. NR Keerthi
6. **Establishment date of the Start-up:** 24/06/2021
7. **One paragraph on the Start-Up:** Grailmaker Innovations is an early-stage, for-profit, social enterprise startup based in Hyderabad, India. Our vision is to create an inclusive society for people with disabilities through affordable and appropriate Assistive Technology innovations. One of our products, Vision Nanny, is a SaaS application that helps provide children with Cortical Visual Impairment (CVI) with home-based intervention. We digitize the proven clinical intervention methods and make them accessible via browser-compatible devices like tablets, laptops, and smart TVs. Unlike existing methods, Vision Nanny is affordable, interactive, and customizable according to the child's needs. We believe this would help 4 million children in the country to improve their vision and thus their quality of life.

Start-Up-368: RSR TECH Spartans Private Limited

1. **Nameof theCompany/Start-up**: RSR TECH Spartans Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 50,000-

   Employment generated : Nil

   Commercialized or not : Not
3. **Impact it will create (including social impact,if any)**
   - Agriculture based products are ustilized fromers in local region.
4. **Current Status of the Company/Start-up:** Commercialization under process

5. **Student team Details**

   1. Ch. Vinay Kumar Reddy
   2. I. Rajasri Reddy

6. **Establishment date of the Company/Start-up/Commercialization:**
   - 02/06/2023

7. **One paragraph on the Company/Start-Up covering all the points.**
   - Design and development of automobile and other useful products for former and societal needs.

Start-Up-369: Walk N Ride Technologies Private Limited

1. **Nameof theCompany/Start-up**: Walk N Ride Technologies Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 50,000-

   Employment generated : Nil

   Commercialized or not : Not

3. **Impact it will create (including social impact,if any)**

   Health care products are developed.

4. **Current Status of the Company/Start-up**

   Commercialization under process

5. **Student team Details**

   1. Kommabatla Mahender
   2. Prathyusha Pesaru

6. **Establishment date of the Company/Start-up/Commercialization:**

   12/05/2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   Design and development of automobile and other useful products for former and societal needs.

Start-Up-370: VISHUDH PAVAN Private Limited

1. **Nameof theCompany/Start-up**: VISHUDH PAVAN Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 50,000-

   Employment generated : Nil

   Commercialized or not : Not
3. **Impact it will create (including social impact,if any)**

   Health care products are developed.
4. **Current Status of the Company/Start-up**

   Commercialization under process
5. **Student team Details**

   1. Sivalenka Vishali

   2. Sravanthi Thota
6. **Establishment date of the Company/Start-up/Commercialization:**

   10/05/2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   Design and development of security products and other useful products for societal needs.

Start-Up-371: SRITHAM Solutions Private Limited

1. **Nameof theCompany/Start-up**: SRITHAM Solutions Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Service

   Investment : Rs. 50,000

   Employment generated : Nil

   Commercialized or not : Not
3. **Impact it will create (including social impact,if any)**

   Software solutions are delvered to society for commercial purpose.
4. **Current Status of the Company/Start-up:** Commercialization under process
5. **Student team Details**

   1. M. Ranjith Kumar

   2. Ch. Radhika

6. **Establishment date of the Company/Start-up/Commercialization:**
   27/04/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   Design and development of Security, software products and other useful products for societal needs.

Start-Up-372: TRICK Art Solutions Private Limited

1. **Nameof theCompany/Start-up**: TRICK Art Solutions Private Limited
2. **Highlights of the Company/Start-up**:
   Product/Service : Service
   Investment : Rs. 50,000-
   Employment generated : Nil
   Commercialized or not : Not
3. **Impact it will create (including social impact,if any)**
   Software solutions are delvered to society for commercial purpose.
4. **Current Status of the Company/Start-up**
   Commercialization under process
5. **Student team Details**
   1. K. Ranganath
   2. A. Mahesh
6. **Establishment date of the Company/Start-up/Commercialization:**
   Application submitted to MCA portal
7. **One paragraph on the Company/Start-Up covering all the points.**
   Design and development of automobile and other useful products for former and societal needs.

Start-Up-373: ALIEN Protect Private Limited

1. **Nameof theCompany/Start-up**: ALIEN Protect Private Limited
2. **Highlights of the Company/Start-up**:
   Product/Service : Product
   Investment : Rs. 50,000-
   Employment generated : Nil
   Commercialized or not : Not

3. **Impact it will create (including social impact,if any)**

   Security based products are developed to society for commercial purpose.

4. **Current Status of the Company/Start-up**

   Commercialization under process

5. **Student team Details**

   1. J. Vedika
   2. Mamidala Sruthi

6. **Establishment date of the Company/Start-up/Commercialization:**

   Application submitted to MCA portal

7. **One paragraph on the Company/Start-Up covering all the points.**

   Design and development of security and other useful products for former and societal needs.

Start-Up-374: VARUMANUS Solutions Private Limited

1. **Nameof theCompany/Start-up**: VARUMANUS Solutions Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 50,000

   Employment generated : Nil

   Commercialized or not : Not

3. **Impact it will create (including social impact,if any)**

   Agricultura and Automabile based products are developed to society for commercial purpose.

4. **Current Status of the Company/Start-up**

   Commercialization under process

5. **Student team Details**

   1. Sudarshan Erukala
   2. Bhaanvathi Dhanalakshimi

6. **Establishment date of the Company/Start-up/Commercialization:**

   24/04/2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   Design and development of automobile and other useful products for former and societal needs.

Start-Up-375: MAGHUVA TECH Spartans Private Limited

1. **Nameof theCompany/Start-up**: MAGHUVA TECH Spartans Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Service

   Investment : Rs. 50,000-

   Employment generated : Nil

   Commercialized or not : Not
3. **Impact it will create (including social impact,if any)**
   - Home made articles modle products are ustilized in local region.
4. **Current Status of the Company/Start-up**
   - Commercialization under process
5. **Student team Details**

   1. Ch. Vinay Kumar Reddy

   2. I. Rajasri Reddy

   3. Uppula Sushmitha
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 02/06/2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   Design and development of software products for former and societal needs

25) I. T. S. Engineering College, Greater Noida

Start-Up-376: Irriclay Technologies LLP

1. **Name of the Company/Start-up**: Irriclay Technologies LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Healthy pots: smart gardening system

   Investment : Rs. 5,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   N/A
4. **Current Status of the Company/Start-up:**

   Active and running

5. **Student team Details**

   1. Anuj Katiyar

   2. Deepak

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 11 - 02 - 2021

7. **One paragraph on the Company/Start-Up covering all the points.**

   - IrriClay transforms ordinary buildings into Air Purifying buildings by installing a green wall vertical garden over their walls.IrriClay has developed an automated vertical garden using its patented clay module irrigation technology which don't require any human intervention for watering the plants.

Start-Up-377: Cipher10infinity Pvt Ltd

1. **Name of the Company/Start-up**: Cipher10infinity Pvt Ltd

2. **Highlights of the Company/Start-up**:

   Product/Service : Cipher Generator, 3D Solar

   Investment : Rs. 2,00,000

   Employment generated : Nil

   Commercialized or not : Under technology transfer/ investor support

3. **Impact it will create (including social impact, if any):** N/A

4. **Current Status of the Company/Start-up:** Active

5. **Student team Details/Faculty Mentor:**

   1. Harshit Kumar Singh

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 22 - 01 - 2019

7. **One paragraph on the Company/Start-Up covering all the points.**

   - Cipher10infinity Industries is a Private Limited company, which was incorporated on 22nd January 2019 .Cipher10infinity Industries Private Limited is classified as Non-Govt and has recently patented two of its innovations - Cipher Generator and 3D solar.

Start-Up-378: BigBlare Innovations LLP

1. **Name of the Company/Start-up**: BigBlare Innovations LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Accelerator Enhancer for E-Bikes

   Investment : Rs. 1,00,000

   Employment generated : Nil

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):** N/A
4. **Current Status of the Company/Start-up:** Active
5. **Student team Details/Faculty Mentor:**

   1. Md. Samiruddin Ansari

   2. Shubham Kumar
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 03-09-2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - To carry on the business of manufacturing, uses of replacement parts, spare parts, systems assemblies, accessories, tools implements and other goods services. To designing, buying, selling, reselling, importing, exporting, exchanging, hiring, distributing, supplying, sub-contracting, altering, improving, assembling, cleaning, servicing, reconditioning, renovating. To deal in all types, varieties, models, shapes, sizes, specifications, descriptions, applications, and, articles and things for special purpose machine and all other general components and parts. For general applications and to act as stockiest, franchisers, agents, brokers,lessors, warehouses, wholesalers, retailers, job workers or developing, modifying.

Start-Up-379: Revive EV LLP

1. **Name of the Company/Start-up**: Revive EV LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Tadpole E Mobility

   Investment : Rs. 1,00,000

   Employment generated : Nil

   Commercialized or not : No

3. **Impact it will create (including social impact, if any):** N/A
4. **Current Status of the Company/Start-up:** Active
5. **Student team Details/Faculty Mentor:**

   1. Nidhi Sharma
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 01-09-2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Revive EV is a Limited Liability Partnership established on 1st September 2021 working on various business activities like innovations related to latest Electric Vehicle technologies. In second year of NewGen IEDC Ms. Nidhi Sharma, Founder and Director of Revive EV LLP has successfully make a prototype of Tadpole E Mobility (E Trike) and now is in talks for investor support.

Start-Up-380: Deinococcus Technologies LLP

1. **Name of the Company/Start-up**: Deinococcus Technologies LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Fully Automatic Show Polish Rack

   Investment : Rs. 1,00,000

   Employment generated : Nil

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):** N/A
4. **Current Status of the Company/Start-up:** Active
5. **Student team Details/Faculty Mentor:**

   1. Manas Sonwane

   2. Subham
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 24-09-2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Deinococcus Technologies is a Limited Liability Partnership established on 24th September 2021. It carries out business activities like manufacturing, designing, buying, exchanging, hiring, distributing, supplying, sub-contracting, altering, improving, assembling, cleaning, servicing, reconditioning, renovating, developing, modifying, finishing of automated/ semi-automated/ robotic products,

as well as for general application for commercial and non-commercial use, in India and abroad.

Start-Up-381: Mechro Technology LLP

1. **Name of the Company/Start-up**: Mechro Technology LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Fully Automatic Show Polish Rack

   Investment : Rs. 1,00,000

   Employment generated : Nil

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):** N/A
4. **Current Status of the Company/Start-up:** Active
5. **Student team Details/Faculty Mentor:**

   1. Yash Kumar

   2. Tushar Verma
6. **Establishment date of the Company/Start-up/Commercialization:**

   - 03-12-2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Mechro Technology LLP is a Limited Liability Partnership established on 03 December 2021. It carries out business in the field of manufacturing, assembling, selling, reselling, importing, exporting of automated/ semi-automated/ robotic products, as well as for general application for commercial and non-commercial use, in India and abroad. YashKaumar and TusharVerma, Founder and Directors of Mechro Technologies LLP are in talks with investors for fund support.

Start-Up-382: Protovilla LLP

1. **Name of the Company/Start-up**: Protovilla LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Milk spill control unit, Continuous Variable Generator

   Investment : Rs. 2,00,000

   Employment generated : Nil

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):** N/A
4. **Current Status of the Company/Start-up:** Active

5. **Student team Details/Faculty Mentor:**
   1. Jeevesh Gupta
   2. Syed Yusuf Amin
   3. Vaibhav Kumar Yadav
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 27-01-2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Protovilla is a Limited Liability Partnership estalished on 27th January 2022. It carries out business activities of various domains like Innovation, Engineering, Research and Developement, Prototyping and carry o the business of providing solutions to industrial engineering problem, product design such as Household products and appliances, automobile Industries, Renewable Energy products.

Start-Up-383: Mydigitaldudes Technologies LLP

1. **Name of the Company/Start-up**: Mydigitaldudes Technologies LLP
2. **Highlights of the Company/Start-up**:

Product/Service	: IT Solutions
Investment	: Rs. 2,00,000
Employment generated	: 5
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - Yes, providing online support for NGO at minimal cost
   - IT awareness among students and privileged groups
4. **Current Status of the Company/Start-up:** Active
5. **Student team Details/Faculty Mentor:**
   1. Dilip Jadaun
   2. Mohd. Moin
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 01-04-2021
7. **One paragraph on the Company/Start-Up covering all the points:** MyDigitalDudes is an emerging tech company in the world. We are a team of creative designers, experienced developers, and great business advisors fueled by determi-

nation and passion. Our potential team is capable of developing Android Apps, Web Apps, Business websites, eCommerce Websites, Business advertisements, and many to name. With the technologies, we are transforming businesses into higher levels of operational efficiency. We have a rapidly growing large family of well-pleased clients all over the world

Start-Up-384: Naravno Eletric Private Limited

1. **Name of the Company/Start-up**: Naravno Eletric Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Electric Items manufacturing

   Investment : Rs. 1,00,000

   Employment generated : Nil

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - It will promote the use of natural products in electrical and Electronics industry.
   - It will increase the farmer's income by use of agricultural produce in the industry.
4. **Current Status of the Company/Start-up:** Active
5. **Student team Details/Faculty Mentor:**

   1. Prabhat Kumar Mishra

   2. Raghunandan Kumar
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 08-05-2023
7. **One paragraph on the Company/Start-Up covering all the points:** Naravno Eletric Private Limited is a Private Limited Company established on 8th May2023. It carries out the business of manufacture including production and processing, fabrication and assembling, repairing, alternation, buying, importing, marketing, selling the electrical and electronic components having main focus of using biodegradable agriculture based materials to reduce e-waste generation. It also To carry out the business of research and development, design, provision of technical assistance, consulting and otherwise of manufacturing systems includ-

ing production control, quality control and improvement of production lines related to above objects.

Start-Up-385: IOTYDE Technologies Private Limited

1. **Name of the company/Start-up:** IOTYDE Technologies Private Limited
2. **Highlights of the Company/Start-up:**Our company is dedicated to initiating, undertaking, carrying on, engaging in, promoting, assisting, encouraging, and conducting scientific and technical research, developments, experiments, investigations, inquiries, studies, projects, analysis, examinations, surveys, and tests in all kinds of natural sciences and engineering. This includes, but is not limited to, research related to economic, fiscal, commercial, financial, agricultural, medical, industrial, mining, technical, and scientific problems and matters in both India and abroad.
3. **Impact it will create (including social impact, if any):** It will develop first India's first controller for drone and air planes. Also developing the microcontroller IF-YONO to replace the Aurdino.
4. **Current Status of the Company/Start-up:** Active
5. **Student Team Details/Faculty Mentor:**
   1. Ms. Ananya Sharma
   2. Md. Samiruddin
6. **Establishment date of the Company/Start-up/ Commercialization?**
   - 05-May-2023
7. **One paragraph on the Company/Start-up covering all points:**
   - Our company is dedicated to spearheading, facilitating, and advancing scientific and technical research across various domains. With a resolute commitment to innovation, we initiate, undertake, and carry on a wide array of research activities encompassing natural sciences and engineering. Our expertise extends beyond traditional boundaries as we delve into diverse fields including economic, fiscal, commercial, financial, agricultural, medical, industrial, mining, technical, and scientific realms. By actively engaging in the promotion, assistance, and encouragement of research, we strive to tackle complex problems and explore solutions both in India and abroad. Our portfolio in-

cludes an extensive range of projects, experiments, investigations, inquiries, studies, analyses, examinations, surveys, and tests.

Start-Up-386: Verdant Motors Pvt Ltd

1. **Name of the Company/Startup:** Verdant Motors Pvt Ltd
2. **Highlights of the Company/Startup**:

   Product /Service : Electric motorcycle and Electric Cycle

   Investment : Rs. 20,00,000

   Employment : 5

   Commercialized or Not : Yes, Commercialized.
3. **Impact it will create (including social impact , if any)**
   - In the present scenario EVs are playing a major role in the economy of the people as the fuel prices and maintenance of the ICE vehicles has become arduous . Everyone is shifting towards EV. So, the target is to build an affordable yet reliable motorcycle, as India's EV Motorcycle segment is hardly touched and altered by any EV manufacturer to the actual needs and utility of the target buyers.
   - **Demand for Longer Range:** For daily commute and leisure riding, consumers are actively looking for motorcycles with extended range possibilities.
   - **Environmental regulations and sustainability:** To cut greenhouse gas emissions, governments all around the world are enforcing higher emissions rules and encouraging the use of electric vehicles. Increasing cost of IC engine vehicles.
4. **Current status of the company startup**
   - Electric cycles are commercialised, bookings are available at e-commerce platforms and company's website: www.alien-bikes.com , www.verdantmotors.com . Motorcycle development is in process. Prototype of electric motorcycle is ready and fully functional.
5. **Student team Details/Faculty Mentor:**

   1. Shivansh Seth
   2. Deepanjan
6. **Establishment date of the Company/Start-up/Commercialization:**

   24/06/2021

7. **One paragraph on the Company/Start-Up covering all the points.**
   - At **Verdant Motors Pvt Ltd**, The team is revolutionizing the motorcycle industry by introducing a whole new experience of riding. We believe in merging the thrill and exhilaration of biking with a clean and green future.

Start-Up-387: Bhramos Technologies Pvt Ltd

1. **Name of the Company/Startup:** Bhramos Technologies Pvt Ltd
2. **Highlights of Startup:**

Product	: Smart Solar Bench
Investment	: Rs. 2,50,000
Employment generated	: 7
Commercialized	: Yes, Commercialized

3. **Impact it will create (including social impact , if any)**
   - Sustainable Energy Generation
   - Public Infrastructure Improvement
   - Digital Out-of-Home (DOOh) Advertising
   - Connectivity and Data Collection
   - Green Initiatives and Smart Cities
   - Challenges: Implementing such technology on a larger scale would require investment, infrastructure planning, and proper maintenance. Ensuring the security and privacy of data collected from these benches would also be crucial to gaining public trust and acceptance.
4. **Current Status**: Revenue stage
5. **Student team Details/Faculty Mentor:**
   1. Deepanjan
   2. Suraj Kumar
6. **Establishment of startup**: 18th Nov2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Bhramos Technologies developed tailor made IoT product and solutions as per the requirements raised by industries or individual. They combine dynamic knowledge across several domains. With global time- and cost- arbitrage advantages, and talent elasticity, they help clients optimize time-to-market and minimize software development risks for their IoT solutions. The company is

engaged actively in providing end-to-end IoT solutions to cater to the demands of a diverse clientele across the nation.

26) Indian Institute of Information Technology, Allahabad

Start-Up-388: Ecoc Pvt. Ltd.

1. **Name of the Company/Start-up**: Ecoc Pvt. Ltd.
2. **Highlights of the Company/Start-up:**

   Product/Service : e-bikes

   Investment : NIL

   Employment generated : NIL

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):** Transportation is a major problem that leads to congestion, also causing pollution. The startup will solve both problems at the same time by giving affordable e-bikes to all, which can also be used on a rental basis or by subscription.
4. **Current Status of the Company/Start-up:** The prototype was built and exhibited. However, further analysis of the project discovered increasing the capacity of the e-bike which is being currently carried out.
5. **Student team Details/Faculty Mentor:**

   1. Guguloth Vijay Nayak
6. **Establishment date of the Company/Start-up/Commercialization:** 12.01.2021
7. **One paragraph on the Company/Start-Up covering all the points**: The startup is developing e-bikes that can be subscribed on a rental basis, especially suited for the tourism sector where tourists primarily intend to visit places which can be eased out by the use of e-bikes.

Start-Up-389: Advanced Bio-3D Printers & Multi domain 3D Printing Services

1. **Name of the Company/Start-up**: Advanced Bio-3D Printers & Multi domain 3D Printing Services
2. **Highlights of the Company/Start-up:**

   Product/Service : 3D Printer

   Investment : Rs. 1,75,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):** Currently, very limited companies/organizations are working on the level of micro-device production. Companies manufacturing micropumps, Bio-Medical devices and Drugs/Medicines (for drug testing/ drug delivery devices), might be interested in our device. The other possible interested companies, which may be interested in-our invention for commercialization are various MEMs based companies i.e.: Claros, Phillips, Dolomite, Abbott, Raindance, Achira lab etc.
4. **Current Status of the Company/Start-up:** Revenue Generted 14160, Provided our 3D wax printing services to ICAR-NDRI, Karnal for 14,160 INR
5. **Student team Details/Faculty Mentor:**
   1. Amar Dhwaj
6. **Establishment date of the Company/Start-up/Commercialization**: 2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   This In-House developed 3D printing services will enable users or customers to easily order their 3D printed products after customization. They can give their design requirements or can even give their 3D designs that need to be 3D printed at very affordable prices

Start-Up-390: Portable Corona-Discharge System with Custom Made Electrodes, for PDMS Hydrophilic treatment, & Bonding for Microfluidic Chip Fabrication

1. **Name of the Company/Start-up:** Portable Corona-Discharge System with Custom Made Electrodes, for PDMS Hydrophilic treatment, & Bonding for Microfluidic Chip Fabrication
2. **Highlights of the Company/Start-up:**

Product/Service	: Portable Corona-Discharge system
Investment	: Rs. 50,000
Employment generated	: 2
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any**): This In-House developed Portable Corona-Discharge System finds its application in automobile industry and healthcare industry and is highly used in R& D Labs. It's cost-effective and safe to use

4. **Current Status of the Company/Start-up** : 24/09/21
5. **Student team Details/Faculty Mentor:**
   1. Nimishi
   2. Amar Dhwaj
6. **Establishment date of the Company/Start-up/Commercialization:**
   07/03/2022 **"**Sold our first product to BITS Pilani, Goa campus for Rs. 64,575"
7. **One paragraph on the Company/Start-Up covering all the points.**
8. The Portable Corona-Discharge System is In-House developed equipment that finds its application in the material surface preparations such as sanitizing the surface, making hydrophobic to hydrophilic, material bonding like various silicone based polymers. Similar Corona discharge systems available in the market are of relatively high cost and bulkier. Proposed product is portable and can be operated without any preparations, just a plug and play device while maintaining the same working efficiency

Start-Up-391: Nazmehayat Enterprises Private Limited

1. **Name of the Company/Start-up**: Nazmehayat Enterprises Private Limited
2. **Highlights of the Company/Start-up:**

Product/Service	: Content WREP® (Nazmehayat Enterprises Pvt. Ltd.)
Investment	: Rs. 3,00,000
Employment generated	: 04
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**: The software will be working as a bridge to automate the whole publication process.
4. **Current Status of the Company/Start-up**
   - Content WREP launched its website on 30th July 2020
   - 5K Writers Connected over Social Media
   - Revenue generated of 1.2 lakhs INR
   - 10 Solo Books and 8 Anthologies
5. **Student team Details/Faculty Mentor:**
   1. Swapnil Singh
   2. Anushree Goswami

6. **Establishment date of the Company/Start-up/Commercialization:** 18/06/2021
7. **One paragraph on the Company/Start-Up covering all the points:** Our mission is to build an AI technology to fill the gap between the long publication processes by automating the process such as editing, formatting, etc.

Start-Up-392: Stimuler Private Limited

1. **Name of the Company/Start-up**: Stimuler Private Limited
2. **Highlights of the Company/Start-up:**

Product/Service	: Mobile Application
Investment	: Rs. 2,50,000
Employment generated	: 4
Commercialized or not	: Not yet

3. **Impact it will create (including social impact, if any)**
   - In the next 2 years, we plan to eliminate the English communication barrier and thereby create better opportunities for 10 million people.
4. **Current Status of the Company/Start-up**: Rs. 2,50,000/-(50-62)
   - Currently, we are scaling the product, from speech testing to speech training with improved AI models.
5. **Student team Details/Faculty Mentor:**
   1. Akshay Akash
   2. Anesh Srivastav
   3. Ankit Kumar Pandey
   4. Akshat Baranwal
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 10 March 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Stimuler is a speech practice and training platform to help people become confident at communicating in English. Millions of people are unable to speak confidently despite having a decent understanding of English. Stimuler combines all aspects that are needed for improving speaking skills of participants. Using AI based speech analysis algorithms and custom practice tracks, we

dream of removing the barrier of English proficiency **and help create better opportunities for people. Stimuler has 5k users from 140 countries.**

Start-Up-393: MIBI

1. **Name of the Company/Start-up :** MIBI
2. **Highlights of the Company/Start-up:Mibi**

   Product/Service : Mobile App

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   About this App: Tired of hassles that come in the way of finding new jobs. Don't worry we have got your back. With the new and updated android application of MiBi you can search and apply for jobs from anywhere and everywhere you want. The MiBi app aims to cover the gap between workers and recruiters and remove all obstacles you face in this competitive world. Whether you are a recruiter or a daily wage worker, we have covered both. With MiBi, you can choose a job as you like and when you like it. It allows a direct connection between the two parties with utmost ease. Most importantly we work hard to make sure that the recruiter which connects with us is legitimate and we take proper measures to verify their claims and authenticity. Workers connected with us can enjoy a seamless job finding experience because they can get a job without having to travel places in search of it. Notably we ensure proper documentation and worker incentives. We make sure that the workers getting jobs from our side get fixed working hours. We are bringing the MiBi app to you with a vision
4. **Current Status of the Company/Start-up:** Have 2000+ users with 10+ recruiters and 5+ outreach partners
5. **Student team Details/Faculty Mentor:**

   1. Shiva Sharma

   2. Niraj Saini
6. **Establishment date of the Company/Start-up/Commercialization:**

   11/08/2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   MiBi is making hiring or getting a job a simple process for the unorganised sector.

Start-Up-394: Glexspace

1. **Name of the Company/Start-up :** Glexspace
2. **Highlights of the Company/Start-up:**

   Product/Service : A professional counseling service for college students

   Investment : Rs. 2,50,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):** The initial idea was to connect bloggers in a digital space using an AI engine that connects like-minded people. The startup did a lot of ground work and how provides counseling services to college students. The college students are increasingly coming under societal and academic pressures, while the colleges seldom have the expertise and solutions for such solutions. The startup is a one-stop solution for the problem, hugely benefiting the society.
4. **Current Status of the Company/Start-up:** The talks are in an advanced stage with multiple colleges.
5. **Student team Details/Faculty Mentor:**

   1. Ayush Chaurasia

   2. Aman Bhoskar
6. **Establishment date of the Company/Start-up/Commercialization**:

   6 Jan 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   The startup initially got great success because of a blogging portal where people could share their experiences to the world. On a greater analysis the startup discovered the problem of depression and tension among the youth. Alongwith medical experts, the startup created counseling packages for the colleges to help their students with the same.

Start-Up-395: COMET Labs IT Solutions Pvt. Ltd.

1. **Name of the Company/Startup:** COMET Labs IT Solutions Pvt. Ltd.
2. **Highlights of the Company/Startup:**

Product/Service	: SAAS Platform for Hackathons & Hiring Interview
Investment	: Rs. 35,00,000
Employment generated	: 6
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact if any)**
   - We're building the first-ever Automated Powered Hackathons Playgrounds in multiple Web/App frameworks where the Developers can build Web Products, Mobile Apps, and Full-Stack Applications in their browser only.
   - The Playground judges their Code Solutions over product building/testing parameters building their Vetted Profile with Proof of Work for further hiring.
4. **Current Status of the Company/Startup:**
   - **7000 + Developers' Community**
   - 35+ CodeArenas organised on COMETLABS.
   - 550+ Projects built on COMETLABS.
   - 19000+ Total Participation in CodeArenas.
   - 1700 + Ready to hire Vetted Profile
   - 570 + Interns & Jobs
   - ₹ 55K MRR
5. **Student Team Details/Faculty Mentor:**
   1. Prashant Katiyar
   2. Rishika Kumari
   3. Vineel Sai
   4. Shivam Soni
   5. Manish Kumar
   6. Chaitanya Hegde
6. **Establishment date of the Company/Startup Commercialization**: 20 May 2021
7. **One paragraph on the Company/Startup covers all the points.** COMETLABS is a Developer Tools & HR Tech Platform, where Technical Colleges and Developers Communities organise 3-5 Days Product-Building

CodeArenas, Workshops, and Hackathons. Our Technology & Platform builds a complete 360º Developer Profile by judging their code quality on industry standards & proof-of-work, creating a pool of fully-vetted developers for bulk hiring.

Start-Up-396: ABYOM Spacetech & Defence Pvt Ltd.

1. **Name of the Company/Start-up:** ABYOM Spacetech & Defence Pvt Ltd.
2. **Highlights of the Company/Start-up:**

   Product/Service : Rocket launch testing equipment, training for college students

   Investment : Rs. 2,50,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):** The team has designed a model for rocket launching that is controlled by using a wifi and a testing facility, given as a DIY kits. In the long run this will revolutionize the spacetech industry by providing low cost solutions. The team bridges the educational gap by providing training and equipment to colleges.
4. **Current Status of the Company/Start-up:** The prototype is nearly-developed. The team continues to provide workshop, training and other services at different institutions, most recently at the propulsion lab at LPU. They have signed MOUs with a few institute for such services.
5. **Student team Details/Faculty Mentor:**

   1. Jainul Abedin
6. **Establishment date of the Company/Start-up/Commercialization:**

   20 May 2021
7. **One paragraph on the Company/Start-Up covering all the points.**
8. The team started to enter into the deep tech space, specifically into the spacetech domain. The team worked hard to create rocket launching prototypes. They later also included college training and supplying of equipment into their plans.

Start-Up-397: Nirvaan

1. **Name of the Company/Start-up:** Embrace the Future of Mental Wellness NIRVAAN
2. **Highlights of the Project(innovation/uniqueness etc.):**

   Product/Service : Online Psychotherapy

   Investment : Rs. 2,50,000

   Employment generated : 22

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any) :** This startup is poised to make a significant impact on the global landscape of mental health, with a particular focus on addressing the challenges of anxiety and depression. Their unique therapy approach seamlessly blends the most effective principles and techniques from psychotherapy, counseling, mindfulness, Indian philosophy, and evidence-based healing music. Through this innovative fusion, they aspire to empower individuals and their support networks to attain profound relief and enhanced concentration in a remarkably short span of therapy sessions. The startup provides Online Psychotherapy with several features including selection of music, psychologist therapy, Sleep etc. They impact the world through Therapy-especially to those with Anxiety/Depression, Their therapy is a combination of best practices and concepts from psychotherapy, counselling mindfulness, Indian philosophy & Science-based healing music They have more than 300+ clients so far with over 5 lac revenue, Employment generated : 2 lakh+, with 22 employees, with 16 onboarded doctors, clinical psychologist. Therapist and more.
4. **Current Status of the Company/Start-up:** NIRVAAN is currently in full operation, successfully establishing a solid product-market fit. With a growing clientele and a strong track record of delivering effective mental health solutions, we are now actively seeking our first round of seed investment. This pivotal investment will enable us to expand our reach, enhance our technology, and extend our impact in the field of mental wellness on a global scale. We are confident that NIRVAAN is well-positioned to make a lasting and meaningful contribution to the mental health landscape.

5. **Student team details/Faculty Mentor:**
   1. Abhinav Singh
   2. Sejal Thakur
6. **Establishment date of the Company/Start-up/Commercialization:** 2021
7. **One paragraph on the Company/Start-Up covering all the points**

   USP (Unique Selling Point): NIRVAAN prioritizes the individuality of each client's therapy journey and recognizes that the duration of therapy and the complexities of addressing personal challenges can vary greatly. To accommodate this, NIRVAAN offers unlimited sessions to the clients. One can take as much time as needed to work through your concerns and develop new coping skills. NIRVAAN's dedicated therapists are committed to support they're client at every step of the way and firmly believe in a personalized approach to therapy as well as understands that everyone has unique needs and aspirations. That's why Team NIRVAAN collaborates with each client to create a customized treatment plan that aligns with their specific circumstances. NIRVAAN's Psychotherapists, Psychologists and counselors are well-versed in a range of evidence-based therapies Including Psychoanalysis and psychodynamic therapies Cognitive, Behavioral, Humanistic, Integrative/holistic.

Start-Up-398: SEETAARA

1. **Name of the Company/ Start-up:** SEETAARA
2. **Highlights of the Company/Start-up;**

Product	: Ecommerce App
Investment	: Rs. 15,000
Employment generated	: 12
Commercialized or not	: Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Save Customers Time and Money
   - It will help small retails/shop owners to Come digitally
4. **Current Status of the Company/Start-up:**
   - ready to Commercialisation
   - Launching in Next 3 cities

5. **Student team Details/Faculty Mentor:**
   1. Aditya Yadav
   2. Adarsh Shukla
6. **Establishment date of the Company/Start-up/Commercialization: 22/02/2022**
7. **One paragraph on the Company/Start-Up covering all the points: Seetaara is an AR based Ecommerce platform, Seetaara enhance the shopping experience by providing**
   - 90 min delivery to customer
   - Return/replace within 3 hours
   - Affordable products
   - Quality as well as brands original product
   - Chance to become Influencer & Earn money
   - Help retailers to come online and sell their products with low charges

Start-Up-399: Quordnet Academy (OPC) Private Limited.

1. **Name of the Company/ Start-up:** Quordnet Academy (OPC) Private Limited.
2. **Highlights of the Company/Start-up;**

Product	: Courses, Notes, Online Coding Editor, Blogs
Investment	: Rs. 1,00,000
Employment generated	: 15+
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - **Democratizing Education: Accessibility**: Edtech platforms can make high-quality education accessible to individuals regardless of their geographical location, socio-economic status, or physical disabilities.
   - **Affordability:** Online courses often cost a fraction of traditional classroom-based courses, making education more affordable for many.
   - **Lifelong Learning: Continuous Upskilling**: In today's rapidly changing world, professionals need to continuously upskill. Edtech platforms provide opportunities for lifelong learning, ensuring individuals remain relevant in their careers.

- **Diverse Course Offerings**: From arts to sciences, edtech platforms offer courses across a wide range of subjects, catering to varied interests and needs.

4. **Current Status of the Company/Start-up:**
   - Revenue generation (Generating revenue)
5. **Student team Details/Faculty Mentor:**
   1. Orunayan Bhattacharya
6. **Establishment date of the Company/Start-up/Commercialization:** 21/12/2022 (Company officially incorporated) but starting from 2021.
7. **One paragraph on the Company/Start-Up covering all the points.**
   Quordnet Academy is an innovative educational platform dedicated to empowering students with comprehensive learning resources across a multitude of domains. Recognizing the pivotal role of technology in modern education, the academy offers meticulously curated notes to aid students in their academic pursuits. In addition, Quordnet Academy has made significant strides in democratizing education by providing a series of tech-related video courses on platforms like YouTube, completely free of charge. These courses encompass a wide range of topics, from foundational languages like HTML, CSS, and JavaScript to more advanced subjects like Python, Java, and R, ensuring that students have access to a holistic tech education tailored to the demands of the contemporary digital landscape.

Start-Up-400: BookWithUVA

1. **Name of the Company/Start-up:** BookWithUVA
2. **Highlights of the Company/Start-up:**

Product/Service	: Books, stationery and other study materials
Investment	: INR 20,000/-
Employment generated	: 20 interns (non-paid)
Commercialized or not	: Yes, commercialized

3. **Impact it will create (including social impact, if any)**
   - Assisting the students in procuring their study material
   - Lower than market price, so study material is accessible and affordable to the maximum number of students

- The encouragement of book renting and reselling is a sustainable approach that reduces the use of paper
- Students working at the startup are learning skills in entrepreneurship, business management and have a platform to experiment with their skills

4. **Current Status of the Company/Start-up :** Currently, started the sales and crossed the sales of 9 lacs, catering 5000+ students; built a team; started rental and reselling services.Also, developed a self-tailored inventory management system and a website for selling products online.
5. **Student team Details/Faculty Mentor:**
   1. Abhishek Kumar
   2. Uttam Srivastava
6. **Establishment date of the Company/Start-up/Commercialization:**
   29th August, 2022
7. **One paragraph on the Company/Start-Up covering all the points:** A student centric stationery based startup that delivers books, notebooks and other study material to the students' institution itself at very affordable prices.

Annexure-IV

Details of Enterprise/Business Commercialized, till March, 2023

01) Kuppam Engineering College, Kuppam

Unit-001: INTELLIBIN Solutions Private Limited

1. **Name of the Company/ Start-up**: INTELLIBIN Solutions Private Limited
2. **Highlights of the Company/Start-up :**

   Product : Product (Smart Bins, Odor Sense Device)

   Investment : Rs. 7,00,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Efficient Waste management
   - Ensures Clean and Hygienic society
4. **Current Status of the Company/Start-up:**
   - Registered & Active
   - CIN: U90000AP2018PTC109961
5. **Student team Details/Faculty Mentor:**

   1. R. Mohan

   2. S. Prasanna Kumar
6. **Establishment date of the Company/Start-up/Commercialization:**

   Date of Incorporation: 12th December 2018
7. **One paragraph on the Company/Start-Up covering all the points.**

   INTELLIBIN Solutions Private Limited is a Private Company incorporated on 12th December 2018. It is classified as Non-Govt. Company and is registered at Registrar of Companies, Vijayawada. Its authorized share capital is Rs. 1,00,000 and its paid up capital is Rs. 1,00,000. It is involved in Sewage and refuse disposal, sanitation and similar activities through Smart Bins, Odor sensing devices.

Unit-002: DAMASMART (F2C)

1. **Name of the Company/Start-up:** DAMASMART (F2C)
2. **Highlights of the Company/Start-up :**

   Product/Service : Agri Services (Food and beverage Agri service)

   Investment : Rs. 3,00,000

   Employment generated : 05

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - Our mission is to act as an Bridge Between Company and Customer
   - It will reduce the burden of customers.
   - It will reduce their dependence on food preparation.
   - We collect the vegetables and fruits from Farmers and we supply the Fresh vegetables and fruits to the customers, so that there is no middlemen
4. **Current Status of the Company/Start-up**
   - Registered and Running (UAN: AP02D0008765)
5. **Student team Details**

   1. K. V. Sanjana
   2. S. Rachana
   3. M. Nirmal Kumar
   4. D. Bharath
6. **Establishment date of the Company/Start-up/Commercialization:**

   Date of Establishment: 01/07/2018
7. **One paragraph on the Company/Start-Up covering all the points.**

   Dam smart is an e-commerce application, which is started for food, groceries and vegetables delivery to door step. Started in September 1st 2017 in Kuppam. Initially we have started with 5employs in Kuppam as food delivery application. Now we are providing employability to 5 members and Dam smart is developed in five different branches. Our mission is to act as an Bridge Between Company and Customer, Initially we have started with 5 employs in kuppam. In soon we are going to provide employability to another 30 members of both graduates and graduates to Damasmart. We are planning to open another 10 Branches in this coming 2 years of 2024 and 2025 can provide employability around 150 members. (Tirupati, Kadapa, Kurnool, Hosur, Vellore, Nellore)

Unit-003: EVEZON India Private Limited

1. **Name of the Company/Start-up**: EVEZON India Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product (Home Automation) & Service

   Investment : Rs. 25,00,000

   Employment generated : 50

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - Farmers Network: 4000+
   - Employment generated: 50
   - Farmer Benefits
     - Free crop suggestions and advices
     - Labor Assistance & Transportation Assistance
     - Commission less trade
     - Best Farmer Awards and Health camps
     - Loans and Rewards
4. **Current Status of the Company/Start-up**
   - **Registered & Running**
   - **Corporate Identity Number(CIN)** : U51909AP2019PTC112968
5. **Student team Details/Faculty Mentor:**

   1. J. Yashwanth
   2. J. Prasad
6. **Establishment date of the Company/Start-up/Commercialization:**

   Establishment Date: 24-09-2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   EVEZON is one of the largest fresh produce supply chain company that is solving one of the toughest problems in the world through technology. The company connects producers of food directly with retailers, restaurants, and service providers using in-house applications that drive end-to-end operations. Currently, the EVEZON'S Supply Chain is equipped to move 100 tons of perishables from farms to businesses, every day, in less than 12 hours. EVEZON is a developer of an agricultural marketing and supply chain platform intended to revolutionize the fresh produce supply chain. The company's platform

leverages data science, infrastructure, and networks to connect farmers directly to businesses and end retailers such as grocery stores, enabling retailers and merchants to source fresh farm produce directly from farmers in less time and in a cost-effective way. EVEZON has eliminated intermediaries by taking control of the Supply Chain by using technology and analytics. The company has built reliable, cost-effective, and high-speed logistics and infrastructure to solve inefficiencies in the Supply Chain. On one end, farmers get better prices and consistent demand, and on the other end, retailers receive fresh hygienic produce at competitive prices that are delivered to their doorstep.

Unit-004: KUPPAM Electro Solutions Private Limited

1. **Name of the Company/Start-up**: KUPPAM Electro Solutions Pvt. Ltd.
2. **Highlights of the Company/Start-up :**

Product	: Product (Live Wire Detector)
Investment	: Rs.10,00,000
Employment generated	: 03
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - It will save the human life from electrocution.
   - It will detect the livewire before 5 meters and produce sound alarm.
   - is an affordable device and it is easy to carry in the hand and pocket.
   - It is environment friendly.
4. **Current Status of the Company/Start-up**
   - Company Registered & Running 2020.
   - CIN: U36990AP2020PTC114222
5. **Student team Details/Faculty Mentor:**

   1. Rithin K. Thedevos
   2. S Nanda Kishor
   3. P. Ajay Kumar Reddy
6. **Establishment date of the Company/Start-up/Commercialization:**

   Date of Establishment: 19/02/2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   The KUPPAM Electro solutions Private Limited company was incorporated in 19th February 2020 with an aim of providing globally acceptable solutions to our clients. We aim to conduct our business with integrity, honesty and in compliance with legal requirements. We at KUPPAM Electro Solutions works on building a trusted brand. We closely work with our clients for better understanding of their needs and to provide high quality product services. Electrocution causes serious effect on human and animals and leads to dead some times. The Electrocution is one in all the main faced problems in forest areas, Building collapse due to earth quakes and floods and in agricultural fields. The Live Wire Detector (LWD) gives cautioning of uncovered high voltage AC from a protected distance. The LWD will gives audible alert of the presence of AC voltage wires without the need to contact the AC wires. The LWD will beeps with an increasing rate as the unit is closer to the AC wires. LWD is an affordable device and it is easy to carry in the hand and pocket. It is extremely valuable for frontline officers and it save their lives.

02) Ramachandra College of Engineering, Eluru

Unit-005: Drone Sonic Systems Private Limited

1. **Name of the Company/Start-up** : Drone Sonic Systems Private Limited
2. **Highlights of the Company/Start-up**;

   Product : Pesticide spraying drones

   Investment : Rs. 8,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**:

   It will create impact in agriculture and social life
4. **Current Status of the Company/Start-up**:

   Established and handling contracts
5. **Student team Details/Faculty Mentor:**

   1. P. Sai Harsish
6. **Establishment date of the Company/Start-up/Commercialization**:

   26/11/2020

7. **One paragraph on the Company/Start-Up covering all the points**.

   Drones are revolutionizing agriculture. The ability to survey crops from the air with an inexpensive unmanned aerial vehicle equipped with a variety of sensors enables a farmer to collect an unprecedented amount of useful data, including information about:

   - Soil hydration
   - Variations in soil composition
   - Pest/fungal infestations

   In addition, drone crop surveys can be taken weekly, daily, or even hourly as required. Accurate information allows for optimal crop irrigation, fertilization, and pest control. Reducing water and pesticide usage and maximizing crop yields benefits the bottom line and the environment.

Unit-006: Chiru EV Car Accessories

1. **Name of the Company/Start-up** : Chiru EV Car Accessories
2. **Highlights of the Company/Start-up**;

   Product : EV vehicles retrofitting and accessories

   Investment : Rs. 10,00,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**:

   Impact will create on environment
4. **Current Status of the Company/Start-up** :

   Established
5. **Student team Details/Faculty Mentor:**

   1. G. Chiranjeevi
6. **Establishment date of the Company/Start-up/Commercialization**:

   01/06/2020
7. **One paragraph on the Company/Start-Up covering all the points**:

   The auto components market shares 30.66% of its contribution in the whole automotive industry in India. As the revolution of electric vehicles has started and also from the strict order of the Indian government to convert the way of commutation to all-electric till 2030, and as the existing services can’t cater all

the needs and requirements for the EV users it has become compulsory to work rigorously for making an E.V. friendly ecosystem in India. Now to achieve this goal many companies and startups have started investing in this electric vehicle spare parts and components firm. The most fascinating fact about E.Vs. is that they are easy to build or maintain. The one having even basic knowledge of electric vehicles can easily replace a part or build an electric vehicle from the scratch and due to this feasibility in electric vehicles, the E.V. component market has a vast customer base with recurring product requirements.

Unit-007: KAGN Road side assistance Private Ltd.

1. **Name of the Company/Start-up**: KAGN Road side assistance Private Ltd.
2. **Highlights of the Company/Start-up**:

Product	: Provides road assistance
Investment	: Rs. 2,50,000
Employment generated	: 03
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

   Gives more support to society by assisting the peoples
4. **Current Status of the Company/Start-up** :

   Applied for bank loan
5. **Student team Details/Faculty Mentor:**

   1. Anand Venkat Rakumar K
6. **Establishment date of the Company/Start-up/Commercialization**:

   11/02/2022
7. **One paragraph on the Company/Start-Up covering all the points**:

   "OnRoad Assist" is a startup related to automobile service sectors. We have recognitioned for DIPPT for startup India for 10 years. We have incorporation in MCA portal. We are also published the patent rights.

   Our startup is focusing on the problem like

   1) Roadside assistance for bikes and cars
   2) Occurrence of Minor/Major Accident
   3) Security Threat
   4) Difficult to find mechanic

We are going to provide the solution at one place. We have designed unique website and app for provide service. These are service we are going provide.

a. Towing
b. Fuel Delivery
c. Tire Replace / Puncture Repair
d. Battery
e. Jump Start/ Pull Start
f. Key Replacement Service
g. Vehicle Repair

Future Business Opportunities:

i. Bike Renting
ii. Electrical Charging Station
iii. Door Step Services
iv. Buy and selling of second handed vehicles

03) Sasi Institute of Technology & Engineering, Tadepalligudem

Unit-008: Martek Bioscience

1. **Name of the Company/Start-up**: Martek Bioscience
2. **Highlights of the Company/Start-up**:

Product/Service	: Aqua Farming Kits
Investment	: Rs.35,00,000
Employment generated	: 18
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - It helps aqua farmers in reducing the farming cost and production cost using intelligent farming kits.
4. **Current Status of the Company/Start-up:** Running
5. **Student team Details/Faculty Mentor:**

   1. Revu Satyanarayana
6. **Establishment date of the Company/Start-up/Commercialization:** 17.07.2017
7. **One paragraph on the Company/Start-Up covering all the points:** The company is manufacturing the farming kits for shrimp growth analysis and disease recognition. It has achieved MSME recognition from Govt. of India.

Unit-009: Think IC Labs

1. **Name of the Company/Start-up**: Think IC Labs
2. **Highlights of the Company/Start-up**:

   Product/Service : IoT products

   Investment : Rs. 10,00,000

   Employment generated : 8

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - IoT products helps in providing protection against theft and danger from un-know persons and accidents.
4. **Current Status of the Company/Start-up:** Running
5. **Student team Details/Faculty Mentor:**

   1. I Naresh
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 11-04-2018
7. **One paragraph on the Company/Start-Up covering all the points.**
   - ThinkIC labs help users to maintain home safety and road safety during harsh conditions. It is established under the vision of 'safety for citizens'. It is initially started by targeting few districts and now achieve state-wide recognition for safety devices.

Unit-010: Kemiva Bioscience

1. **Name of the Company/Start-up**: Kemiva Bioscience
2. **Highlights of the Company/Start-up**:

   Product/Service : Aqua Farming Equipment

   Investment : Rs. 50,00,000

   Employment generated : 14

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - It helps aqua farmers in reducing the farming cost and production cost on a season basis.
4. **Current Status of the Company/Start-up**
   - Running

5. **Student team Details/Faculty Mentor:**

   1. Reddy Prasad

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 14-01-2019

7. **One paragraph on the Company/Start-Up covering all the points.**

   - The company is established under the grounds of Make In India compaign and helping local material vendors to manufacture in rural environment. Products related to aqua farming are produced and helping farmers to reduce the production cost by 20% for the last 3 years.

Unit-011: Sunrise Smart Innovations

1. **Name of the Company/Start-up** : Sunrise Smart Innovations
2. **Highlights of the Company/Start-up** :

   Product/Service : Product

   Investment : Rs. 3,50,000

   Employment generated : 8

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

   - It helps to the users in terms of regular monitoring and maintenance of the all water tanks in organizations.
   - Remote monitoring of the water flow in all water tanks easy.

4. **Current Status of the Company/Start-up - Running**

   Prototype kit was verified in the institute water tanks and prepared view kits to nearby small independent organizations for practical verifications and testing.

5. **Student team Details/Faculty Mentor:**

   1. T. Venkateswara Reddy

6. **Establishment date of the Company/Start-up/Commercialization:**

   10-03-2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   The company is manufacturing the proposed kits to small organizations who are interested to use and gives the demo to local people for product usage. Regular maintenance of the product is scheduled by area wise for proper market growth and avoiding competitors.

Unit-012: Abaya Health Care Systems

1. **Name of the Company/Start-up** : Abaya Health Care Systems
2. **Highlights of the Company/Start-up :**

   Product/Service : Services

   Investment : Rs. 4,00,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - More number of patients can handle due to low prize.
   - Certified material my medical department for real implementation.
4. **Current Status of the Company/Start-up - Running**

   Prototype kit was verified in the institute dispensary and prepared few kits to nearby small independent organizations for practical verifications and testing.
5. **Student team Details/Faculty Mentor:**

   1. T. Prasad
6. **Establishment date of the Company/Start-up/Commercialization:**

   23-03-2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   The company is manufacturing the proposed kits to small organizations who are interested to use and gives the demo to local people for product usage. Regular maintenance of the product is scheduled by area wise for proper market growth and avoiding competitors.

Unit-013: Navsin Medical Technologies

1. **Name of the Company/Start-up** : Navsin Medical Technologies
2. **Highlights of the Company/Start-up :**

   Product/Service : Service

   Investment : Rs. 2,50,000

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - It will help in early detection and diagnosis of Sleep Apnea
   - Waiting time for the results is reduced.

4. **Current Status of the Company/Start-up:** Running

   Prototype kit was verified by taking the data from the persons and the report generated will be examined by the expert.

5. **Student team Details/Faculty Mentor:**

   1. G Naveen Kishore

6. **Establishment date of the Company/Start-up/Commercialization:**

   17-03-2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   This Start up aims at the early diagnosis of Obstructive sleep Apnea. The device detects the pattern of the ECG signal to identify whether it is normal or abnormal. Deep Learning algorithms are used for identifying anormal activity present in the ECG which can be used to suggest necessary life style modifications by the doctor.

Unit-014: Vihari Smart Innovations

1. **Name of the Company/Start-up** **:** Vihari Smart Innovations
2. **Highlights of the Company/Start-up** **:**

   Product/Service : Product

   Investment : Rs. 300000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - It helps to the farmers in terms of regular monitoring and maintenance of the
   - Farm parameters.
   - Remote monitoring of the farm activities is easy to establish
4. **Current Status of the Company/Start-up** - Running
5. **Student team Details/Faculty Mentor:**

   1. J. L. Narayana

6. **Establishment date of the Company/Start-up/Commercialization:** 03.03.2023
7. **One paragraph on the Company/Start-Up covering all the points:** The company is manufacturing the farming kits for farmers who are interested to use and gives the demo to local farmers for product usage. Regular maintenance of the

product is scheduled by area wise for proper market growth and avoiding competitors.

04) L. J. Institute of Engineering & Technology, Ahmedabad

Unit-015: Anywhera

1. **Name of the Company/Start-up**: Anywhera
2. **Highlights of the Company/Start-up**;

   Product : 1) Surprise travel

   Investment : Rs. 12,00,000

   Employment generated : 100 (More than indirect employment)

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):** NA
4. **Current Status of the Company/Start-up** : ongoing
5. **Student team Details/Faculty Mentor:**

   1. Venu Rathore
6. **Establishment date of the Company/Start-up/Commercialization**: 2019
7. **One paragraph on the Company/Start-Up covering all the points**.
   - Anywhera is not an ordinary travel agency or trip advisory but a surprising new way to relax and rejuvenate.
   - We, at Anywhera challenge the concept of traditional travel planning and booking to something far more spontaneous and adventurous.
   - Anywhera decides your travel destination which is revealed to you 24 hours before departure!
   - We decide the destination on the basis of a questionnaire filled out be you. We plan your complete expedition, including travel bookings, accommodation, and a curated list of local recommendations.
   - "We believe that as adults, we get far more excited when we know there is a surprise waiting for us!
   - Our biggest motivation is to bring out the wanderlust, wonderstruck kid in you."
   - Anywhera plans surprise travel trips for solo and dual travellers.We offer a vivid new experience and a whole new feeling of travel, help couples find a lover's retreat, fill enough adrenaline in the backpackers and adventure junkies,

and plan the perfect getaway for friends whose vacation plans have always failed.

Unit-016: Tri-E-Con Developers LLP

1. **Name of the Company/Start-up** : Tri-E-Con Developers LLP
2. **Highlights of the Company/Start-up**;

   Product : Precast Eco-Friendly Concrete Products (Paver Blocks, Kerb Stone, Concrete Covers, Fly Ash Bricks, Elevation Jali, Home Decor Pots and Other concrete Products)

   Investment : Rs. 15,00,000

   Employment generated : 75

   Revenue generated : Rs. 50,00,000

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)** : we have Upcycled more than 75 tons of Waste which was going to end up in landfills, we also reduced more than 50 tons of carbon footprints entering into atmosphere by manufacturing Eco-Friendly Products.
4. **Current Status of the Company/Start-up**: Early Growth Stage
5. **Student team Details/Faculty Mentor:**

   1. Yash Patel
   2. Sahej Singh Tuteja
   3. Harshad Makwana
   4. Nirmal Suthar
   5. Vansh Agrawal
   6. Gaurav Mer
6. **Establishment date of the Company/Start-up/Commercialization**: 12/12/2018
7. **One paragraph on the Company/Start-Up covering all the points**: Tri-e-con work on the principle of the 3 E's which are Economical, Enhanced, and Eco-Friendly. We manufacture nonstructural concrete products from industrial waste materials which are nonrecyclable and thrown in landfills. Our prime motto is to reduce carbon footprints by reducing cement consumption. As cement industry produces more than 7% of Co2 annually.

Unit-017: Karbh IT Solutions

1. **Name of the Company/Start-up**: Karbh IT Solutions
2. **Highlights of the Company/Start-up**;

   Product : 1) Question paper generation 2) Software solutions

   Investment : Rs. 1,50,000

   Employment generated : 15

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)** It has already been in the market for over three years and has generated employment for over 10 people directly or indirectly.
4. **Current Status of the Company/Start-up**: Ongoing
5. **Student team Details/Faculty Mentor:**

   1. Yash Shukla
6. **Establishment date of the Company/Start-up/Commercialization**:

   19-October 2019
7. **One paragraph on the Company/Start-Up covering all the points.**
   - We at Karbh IT solutions focus on providing intuitive, robust, and simple software solutions related to any field. We believe in empowering all social and business activities through technology to meet their needs.
   - Which means we are here to solve your problems through various technologies, all you need to do is contact us.
   - In the last few years, Karbh IT Solutions has built various software solutions which are helping our clients in varied ways. It is really heartening to see how our work has been useful to them and we strive to contribute even more to their success.
   - We believe in the collective work which we can do to help you grow by solving your problems. Teamwork, Self-belief, and the motivation to give back to society is what keeps us going. 90% of our customers are recurring which shows the value we have added for them and their trust in us to take it forward. So if you are here you are at the right place to find solutions to your technological problems.

Unit-018: Resto'lution

1. **Name of the Company/Start-Up-** Resto'lution
2. **Highlights of the Company/Start-up**;

   One stop HR solution for Restaurants

   Product : App

   Investment : Rs. 2,00,000

   Employment generated : 135 (Direct 35, Indirect 100)

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)** : Livelihoods in restaurant industry
4. **Current Status of the Company/Start-up**: Tech development
5. **Student team Details/Faculty Mentor:**

   1. Naman Patel
6. **Establishment date of the Company/Start-up/Commercialization**:

   Incorporated on 1st Oct 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   We provide one-stop HR solution to restaurant industry. From searching candidates, attendance, upskilling and payroll management

Unit-019: YM Intelligence Tech LLP

1. **Name of the Company/start-up**: YM Intelligence Tech LLP
2. **Highlights of the Company/Start-up**;

   Product : face attendance, visitor management & face cropper

   Investment : Rs. 1,50,000

   Employment Generated : 15 (Direct-07 & Indirect-07)

   Commercialized or not : Yes, Commercialized
3. **Impact it will create**:
   - A major impact in healthcare industry to track and detect life threatening diseases.
   - It is catering to numerous industries through it facial recognition and image processing solutions.
   - One of the USP is that they have provided solutions for detection of TB.
   - Also implemented this during covid 19 for social distancing detection

4. **Current Status of the Company/Start-up**: Start-up (Ongoing)
5. **Student team Details/Faculty Mentor:**
   1. Yakshkumar Harishbhai Thakar
   2. Mihir Upendrabhai Bhatt
6. **Establishment date of the Company/Start-up/Commercialization**:
   Establishment date: 28 August 2019.
7. **One paragraph on the Company/Start-Up covering all the points.**
   Introduction: YM Intelligence Tech LLP is an AI based Start Up Company. We offer a various product for Governments, Manufacturers, Retailers, Jewelers, Real Estate business & Authorized Buildings using smart AI based innovative & unique solution in Face Recognition Technology for human authentication and authorization.

Unit-020: Folklore Food Private Limited

1. **Name of the Company/Start-up**: Folklore Food Private Limited
2. **Highlights of the Company/Start-up**:

Product/Service	: Condiments and Packed food
Investment	: Rs. 2,50,000
Employment generated	: 1
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - The basic idea of this company is to focus on the awareness of local food served in different states and to be able to make serve them all over the nation with authentic touch
4. **Current Status of the Company/Start-up**
   - The products are under shelf life testing and soon will be open to the market.
5. **Student team Details/Faculty Mentor:**
   1. Aditya Thakkar
   2. Mit Chavda
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Date of Establishment is 09/02/2022

7. **One paragraph on the Company/Start-Up covering all the points.**
    - The main idea behind Folklore Food was to focus on the variety local and traditional cuisine consumed in all the states. Our aim is to provide that taste to other respective state with the same authenticity and recipe served. Currently we have 6 products in inline in which 2 of them are in shelf life testing and soon to be ready to launch in market. Our basic business model is launch all this products on online market as our primary focus to increase the reach as the idea mentioned above

Unit-021: TRIYAZA Healthcare Private Limited

1. **Name of the Company/Start-up**: TRIYAZA Healthcare Private Limited
2. **Highlights of the Company/Start-up**;

Product	: Wearable IV Care & the Patient Turner
Investment	: Rs. 1,00,000
Employment generated	: 1
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

    Wearable IV Care

    - In the case of wearable IV the nursing staff does not have to go with patients anywhere anytime to handle IV bottle, as they can complete their more meaningful work.
    - Easily mobile and can be worn on the wheelchair so the patient can easily get mobility with an IV bottle, for e.g going to the radiology department.
    - Patients have full privacy in the restroom

    In-Patient Turner:

    - Nursing staff get relief from back pain as they now do not pull patients for turning them.
    - Ease of diaper changing, cleaning bedsheets
    - Relief from pressure ulcers or bed sores as now the patient can be turned from side to side.
    - The light exercise of the patient can be done

4. **Current Status of the Company/Start-up**
   - Scaling, reaching out to more hospitals personally
   - R&D of new upcoming product/project
5. **Student team Details/Faculty Mentor:**
   1. Aayush Trivedi
   2. Jaydeep Yadav
   3. Meetrajsinh Zala
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Date of Establishment is 25/03/2022
7. **One paragraph on the Company/Start-Up covering all the points.**

   Triyaza healthcare is a medical device manufacturing company where we try to solve, day-to-day problems in the lives of patients. We are focused on delivering the best medical device in the Indian market. We are trying to strengthen the healthcare of India and explore new opportunities in this industry. Our focus is to reduce the imports of medical devices and try to manufacture them in India.

Unit-022: RIOB

1. **Name of the Company/Start-up**: RIOB
2. **Highlights of the Company/Start-up**:

   Product/Service : Biscuits

   Investment : Rs. 1,50,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):** Healthy Life for Dogs
4. **Current Status of the Company/Start-up:** Developing New Products
5. **Student team Details/Faculty Mentor:**
   1. Smriti Patel
   2. Jeet Shah
6. **Establishment date of the Company/Start-up/Commercialization:**
   - February 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - We are dog biscuits manufacturers which are 100% natural. Our biscuits are available in 3 different pack sizes (5rs, 30rs, 120rs).

Unit-023: GREENEVON Bio Private Limited

1. **Name of the Company/Start-up**: GREENEVON Bio Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Biodegradable and Compostable Bottles

   Investment : Rs. 30,00,000

   Employment generated : 20

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - We are provide superior PLA Bottle manufacturing services that meet the highest sustainability standards. We are dedicated to developing and producing biodegradable and compostable bottles that minimize environmental impact and reduce plastic waste
4. **Current Status of the Company/Start-up:** Started Product Marketing
5. **Student team Details/Faculty Mentor:**

   1. Nikhil Kumar

   2. Chintan Prajapati
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 4th August 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - We are working on sustainable packaging solutions through the production of high-quality and eco-friendly PLA bottles. We aim to revolutionize the packaging industry by offering innovative, biodegradable, and compostable bottles that significantly reduce the environmental impact of single-use plastics.

05) Manav Rachna International University, Faridabad

Unit-024: Halestein Foodlabs LLP

1. **Name of the Company/Start-up**: Halestein Foodlabs LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Health based organic edibles and drinks

   Investment : Rs 2,50,000/-

   Employment generated : 5

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):** Providing healthy snacks and drinks to the customer for last minute food cravings.
4. **Current Status of the Company/Start-up**
   - The company is working on opening food outlets.
5. **Student team Details/Faculty Mentor:**
   1. Pranaw Jha
   2. Anshu Jha
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 07-Oct-2019
7. **One paragraph on the Company/Start-Up covering all the points.**
   HALESTEIN FOODLABS LLP is an initiative by two nutritionists with a mission to inculcate a healthy regime among the youth.
   - With products. Rich in antioxidants, aiding digestion, hydrating the body, enhancing immunity and improving the skin we are preparing the future generation for a disease free, healthy and productive life ahead.Our aim is to increase the interest of children and youth of the country towards nutritious products to promote the rich nutritional heritage of India for a healthier lifestyle approach and make nutrition easily accessible to a larger population.

Unit-025: Aarkaya Solar Solution Private Limited

1. **Name of the Company/Start-up**: Aarkaya Solar Solution Private Limited
2. **Highlights of the Company/Start-up**:

Product/Service	: Solar panels/ infrastructure
Investment	: Rs. 2,50,000
Employment generated	: 20
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - Providing extended support by installing solar panels to places with little to no electricity.
4. **Current Status of the Company/Start-up:** Expansion of business PAN India
5. **Student team Details/Faculty Mentor:**
   1. Shivender Singh
6. **Establishment date of the Company/Start-up/Commercialization:** 01.03.2018

7. **One paragraph on the Company/Start-Up covering all the points.**
   - At Aarkaya our core mission is to deploy a network of renewable energy solutions to create sustainable, green and interconnected urban infrastructures worldwide.
   - We envision a world where society uses technology and clean energy to improve living conditions while preserving the planet. Everything we do is about a green future and energy efficiency.

Unit-026: Tackyon Motorsports Private Limited

1. **Name of the Company/Start-up**: Tackyon Motorsports Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Electric Vehicles

   Investment : Rs. 2,50,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - Developing inhouse electric motors and drivetrains for indian customers
4. **Current Status of the Company/Start-up**
   - Expansion of business PAN India.
5. **Student team Details/Faculty Mentor:**

   1. Aayush Mohan
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 31 March 2018
7. **One paragraph on the Company/Start-Up covering all the points.**

   Tackyon Motorsports Pvt Ltd is a startup working towards electrifying the mobility sector.The team has developed fast charging, and up to mark electric scooters for rental purposes. The team is also working on different variants and have developed electric utility vehicles to overtake the commercial sector.

   STAGE:-
   - Working on developing high voltage controllers for better performance and quick charging.
   - Developing motors due to the trade cut-off between India-China.
   - Consultancy to Students participating in National/International Events.

Unit-027: TFT Industries

1. **Name of the Company/Start-up**: TFT Industries
2. **Highlights of the Company/Start-up**:

   Product/Service : Manufacturing

   Investment : Rs. 2,50,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - Making jobs of movers and packers easy.
4. **Current Status of the Company/Start-up**
   - Expansion of business PAN India.
5. **Student team Details/Faculty Mentor:**

   1. Aman Nischal
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 03rd April 2018
7. **One paragraph on the Company/Start-Up covering all the points.**

   TFT Industries is one of the leading manufacturers of Meyer Bar Coater, Tape Making Machine, Film Applicator and much more. In their development process, we assure that only top notch material is used along with modern machinery. Besides this, we check these on a variety of grounds before finally shipping them at the destination of our customers.

Unit-028: Helix Smart Labs Private Limited

1. **Name of the Company/Start-up**: Helix Smart Labs Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Services

   Investment : Rs 4,50,000

   Employment generated : 20+

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - The team is providing IT support to the budding startups
4. **Current Status of the Company/Start-up**
   - Looking for new opportunities along with product development

5. **Student team Details/Faculty Mentor:**

   1. Dhruv Rohatgi

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 02 July 2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   - At Helix Smartlabs believes in bringing change in technology which can truly impact the lives of people and make their life easier to ensure that we have inline more than 10 products which can ease your daily life. Due to unavailability of injection moulding facility at an affordable rate the firm had to change the business model IT consultation and development. Generating revenue and serving clients with a team of 20+ employees working on contractual basis.

Unit-029: Hobit Technologies Private Limited

1. **Name of the Company/Start-up**: Hobit Technologies Private Limited
2. **Highlights of the Company/Start-up**:

Product/Service	: Hobit (An Online Skill based App)
Investment	: Rs. 3,50,00,000
Employment generated	: 32
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

   - Online skill development application focusing on hobbies, chance to create jobs for promoters.

4. **Current Status of the Company/Start-up:** Applying for Series funding
5. **Student team Details/Faculty Mentor:**

   1. Arpit Tyagi

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 15/06/2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   - Founded in June, 2020 with a mission to become the world's most Hobby centric platform. HOBIT is a one-of-its kind virtual platform with a vision to connect educators and learners from all over the globe. The platform enables the users to access prerecorded modules and live video sessions with the

topmost tutors across the world. HOBIT is providing 360-degree solution for hobbies/ passion learning through their application. The company has received funding from angel investors and catalysts and is growing its operations steadily.

Unit-030: Shuttle Express LLP

1. **Name of the Company/Start-up**: Shuttle Express LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Car and Bus Rental Company

   Investment : Rs. 25,00,000

   Employment generated : 50 (On commission basis)

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Shuttle Express is creating an umbrella where the unorganized ground transportation sector can fulfill the requirements of B2B Travel agents and corporate companies. By this we reduce poverty and improve health, housing, education, and overall well-being of Transport operators and Drivers.
4. **Current Status of the Company/Start-up**

   We are a GST verified MSME and generating revenues. Also “Shuttle Express” brand name is registered as a Trademark.
5. **Student team Details/Faculty Mentor:**

   1. Udit Tiwari
   2. Shubham Singh
6. **Establishment date of the Company/Start-up/Commercialization**: 01.01.2020
7. **One paragraph on the Company/Start-Up covering all the points:** Shuttle Express is one of the leading company for buses and cab booking in India which offer riders a one-stop solution to book vehicles of their choice for their Intercity as well as Local travel needs. Shuttle Express aims to leverage technology as a platform to squeeze the gap in the land transportation industry to book the vehicle for their travel bookings. One can easily book the cab of their choice in just a few minutes and that too at affordable prices. Having a strong pipeline of verified cabs and drivers in major cities covering nearly every major city of India, Shuttle Express strives to provide the car of your choice Anytime & Anywhere.

Unit-031: FIN Horse Financial Advisory Private Limited

1. **Name of the Company/Start-up**: FIN Horse Financial Advisory Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Services

   Investment : Rs 8,00,000

   Employment generated : 15

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - A one stop personalized financial planning startup to provide assistance to the customers.
4. **Current Status of the Company/Startup:** Working towards acquiring customers
5. **Student team Details/Faculty Mentor:**

   1. Shubham Adhlakha
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 26th April, 2022
7. **One paragraph on the Company/Start-Up covering all the points.**

   The advisory concept is simple and clear: we provide a one-stop-shop for all aspects of financial management. Throughout the entire process of building and managing your portfolio, everything has been taken care of. As your financial doctor, we can monitor your financial health and restore it if necessary. Our idea behind this is crystal clear: to provide more and more HNI's for society. We are all geared up with trained professionals to assist our clients with their finances. Investing according to your financial needs is something we are committed to helping you achieve. With qualified and trained staff onboard, we tend to deliver according to the clients' expectations.

Unit-032: Asset reclaimers/Oops Consultancy LLP

1. **Name of the Company/Start-up**: Asset reclaimers/Oops Consultancy LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Services

   Investment : Rs 10,00,000

   Employment generated : 35

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - A startup with a focus to help the customers getting claims of the assets like Bonds, gold, FDs and more.
4. **Current Status of the Company/Start-up**
   - Generating revenues by catering to NRIs, HNIs in Delhi, Kolkatta, Gujarat, Bangalore and Mumbai
5. **Student team Details/Faculty Mentor:**

   1. Vishal Gupta
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 14th July, 2022
7. **One paragraph on the Company/Start-Up covering all the points.**

   The Demat accounts & the paper less share trading was not always the trend. Strange but yes it's true, not that far behind rather till the previous generation, shares/ debentures were bought & sold in physical form. However, "any investor who is desirous of transferring shares (which are held in physical form) after April 1, 2019 can do so only after the shares are dematerialised," Asset Reclaimers brings to you the complete solution of any issues with the physical documents of share or debentures. Our experts assist clients in resolving doubts/ queries related to share transfer, claims by nominee, name deletion/ modification etc. We have experts to help you recover the unclaimed amount from lost or damaged share certificates as well.

Unit-033: VIEH Private Limited

1. **Name of the Company/Start-up**: VIEH Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Cyber-National security/ IT services & solutions

   Investment : Rs 2,50,000

   Employment generated : 15

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   CVMS can create a lot of impact while building a safe and secure nation, because it is a kind of a full-fledged system from which organizations will get

overall security for their infrastructure. Since we have reported vulnerability on almost all big tech giant server, we feel we can do it better

4. **Current Status of the Company/Start-up**

   Company has been registered as a private limited and also got recognized under Startup India program, Government of India

5. **Student team Details/Faculty Mentor:**

   1. Manish Kumar

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 27 August 2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   1. Our startup is fully dedicated to Cyber security and National security ideas. Right now we're working on two major things
   2. Here we're working on a model to provide intelligence support to the intelligence agencies of India- It include Global surveillance model, getting information about the confidential data and operation that are running in the enemy nation like Pakistan and China
   3. CVMS- Centralized vulnerability management system This is a portal where we're listing out the critical vulnerabilities that are present in multiple government servers/ websites. Apart from this we'll be providing ticket and remedies support with that too.

Unit-034: Analytix Nexus Private Limited

1. **Name of the Company/Start-up**: Analytix Nexus Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Bad word Protection, Scammer IP Protection, Live Traffic of Website

   Investment : Rs 2,50,000

   Employment generated : 15

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: Abedhya is a product where customers can get updates about the website management from various hacks like scammer protection etc.

4. **Current Status of the Company/Start-up**: Company has been registered as a private limited and also got recognized under Startup India program, Government of India
5. **Student team Details/Faculty Mentor:**

   1. Anirudh Khandwe
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 02 March 2022
7. **One paragraph on the Company/Start-Up covering all the points.**

   Abhedya is an indigenous GUI-based Firewall as well as it has its unique features like IP block, Region wise block, and Country-wise block traffic. It also shows the location of the Attacker by IP LOOKUP, Abhedya gives protection against bad bots then, IP whitelisting, Bad word Protection, Scammer IP Protection, Live Traffic of Website, and many more feature

Unit-035: 2nd Life Inning Ventures LLP

1. **Name of the Company/Start-up**: 2nd Life Inning Ventures LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Website for senior citizens

   Investment : Rs. 2, 50,000

   Employment generated : 04

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):** Enhancing lives, one step at a time. Our well-designed project aims to prioritize the holistic needs of seniors, offering a seamless blend of essential services ranging from nourishing meals, safety, medical care, housekeeping, to thoughtfully curate entertainment, ensuring perpetual happiness, comfort, and security.
4. **Current Status of the Company/Start-up:** LLP has been registered and also got recognized under Startup India program, Government of India.
5. **Student team Details/Faculty Mentor:**

   I. Babita

   II. Shreyansh
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 13.02.2023

7. **One paragraph on the Company/Start-Up covering all the points.**
   - The 2nd Lifeinnings is a well-planned project to ensure that you are always Happy, Comfortable, Secured and Looked after- Focusing on the minor as well as major requirements starting from Food & Diet to Security and Medical care from House- keeping to entertainment planning of the old age people.

Unit-036: MANAVNEER LLP

1. **Name of the Company/Start-up**: MANAVNEER LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Water cleaning using NANO material

   Investment : 2, 50,000/-

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Revolutionizing water purification with an air stable, biocompatible porous nano composite material, and effectively combating pollution by enhancing absorption capabilities in contaminated water. Harnessing innovation for a cleaner, healthier future.
4. **Current Status of the Company/Start-up**
   - LLP has been registered and also got recognized under Startup India program, Government of India.
5. **Student team Details/Faculty Mentor:**
   I. Sudeep Shukla
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 26.04.2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The proposed idea will be attempted to synthesize air stable biocompatible porous nano composite material for advance absorption of pollutants from contaminated water.

06) B. N. M. Institute of Technology, Bengaluru

Unit-037: Entrada Solution Private Limited

1. **Name of the Company/ Start-up**: Entrada Solution Private Limited
2. **Highlights of the Company/Start-up;**

   Product : Home Automation, IoT, iOS and Android, Interactive Solutions product.

   Investment : Rs. 50,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - to make human-object inter-action as natural as possible.
4. **Current Status of the Company/Start-up:**
   - Growth stage
5. **Student team Details/Faculty Mentor:**

   1. Pavan R
6. **Establishment date of the Company/Start-up/Commercialization:** 2017
7. **One paragraph on the Company/Start-Up covering all the points.**

   Entrada Solutions Private Limited is a private establishment based in Bengaluru. We at Entrada Solutions believe that speech is the most natural form of communication. The idea for Entrada Solutions was coined in 2015, to make human-object inter-action as natural as possible. We are using latest AI-based technologies like Amazon's Alexa, Apple's Siri and Google Home to build these interactive solutions. We have developed a voice-controlled interactive solution for Home Automation. Our home automation solution involves lights, fans, door lock, switches, HVAC, electric water heaters and other consumer electronics. We also provide custom solutions for automating various tasks in automotive Industries. Currently, we are developing a voice-activated interactive universal controller which can be used to control most commonly used objects at home or office. Additionally, we are in a nascent research stage with respect to "Beacon" technology. These beacons can be used to further the user's communication with the daily usable objects.

Unit-038: USOCL

1. **Name of the Company/ Start-up**: USOCL
2. **Highlights of the Company/Start-up;**

   Product : Usocl is a social networking and knowledge sharing platform. Creating and sharing content with others is the core functionality of usocl.

   Investment : Rs. 2,50,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   There are multiple ways in which you can interact with usocl, like by creating your account, by creating your profile, by sharing your messages, pictures or posts with a network of your friends on usocl, by liking and commenting on others messages, pictures or posts, by sharing your reviews and blogs, by following reviews and blogs shared by other people, by commenting on the reviews and blogs, by creating your followers or by following others, by searching for friends, reviews or blogs.
4. **Current Status of the Company/Start-up:** In Seed stage
5. **Student team Details/Faculty Mentor:**

   1. Hassan Raza
6. **Establishment date of the Company/Start-up/Commercialization**: 2017
7. **One paragraph on the Company/Start-Up covering all the points:** Usocl is a social networking and knowledge sharing platform. Creating and sharing content with others is the core functionality of usocl. There are multiple ways in which you can interact with usocl, like by creating your account, by creating your profile, by sharing your messages, pictures or posts with a network of your friends on usocl, by liking and commenting on others messages, pictures or posts, by sharing your reviews and blogs, by following reviews and blogs shared by other people, by commenting on the reviews and blogs, by creating your followers or by following others, by searching for friends, reviews or blogs.

Unit-039: Hycube Works Private Limited

1. **Name of the Company/ Start-up**: Hycube Works Private Limited
2. **Highlights of the Company/Start-up;**

   Product : 3D Printer Manufacturers**.**

   Investment : Rs. 2,00,000

   Employment generated : 18

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   This company has created a pragmatic change in the field of digital manufacturing and is helping the Hardware industry in creating cost effective end products and prototypes.
4. **Current Status of the Company/Start-up: Expansion Stage**

   It is a bootstrapped company which has 7 full time employees and has 20+ interns. HyCube Works has served clients such as Indian Army, Indian Air Force, BARC, CSIR organizations, NIT's, Private companies. This company has created a pragmatic change in the field of digital manufacturing and is helping the Hardware industry in creating cost effective end products and prototypes.
5. **Student team Details/Faculty Mentor:**

   1. Shreyas S P
   2. Reethan D
6. **Establishment date of the Company/Start-up/Commercialization:** 2018
7. **One paragraph on the Company/Start-Up covering all the points**: HyCube Works Private Limited is pre incubated company at BNMIT in the year 2017-18. HyCube Works Private Limited is a two-time incubated venture at NSRCEL IIMB and is also an incubated venture at Maruti Suzuki India Limited. It is an OEM for Manufactures of FDM 3D Printers and is in the process of coming with Indigenous Multi Material Metal (IMMM) 3D Printer. It is a bootstrapped company which has 7 full time employees and has 20+ interns. HyCube Works has served clients such as Indian Army, Indian Air Force, BARC, CSIR organizations, NIT's, Private companies. This company has created a pragmatic change in the field of digital manufacturing and is helping the Hardware industry in creating cost effective end products and prototypes. The founders of this company are Mr.Shreyas S P and Reethan D L who is our alumni graduated in the year 2018. They registered their

company also on 8th August 2018. They have created their own website named www.hycubeworks.in which explains more about their ventures.

Unit-040: WAF Digital

1. **Name of the Company/ Start-up**: WAF Digital
2. **Highlights of the Company/Start-up :**

   Product : Software Development product

   Investment : Rs. 30,000

   Employment generated : 1

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - to build and grow online businesses — generally, digital services.
4. **Current Status of the Company/Start-up: Seed Stage**
   - Digital entrepreneurs rely on web-based tools and information to build and grow online businesses — generally, digital services.
5. **Student team Details/Faculty Mentor:**

   1**.** Neetu Purba
6. **Establishment date of the Company/Start-up/Commercialization:** 2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   A digital entrepreneur pursues a business venture that's built exclusively on a digital platform. Digital entrepreneurs rely on web-based tools and information to build and grow online businesses — generally, digital services. These kinds of entrepreneurs are distinctly modern, as they take advantage of mass digitization to build new businesses in the online space. She is also working for Envestnet | Yodlee India as Software Engineer at Bengaluru

Unit-041: Ace Destiny LLP

1. **Name of the Company/ Start-up**: Ace Destiny LLP
2. **Highlights of the Company/Start-up :**

   Product : Real Estate Professional

   Investment : Rs.1,00,000

   Employment generated : 3

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   Have conducted successful consultations with various organizations and representatives in the field of real estate market analysis and research.
4. **Current Status of the Company/Start-up:** Established
5. **Student team Details/Faculty Mentor:**
   1**.** Kalyan Chakravarthy Gurram
6. **Establishment date of the Company/Start-up/Commercialization**: 2019
7. **One paragraph on the Company/Start-Up covering all the points.**
   Real Estate Professional, with several years of experience across residential and commercial real estate industry. Strong expertise in Real Estate Economics and Trasanctions. Has diverse knowledge of product marketing and implementation of operational efficiency strategies. Have conducted successful consultations with various organizations and representatives in the field of real estate market analysis and research.

Unit-042: Tedora Technologies Private Limited

1. **Name of the Company/ Start-up**: Tedora Technologies Private Limited
2. **Highlights of the Company/Start-up;**

Product	: Software Development
Investment	: Rs. 2,00,000
Employment generated	: 4
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):** The platform also aims at educating the students about the basics of web and mobile application development.
4. **Current Status of the Company/Start-up:** Growth
5. **Student team Details/Faculty Mentor:**
   1. Shreyas G S
   2. Thrupthi N Murthy
6. **Establishment date of the Company/Start-up/Commercialization:** 2019
7. **One paragraph on the Company/Start-Up covering all the points.**
   Tedora Technologies is a design engineering start up that is intended to provide innovative Web and Mobile application services to render the needs of the

customers. Over a year of service, the startup is fruitful in developing applications for the chief customers, Ayushya Technologies and Services Pvt Ltd and Aarna Solutions Pvt Ltd, besides conducting workshops for 11th and 12th students across Bangalore. The platform also aims at educating the students about the basics of web and mobile application development. Ayushya Technologies and Services (ATAS) increases the longevity of electronic products through innovation, technology and best in class processes and controls to generate value for the customers.

Unit-043: Cadcon Education Private Limited

1. **Name of the Company/ Start-up**: Cadcon Education Private Limited
2. **Highlights of the Company/Start-up :**

Product	: Software Development
Investment	: Rs. 5,00,000
Employment generated	: 35
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - With a vision to become leading digital education providers of the world, we cater to the needs of students through regional languages.
4. **Current Status of the Company/Start-up:**
   - Established, we cater to the needs of students through regional languages.
5. **Student team Details/Faculty Mentor:**

   1**.** Abhiram V
6. **Establishment date of the Company/Start-up/Commercialization:**

   Incorporated - 2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   Cadcon is a product company, which has an end-to-end solution for the educational needs of students, presently studying between class 8-12. We have an in-house tech team through which we have built our product, an Android App. The app is used to integrate and provide academic courses to students. Academic courses are built in-house, with highly experienced expert educators, and an extremely skilled content development team. We stand apart for our highly relatable, concept based education taught. Cadcon is an Ed-Tech SaaS

Model based Product Company. We bring onto the table a very novel idea of concept based education. With a vision to become leading digital education providers of the world, we cater to the needs of students through regional languages. Academic and Non-academic content developed consists relatable examples and explanations. The vast reachability and affordability of this innovative content is a welcome change to students of rural India

Unit-044: Dhiyo.ai

1. **Name of the Company/ Start-up**: Dhiyo.ai
2. **Highlights of the Company/Start-up;**

Product	: Software Development Product
Investment	: Rs. 60,00,000
Employment generated	: 1
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):** Responsibility to solve job market inefficiencies for blue-collar sector and a confidence that conversational technology can help.
4. **Current Status of the Company/Start-up:**
   Startup stage-Our Vision is to remove friction by NOT imposing English and Tech literacy as a precondition for Bottom-of-Pyramid folks to become members of the new digital economy
5. **Student team Details/Faculty Mentor:**
   1. Samith Jaganath
6. **Establishment date of the Company/Start-up/Commercialization:** 2020
7. **One paragraph on the Company/Start-Up covering all the points.**
   Dhiyo was born out of a deep sense of responsibility to solve job market inefficiencies for blue-collar sector and a confidence that conversational technology can help. The power of conversation becomes a meaningful engagement especially if it's done in your native tongue. Our Vision is to remove friction by NOT imposing English and Tech literacy as a precondition for Bottom-of-Pyramid folks to become members of the new digital economy. Using our AI and NLP technology, they now can make an active presence on the job market without any dependency on middle-man.

Unit-045: Vtrike Private Limited

1. **Name of the Company/ Start-up**: Vtrike Private Limited
2. **Highlights of the Company/Start-up :**

   Product : Provide world class battery management systems

   Investment : Rs. 2,50,000

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   To design, develop and deploy energy efficient smart technology maintaining ecological balance that adds values to our customers.
4. **Current Status of the Company/Start-up: Growth stage**

   Vtrike is currently incubated under NDBI an initiative of the National Institute of Design, Bengaluru.
5. **Student team Details/Faculty Mentor:**

   1. Aslesh Kumar A.
   2. Raghuveer Bhat
   3. Shwetha S.
   4. Alagar Krishna B.
6. **Establishment date of the Company/Start-up/Commercialization**:

   2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   Vtrike Private Limited is pre incubated company at BNMIT in the year 2019-20. Vtrike Private Limited is a deep tech start-up focused on providing efficient, robust edge to cloud solutions to the battery applied sectors. It is found by 4 students of our institution Aslesh Kumar A, Raghuveer S Bhat, Shwetha S, Alagar Krishna B and they have registered their company on 14th January 2020. Their main is to design, develop and deploy energy efficient smart technology maintaining ecological balance that adds values to our customers. To provide world class battery management systems, promote green and safe transportation. To increase battery life, vehicle safety with technology that achieves more, consumes less and is accessible for everyone. They have created their own website www.vtrike.in for more information of their company.

ACHIEVEMENTS:

- Vtrike is recognized by Start-up India, DPIIT and MSME.
- Vtrike is currently incubated under NDBI an initiative of the National Institute of Design, Bengaluru.
- Vtrike has been granted Rs.25 lakhs by National Institute of Research and Design.
- The team also has applied for patent vide Application no. 201941037512 dated 17.09.2019.

Unit-046: Innovkraft Inc

1. **Name of the Company/ Start-up**: Innovkraft Inc
2. **Highlights of the Company/Start-up :**

Product	: Software Development Product
Investment	: Rs. 3,00,000
Employment generated	: 10
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   Branding, Social Media Marketing, Search Engine Optimization (SEO), Management, Leadership, and Team Leadership.
4. **Current Status of the Company/Start-up:** Growth stage
5. **Student team Details/Faculty Mentor:**
   1. Apoorva R
6. **Establishment date of the Company/Start-up/Commercialization: 2021**
7. **One paragraph on the Company/Start-Up covering all the points.**
   An Entrepreneur, skilled in Branding, Social Media Marketing, Search Engine Optimization (SEO), Management, Leadership, and Team Leadership. Passionate about photography. A strong business development professional with a Bachelor of Engineering - focused in Electronics and Communications Engineering from B N M Institute of Technology, BANGALORE. “At Innovraft we innovators are expert in design and technology, with a focus on creating campaigns that resonate with your target audience. Once we have a grasp of your company’s vision, we’ll work with you to use our expertise to develop a strategy that elevates the way you interact with your customers” says Managing Partner Ms. Apporva.

07) University of Science and Technology, Ri-Bhoi

Unit-047: **Tosinindra Private Limited**

1. **Name of the Company/ Start-up:** Tosinindra Private Limited (CIN: U74999AS2018PTC018912)
2. **Highlights of the Company/Start-up :**

   Product : Non-conventional energy solutions (Solar powered processes)

   Investment : Rs. 1,00,000/-

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - The company is engaged in the agro sector with projects of solar driven irrigation devices & also associated with design & implementation of the same.
4. **Current Status of the Company/Start-up:** Functioning
5. **Student team Details/Faculty Mentor:**

   1. Paramanda Pathak
   2. Sagar Tiwari
6. **Establishment date of the Company/Start-up/Commercialization:**

   31 March 2020
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The aim of this startup is to take forward the economic and environmental friendly socially acceptable product portfolio based on solar energy into the realm of agriculture, urban housing etc. The services offered includes, survey, design, procurement, installation, commissioning and annual maintenance.

Unit-048: Wholesome Ventures

1. **Name of the Company/ Start-up:** Wholesome Ventures
2. **Highlights of the Company/ Start-up:**

   Product/ Service : Frozen Food

   Investment : Rs. 20,00,000

   Employment generated : 15 Nos

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

   Most of the Frozen Food players are from mainland India. The presence is limited to major cites/ towns of North East. NE food has a particular taste pallet. This region is blessed with indigenous herbs and spice rich in taste. We are trying to create products considering the indigenous taste and mouth fullness. We Intend to be a leading frozen food player in the country.

4. **Current status of the company/ start-up**

   46 Lakhs of Turn Over in 1st year of Operation with Market Presence in 7 District of Assam and 3 State Capitals of North East Shillong, Nagaland, Manipur.

   Shall be launching Bangalore by Mid of July 2023.

5. **Team details**

   1. Nashat Hussain
   2. Boilal P Gangte

6. **Establishment date of the Company/ start-up/ commercialization:**

   04th of April 2022 is the date of incorporation.

   Commercial launch happened in June 2022

7. **One paragraph on the company/ start-up covering all the points:**

   - Wholesome ventures is a frozen food manufacturing and marketing firm from the North East, based out of Guwahati. The company operates under the brand "Petoo".
   - The company intends to be a leading frozen food player in the country by providing interesting and relevant products through a fine blend of science, art and aesthetics.
   - What makes Petoo different from the rest is, the product innovation using smart & local know-how and the different brand appeal.

Unit-049: AmbyGold Manorama Foods Pvt Ltd

1. **Name of the Company/ Start-up:** AmbyGold Manorama Foods Pvt Ltd
2. **Highlights of the Company/ Start-up:**

Product/ Service	: Indigenous Functional Food Products
Investment	: Rs. 6,00,000
Employment generated	: 6 Nos
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

   We are a community building concept with a vision to create a sustainable ecosystem by commercialising indigenous functional food products.

   - Closely working with flood effected farmers
   - better earning opportunities for marginal farmers of Assam
   - employment generation (80% female employees)
   - providing to the society (indigenous superfoods) compromise free better substitutes of unhealthy meals
   - Promoting indigenous foods and small farmers

4. **Current status of the company/ start-up:**

   Early Revenue

5. **Team details**

   1. Monalisha Borthakur

6. **Establishment date of the Company/ start-up/ commercialization:**

   Incorporated on 22 June 2020

7. **One paragraph on the company/ start-up covering all the points:**

   Ambygold Manorama Foods Private Limited is a Private incorporated on 22 June 2020. It is classified as Non-govt company and is registered at Registrar of Companies, Shillong. Its authorized share capital is Rs. 100,000 and its paid up capital is Rs. 30,000. It is inolved in Production, processing and preservation of meat, fish, fruit vegetables, oils and fats. Ambygold Manorama Foods Private Limited's Annual General Meeting (AGM) was last held on 15 May 2021 and as per records from Ministry of Corporate Affairs (MCA), its balance sheet was last filed on 31 March 2021.

Unit-050: Agro Origin

1. **Name of the Company/ Start-up:** Agro Origin
2. **Highlights of the Company/ Start-up:**

   Product/ Service : Dehydrated fruits and vegetables

   Investment : Rs. 6,00,000

   Employment generated : 7 Nos

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):** Dehydrated fruits and vegetables have had a positive social impact by improving food accessibility, especially in areas with limited access to fresh produce. They offer a convenient and lightweight option for individuals with busy lifestyles, making it easier to incorporate fruits and vegetables into their diet. Dehydrated produce also promotes healthier snacking alternatives, contributing to improved overall nutrition and reduced reliance on unhealthy processed snacks. Additionally, the production and sale of dehydrated fruits and vegetables have created employment opportunities, benefiting local economies and providing sustainable income for farmers and processors. Overall, dehydrated fruits and vegetables have helped promote healthier food choices and economic empowerment within communities.
4. **Current status of the company/ start-up:** Early Revenue
5. **Team details**

   1. Abhinab Shyam
6. **Establishment date of the Company/ start-up/ commercialization:**

   Incorporated on 1st November 2020
7. **One paragraph on the company/ start-up covering all the points:**
   - Agro Origin is a 2 years 7 months old Proprietorship Firm incorporated on 01-Nov-2020, having its registered office located at Ward No 29, Agro Origin, Ghoramara Chariali, Niribili Path, Guwahati, Assam.
   - The major activity of Agro Origin is Manufacturing, Sub-classified into Manufacture of food products and is primarily engaged in the Artificial dehydration of fruit and vegetables.
   - Agro Origin is classified as Micro enterprise in the financial year 2020-21. It has its unit situated at Guwahati, Assam.

Unit-051: Dong Valley Creation Pvt Ltd (Beyondarie)

1. **Name of the Company/ Start-up:** Dong Valley Creation Pvt Ltd (Beyondarie)
2. **Highlights of the Company/ Start-up:**

Product/ Service	: Wild Tea
Investment	: Rs. 50,00,000
Employment generated	: 40 Nos
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

   Wild tea has a notable social impact by promoting sustainability, cultural preservation, and economic opportunities. Harvesting wild tea leaves encourages the preservation of natural habitats, as it incentivizes the protection of the ecosystems where these plants thrive. By engaging in sustainable wild tea practices, communities can maintain biodiversity and safeguard traditional tea-growing regions. Culturally, wild tea connects people to their heritage and traditional practices, fostering a sense of pride and identity. Additionally, the cultivation and sale of wild tea provide economic opportunities for local farmers, creating jobs and income within communities. Overall, wild tea contributes to environmental conservation, cultural preservation, and socioeconomic development.

4. **Current status of the company/ start-up**

   Dong Valley Creations Private Limited (DVCPL) is a registered startup operating as a Private Limited Indian Non-Government Company incorporated in India on 04 August 2020 (Two years and ten months old). Its registered office is in Kamrup, Assam, India. The Corporate is engaged in the business of growing rows and rows of tea bushes in the numerous tea estates.

5. **Team details**

   1. Nashat Hussain
   2. Boilal P Gangte

6. **Establishment date of the Company/ start-up/ commercialization:**

   Incorporated on 4th August 2020

7. **One paragraph on the company/ start-up covering all the points:**

   Dong Valley Creations Private Limited. It is a Private company, incorporated on Aug 04, 2020. It is classified as a Non-govt company and registered at Shillong. The registration number for the mentioned company is 020288. It's Corporate Identification Number (CIN) is 020288 having an Active status currently.

   Dong Valley Creations offers a wide range of products and services, including:

   - Ayurvedic Powder and Medicinal Herbs
   - Herbal Powder
   - Manufacturing & Assembling Services

- Grinding Services
- Tea & Coffee
- Tea Bags
- Tea Premix
- Flavored Tea
- Tea
- Herbal Tea

08) College of Technology & Engineering, Udaipur

Unit-052: EF Polymer

1. **Name of the Company/Start-up**: EF Polymer
2. **Highlights of the Company/Start-up**:

   Product/Service : Agri Business

   Investment : Rs. 2,50,000

   Employment generated : 07

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - The team tried to create something helpful to retain water for a longer duration of time, and in the process, the team was successful to create a polymer named "Eco-Friendly Water Retention Natural Polymer". Keeping in mind all the conditions of the country and its farmers the team designed the product at low cost with much more efficiency
4. **Current Status of the Company/Start-up**
   - Selected for the 1-year Entrepreneur-in-Residence Program in Japan
5. **Student team Details/Faculty Mentor:**

   1**.** Narayan Lal Gurjar
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 13.10.2018
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Eco-Friendly Water Retention Natural Polymer works on the properties of SAP. As the team knew SAP had properties to absorb a large quantity of water. The team used properties of SAP and designed natural polymer, which has more capacity to store water for longer time.

- On testing of the product, the team found that it may retain water for 4 to 6 weeks that means crops irrigated at intervals of 2 to 4 days can now be irrigated up to 7 to 8 days with less water consumption. Finally, farmers can get more crop production in low water consumption.
- The natural polymer was produced by using natural waste material like orange peels, banana peels and peepal barks with gel. All the ingredient used are biodegradable, the designed product is also biodegradable and completely pollution free. It can be easily mixed with soil and does not create any problem for the future. Also, the team has not used any type of chemicals, so it is harmless to crops, soil, and farmers as well.

Unit-053: Kangaroo Rooms

1. **Name of the Company/Start-up**: Kangaroo Rooms
2. **Highlights of the Company/Start-up**:

   Project: Kangaroo Rooms is a fastest Growing Rental Platform for Room, Flats, Hostel and PGs. The startup is engaged in leasing/hiring some properties in order to rent out to needy including students going to different cities for coaching or education or even for job as fresher. Also we provide one-to-one interaction through our application between property owners and seekers for rent at very nominal charges. Usually, the brokers in the market charge heavy commission, which most of the times is equal to one month rent from both parties. We offer the interaction platform at a nominal charge of Rs.100 to 500. We connect with the customer through varied online and offline channels. Prospective tenants can browse our application or website and look for the kind of homes they desire, without a broker or any third-party engagement. We are working in some cities as of now, and planning to expand the services in all major cities of the country.

   End product/Prototype/Process developed along with specification and target achieved: So far, we have created three such panels in technology, with the help of which we have solved the problems of five thousand plus customers till now and we have added more than 2 thousand landlords to our platform

   Studies on techno-economic viability undertaken for the commercialization of result of the project & plans for commercialization, if any: We have already commercialized the developed platform by using this for revenue

generation. For the purpose, an LLP has been formed and registered with ROC in the name of 'Kangaroo Alphabet Pvt Ltd.' The company has already started as STARTUP and making revenues meeting some of the expenditures. With the growth of the client base, it is expected that the revenues will exceed the expenditures and will make profits. In cities like Kota, Bangalore, Jaipur, Ahmedabad, Pune, etc A number of people are looking for appropriate accommodation suited to their pocket; providing services to them offers a great potential for growth of the company.

Whenever a person moves to a new city, the first thing he has to do is make arrangements for his stay, during which he has to face a lot of difficulties. We solve all these problems and get them provided according to their budget. Profitable business that we can take to a higher level

Employment generation potential, if any: So far we have a team of 16 people, all of us have got employment through the project and we are adding many more people together in this project. There is so much potential in this project that we can give employment to thousands of people and in every city, we can take this project. Right now we are providing our facilities in 4 cities. So far we have boarded more than 500 landlords and provided service to more than 5000 customers.By making partners in various cities, we will be able to create ample earning opportunities for property owners and direct employment potential for many more in hospitality in these properties. Indirect employment and help to self –earning individuals around these will come along with these opportunities

Product/technology details developed through the project: Web development is the work involved in developing a Web site for the Internet (World Wide Web) or an intranet (a private network). Web development can range from developing a simple single static page of plain text to complex web applications, electronic businesses, and social network services. A more comprehensive list of tasks to which Web development commonly refers, may include Web engineering, Web design, Web content development, client liaison, client-side/server-side scripting, Web server and network security configuration, and e-commerce development. We have used Angular which is Type Script-based open-source web application framework led by the Angular Team at Google and

by a community of individuals and corporations. Angular is a complete rewrite from the same team that built AngularJS

3. **Impact it will create (including social impact, if any)**
   - The start-up “Kangaroo rooms” is widely being accepted in the society as it has capability to cater a common mass irrespective of one’s status breaking all the geographical boundaries, cast creed and religion. At it gets expanded, it has capability to create good scale employment in youths and a learning platform for the college students. The response witnessed in past one year is very encouraging and we are sure that it will be revealing good results in years to come
4. **Current Status of the Company/Start-up**

   We have developed an android application and website to provide accessibility to different users of the services. Any client with property and join his property with photographs and details and the space seekers can join and search for appropriate property by paying a nominal fee. Presently we are providing our services in 4 cities viz. Kota, Udaipur, Jaipur in Rajasthan and Bangalore in Karnataka. In Kota city, we have so far added 200 plus landlord with us. Hundred plus landlords are associated with us in Udaipur and in Jaipur and Bangalore cities, we have added 50-50 landlord in each. We are moving ahead by making our presence in many more cities. Recently we have publicized our services through social media platforms through various groups of student community with which we are conversant. As a result, we have started receiving queries from other metro cities as well. Our business model is to develop partnerships with some landlord/property owners in these cities and develop the business on a profit-sharing basis.In cities like Bangalore, Pune, Chennai, etc., many freshers are moving seeking jobs through walk-in interviews. They need accommodation for a few days only. Getting accommodation in hostels is very costly and hence they are looking for cheap solutions. We at Kangaroo Rooms provide them support in getting the accommodation in an economic way by connecting paying guest service providers or even unregistered properties
5. **Student team Details/Faculty Mentor:**

   1. Vishal Dinesh Gurjar
   2. Dinesh Sardar Kharra

3. Ashish Aryan
4. Vikas Kamal Mehta

6. **Establishment date of the Company/Start-up/Commercialization:**
   - 10th January 2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   The company Kangaroo Alphabet Private Limited came into existence on 10th January 2020 after getting registered from Registrar of Companies, Ministry of Corporate affairs, Govt. of India. Kangaroo Rooms is a fastest Growing Rental Platform for Room, Flats, Hostel and PGs. The startup is engaged in leasing/hiring some properties in order to rent out to needy including students going to different cities for coaching or education or even for job as fresher. The company has already started as STARTUP and making revenues meeting some of the expenditures. With the growth of the client base, it is expected that the revenues will exceed the expenditures and will make profits spreading its wings in the cities like Kota, Bangalore, Jaipur, Ahmedabad, Pune, etc. Presently we are providing our services in 4 cities viz. Kota, Udaipur, Jaipur in Rajasthan and Bangalore in Karnataka.

Unit-054: ARCHITECTICA

1. **Name of the Company/Start-up**: ARCHITECTICA
2. **Highlights of the Company/Start-up**:
   a. Upskilling students to make them more employable.
   b. Generating employability by supporting students' start-ups.
   c. Community for intellectual discussions will be developed and free community support will be helpful to students.

   End product/Prototype/Process developed along with specification and target achieved:
   - Developed our community over 15 new colleges.
   - Provided training to 2500+ students
   - Technically supported 50+ startups.
   - Mentored 500+ students on our app "Rift-Project collaboration Platform".

   Studies on techno-economic viability undertaken for the commercialization of result of the project & plans for commercialization, if any: Rift- A project

collaboration platform. Go through catalogue of projects and apply to work with other Students from premier Institutes. Post your own project idea - invite people to work together and develop your leadership and management skills

Employment generation potential, if any: More than 500+ students have developed their products on our platform, from more than 100+ colleges in India. More than 500+ students got mentorship and certification for free and developed more than 150 products.

Product/technology details developed through the project: Web development is the work involved in developing a Web site for the Internet (World Wide Web) or an intranet (a private network). Web development can range from developing a simple single static page of plain text to complex web applications, electronic businesses, and social network services. A more comprehensive list of tasks to which Web development commonly refers, may include Web engineering, Web design, Web content development, client liaison, client-side/server-side scripting, Web server and network security configuration, and e-commerce development. We have used Angular which is Type Script-based open-source web application framework led by the Angular Team at Google and by a community of individuals and corporations. Angular is a complete rewrite from the same team that built AngularJS.

3. **Impact it will create (including social impact, if any)**

   The start-up “ARCHITECTICA” is widely being accepted in the society specially among students’ community upskilling the students making them more employable. It is a platform which will generate employment by supporting students’ start-ups. It has capability for intellectual discussions at Community level and giving free community support to the students. As it is gradually being expanded, and has spread its wings in over 15 colleges catering over 2500 students and connecting over 70000 students across the country. The start-up has capability to create good scale employment in youths and a learning platform for the college students. The response witnessed in past one year is very encouraging & we are sure that it will be revealing good results in years to come

4. **Current Status of the Company/Start-up**

   - Connected over 70000+ students across various activities.
   - Won the zonal round of Innopreneures, Nagpur.

- Selected for the Entrepreneur in residence program of Lemon Ideas.
- 1000000+ Website visits in last one year

5. **Student team Details/Faculty Mentor:**

   1. Ashish Aryan
   2. Abhishek Chahar
   3. Jayant Banshiwal
   4. Samiksha Pande

6. **Establishment date of the Company/Start-up/Commercialization:**
   - 17 May 2019

7. **One paragraph on the Company/Start-Up covering all the points:** The company **ARCHITECTICA** came into existence on 17th May 2019 after getting registered from Registrar of Companies, Ministry of Corporate affairs, Govt. of India. **ARCHITECTICA** is a fastest Growing platform very popular among college students looking for suitable niche area for employment. Main objective of this startup is Upskilling the students to make them more employable. The android based application developed is generating employability by supporting students start-ups.It has created some sort of community for intellectual discussions which will further be helpful to students. This platform has mentored over 500 students' groups and catered over 70000 students across the country

09) Dr. M. G. R. Educational & Research Institute, Chennai

Unit-055: BRAINBUDS Healthcare Pvt Ltd

1. **Name of the Company/ Start-up**: BRAINBUDS Healthcare Pvt Ltd
2. **Highlights of the Company/Start-up :**

Product	: Wheelchair cum stretcher and stairclimber
Investment	: Rs. 19,25,000
Employment generated	: 12
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - The transportation & shifting of patients will be easier.
   - It makes bed ridden patients' life easier.
4. **Current Status of the Company/Start-up:**
   - The product is getting sold to the hospitals and clinics.

- The new and updated versions of the products are in development.

5. **Student team Details/Faculty Mentor:**

   1. S. Sabariswaran

   2. Dinesh T

6. **Establishment date of the Company/Start-up/Commercialization:**

   05.11.2020

7. **One paragraph on the Company/Start-Up covering all the points.**

   - Brainbuds Healthcare Pvt Ltd is a Healthcare based startup focusing on developing wheelchair cum stretcher and stair-climber. The startup is incubated at AKC funded by NewGen IEDC, Nidhi Prayas and AICTE with around 19 lakhs of funding. The startup has generated employment opportunities for students and welders. Currently the startup is generating revenue by selling and manufacturing physiotherapy products and wheelchair.

Unit-056: ENDEAVOURS ALLY PVT LTD

1. **Name of the Company/ Start-up**: ENDEAVOURS ALLY PVT LTD

2. **Highlights of the Company/Start-up :**

Product	: Health Saathi
Investment	: Rs. 2,50,000
Employment generated	: 8
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**

   - The lab test and combatible medical equipments and devices will also be readily & easily available in the rural areas with minimal charges.
   - There won't be need to shift the patients to labs for taking tests and check-ups.

4. **Current Status of the Company/Start-up:**

   - TRL 6
   - Proof of Concept have been successfully developed and tested in the real life case with minimal customer segments.

5. **Student team Details/Faculty Mentor:**

   1**.** Vishwajeet Kumar

6. **Establishment date of the Company/Start-up/Commercialization:** 31.03.2021

7. **One paragraph on the Company/Start-Up covering all the points.**
    - ENDEAVOURS ALLY a health-tech company that provides a comprehensive range of healthcare services to help individuals take control of their health and wellbeing. Our services include doctor consultations, home health aides, therapy support, lab tests, and equipment rentals. We are a one stop solution for comprehensive, convenient, and affordable healthcare services delivered by qualified and compassionate professionals.

Unit-057: CRUCIAN Infotech Private Limited

1. **Name of the Company/ Start-up**: CRUCIAN Infotech Private Limited
2. **Highlights of the Company/Start-up :**

Product	: Zebra fish Monitor & Software Developer
Investment	: Rs. 2,50,000
Employment generated	: 6
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
    - Pernalized Applications & User interfaces can be created for start ups and others in minimal cost.
    - Huge amount of investment in monitoring the zebra fish can be avoided.
4. **Current Status of the Company/Start-up:**
    - Proof of Concept has been developed.
5. **Student team Details/Faculty Mentor:**

    1. Udayakumar Danabal
    2. Lekha Sri
6. **Establishment date of the Company/Start-up/Commercialization:** 17.03.2023
7. **One paragraph on the Company/Start-Up covering all the points.**
    - Crucian Infotech Private Limited is a leading software development company known for its expertise in various domains, including machine learning, Android, iOS, web applications and biotechnology research software. With a team of highly skilled professionals, the company is committed to delivering innovative and reliable software solutions to its clients.

10) National Engineering College, Kovilpatti

Unit-058: Goldnwelkin Pvt.Ltd. (Autowelkin)

1. **Name of the Company/ Start-up**: Goldnwelkin Pvt.Ltd. (Autowelkin)
2. **Highlights of the Company/Start-up :**

Product	: 50 Lakhs
Investment	: Rs. 2,50,000
Employment generated	: 8
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - Yes, autowelkin giving solutions for Automobile Industry where the four-wheeler mechanics facing issues.
4. **Current Status of the Company/Start-up:**
   - Autowelkin Serve the 10 districts of Tamilnadu state.
   - Currently 7 employee's work in our firm.
   - Our technology partner is Hashroot Pvt Ltd (Kochin)
   - Our Revenue (2021-2022) 46 lakhs
5. **Student team Details/Faculty Mentor:**

   1**.** S. Shunmugasundaram
6. **Establishment date of the Company/Start-up/Commercialization:** 18.5.2018/DIPP
7. **One paragraph on the Company/Start-Up covering all the points.**

   Autowelkin is E-commerce platform for used auto spare parts. We selling all kind of Autoparts through our platform. Autowelkin, an Incubatee of KR Innovation Centre, is the one and only startup in India that is organizing the unorganized aftermarket parts salvaged from automobile junkyards. We have wholly adopted Refurbish, Reuse and Recycle in the automobile sector of Tamilnadu and have achieved a lot of milestones and received a lot of accolades in our journey so far.

ACTIVITIES: ***Circular Economy***

1. Recycling
2. Reuse
3. Refurbish

Unit-059: M/s RAMJI Agro Implements

1. **Name of the Company/ Start-up**: M/s RAMJI Agro Implements
2. **Highlights of the Company/Start-up;**

   Product : Reversible Disc Plough, 9 Tyne Plough, 5 Tyne plough and Seed Showing Device.

   Investment : Rs. 50,00,000 Lakhs

   Employment generated : 12

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   Present day agriculture is facing acute shortage of manpower for the agricultural tasks right from seed sowing to harvesting. Agriculture is backbone of our country and the farmers are inclined to use mechanized devices in order to resolve shortage of manpower, the seed showing device is expected to have high market potential all over India. The farmers those who are interested in cultivating Maize, Wheet, Paddy, Cotton etc., will be highly benefited by the proposed device.

   Target Customers: Formers cultivating Maize, cotton, sunflower, Ground nut, and dhall throughout India. Initially the targeted customers are various districts of Tamilnadu and later will be extended to India and other countries.

   - In Karnataka, Andhra Pradesh, Tamilnadu, Maharashtra, Madhya Pradesh and Gujarat are contributing around 85% per cent of India's maize production.
   - Around 9.4 million hectares of land with an estimated four million farms had been involved in cotton farming.
   - Hence, the farmers those who are interested in cultivating Maize, Cotton etc., will be highly benefited by the proposed device.
4. **Current Status of the Company/Start-up:**

   Production Started in March 2020. Nearly 300 Nos of Reversible Disc Plough, 80 Nos of 9 Tyne Plough, 25 Nos of 5 Tyne plough and 300 Nos of Seed Showing Device are fabricated and sold directly to the farmers.
5. **Student team Details/Faculty Mentor:**

   1. S. Rajakumar

6. **Establishment date of the Company/Start-up/Commercialization:** 21st March 2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   The enterprises “Ramji Agro Industries” is a registered firm under the sole proprietorship of Mr. S. Rajakumar who is an Engineering graduate from Mechanical Engineering completed his degree at National Engineering College, Kovilpatti. I am from an agricultural family and having 40 acres of land and well supported by my parents. I have already taken dealership of selling agricultural machineries of SARBAN brand and so far has made 30 lakhs turnover in six months. As I am actively involved in cultivating suitable crops in 40 acres of land using machineries and further, I started a Start-up Company for manufacturing agricultural machineries. The idea has been evolved as a result of practical experience faced in real agricultural task by me. The agricultural products like Reversible Disc Plough, 9 Tyne Plough, 5 Tyne plough and Seed Showing Device are manufactured. A plasma cutting machine, Hydraulic Bending machine, Hydraulic Pressbrakes, 2 Nos Drilling Machines, MIG Welding machines, Manual Metal Arc Welding Machine MMAW- 8 Nos, 5 Hp Compressor – 1 Nos, Portable cutting and Grinding Tools – 20 Nos, Impact Wrench – 3 Nos are equipped for fabrication in the industry. The present turnover for the industry will be nearly 3 Crores.

Unit-060: M/s Blackatt Agro Private Limited

1. **Name of the Company/ Start-up**: M/s Blackatt Agro Private Limited
2. **Highlights of the Company/Start-up :**

   Product : Palm Jaggery Making Machine, Palm Jaggery (solid), Palm Jaggery powder, Peanut Candy, Sesame Candy

   Investment : Rs. 2,00,000

   Employment generated : 7

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   In this fast-growing modern world, every individual expects enough money, good food, and a peaceful life. But in reality, it doesn't occur to many. Even though many have enough money to live, they don't have good and healthy food. The

palm tree provides many healthy foods for us. Yes, plam jaggery not only gives us taste but also a healthy life. The replacement of conventional sugar by palm jaggery will eliminate diabetes. Similarly, peanuts also provide the required nutrition for all ages. Palm jaggery and peanut candy are expected to have high market potential in India and abroad. Any individual who has health consciousness will be highly benefited by these products.

Target Customers:

Each and every individual who has health consciousness in the world is one of our targeted customers. Initially, the targeted customers were various districts of Tamil Nadu, but in the future, they will be extended to India and other countries

4. **Current Status of the Company/Start-up:**

   First palm jaggery production started in May 2019. In an average of 3 - 5 tons of palm jaggery and 2-3 tons of peanut candy was manufactured annually by the company

5. **Student team Details/Faculty Mentor:**

   1. K. Sudalaiyandi
   2. R. Vignesh Kumar

6. **Establishment date of the Company/Start-up/Commercialization:** 4th April 2019.

7. **One paragraph on the Company/Start-Up covering all the points.**

   Blackatt Agro Private Limited is a Private firm incorporated on April 4, 2019. It is classified as a non-government Company and is registered at the Registrar of Companies, Chennai. It is involved in the production and marketing of palm jaggery (both in solid and powder form), peanut candy (smooth and raw), and sesame candy. The directors of Blackatt Agro Private Limited are Mr. K. Sudalaiyandi and Mr. R. Vignesh Kumar. Both of them are engineering graduates from Mechanical Engineering backgrounds. In addition to this firm contribution, both directors are working as teaching professionals at the National Engineering College, Kovilpatti. They were brought up in southern Tamil Nadu, named for its hot and humid environment. Based on their inspiration from the native cultivations and cultures, they started a startup company to manufacture and market food products. Initially, the firm planned to manufacture the palm jaggery and peanut candies using conventionally available appliances and manpower.

Then later on, they decided to develop a machine to manufacture the palm jaggery with the help of the NewGen IEDC fund through the National Engineering College. The palm jaggery-making machine was fabricated and tested successfully. The firm is presently marketing palm jaggery and peanut candy throughout India via both conventional and digital methods. The present turnover for the company is nearly 12 lakhs.

11) Velammal Engineering College, Chennai

Unit-061: VBIND Innovation Private Limited

1. **Name of the Company/Start-up**: VBIND Innovation Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Karthavya's& Drone

   Investment : 30,000

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - Best Project in International Science Festival, Goa.
4. **Current Status of the Company/Start-up**
   - Doing R&D works in KONE Elevators
5. **Student team Details/Faculty Mentor:**

   1. N. Pradeep Kumar
   2. S. Praveen Kumar
   3. M. Muralikrishnan
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 10/09/2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Explore VBIND INNOVATION Products from its Developmental Stages, Hand Craft yourselves a Solution, that better Fits your Requirement and also your Pockets. Start Shaping your Future Prospects with the Ability to Empower yourselves with Automation and Power of Data. With our Products, We help you to align you on to the " Big Picture" that you have Envisioned.

   Start your Journey of Growth with Our Offerings Such as

   - Karthavya's Comprehensive Pandemic Combat Systems and Devices.

- Drone's with the Ability to Charter your toughest Protocols on Fighting Back this Pandemic.
- R&D Projects to start Driving Change towards a Social Cause

12) GLA University, Mathura

Unit-062: Digi Lab

1. **Name of the Company/Start-up**: Digi Lab
2. **Highlights of the Company/Start-up**:

   Product/Service : Service

   Investment : Rs. 2,00,000

   Employment generated : 3 Persons

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any): NA**
4. **Current Status of the Company/Start-up**: Non-Registered Company
5. **Student team Details/Faculty Mentor:**

   1. Mr. Piyush Khandelwal
   2. Sagar Goyal
   3. Sarthak Garg
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 12/10/2022
7. **One paragraph on the Company/Start-Up covering all the points**.
   - Environment friendly solution for real time tracking.

Unit-063: METGE

1. **Name of the Company/Start-up**: METGE
2. **Highlights of the Company/Start-up**:

   Product/Service : IoT enabled Medical ERP

   Investment : Rs. 1,25,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - 24*7 Patient Monitoring through app/software
   - IoT enabled smart hospitals

- Creating Data sets for insurance company

4. **Current Status of the Company/Start-up:** MVP Stage
5. **Student team Details/Faculty Mentor:**
   1. Ashishi Soni
   2. Aditya Saraswat
6. **Establishment date of the Company/Start-up/Commercialization:**
   - June 2022
7. One paragraph on the Company/Start-Up covering all the points.
   - Due to more patients and less staff in hospitals the problem of monitoring the patient arises. Metge's software and IoT devices will help staff to monitor the patient supplies like oxygen and IV fluid in real-time and in hand

Unit-064: Vermicompost Production

1. **Name of the Company/Start-up**: Vermicompost Production
2. **Highlights of the Company/Start-up**:

Product/Service	: Product
Investment	: Rs. 4,00,000
Employment generated	: 05
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - fruit market waste and all other bios degradable waste with the help of earthworms to produce the vermicompost and vermiwash
4. **Current Status of the Company/Start-up**
   - Non-Registered Company
5. **Student team Details/Faculty Mentor:**
   1. Karan Tyagi
6. **Establishment date of the Company/Start-up/Commercialization:**
   - January, 2023
7. **One paragraph on the Company/Start-Up covering all the points**.
   - Vermicomposting is the decomposition of Cattle dung (except the pig, poultry and goat), farm wastes, crop residues, vegetable waste, agro-industrial waste.

Unit-065: Anas Indigenous Private Limited

1. **Name of the Company/Start-up**: Anas Indigenous Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 4,00,000

   Employment generated : 04

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   To carry out business by setting up Molecular & cell Biology laboratory by collaboration with institutions in this field. To carryout Research & Development activity in the field of manufacture, formulate process, develop, refine, import, export Wholesale and /(or) retail trade all kinds of Diagnostic kits, pharmaceuticals, antibiotics, drugs, medicines, biological, Nutraceuticals, Health-care, ayurvedic and dietary supplement products, medicinal preparations, vaccines, dry salters. To carry out Research & Development in the area of clinical, biomedical research & it's application in various field such as Microbiology, Molecular biology, virology, cell biology etc... To develop technologies and Transfer the technologies provide consultancy outsourcing, culture depository and marketing in the technologies and the product developed through this technology.
4. **Current Status of the Company/Start-up:**

   Registered in Private Limited
5. **Student team Details/Faculty Mentor:**

   1. Manthena Navabharath

   2. Ayushi Sharma
6. **Establishment date of the Company/Start-up/Commercialization:**

   23/01/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The startup has a team of experienced Allopathic and Ayurvedic practitioners and scientists who work together to create formulations that are effective and safe for consumers.

- The main objectives of our company are to create self-sufficiency in respect of essential lifesaving medicines, to free the country from dependence on imports and to provide medicines to the millions at affordable prices.
- The company also invests in research and development to continuously improve its products and stay ahead of the competition.
- The main concern is to earn profits but to encourage indigenous production of tuberculosis drugs and to support various health programs of the Central Government

Unit-066: Atirun Techs Private Limited

1. **Name of the Company/Start-up**: Atirun Techs Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Service

   Investment : Rs. 2,00,000

   Employment generated : 05

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Atirun Techs is a full-service software development company that specializes in creating innovative software solutions, compelling content, and successful product launches. We have a team of experienced developers, writers, and marketers who work closely with clients to understand their unique needs and develop custom software, content, and launch strategies that meet those needs.
4. **Current Status of the Company/Start-up:**
   - Registered in Private Limited
5. **Student team Details/Faculty Mentor:**

   1. Gaurav Singh

   2. Rishabh Saxena
6. **Establishment date of the Company/Start-up/Commercialization:**

   22/03/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Introducing a revolutionary fitness and healthcare app that seamlessly integrates with your smartwatch to provide you with a complete picture of your

health and wellness. With this app, you can easily track and record all of your body activities and receive a detailed report on your data analysis through advanced machine learning algorithms.

- Not only that, but you can also choose a doctor at the time of registration who will receive your data in real-time and contact you for further precautions or treatment if necessary. With this app, you can take control of your health and get personalized care like never before.

Unit-067: SAS Electronix stands for System and Support Electronics

1. **Name of the Company/Start-up**: SAS Electronix stands for System and Support Electronics
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 1,00,000

   Employment generated : 03

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - We are targeting each individual, students, offices, industries, etc.
4. **Current Status of the Company/Start-up:** University Startup
5. **Student team Details/Faculty Mentor:**

   1. Shubham Yadav
   2. Abhiraj Mishra
   3. Shikhar Agarwal
6. **Establishment date of the Company/Start-up/Commercialization:**

   20-07-2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   They will design the easiest solution of a particular problem so that the user can get the best solution regarding their problem. The goal is to create gadgets that seamlessly integrate into users' lives, enhancing their daily routines without overwhelming them with unnecessary complexity. **They will also provide the solution for a certain client's desired problem and will design a gadget to solve that problem for the client. They will focus on Less Profit and high Sales.**

13) Indian Institute of Technology (IIT), Guwahati

Unit-068: Udot Braille Tech Private Limited

1. **Name of the Company/Start-up**: Udot Braille Tech Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Manufacturing (Machinery & Equipments) Domain

   Investment : Rs. 40,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - The company will manufacture machineries and equipments in medical, and other fields of interest.
4. **Current Status of the Company/Start-up**
   - Active
5. **Student team Details/Faculty Mentor:**

   1. Kaviraj Prithvi
6. **Establishment date of the Company/Start-up/Commercialization:**

   10 April, 2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   Udot Braille Tech Private Limited is an unlisted private company incorporated on 10 April, 2023. It is classified as a private limited company and is located in Karnataka. It's authorized share capital is INR 20,000.00 and the total paid-up capital is INR 20,000.00 The current status of Udot Braille Tech Private Limited is – Active. Details of the last annual general meeting of Udot Braille Tech Private Limited are not available. The company is yet to submit its first full-year financial statements to the registrar. Udot Braille Tech Private Limited has two directors - Ashok Srinivas and Coimbatore Ashok Kaviraj Prithvi. The Corporate Identification Number (CIN) of Udot Braille Tech Private Limited is U32909KA2023PTC172136. The registered office of Udot Braille Tech Private Limited is at No 8 And 9, 10th Cross, Celebrity Paradise, Doddatogur, Electronic City, Phase I Bangalore South, Karnataka.

14) Marwadi University, Rajkot

Unit-069: Khumb Organics LLP

1. **Name of the Company/Start-up**: Khumb Organics LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Mushroom and its Farming

   Investment : Rs 2,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized.
3. **Impact it will create (including social impact, if any)**
   - Mushrooms demonstrate a great impact on agriculture and the environment, and they have great potential for generating a great socio-economic impact in human welfare on local, national, and global levels.
4. **Current Status of the Company/Start-up**
   - Revenue Generate
5. **Student team Details/Faculty Mentor:**

   1. Dr. Archana Sharma
   2. Mr. Dhaval Van
   3. Dr. Aditya Saran
6. **Establishment date of the Company/Start-up/Commercialization**
   - 06/05/2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Khumb organics cultivates the Mushrooms by organics farming technique since its been considered as a delicacy. Mashrooms are being used as food since time immemorial. From the nutrition point of view mashrooms are placed between meat and vegatables. It is rich in protein, carbohydrate and vitamins. Mashrooms are low in caloric value and hence are recommended for heart and diabetic patient.

Unit-070: Candeyleaf Treats LLP

1. **Name of the Company/Start-up**: Candeyleaf Treats LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Suger Free Treats (Product)

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Diabetic patients will receive suger-free treats and be able to eat as they normally would, improving their health and that of the community as a whole.
4. **Current Status of the Company/Start-up**
   - Revenue Generate
5. **Student team Details/Faculty Mentor:**

   1. Diya Vekaria
   2. Dev Vekaria
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 08/02/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Candeyleaf Treats is based on the concept of Sugar less Sweets. We have identified the growing rates of diabetic patients and hence had come up with the solution for the same. We are manufacturing the sweets that do not involve the sugar in its recipe/ manufacturing process. We are utilizing the Stevia as an alternative of the sugar. Also we identified the consequences of an artificial sugar that might results in various health issues and diseases.

Unit-071: Santript Aahar LLP

1. **Name of the Company/Start-up**: Santript Aahar LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Spirulina Based (Product)

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):** It will Improve immunity System also Rich Amount of Vitamin B12, Vitamin-D, Protein, Fibers, etc.
4. **Current Status of the Company/Start-up**
   - In market and generating revenue.
5. **Student team Details/Faculty Mentor:**

   1. Ms. Ruchita Rathod

   2. Dr Gaurav Sanghvi
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 11/04/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Start-up "Santrip Aahar" majorly aims to deliver its customers a healthy, tasty and nutritious diet. As we know that most of the nutrition rich food is animal based which cannot be consumed by many people. Targeting this, we at "Santrip Ahar" are here with a large-based product that is highly nutritious and vegan.

15) Chitkara University, Rajpura

Unit-072: Intellights – 3D smart traffic light

1. **Name of the Company/ Start-up**: Intellights – 3D smart traffic light
2. **Highlights of the Company/Start-up ;**

   Product : Data Science based Intelligent Traffic Management System

   Investment : Rs. 25,00,000

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   It will reduce traffic density at traffic signals, it will reduce pollution and it will generate useful data about automobiles that will be useful for the authorities (for implementing policies) as well as companies (for developing marketing strategies). For more information visit - https://newgeniedc.chitkara.edu.in/project/intelights-3d-smart-traffic-lights/
4. **Current Status of the Company/Start-up:**
   - They have deployed their product at many places in the field

- Their product is already commercialized and they have funding.

5. **Student team Details/Faculty Mentor:**
   1. Gaurav Goyal
   2. Karamdeep Singh
   3. Rahul Goyal
   4. Hardeep Singh
   5. Karanveer Singh
   6. Rishabh Malra
   7. Sumit Kumar Patel
6. **Establishment date of the Company/Start-up/Commercialization: 2019**
7. **One paragraph on the Company/Start-Up covering all the points:** Anukai Solutions Private Limited is a promising start up mentored by Centre for Entrepreneurship Education & Development at Chitkara University. The startup was founded by the faculty of Chitkara University, Mr. Gaurav Goyal. The startup works in the domain of Urban Mobility for Smart Cities, and provides "Integrated Traffic Management & Road Infrastructure planning" solutions that not only help to decongest traffic but also provide high quality & real-time traffic movement insights to potential businesses. The startup has played a crucial role in reducing the average wait time of commuters at traffic signals by approximately 15%. Punjab state government has adopted the product developed by the startup and the systems are getting installed at different locations of Punjab. Currently, Anukai is at a growing stage where they have raised an investment from Pre-Series Funding, will be completing installations of 8 nodes in Ludhiana, Punjab.

UNIT-073: Two Decimal Pvt. Ltd.

1. **Name of the Company/ Start-up**: Two Decimal Pvt. Ltd.
2. **Highlights of the Company/Start-up ;**

Product	: A Device for Generating Weather Forecast
Investment	: Rs. 25,00,000
Employment generated	: 3
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):** It will help the farmers by predicting the rain in advance that way their crops will not go bad/waste as it

will allow them to take preventing action. For more details visit- https://newgeniedc.chitkara.edu.in/project/bhugoal-predicting-moods-of-india/

4. **Current Status of the Company/Start-up:**
   - Their company is incubated in IIM Bangalore
   - They have won several awards, funding, recognition
5. **Student team Details/Faculty Mentor:**

   1. Rahul Kinra
   2. Kartik Vij
   3. Nitin Saluja
6. **Establishment date of the Company/Start-up/Commercialization:**

   2019
7. **One paragraph on the Company/Start-Up covering all the points.**

   Too Decimal Private Limited provides precise weather monitoring at the local level. We augment traditional weather data sources by collecting millions of data points from multiple sources. Empowering people and businesses to outsmart weather events by planning and taking prior actions.To know more about us, write to us at support@toodecimal.com, Website: https://www.toodecimal.com

Unit-074: 6DOF Solutions Pvt. Ltd.

1. **Name of the Company/ Start-up**: 6DOF Solutions Pvt. Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : Learn-o-Little – AR/VR based learning kit for Kindergarten kids

   Investment : Rs. 7,00,000/-

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   Learn-O-Little is an interactive learning kit for kindergarten kids to help them learn the alphabet, word building and practice various interactive quizzes. It enables all round learning for kindergarten kids, will increase their curiosity and interest in the subjects. For more details visit - https://newgeniedc.chitkara.edu.in/project/learn-o-little/

4. **Current Status of the Company/Start-up:** They have more than one product in Edtech, which have been commercialized.
5. **Student team Details/Faculty Mentor:**
   1. Neha Tuli
6. **Establishment date of the Company/Start-up/Commercialization:** 2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   Neha Tuli - Founder of 6DOF Solutions Pvt. Ltd. (an EdTech startup) incubated by Chitkara University, Punjab, was honoured with the prestigious 'Women Entrepreneur of the year' award by Software Technology Parks of India, Mohali & TIECON 2022 at its Annual STPI Awards 2022 . 6DOF Solutions Pvt. Ltd. provides immersive tech solutions for the EdTech industry using technologies like Augmented Reality and Virtual Reality. The startup is supported by Chitkara Innovation Incubation Foundation(CIIF) with a MEITY TIDE 2.0 grant support of INR 7 lakhs.

Unit-075: 80 Wash LLP

1. **Name of the Company/ Start-up**: 80 Wash LLP
2. **Highlights of the Company/Start-up ;**

Product	: The PIED PIPER
Investment	: Rs. 10,00,000+
Employment generated	: 5
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   It will be an ideal tool for industrial environment like hotels, restaurants, warehouses, etc. for automatic removal of rodents in humanely and touchless manner. For more details visit - https://newgeniedc.chitkara.edu.in/project/the-pied-piper-lure-the-rats-away-smartly/
4. **Current Status of the Company/Start-up:**
   - The start-up is currently building many such utility products for the industrial environment.
   - They have won several grants and competitions to raise funding, including DST sponsored IICDC Conclave.

5. **Student team Details/Faculty Mentor:**
   1. Rouble Gupta
   2. Nitin Saluja
6. **Establishment date of the Company/Start-up/Commercialization:** 2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   80wash Llp is a Limited Liability Partnership firm incorporated on 11 March 2021. Two of its major products include – 1) A MOUSE TRAP **-** Rats are responsible for 40% of disease transmission in developing countries. Pied-Piper is a trending patented trap, which is completely free from human touch, with its AI-based autonomous traveling to dump rats/mice outside at specified places. Pied-Piper traps multiple rats at once. E-Pinjra is also termed "The Piped Piper.", 2) The waterless 80-wash transforms the 3-star hotels/salons/hospitals to 7-star hotels/salons/hospitals business. The technology is economical than the normal laundry. The machine is affordable to 3-star businesses and reduces the cost for 5-star and 7-star businesses. The real magic of 80-wash can be seen by using it.

Unit-076: Active WTR Wellness Beverage LLP

1. **Name of the Company/ Start-up**: Active WTR Wellness Beverage LLP
2. **Highlights of the Company/Start-up ;**

Product	: ACTIVECAP- Stay Active be Healthy
Investment	: Rs. 1,00,000/-
Employment generated	: 3
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   The product has a potential to revolutionize the beverage packaging industry. For more details visit, https://newgeniedc.chitkara.edu.in/project/activecap-stay-active-be-healthy/
4. **Current Status of the Company/Start-up:** They are currently trying to get beverage packaging as well as beverage manufacturing industries interested in their product, which is commercially available in the market today.
5. **Student team Details/Faculty Mentor:**
   1. Pintu Kumar
   2. Anshej Kaushik

6. **Establishment date of the Company/Start-up/Commercialization**: 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Active Wtr Wellness Beverage LLP is a Jharkhand based Manufacture of food products and beverages company. The company's vision is to create the best infusion cap technology in the world. Using its unique solutions, Activecap assists other companies in a variety of industries in expanding their product lines and generating growth. It is a revolutionary method of storing and protecting vital ingredients until they are consumed.

Unit-077: Murph Technologies Private Limited

1. **Name of the Company/ Start-up**: Murph Technologies Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Driverless Vehicle

   Investment : Rs. 7,00,000/-

   Employment generated : 4

   Commercialized or not : YES, Commercialized
3. **Impact it will create (including social impact, if any):**

   The final product is going to be an indigenous unmanned vehicles that could be used at Chitkara University. The car will be capable of making a map of its surroundings using a LIDAR sensor. The model will be electrically operated and have a speed of 12 kmph. Based on GPS, the vehicle will have its own geographical database. The car will be programmed to follow traffic light signals and traffic signs using image processing and artificial intelligence. For more details visit, https://newgeniedc.chitkara.edu.in/project/activecap-stay-active-be-healthy/
4. **Current Status of the Company/Start-up:**
   - The start-up has transformed itself into robotic kits development and educational kits (based on embedded systems) Development Company.
   - They have commercialized this product as a robotic development kit.
5. **Student team Details/Faculty Mentor:**

   1. Karan Aggarwal
   2. Gurpreet Singh
6. **Establishment date of the Company/Start-up/Commercialization:** 2022

7. **One paragraph on the Company/Start-Up covering all the points.**

   Murph Technologies Private Limited is an Ambala, Haryana based start-up that deals in embedded system educational kits for schools and colleges. They work on Arduino, Raspberry PI and other open source embedded system platforms for development of robotic as well as embedded kits.

Unit-078: Core Idea Innovations Private Limited

1. **Name of the Company/ Start-up**: Core Idea Innovations Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Virtual Reality Based Home Eye Testing Device for measuring spectacle power of the eye virtual reality based home eye testing device for measuring spectacle power of the eye

   Investment : Rs. 20,00,000/-

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   It will give a privilege of eye testing to countless people living in rural areas. For more details, visit https://newgeniedc.chitkara.edu.in/project/virtual-reality-based-home-eye-testing-device-for-measuring-spectacle-power-of-the-eye/
4. **Current Status of the Company/Start-up:**
   - Their product is in the pilot stage.
5. **Student team Details/Faculty Mentor:**

   1. Maheswari Srinivasan
   2. Arshdeep Kaur
   3. Keerti Bhusan Pradhan
6. **Establishment date of the Company/Start-up/Commercialization**: 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   There are only 12000 ophthalmologists in India, for a population of 136 crore. In some of the rural areas of India, there are no eye care facilities. Hence, a device for tele-eye consultation and tele-eye testing was required. Our innovation is a virtual reality-based device that can connect clinicians and patients through cloud systems. The device tests the spectacle power of the eye and sends the

prescription remotely. It helps the patients reach out to the ophthalmologists easily across countries.

16) Mar Ephraem College of Engineering & Technology, Elavuvilai

Unit-079: Semi Auto Tea-Enterprise

1. **Name of the Company/ Start-up**: Semi Auto Tea-Enterprise
2. **Highlights of the Company/Start-up ;**

   Product : TeaMaker Machine

   Investment : Rs. 4,00,000

   Employment generated : 04

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Productivity & taste of the tea is increase, thus the profit of business is improved
4. **Current Status of the Company/Start-up:**
   - We registered in MSME, Currently 4 employees were working.
   - The generated income is enough to give the salary for the workers, Now we are planning to update The company with advanced machineries. And planning to employ 8 staffs.
5. **Student team Details/Faculty Mentor:**

   1. Mr. Alphin
6. **Establishment date of the Company/Start-up/Commercialization:**

   08 Jan 2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   We manufacture the Tea making machine. The tea blending machine creates Productivity & taste of the tea is increase, thus the profit of business is improved. Productivity & taste of the tea is increase, thus the profit of business is improved. Our targeted customers are tea shops and Hotels.

Unit-080: Future Tech

1. **Name of the Company/ Start-up**: Future Tech
2. **Highlights of the Company/Start-up ;**

   Product : Future Tech

   Investment : Rs. 1,00,000

   Employment generated : 04

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - This system will give economic benefits to the farmers by reducing the feeding cost, Manual intervention and also it will increase the green fodder yield and reduce the expense of fodder production by one third, thus creating the profit.
   - This system will help to reduce the requirement of cattle rearing grass land.
   - Using this system the farmer can able to provide high nutrient green fodder will maintain the health of the cattle and increase the yield, hence fetching more income to the farmers.
   - Cattle rearing are made possible even for small land holders.
4. **Current Status of the Company/Start-up:**
   - We registered in MSME, Currently 3 employees were working.
   - The generated income is enough to give the salary for the workers. Now we are planning to update The company with advanced machineries. And planning to employ more staffs.
5. **Student team Details/Faculty Mentor:**

   1. Mr. Aromal Vijay
   2. Mr. Abin T Wilson
6. **Establishment date of the Company/Start-up/Commercialization:**

   23 Jan 2020
7. **One paragraph on the Company/Start-Up covering all the points.**

   IT is like a domestic cattle farming system as the farmers feel that it is a profitable. The main challenges of cattle farming is grass collection, feeding the cattle, washing the cattle's and cleaning its shed. The product of automated hydroponics cattle feeder system will help to rectify the above said challenges. Automated

hydroponics cattle feeder system is a interdisciplinary project which applies Science and Technology for the easiness of feeding the cattle in farms.

Unit-081: ELECTRICCA

1. **Name of the Company/ Start-up**: ELECTRICCA
2. **Highlights of the Company/Start-up ;**

Product	: Lithium Battery
Investment	: Rs. 1,00,000
Employment generated	: 03
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - Our products are affordable and long lasting, thus more customers prefer our products
4. **Current Status of the Company/Start-up:**
   - We registered in MSME, filing GST. Currently 3 employees were working.
   - The generated income is enough to give the salary for the workers, thus the company is no profit/loss stage. Successfully completed a year. Now we are planning to update the company with advanced machineries. And planning to employ eight staff. So we are trying for a loan amount of 500000/-.
5. **Student team Details/Faculty Mentor:**

   1. Mr. Jijin Raj
6. **Establishment date of the Company/Start-up/Commercialization:**

   15 April, 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   We manufacture the battery for house hold appliances to Electric vehicles. We provide sales distribution and customer service in all over India, through online and offline mode.

Unit-082: S-Cart Private Ltd.

1. **Name of the Company/ Start-up**: S-Cart Private Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : G S-Cart – Solar Dhobi Cart

   Investment : Rs. 50,000

   Employment generated : 01

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Solar cart for dhobi people
4. **Current Status of the Company/Start-up:**
   - Waiting for Company Name approval.
5. **Student team Details/Faculty Mentor:**

   1. Ms. Jerlin Prabha
6. **Establishment date of the Company/Start-up/Commercialization:**

   In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Dhobi cart is designed with features like automatic rain guard, sliding chair, storage decks for clothes.
   - Automatic rain guard is implemented to detect the continuous rain level and operates automatically.
   - Handle with lever arrangement and braking is designed for easy angular motion control

17) Nehru Institute of Engineering & Technology, Coimbatore

Unit-083: Geoxs Biotech Private Limited

1. **Name of the Company/Start-up**: Geoxs Biotech Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Enzyme Production for degrading plastic bag

   Investment : Rs. 4,00,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated

5. **Student team Details/Faculty Mentor:**

   1. Hiba

6. **Establishment date of the Company/Start-up/Commercialization**: 30.09.2022

7. **One paragraph on the Company/Start-Up covering all the points**: GEOXU, is the company planned to launch on the basis production of enzyme PETase extracted from the microorganism Ideonella sakaiensis by the process of culturing and centrifugation to degrade the polythene to MHET that will later hydrolysed into the monomers. Moreover, this start up emphasizes on the ability of insects gut microbial consortium to degrade synthetic plastic wastes.

   Vision:

   - To be a vehicle of consciousness in the global market by creating a holistic, sustainable business modality, which inspires, promotes and supports true wellness and respect for all beings and for mother's nature.

   Mission:

   - To comprehensively highlight the role of microbes, with special emphasis on algae, onthe entire plastic biodegradation process focusing on the depolarization of various synthetic plastic types.

Unit-084: Herbeeday Beverages Private Limited

1. **Name of the Company/Start-up**: Herbeeday Beverages Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Development of a Natural Soft Drink Incorporated with Betel and Sarsaparilla Extracts

   Investment : Rs.4,00,000

   Employment generated : 03

   Commercialized or not : Yes, Commercialized

3. Impact it will create (including social impact, if any): Nil
4. Current Status of the Company/Start-up: Company Incorporated
5. **Student team Details**

   1. Indhu S.
   2. Deepika A.

6. **Establishment date of the Company/Start-up/Commercialization**: 30.09.2022

7. **One paragraph on the Company/Start-Up covering all the points**: The proposed drink is a lemon-based drink incorporated with betel and sarsaparilla extracts. The addition of betel and sarsaparilla will make the drink have medicinal properties such as anti-diabetic, anti-carcinogenic, anti-inflammatory, anti-microbial, anti-diuretic, and indigestion preventive. It will be a refreshing, post/pre-meal soft drink with a well-known and acceptable taste profile suitable for all age groups. It aims to develop products for the health of society and also to preserve and document our natural traditional sources.

   Vision:

   - Taking inspiration from our traditional way of life for the betterment of our future generations and to perceive people's fondness to create a better standard of living naturally.

   Mission:

   - To refresh the world naturally
   - To create a healthy and refreshing life by joining hands with the nature.

Unit-085: Nitans Paver Blocks Private Limited

1. **Name of the Company/Start-up**: Nitans Paver Blocks Private Limited
2. **Highlights of the Company/Start-up** ;

Product	: Paverblocks using Oyster Shell
Investment	: Rs.4,00,000/
Employment generated	: 02
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Sharath R.S

6. **Establishment date of the Company/Start-up/Commercialization**: 03.10.2022
7. **One paragraph on the Company/Start-Up covering all the points**: Our Start up idea is to manufacture low cost interlock pavers from waste materials like oysterlocks and arecanut fibre which can replace the present interlocks in market and it is an initiative step in showing how the materials around us can be used in construction field without exploiting nature for construction materials.

18) S. R. M. Institute of Science & Technology, Kattankulathur

Unit-086: Kreator 3D printer and Solutions Pvt. Ltd.

1. **Name of the Company/Start-up**: Kreator 3D printer and Solutions Pvt. Ltd.
2. **Highlights of the Company/Start-up**:

   Product/Service : 3D printer, Bio 3D printer and Prototyping Services

   Investment : Rs. 10,00,000

   Employment generated : 6

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - Decentralization of manufacturing
   - Our tool will facilitate development of Artificial tissues and Organs which can revolutionize in vivo testing and Organ transplant
   - Our technology will make Manufacturing
4. **Current Status of the Company/Start-up**
   - Team of 6
   - Product 1 (A1 FDM) ready for launch
   - Product 2 (Bioform) Being tested in hospital for development
   - Prototyping Services: Running
   - Looking for Investment
5. **Student team Details**

   1. Zeeshan Mallick
   2. Anurag Atulya
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 16/4/2019
7. **One paragraph on the Company/Start-Up covering all the points.** Kreator3D is a deep tech start-up in the field of manufacturing. We make 3D printers, CNC, Bio Printer, and Cloud solutions for manufacturing. Recently won national innovation contest for country's first Bioprinter. We also provide prototyping solutions to industries such as the automobile, medical, and aviation sector

Unit-087: Yogya.ai (Monkwish)

1. **Name of the Company/Start-up**: Yogya.ai (Monkwish)
2. **Highlights of the Company/Start-up**:

   Product/Service : SAAS

   Investment : Rs. 2,25,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - yogya.ai, a smart engagement, learning, and enablement platform for remote teams. A unique learning experience for businesses to enhance their employees' capabilities by identifying skill-gaps and empowering them with AI tools to full fill those gaps faster seamlessly. Website: https://www.yogya.ai
4. **Current Status of the Company/Start-up**
   - In the market with six high end paying customers
5. **Student team Details**

   1. Sugam Malviya

   2. Agam Malviya
6. **Establishment date of the Company/Start-up/Commercialization:**
   - April 2019
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Yogya.ai is a platform for upskillng an organisation's workforce. For businesses, we are the world's first end to end solution for future-ready learning and development needs with unique skill collaboration engine, state-of-the-art curation engine, and tangible ROI.

Unit-088: Konwert India Motors

1. **Name of the Company/Start-up**: Konwert India Motors
2. **Highlights of the Company/Start-up**:

   Product/Service : EV retrofitting Kits

   Investment : Rs. 1,50,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):** To make E-autos more affordable, we engineered powertrain solutions that can be retrofitted to existing vehicles. By converting existing ICE autos we reduce the upfront cost of the auto driver, keep the environment carbon negative, reduce scrapping and accelerate the adoption of EVs.
4. **Current Status of the Company/Start-up**
   - First prototype built, Going to Market
5. **Student team Details**

   1. Nickendra Manikandan
   2. Surya Rajendran
   3. Bettula Manoj Srijan
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 22 August 2019
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Konwert India Motors was incorporated in 2019, for the sole purpose of accelerating EV adoption in India. It is clear that EVs are the solution to our concerning air quality levels, yet the premium price of an EV is a hurdle for large scale adoption. We uniquely focus on developing and retrofitting ICE 3W to battle deteriorating air quality through a techno-economic model that allows auto drivers to purchase the product. Our business model is called EVwB, where we sell the drivetrain components and lease the battery over 5 years. To be able to sustain this and increase battery life, we deploy machine learning to increase longevity by gauging the battery performance against the effects of a multitude of ambient factors and by prescribing parameter optimisation for better performance and life. We are strategically approaching the aspect of building the ecosystem too by developing market-specific charging solutions that complement the customer behaviour and usage of the vehicle. To aid owners to adopt this solution we provide a SaaS monitoring system to account for income, lease collection, vehicle tracking, performance tracking, servicing and reporting

Unit-089: ReFlow

1. **Name of the Company/Start-up**: ReFlow
2. **Highlights of the Company/Start-up :**

   Product/Service : Optimize Processes

   Investment : Rs. 2,50,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized

   This empowers businesses to make informed decisions, optimize processes, and improve overall efficiency
3. **Impact it will create (including social impact, if any)**
   - Reflow Technologies creates a significant impact by providing precise measurements using IoT and industrial-grade sensors, along with a range of other essential features. This not only enhances operational efficiency and productivity for businesses but also generates social benefits and promotes a sustainable future.
   - On the operational front, Reflow Technologies' industrial-grade sensors and IoT-enabled data acquisition enable highly accurate measurements and real-time monitoring. This empowers businesses to make informed decisions, optimize processes, and improve overall efficiency. The centralized monitoring through a single dashboard further simplifies operations and enhances productivity. By offering comprehensive back-end support, Reflow Technologies ensures a seamless implementation and utilization of their automation and measurement systems.
   - Beyond operational impacts, Reflow Technologies also addresses social aspects. The emphasis on safety through accurate measurements and real-time monitoring helps mitigate risks, creating a safer working environment for employees. The company's commitment to environmental sustainability is reflected in optimized resource utilization, reduced waste, and lower energy consumption. By facilitating knowledge sharing and collaboration, Reflow Technologies fosters industry-wide improvements and promotes the adoption of sustainable practices.
   - In addition, Reflow Technologies contributes to economic growth by enhancing competitiveness and attracting investments. The creation of job opportuni-

ties, particularly in emerging roles related to automation, supports skills development and benefits the workforce. The company's holistic approach to societal impact ensures that the benefits extend beyond business efficiency, positively impacting the community and the environment.

- Overall, Reflow Technologies' innovative solutions not only optimize operations, improve efficiency, and drive productivity but also create social value by ensuring safety, promoting sustainability, supporting economic growth, and fostering collaboration.

4. Current Status of the Company/Start-up

- As of the current status, Reflow Technologies has two verticals: commercial automation and industrial automation. In the commercial automation vertical, the company has developed a 3-channel sensor and Water Motor controller. These products cater to the needs of businesses in various sectors, offering automation solutions for improved efficiency and control. The development of these products indicates progress in providing commercial automation systems.
- In the industrial automation vertical, Reflow Technologies is in the final stages of completing an industrial sensor. This sensor is designed to meet the specific requirements of industrial processes, aiming to enhance productivity, accuracy, and overall operational effectiveness. The near completion of the industrial sensor signifies advancements in developing automation and measurement systems tailored for industrial applications.
- With both verticals, Reflow Technologies is actively working on expanding its product offerings and providing comprehensive solutions for diverse industries. The development of these sensors reflects the company's commitment to innovation and addressing the automation needs of businesses in different sectors.

5. Student team Details

1. Chakreesh M.
2. Rajkumar M.
3. Harshit Singh
4. Vishnu Murali

6. **Establishment date of the Company/Start-up/Commercialization**

   10th August 2022

7. **One paragraph on the Company/Start-Up covering all the points.**

   Reflow Technologies is a dynamic start-up operating in two verticals: commercial automation and industrial automation. With a strong focus on innovation, the company has successfully developed a range of products, including a 3-channel sensor and Water Motor controller for commercial automation, as well as an industrial sensor that is nearing completion for industrial applications. By leveraging IoT and industrial-grade sensors, Reflow Technologies provides precise measurements, real-time monitoring, and a centralized dashboard, empowering businesses to optimize their operations, improve efficiency, and make data-driven decisions. With a commitment to safety, sustainability, and economic growth, Reflow Technologies not only enhances operational effectiveness but also creates social impacts by promoting a safer working environment, supporting environmental sustainability, and fostering collaboration within industries.

19) C. V. R. College of Engineering, District: Ranga Reddy

Unit-090: Planet Green India

1. **Name of the Company/ Start-up**: Planet Green India
2. **Highlights of the Company/Start-up**;

   Product : biodegradable eco paper straws and paper products

   Investment : Rs. 5,00,000

   Employment generated : 20

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - Pioneering a plastic-free future.
   - Support sustainable green alternatives
   - Planet Green products are made of Naturally sourced materials and drink safe ink.
   - Theseproducts are a safe and extremely suitable alternative to plastic.

4. **Current Status of the Company/Start-up:** The company has started exporting its products to Asia, Australia, Central / South America, Eastern Europe, Mid East/Africa, North America, Western Europe.
5. **Student team Details/Faculty Mentor:**
   1. Hari Hara Reddy Punuru
6. **Establishment date of the Company/Start-up/Commercialization**:
   21 September 2019
7. **One paragraph on the Company/Start-Up covering all the points**.
   Mr. Punuru Hari Hara Reddy is founder of PLANET GREEN INDIA. It is a Proprietorship with its office registered in Telangana. The company carries out its major operations from Telangana.The company got registered under GST on September 21, 2019 and was allotted 36DLYPP7188A1ZC as the GST Number. The status of this GSTIN is Active. This company is a Regular taxpayer. The products manufactured are Paper straw, Paper Cups & Paper Plates - Manufacturer. Lithium battery recycling.

Unit-091: Hopnet Communications LLP

1. **Name of the Company/ Start-up**: Hopnet Communications LLP
2. **Highlights of the Company/Start-up**;
   Product : IIoT, digital manufacturing, and software design and development solutions.
   Investment : Rs. 4,00,000
   Employment generated : 25
   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: Hopnet Communications Llp is India-based software development firm, on a mission to revolutionize enterprises into industry leaders through cutting-edge IoT, digital manufacturing, software design and development. Commitment lies in providing solutions that prioritize speed, scalability, security, and innovation, empowering businesses to thrive in the digital age.
4. **Current Status of the Company/Start-up**: It is a leading provider of IIoT, digital manufacturing, and software design and development solutions. The company's expertise lies in seamlessly merging engineering, strategic planning, and cutting-

edge design to revolutionize enterprises and propel technology innovators to the forefront of the digital business landscape.Collaborating with forward-thinking companies, the company specializes in delivering solutions that demand rapid execution, scalability, robust security, and groundbreaking innovation for their most pivotal digital products and business imperatives.

5. **Student team Details/Faculty Mentor:**

   1. Tushar Malpani

6. **Establishment date of the Company/Start-up/Commercialization**:

   20 June 2021

7. **One paragraph on the Company/Start-Up covering all the point**: Hopnet Communications Llp is a Limited Liability Partnership firm incorporated on 20 July 2021. It is registered at Registrar of Companies, Hyderabad. Designated Partners of Hopnet Communications Llp are Tushar Malpani and Moullick Mehra. It provides efficient lean IIoT, digital manufacturing, and software design and development solutions.

Unit-092: Pravysva Innovations Private Limited

1. **Name of the Company/ Start-up**: Pravysva Innovations Private Limited
2. **Highlights of the Company/Start-up**;

Product	: Renewable Energy Semiconductor
Investment	: Rs. 10,00,000
Employment generated	: 8
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**: The company is into building products to solve air pollution, decarbonization and global warming at scale.Specialties of the company are Carbon capture, Tailpipe emissions, plastic pollution control, air pollution control, air pollution monitoring, Emission reduction technologies, Science based targets, climate change, global warming, and social impact.
4. **Current Status of the Company/Start-up**: Pravysva Innovations Private Limited is involved in manufacture of general purpose machinery. As regarding the financial status on the time of registration of Pravysva Innovations Private Limited

Company its authorized share capital is Rs. 1000000 and its paid up capital is Rs. 50000.

5. **Student team Details/Faculty Mentor:**

   1. KallakuriYeshwanth Surya

6. **Establishment date of the Company/Start-up/Commercialization**:

   19 July 2021

7. **One paragraph on the Company/Start-Up covering all the points**: Pravysva Innovations Private Limited is an unlisted private company incorporated on 19 July, 2021. It is classified as a private limited company and is located in Hyderabad, Telangana. The longest serving directors currently on board are Sriran-gapatna Ranga Prasad Pranav Hebbar and Kallakuri Yeshwanth Surya who were appointed on 19 July, 2021. They have been on the board for 2 years and 2 months. It is into building solutions to combat air pollution and global warming.

Unit-093: CodingForAll

1. **Name of the Start-up**: CodingForAll
2. **Highlights of the Company/Start-up**;

   Product : Digital Literacy learning Platform for underprivileged students

   Investment : Rs. 1,00,000

   Employment generated : 28

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact,if any)**:CodingForAll runs its flagship program in government & affordable private schools to teach coding to secondary students and also equip them with other ancillary skills required for career readiness. Each of our students is part of our ‘class to career pipeline’ and our intervention with our students is for 8 years starting in secondary school, continuing through college, and supporting them till they land their first dream job.
4. **Current Status of the Company/Start-up**: It has got funding from SVP India Rs 4,00,000 as early stage funding.
5. **Student team Details/Faculty Mentor:**

   1. Alahari Virinchi

6. **Establishment date of the Company/Start-up/Commercialization**: 01/10/2021

7. **One paragraph on the Company/Start-Up covering all the points**: CodingForAll imparts digital literacy and coding skills to those 425 million children in India who do not have access to a computer. CodingForAll is a non-profit leading the digital inclusion movement in India by teaching coding in regional Indian languages to students who do not have access to a computer.Coding For All Clubs are free after-school programs for 8-10th grade students who are not part of a Coding For All intervention school but want to join our community and access our learning material to teach and explore coding and computer science with their peers in their own school.

Unit-094: Tarana Media (Opc) Private Limited

1. **Name of the Company/Start-up**: Tarana Media (Opc) Private Limited
2. **Highlights of the Company/Start-up**:

Products	: Mobile app and computer website designing
Investment	: Rs 10,00,000
Employment generated	: 4
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**: Tarana is a mobile application that provides users with music-related content. It immerse users in completely new music-related experiences with this application. The algorithm that has been developed is extremely powerful in that it provides relevant music content to the user based on his or her interests.
4. **Current Status of the Company/Start-up**: Its in early start-up stage. It has authorized share capital of Rs.1,000,000 and has paid up capital of Rs.1,000,000.
5. **Student team Details**

   1. Sangi Dileep Chakravarthi
6. **Establishment date of the Company/Start-up/Commercialization**:

   04 May 2021
7. **One paragraph on the Company/Start-Up covering all the points**: Tarana Media (Opc) Private Limited incorporated with MCA on 04 May 2021. The Tarana Media (Opc) Private Limited is listed in the class of company and classified as Non Govt Company. This company is registered at Registrar of Companies (ROC), Telangana with an Authorized Share Capital of Rs. 10 LAC and its paid

up capital is 10 LAC. The company has 1 directors/key management personal Dileep Chakravarthi Sangi . The company is into mobile application as well as in Other computer related activities [for example maintenance of websites of other firms/ creation of multimedia presentations for other firms etc.]

Unit-095: EForge NexGen Innovations

1. **Name of the Company/Start-up**: EForge NexGen Innovations
2. **Highlights of the Company/Start-up**:

   Product/Service : Digital precision farming system and pump controller

   Investment : Rs. 3,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it willc reate (including social impact,if any)**

   Precision farming can help farmers to be more efficient and cost-effective in their operations, as well as to improve the environmental sustainability of their farming practices. It can also help farmers to produce higher-quality crops by optimizing the growing conditions for specific types of crops. The proposed work will create awareness to the farmers about the limited usage of required resources that will impact in precision farming.
4. **Current Status of the Company/Start-up:** The start-up is in the initial stages of targeting the customers and creating awareness among the customers regarding the product through various promotional strategies.
5. **Student team Details**

   1. Gaddam Vivek
   2. Sahithi Vangala
   3. Gopu Saikiran
   4. Dudekula Anwar Baasha
   5. Pulijala Bharath Chandra
   6. Kurukuti Yasash
6. **Establishment date of the Company/Start-up/Commercialization:** 09.01.2023
7. **One paragraph on the Company/Start-Up covering all the points.** EForge NexGen INNOVATIONS was established on 9/01/2023. It is a private limited company. CEO of the company is Gaddam Vivek. There are 5 directors. The vision of the

company is to “Precision farming for farmers” and pump controller. The products being developed is Digital precision farming system. Target customers are farmers. It was started with an initial investment of Rs 3 lakhs.

Future plans are

- to add more products
- to penetrate deep into the market
- to attract more investments from investors
- to break even in a span of 4 years
- to make it a 10 crore business in a span of 5 years.

Unit-096: Becoba Energy Systems INDIA Private Limited

1. **Name of the Company/Start-up**: Becoba Energy Systems India Private Limited
2. **Highlights of the Company/Start-up**:

Product/Service	: Power banks, Market Yard Lamps
Investment	: Rs. 75,00,000
Employment generated	: 10
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact,if any)**
   - It will reduce the batterie cost and increases its usability & adds sustainability.
4. **Current Status of the Company/Start-up**
   - Registered
   - MOU Signed
   - Grants Received.
   - Funding Round finished.
5. **Student team Details**

   1. K. Vigneshwar
   2. D. Venkata Sarath Sai
   3. B. Preethika
6. **Establishment date of the Company/Start-up/Commercialization**: 11-04-2023
7. **One paragraph on the Company/Start-Up covering all the points.** Becoba Energy Systems INDIA Private Limited was established on 11-04-2023. It is a private limited company. CEO of the company is K. Vigneshwar. There are 5 directors. The vision of the company is to “Cost effective energy conservation for

better environment". The company has got seed funding of Rs 4 lakhs from Incubation Center, ICFAI and also in the process of getting 50 lakhs from HDFC Bank. The products being developed are Power banks and Market Yard Lamps. Target customers for Market Yard Lamps are vendors and shop keepers. The target customers for Power Banks are frequent travelers and students staying in remote areas. Future plans are to add more products and to penetrate deep into the market to make it a 50 crore business in a span of 5 years.

Unit-097: Exitodigitech Private Limited

1. **Name of the Company/Start-up**: Exitodigitech Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : E-ink Display boards

   Prototype Grant : Rs 2,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any):** Displaying of information is vital and critical task, in various places such as like railway stations, bus stations, airports and colleges in the form of notice boards. These displaying of relative information to the field has been happening by using paper or old fashion display technologies such as like p10,p3 matrices and by using paper displays. These display techs come with their own disadvantages such as like over brightness which can harm eyes, bulky setups, continuous power consumption. So, we propose a display using the latest e-paper display technology which is light weighted and has less power consumption.
4. **Current Status of the Company/Start-up**:The start-up is in the initial stages of targeting the customers and creating awareness among the customers regarding the product through various promotional strategies.
5. **Student team Details**

   1. Kunti Aruna

   2. Ajith Reddy
6. **Establishment date of the Company/Start-up/Commercialization**: 06/07/2023
7. **One paragraph on the Company/Start-Up covering all the points**: Exitodigitechis a private limited company, our company name and documents ap-

proved on 06/07/2023. Kunti Arunais CEO of our company. There are 3 directors and 2 interns. The vision of the company is to introduce and commercialize the E-ink display technology. The products being developed are for advertisings, Shelf displays and watches. The USP is that there is low power energy consumption and reduces eye strain. Target customers are Malls and Advertising agencies. It was started with an initial prototype fund given by NewGen IEDC.

Future plans are

- to add more products.
- to penetrate deep into the market.
- to attract more investments from investors.
- to break even in a span of 4 years.
- to make it a 10-crore business in a span of 5 years.

Unit-098: Farmex Innovations Private Limited

1. **Name of the Company**: Farmex Innovations Private Limited
2. **Highlights of the company/start-up**:

   Product/Service : IoT based storage of fruits and vegetables

   Prototype Grant : Rs 2,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: It will increase the shelf life of fruits and vegetables. This will help the farmers to reduce their losses incurred from decaying of fruits and vegetables.
4. **Current Status of the Company/Start-up**: The start-up is in the initial stages of targeting the farmers and creating awareness among the farmers regarding the product through various promotional strategies.
5. Students team details:

   1. Sri Sai Nandini
   2. Nukala Rikitha
   3. Unmesh Peri
   4. Nandipati Jyothsna Santhoshi
   5. Sana Amreen
6. **Establishment date of the Company/Start-up/Commercialization**: 14.07.2023

7. **One paragraph on the Company/Start-Up covering all the points**: Farmex Innovations Private Limited is a private limited company. Company name and documents approved on 14/07/2023..Sri Sai Nandiniis CEO of our company. There are 4 directors. The vision of the company is to introduce and commercialize the IoT based storage technology to increase shelf life of fruits and vegetables. The USP is that there is low power energy consumption and less maintenance is required. Target customers are farmers. It was started with an initial prototype fund given by NewGen IEDC.

   Future plans are

   - to add more products.
   - to penetrate deep into the market.
   - to attract more investments from investors.
   - to break even in a span of 5 years.
   - to make it a 5-crore business in a span of 5 years.

Unit-099: TYCHE Digital Solutions Pvt Ltd.

1. **Name of the Company/Start-up**: TYCHE Digital Solutions Pvt Ltd.
2. **Highlights of the Company/Start-up**:

   Product/Service : E-ink Display boards

   Prototype Grant : Rs 2,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any)** Displaying of information is vital and critical task, in various places such as like railway stations, bus stations, airports and colleges in the form of notice boards. These displaying of relative information to the field has been happening by using paper or old fashion display technologies such as like p10,p3 matrices and by using paper displays. These display techs come with their own disadvantages such as like over brightness which can harm eyes, bulky setups, continuous power consumption. So, we propose a display using the latest e-paper display technology which is light weighted and has less power consumption.

4. **Current Status of the Company/Start-up:** The start-up is in the initial stages of targeting the customers and creating awareness among the customers regarding the product through various promotional strategies.
5. **Student team Details/Faculty Mentor:**
   1. A. Ajith Reddy
   2. Sri Chandana
   3. Adithya Srinivas
   4. K. Aruna
6. **Establishment date of the Company/Start-up/Commercialization:** 6/07/2023
7. **One paragraph on the Company/Start-Up covering all the points: Exito digitech** is a private limited company, our company name and documents approved on 06/07/2023. **Kunti Aruna** is CEO of our company. There are 3 directors and 2 interns. The vision of the company is to introduce and commercialize the E-ink display technology. The products being developed are for advertisings, Shelf displays and watches. The USP is that there is low power energy consumption and reduces eye strain. Target customers are Malls and Advertising agencies. It was started with an initial prototype fund given by **NewGen IEDC.**

   Future plans are
   - To add more products.
   - To penetrate deep into the market.
   - To attract more investments from investors.
   - To break even in a span of 4 years.
   - To make it a 10-crore business in a span of 5 years.

Unit-100: Wattron Innovations Pvt. Ltd.

1. **Name of the Company/Start-up**: Wattron Innovations Pvt. Ltd.
2. **Highlights of the Company/Start-up**:

   Product/Service : BTMS in EV Batteries

   Investment : Rs 3,00,000

   Employment generated : 05 people

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any):**

   It will improve the charging and discharging efficiency of the EV batteries.

4. **Current Status of the Company/Start-up:** It is registered and in the process of getting financial support from bank also. It is in its early stages of commercialization process.
5. **Student team Details**
   1. M. Sai Vamshi Reddy
   2. Alapakam Nikil
   3. Sainath Beemanapally
6. **Establishment date of the Company/Start-up/Commercialization**: 06/07/2023
7. **One paragraph on the Company/Start-Up covering all the points.:** Wattron Innovations Pvt. Ltd is a private limited company established on 6/07/2023. CEO of the company is Sai Vamshi. There are 4 Directors of the company. The vision of the company is "Safety of Electric Vehicles". The product being developed is Liquid-cooled battery thermal management system. USP is self-cooling technology when the battery is under load conditions. Target customers are Battery manufacturing companies of passenger and commercial vehicles. Future plan is to expand the business to a 10 crore valuation in a span of five years.

Unit-101: TRAINIFY Innovations Private Limited

1. **Name of the company**: TRAINIFY Innovations Private Limited
2. **Highlights of the company/start-up**:

Product/Service	: Software for exercise tracking
Prototype Grant	: Rs 2,00,000
Employment generated	: 6
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact,if any**: It will help in tracking of exercise and yoga through software. This will help individuals to improve their postures while exercising.
4. **Currrent Status**: It is in early Stage.
5. **Students team details**
   1. T. Akhilender Reddy
6. **Establishment date of the Company/Start-up/Commercialization**:
   31 July 2023

7. **One paragraph on the Company/Start-Up covering all the points**: TRAINIFY Innovations Private Limited is a private limited company. Company name and documents approved on 31/07/2023.T. Akhilender Reddyis CEO of our company. The vision of the company is “improve exercise postures for fitness’.The USP is dynamic pose recognition. Target customers are those into fitness. It was started with an initial prototype fund given by NewGen IEDC.

   Future plans are:

   - to add more products.
   - to penetrate deep into the market.
   - to attract more investments from investors.
   - to break even in a span of 5 years.
   - to make it a 30-crore business in a span of 5 years.

20) Sumathi Reddy Institute of Technology for Women, Warangal Urban

Unit-102: Siddi’s Pure Chocolate

1. **Name of the Company/Start-up** : Siddi’s Pure Chocolate
2. **Highlights of the Company/Start-up**;

   Product : Chocolates

   Investment : Rs. 50,000

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: Some rural BPL people were attracted and earning their livelihood.
4. **Current Status of the Company/Start-up** :

   Running production
5. **Student team Details**

   1. B. Supriya
6. **Establishment date of the Company/Start-up/Commercialization**:

   15/07/2019

Unit-103: StudyLab Labs Private Limited

1. **Name of the Company/Start-up**: StudyLab Labs Private Limited
2. **Highlights** of the Company/Start-up;

   Product : Solar smart watch

   Investment : Rs. 2,50,000

   Employment generated : 08

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: Solar smart watch which is useful for common people in the society to monitor the health conditions.
4. **Current Status of the Company/Start-up**: Revenue Generation Stage
5. **Student team Details**

   1. P. Laxmiprasanna

   2. P. Sammaiah
6. **Establishment date of the Company/Start-up/Commercialization**: 13/03/2021
7. **One paragraph on the Company/Start-Up covering all the points**.: Smart watch with solar energy which is continuously supplied and working in moon light and sun light. The strap and watch dial material is designed with liquid silicone rubber which is very flexible and durable.

21) I. T. S. Engineering College, Greater Noida

Unit-104: Irriclay Technologies LLP

1. **Name of the Company/Start-up**: Irriclay Technologies LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Healthy pots: smart gardening system

   Investment : Rs. 5,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):** N/A
4. **Current Status of the Company/Start-up:** Active and running
5. **Student team Details**

   1. Anuj Katiyar

   2. Deepak
6. **Establishment date of the Company/Start-up/Commercialization:** 11.02.2021

7. **One paragraph on the Company/Start-Up covering all the points.**
    - IrriClay transforms ordinary buildings into Air Purifying buildings by installing a green wall vertical garden over their walls.IrriClay has developed an automated vertical garden using its patented clay module irrigation technology which don't require any human intervention for watering the plants.

Unit-105: Mydigitaldudes Technologies LLP

1. **Name of the Company/Start-up**: Mydigitaldudes Technologies LLP
2. **Highlights of the Company/Start-up**:

    Product/Service : IT Solutions

    Investment : Rs. 2,00,000

    Employment generated : 5

    Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
    - Yes, providing online support for NGO at minimal cost
    - IT awareness among students and privileged groups
4. **Current Status of the Company/Start-up:** Active
5. **Student team Details/Faculty Mentor:**

    1. Dilip Jadaun

    2. Mohd. Moin
6. **Establishment date of the Company/Start-up/Commercialization:**
    - 01-04-2021
7. **One paragraph on the Company/Start-Up covering all the points:** MyDigital-Dudes is an emerging tech company in the world. We are a team of creative designers, experienced developers, and great business advisors fueled by determination and passion. Our potential team is capable of developing Android Apps, Web Apps, Business websites, eCommerce Websites, Business advertisements, and many to name. With the technologies, we are transforming businesses into higher levels of operational efficiency. We have a rapidly growing large family of well-pleased clients all over the world

Unit-106: Verdant Motors Pvt Ltd

1. **Name of the Company/Startup:** Verdant Motors Pvt Ltd
2. **Highlights of the Company/Startup**:

   Product /Service : Electric motorcycle and Electric Cycle

   Investment : Rs. 20,00,000

   Employment : 5

   Commercialized or Not : Yes, Commercialized.
3. **Impact it will create (including social impact , if any)**
   - In the present scenario EVs are playing a major role in the economy of the people as the fuel prices and maintenance of the ICE vehicles has become arduous . Everyone is shifting towards EV. So, the target is to build an affordable yet reliable motorcycle, as India's EV Motorcycle segment is hardly touched and altered by any EV manufacturer to the actual needs and utility of the target buyers.
   - **Demand for Longer Range:** For daily commute and leisure riding, consumers are actively looking for motorcycles with extended range possibilities.
   - **Environmental regulations and sustainability:** To cut greenhouse gas emissions, governments all around the world are enforcing higher emissions rules and encouraging the use of electric vehicles. Increasing cost of IC engine vehicles.
4. **Current status of the company startup**
   - Electric cycles are commercialised, bookings are available at e-commerce platforms and company's website: www.alien-bikes.com , www.verdantmotors.com . Motorcycle development is in process. Prototype of electric motorcycle is ready and fully functional.
5. **Student team Details/Faculty Mentor:**

   1. Shivansh Seth
   2. Deepanjan
6. **Establishment date of the Company/Start-up/Commercialization:** 24.06.2021
7. **One paragraph on the Company/Start-Up covering all the points:** At **Verdant Motors Pvt Ltd**, The team is revolutionizing the motorcycle industry by introducing a whole new experience of riding. We believe in merging the thrill and exhilaration of biking with a clean and green future.

Unit-107: Bhramos Technologies Pvt Ltd

1. **Name of the Company/Startup:** Bhramos Technologies Pvt Ltd
2. **Highlights of Startup:**

Product	: Smart Solar Bench
Investment	: Rs. 2,50,000
Employment generated	: 7
Commercialized	: Yes, Commercialized

3. **Impact it will create (including social impact , if any)**
   - Sustainable Energy Generation
   - Public Infrastructure Improvement
   - Digital Out-of-Home (DOOh) Advertising
   - Connectivity and Data Collection
   - Green Initiatives and Smart Cities
   - Challenges: Implementing such technology on a larger scale would require investment, infrastructure planning, and proper maintenance. Ensuring the security and privacy of data collected from these benches would also be crucial to gaining public trust and acceptance.
4. **Current Status**: Revenue stage
5. **Student team Details/Faculty Mentor:**
   1. Deepanjan
   2. Suraj Kumar
6. **Establishment of startup**: 18th Nov2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Bhramos Technologies developed tailor made IoT product and solutions as per the requirements raised by industries or individual. They combine dynamic knowledge across several domains. With global time- and cost- arbitrage advantages, and talent elasticity, they help clients optimize time-to-market and minimize software development risks for their IoT solutions. The company is engaged actively in providing end-to-end IoT solutions to cater to the demands of a diverse clientele across the nation.

22) Indian Institute of Information Technology, Allahabad

Unit-108: Advanced Bio-3D Printers & Multi domain 3D Printing Services

1. **Name of the Company/Start-up**: Advanced Bio-3D Printers & Multi domain 3D Printing Services
2. **Highlights of the Company/Start-up:**

   Product/Service : 3D Printer

   Investment : Rs. 1,75,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):** Currently, very limited companies/organizations are working on the level of micro-device production. Companies manufacturing micropumps, Bio-Medical devices and Drugs/Medicines (for drug testing/ drug delivery devices), might be interested in our device. The other possible interested companies, which may be interested in-our invention for commercialization are various MEMs based companies i.e.: Claros, Phillips, Dolomite, Abbott, Raindance, Achira lab etc.
4. **Current Status of the Company/Start-up:** Revenue Generted 14160, Provided our 3D wax printing services to ICAR-NDRI, Karnal for 14,160 INR
5. **Student team Details/Faculty Mentor:**

   1. Amar Dhwaj
6. **Establishment date of the Company/Start-up/Commercialization**: 2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   This In-House developed 3D printing services will enable users or customers to easily order their 3D printed products after customization. They can give their design requirements or can even give their 3D designs that need to be 3D printed at very affordable prices

Unit-109: Portable Corona-Discharge System with Custom Made Electrodes, for PDMS Hydrophilic treatment, & Bonding for Microfluidic Chip Fabrication

1. **Name of the Company/Start-up:** Portable Corona-Discharge System with Custom Made Electrodes, for PDMS Hydrophilic treatment, & Bonding for Microfluidic Chip Fabrication
2. **Highlights of the Company/Start-up:**

   Product/Service : Portable Corona-Discharge system

   Investment : Rs. 50,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any**): This In-House developed Portable Corona-Discharge System finds its application in automobile industry and healthcare industry and is highly used in R& D Labs. It's cost-effective and safe to use
4. **Current Status of the Company/Start-up** : 24/09/21
5. **Student team Details/Faculty Mentor:**

   1. Nimishi
   2. Amar Dhwaj
6. **Establishment date of the Company/Start-up/Commercialization:**

   07/03/2022 **"**Sold our first product to BITS Pilani, Goa campus for Rs. 64,575"
7. **One paragraph on the Company/Start-Up covering all the points.**
8. The Portable Corona-Discharge System is In-House developed equipment that finds its application in the material surface preparations such as sanitizing the surface, making hydrophobic to hydrophilic, material bonding like various silicone based polymers. Similar Corona discharge systems available in the market are of relatively high cost and bulkier. Proposed product is portable and can be operated without any preparations, just a plug and play device while maintaining the same working efficiency

Unit-110: Nazmehayat Enterprises Private Limited

1. **Name of the Company/Start-up**: Nazmehayat Enterprises Private Limited
2. **Highlights of the Company/Start-up:**

   Product/Service : Content WREP® (Nazmehayat Enterprises Pvt. Ltd.)

   Investment : Rs. 3,00,000

   Employment generated : 04

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: The software will be working as a bridge to automate the whole publication process.
4. **Current Status of the Company/Start-up**
   - Content WREP launched its website on 30th July 2020
   - 5K Writers Connected over Social Media
   - Revenue generated of 1.2 lakhs INR
   - 10 Solo Books and 8 Anthologies
5. **Student team Details/Faculty Mentor:**

   1. Swapnil Singh

   2. Anushree Goswami
6. **Establishment date of the Company/Start-up/Commercialization:**

   18/06/2021
7. **One paragraph on the Company/Start-Up covering all the points:** Our mission is to build an AI technology to fill the gap between the long publication processes by automating the process such as editing, formatting, etc.

Unit-111: MIBI

1. **Name of the Company/Start-up :** MIBI
2. **Highlights of the Company/Start-up:Mibi**

   Product/Service : Mobile App

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   About this App: Tired of hassles that come in the way of finding new jobs. Don't worry we have got your back. With the new and updated android application of

MiBi you can search and apply for jobs from anywhere and everywhere you want. The MiBi app aims to cover the gap between workers and recruiters and remove all obstacles you face in this competitive world. Whether you are a recruiter or a daily wage worker, we have covered both. With MiBi, you can choose a job as you like and when you like it. It allows a direct connection between the two parties with utmost ease. Most importantly we work hard to make sure that the recruiter which connects with us is legitimate and we take proper measures to verify their claims and authenticity. Workers connected with us can enjoy a seamless job finding experience because they can get a job without having to travel places in search of it. Notably we ensure proper documentation and worker incentives. We make sure that the workers getting jobs from our side get fixed working hours. We are bringing the MiBi app to you with a vision

4. **Current Status of the Company/Start-up:** Have 2000+ users with 10+ recruiters and 5+ outreach partners
5. **Student team Details/Faculty Mentor:**
   1. Shiva Sharma
   2. Niraj Saini
6. **Establishment date of the Company/Start-up/Commercialization:** 11/08/2020
7. **One paragraph on the Company/Start-Up covering all the points:** MiBi is making hiring or getting a job a simple process for the unorganised sector.

Unit-112: Glexspace

1. **Name of the Company/Start-up :** Glexspace
2. **Highlights of the Company/Start-up:**

Product/Service	: A professional counseling service for college students
Investment	: Rs. 2,50,000
Employment generated	: 02
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):** The initial idea was to connect bloggers in a digital space using an AI engine that connects like-minded people. The startup did a lot of ground work and how provides counseling ser-

vices to college students. The college students are increasingly coming under societal and academic pressures, while the colleges seldom have the expertise and solutions for such solutions. The startup is a one-stop solution for the problem, hugely benefiting the society.

4. **Current Status of the Company/Start-up:** The talks are in an advanced stage with multiple colleges.
5. **Student team Details/Faculty Mentor:**
   1. Ayush Chaurasia
   2. Aman Bhoskar
6. **Establishment date of the Company/Start-up/Commercialization**: 06.01.2021
7. **One paragraph on the Company/Start-Up covering all the points:** The startup initially got great success because of a blogging portal where people could share their experiences to the world. On a greater analysis the startup discovered the problem of depression and tension among the youth. Alongwith medical experts, the startup created counseling packages for the colleges to help their students with the same.

Unit-113: COMET Labs IT Solutions Pvt. Ltd.

1. **Name of the Company/Startup:** COMET Labs IT Solutions Pvt. Ltd.
2. **Highlights of the Company/Startup:**

Product/Service	: SAAS Platform for Hackathons & Hiring Interview
Investment	: Rs. 35,00,000
Employment generated	: 6
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact if any)**
   - We're building the first-ever Automated Powered Hackathons Playgrounds in multiple Web/App frameworks where the Developers can build Web Products, Mobile Apps, and Full-Stack Applications in their browser only.
   - The Playground judges their Code Solutions over product building/testing parameters building their Vetted Profile with Proof of Work for further hiring.
4. **Current Status of the Company/Startup:**
   - **7000 + Developers' Community**
   - 35+ CodeArenas organised on COMETLABS.

- 550+ Projects built on COMETLABS.
- 19000+ Total Participation in CodeArenas.
- 1700 + Ready to hire Vetted Profile
- 570 + Interns & Jobs
- ₹ 55K MRR

5. **Student Team Details/Faculty Mentor:**

   1. Prashant Katiyar
   2. Rishika Kumari
   3. Vineel Sai
   4. Shivam Soni
   5. Manish Kumar
   6. Chaitanya Hegde

6. **Establishment date of the Company/Startup Commercialization**: 20 May 2021

7. **One paragraph on the Company/Startup covers all the points.** COMETLABS is a Developer Tools & HR Tech Platform, where Technical Colleges and Developers Communities organise 3-5 Days Product-Building CodeArenas, Workshops, and Hackathons. Our Technology & Platform builds a complete 360º Developer Profile by judging their code quality on industry standards & proof-of-work, creating a pool of fully-vetted developers for bulk hiring.

Unit-114: ABYOM Spacetech & Defence Pvt Ltd.

1. **Name of the Company/Start-up:** ABYOM Spacetech & Defence Pvt Ltd.
2. **Highlights of the Company/Start-up:**

   Product/Service : Rocket launch testing equipment, training for college students

   Investment : Rs. 2,50,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):** The team has designed a model for rocket launching that is controlled by using a wifi and a testing facility, given as a DIY kits. In the long run this will revolutionize the spacetech indus-

try by providing low cost solutions. The team bridges the educational gap by providing training and equipment to colleges.

4. **Current Status of the Company/Start-up:** The prototype is nearly-developed. The team continues to provide workshop, training and other services at different institutions, most recently at the propulsion lab at LPU. They have signed MOUs with a few institute for such services.
5. **Student team Details/Faculty Mentor:**
   1. Jainul Abedin
6. **Establishment date of the Company/Start-up/Commercialization:**
   20 May 2021
7. **One paragraph on the Company/Start-Up covering all the points.**
8. The team started to enter into the deep tech space, specifically into the spacetech domain. The team worked hard to create rocket launching prototypes. They later also included college training and supplying of equipment into their plans.

Unit-115: Nirvaan

1. **Name of the Company/Start-up:** Embrace the Future of Mental Wellness NIR-VAAN
2. **Highlights of the Project(innovation/uniqueness etc.):**

Product/Service	: Online Psychotherapy
Investment	: Rs. 2,50,000
Employment generated	: 22
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any) :** This startup is poised to make a significant impact on the global landscape of mental health, with a particular focus on addressing the challenges of anxiety and depression. Their unique therapy approach seamlessly blends the most effective principles and techniques from psychotherapy, counseling, mindfulness, Indian philosophy, and evidence-based healing music. Through this innovative fusion, they aspire to empower individuals and their support networks to attain profound relief and enhanced concentration in a remarkably short span of therapy sessions. The startup provides Online Psychotherapy with several features including selection

of music, psychologist therapy, Sleep etc. They impact the world through Therapy-especially to those with Anxiety/Depression, Their therapy is a combination of best practices and concepts from psychotherapy, counselling mindfulness, Indian philosophy & Science-based healing music They have more than 300+ clients so far with over 5 lac revenue, Employment generated : 2 lakh+, with 22 employees, with 16 onboarded doctors, clinical psychologist. Therapist and more.

4. **Current Status of the Company/Start-up:** NIRVAAN is currently in full operation, successfully establishing a solid product-market fit. With a growing clientele and a strong track record of delivering effective mental health solutions, we are now actively seeking our first round of seed investment. This pivotal investment will enable us to expand our reach, enhance our technology, and extend our impact in the field of mental wellness on a global scale. We are confident that NIRVAAN is well-positioned to make a lasting and meaningful contribution to the mental health landscape.
5. **Student team details/Faculty Mentor:**
   1. Abhinav Singh
   2. Sejal Thakur
6. **Establishment date of the Company/Start-up/Commercialization:** 2021
7. **One paragraph on the Company/Start-Up covering all the points**

   USP (Unique Selling Point): NIRVAAN prioritizes the individuality of each client's therapy journey and recognizes that the duration of therapy and the complexities of addressing personal challenges can vary greatly. To accommodate this, NIRVAAN offers unlimited sessions to the clients. One can take as much time as needed to work through your concerns and develop new coping skills. NIRVAAN's dedicated therapists are committed to support they're client at every step of the way and firmly believe in a personalized approach to therapy as well as understands that everyone has unique needs and aspirations. That's why Team NIRVAAN collaborates with each client to create a customized treatment plan that aligns with their specific circumstances. NIRVAAN's Psychotherapists, Psychologists and counselors are well-versed in a range of evidence-based therapies Including Psychoanalysis and psychodynamic therapies Cognitive, Behavioral, Humanistic, Integrative/holistic.

Unit-116: SEETAARA

1. **Name of the Company/ Start-up:** SEETAARA
2. **Highlights of the Company/Start-up;**

Product	: Ecommerce App
Investment	: Rs. 15,000
Employment generated	: 12
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - Save Customers Time and Money
   - It will help small retails/shop owners to Come digitally
4. **Current Status of the Company/Start-up:**
   - ready to Commercialisation
   - Launching in Next 3 cities
5. **Student team Details/Faculty Mentor:**

   1. Aditya Yadav
   2. Adarsh Shukla
6. **Establishment date of the Company/Start-up/Commercialization: 22/02/2022**
7. **One paragraph on the Company/Start-Up covering all the points: Seetaara is an AR based Ecommerce platform, Seetaara enhance the shopping experience by providing**
   - 90 min delivery to customer
   - Return/replace within 3 hours
   - Affordable products
   - Quality as well as brands original product
   - Chance to become Influencer & Earn money
   - Help retailers to come online and sell their products with low charges

Unit-117: Quordnet Academy (OPC) Private Limited.

1. **Name of the Company/ Start-up:** Quordnet Academy (OPC) Private Limited.
2. **Highlights of the Company/Start-up;**

   Product : Courses, Notes, Online Coding Editor, Blogs

   Investment : Rs. 1,00,000

   Employment generated : 15+

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - **Democratizing Education: Accessibility**: Edtech platforms can make high-quality education accessible to individuals regardless of their geographical location, socio-economic status, or physical disabilities.
   - **Affordability:** Online courses often cost a fraction of traditional classroom-based courses, making education more affordable for many.
   - **Lifelong Learning: Continuous Upskilling**: In today's rapidly changing world, professionals need to continuously upskill. Edtech platforms provide opportunities for lifelong learning, ensuring individuals remain relevant in their careers.
   - **Diverse Course Offerings**: From arts to sciences, edtech platforms offer courses across a wide range of subjects, catering to varied interests and needs.
4. **Current Status of the Company/Start-up:**
   - Revenue generation (Generating revenue)
5. **Student team Details/Faculty Mentor:**

   1. Orunayan Bhattacharya
6. **Establishment date of the Company/Start-up/Commercialization:** 21/12/2022 (Company officially incorporated) but starting from 2021.
7. **One paragraph on the Company/Start-Up covering all the points.**

   Quordnet Academy is an innovative educational platform dedicated to empowering students with comprehensive learning resources across a multitude of domains. Recognizing the pivotal role of technology in modern education, the academy offers meticulously curated notes to aid students in their academic pursuits. In addition, Quordnet Academy has made significant strides in democratizing education by providing a series of tech-related video courses on platforms

like YouTube, completely free of charge. These courses encompass a wide range of topics, from foundational languages like HTML, CSS, and JavaScript to more advanced subjects like Python, Java, and R, ensuring that students have access to a holistic tech education tailored to the demands of the contemporary digital landscape.

Unit-118: BookWithUVA

1. **Name of the Company/Start-up:** BookWithUVA
2. **Highlights of the Company/Start-up:**

   Product/Service : Books, stationery and other study materials

   Investment : INR 20,000/-

   Employment generated : 20 interns (non-paid)

   Commercialized or not : Yes, commercialized
3. **Impact it will create (including social impact, if any)**
   - Assisting the students in procuring their study material
   - Lower than market price, so study material is accessible and affordable to the maximum number of students
   - The encouragement of book renting and reselling is a sustainable approach that reduces the use of paper
   - Students working at the startup are learning skills in entrepreneurship, business management and have a platform to experiment with their skills
4. **Current Status of the Company/Start-up :** Currently, started the sales and crossed the sales of 9 lacs, catering 5000+ students; built a team; started rental and reselling services.Also, developed a self-tailored inventory management system and a website for selling products online.
5. **Student team Details/Faculty Mentor:**

   1. Abhishek Kumar
   2. Uttam Srivastava
6. **Establishment date of the Company/Start-up/Commercialization:**

   29th August, 2022
7. **One paragraph on the Company/Start-Up covering all the points:** A student centric stationery based startup that delivers books, notebooks and other study material to the students' institution itself at very affordable prices.

Annexure-V

Details of Patent Filed during the financial year, 2022-2023

01) Kuppam Engineering College, Kuppam

Patent-001: AGRI-MOISTIOMETER

1. **Name of the Technology** : AGRI-MOISTIOMETER
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - it's a fully digital device with extended features, unlike the conventional Analog Tensiometer
   - The Unique feature of this device is that it assigns the land soil from the top surface to the bottom root zone of the crop (plant) into three sections, and then keeps track of the moisture content and the nutrients levels at four sections from the soil surface to the root zone.
   - It predicts the water holding capacity of the soil at four different sections and the length of time required for the soil to get dry at four sections. In turn, it predicts the amount of water that needs to be supplied and when to supply the water.
   - It also monitors the deficiency of major nutrients (Based on soil and Crop) and suggests the supply of essential nutrients time-to-time ensuring soil and crop health.
   - The device becomes easily affordable as the Cloud-based efficient Machine Learning (ML) algorithms are used to predict all the parameters received from the device installed at the land.
   - User-friendly web or mobile application acts as an interface between the farmer and Agri-land that provides all the information predicted by the AI-Cloud.
   - The application provides the complete scenario of crop and soil (four sections) status at the land and suggests when to supply the water and nutrients, and the drying state of the soil at four different sections.
3. **Impact it will create :**
   - Effective resource utilization and management: A farmer-friendly digital device predicts the water scheduling time based on soil moisture content, hence, unetimely water supply will be elimeinated by saving water.

- Remote monitoring: User-friendly web or mobile application acts as an interface between the farmer and Agri-land that provides all the information predicted by the AI-Cloud.
- The Soil and Crop Health Management in Agriculture will improve crop yield in a small land.

4. **Current Status of the Patent** **:** Filed: Under Screening and Classification
5. **Student Team details/Faculty Mentor :**
   i. Santhosh
6. **Patent Filing date** : 20th February 2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341011349

02) Ramachandra College of Engineering, Eluru

Patent-002: IoT based solar powered agriboat for irrigation and farm monitoring

1. **Name of the Technology:** IoT based solar powered agriboat for irrigation and farm monitoring
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is an IoT based solar powered agriboat for irrigation and farm monitoring, an autonomous robot is based on field parameters that is length and width. Prototype of an agricultural robot "AgroBot" is modelled for multitasking such as seeding, ploughing and harvesting with a separate irrigation system. It is a four wheeled vehicle which is controlled by an ATMEGA328 microcontroller (2) as master controller, Humidity sensor for irrigation, power supply is provided by solar panel which is eco-friendly to the environment. It will also help in decreasing the use of non- renewable sources of energy and will not pollute the environment. Other accessories are slaves performing specific operations. The approach is now to develop smarter machines that are intelligent enough to work in an unmodified or semi natural environment. The system derives power from solar energy through photo-voltaic cells. Hence, dependency on erratic commercial power is not required.
3. **Impact it will create** : Agriculture
4. **Current Status of the Patent** **:** Published
5. **Student Team details/Faculty Mentor :**
   1. Mr. Ch. S. K. B. Pradeep Kumar
   2. Mrs. Chsabitha
   3. S. Lakshmi Sa

4. P. Sai Kumar
5. N. Venkata Satya
6. M. D. N. Bharathi
7. P. N. V. Achuth

6. **Patent Filing date** : 28/08/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 20221048466

Patent-003: Four-seater Passenger Vehicle with Inbuilt Lift Jack

1. **Name of the Technology** **:** Four-seater Passenger Vehicle with Inbuilt Lift Jack
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The aim of this work is to design and develop an inbuilt hydraulic jacking mechanism that can be operated by the driver from inside the vehicle.
   - The four-wheeler vehicle can be lift by using hydraulic system which is connects to the four sides of the chassis. By using this technique, we can attain less powerloss and simple design.
   - Instead of using jack we are using the hydraulic system to lift the vehicle. By using simple button controls to control the lifting of the vehicle.
   - The hydraulic energy can be generated by using the power of the engine with theusing of belt mechanisms.
3. **Impact it will create** **:** Automobile sector
4. **Current Status of the Patent** **:** Under Process
5. **Student Team details/Faculty Mentor :**
   I. T. Hema Vamsi Krishna
   II. M. Karthik
   III. Ch. Ravindra Babu
   IV. K. V. D. S. Krishna
6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : Under Process

Patent-004: Green House Monitoring through IoT

1. **Name of the Technology** **:** Green House Monitoring through IoT
2. **Highlights of the Technology (innovation/uniqueness etc.):** The implementation of Internet of Things (IoT) technology in greenhouse

monitoring brings significant advancements to modern agriculture. By integrating smart sensors and IoT devices, farmers can create an intelligent and automated system that optimizes environmental conditions within the greenhouse. This proactive approach enhances crop health, boosts yields, and ensures sustainable and efficient farming practices.

3. **Impact it will create:**
   - Environmental Sensing: IoT-enabled sensors are strategically placed throughout the greenhouse to monitor vital parameters such as temperature, humidity, CO2 levels, soil moisture, and light intensity. Real-time data collection provides insights into the greenhouse's microclimate, allowing farmers to fine-tune conditions to meet specific crop requirements.
   - Automated Climate Control: Based on the sensor data and predefined thresholds, the IoT system automatically adjusts climate control equipment like fans, vents, heaters, and irrigation systems. This ensures that crops experience optimal growing conditions, minimizing stress and promoting healthy development.
   - Water Management: IoT technology enables precise monitoring of soil moisture levels, enabling intelligent irrigation systems. By delivering water directly to the plant roots when needed, water usage is optimized, preventing overwatering and conserving resources.
   - Nutrient Management: Integrating IoT devices with fertigation systems allows for precise nutrient delivery tailored to each plant's growth stage and requirements. This minimizes nutrient wastage and ensures plants receive the necessary elements for optimal development.
   - Pest and Disease Monitoring: IoT sensors can detect early signs of pest infestations or diseases, enabling farmers to take immediate action to prevent widespread outbreaks. Timely intervention reduces the need for chemical treatments and safeguards plant health.
   - Remote Monitoring and Control: The IoT system offers farmers remote access through smartphones or computers, allowing them to monitor the greenhouse conditions and adjust settings from anywhere. This remote control ensures prompt responses to critical situations and reduces the need for constant on-site presence.
   - Data Analytics and Insights: The vast amounts of data collected from sensors are processed using advanced analytics and machine learning

algorithms. This analysis provides valuable insights into crop performance, growth patterns, and environmental trends, enabling data-driven decision-making for improved productivity.

- Energy Efficiency: By intelligently managing climate control and irrigation systems, the IoT-enabled greenhouse reduces energy consumption, leading to cost savings and environmental benefits.

4. **Current Status of the Patent** **:** Under Process
5. **Student Team details/Faculty Mentor :**
   I. M**.** Poojitha
   II. P**.** Subhakar
   III. K**.** Haripriya
   IV. K**.** Raju
6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : Under Process

Patent-005: Solar-Piezo Hybrid Power Generation Based Charging System

1. **Name of the Technology** **:** Solar-Piezo Hybrid Power Generation Based Charging System
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The use of renewable resources like the solar energy and various other clean sources of energy have been on an increase in demand in the recent years due to their ease in availability and low and cost. This project demonstrates how to use the solar energy and the kinetic energy from footsteps of people walking over piezo based footboard. The Solar Panel is used to harness the solar power. It converts the solar power into voltage, which when more than the voltage in the battery is able to charge the battery. The power available through the solar panel is sensed by an Atmega family microcontroller which it displays on the LCD.
3. **Impact it will create** : Automobile sector
   Similarly, the power generated through footsteps over Piezo Footboard is shown on the LCD. In this case, the footstep count is also displayed on the LCD along with the voltage generated by that particular footstep. In this way one can charge the battery through solar and footstep energies while simultaneously also monitoring of how much is getting generated with the use of Solar Piezo Hybrid Power Charging System

4. **Current Status of the Patent :**
   Under Process
5. **Student Team details/Faculty Mentor :**
   I. A. Bharath Kumar
   II. G. Murali
   III. P. Vasanth Kumar
   IV. Sai Prakash
   V. S. Tejaswai
6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : Under Process

Patent-006: Arduino Obstacle Avoidance Robot With Voice Control and Bluetooth Connectivity

1. **Name of the Technology** **:** Arduino Obstacle Avoidance Robot With Voice Control and Bluetooth Connectivity
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Voice-Controlled Robot: The main objective of this project is to develop an obstacle avoidance robot that can be controlled using voice commands. Users can give voice instructions to the robot for various tasks.
   - Bluetooth Connectivity: The robot utilizes Bluetooth technology to establish a communication link with an Android app. This allows users to send commands to the robot wirelessly, making it more convenient to operate.
   - Ultrasonic Sensor for Obstacle Detection: The robot is equipped with an ultrasonic sensor, which enables it to detect obstacles in its path. When an obstacle is detected, the robot notifies the user about the object's presence.
3. **Impact it will create: Agriculture**
   - Microcontroller (ATmega328P) Handling: The robot's microcontroller plays a crucial role in processing the voice commands received from the voice module. It analyzes the commands and executes the appropriate actions to control the robot's movement.
   - Servo Motor for Movement: To control the robot's movement, it is integrated with a servo motor. The microcontroller manipulates the servo

motor based on the user's voice commands to navigate the robot effectively.

- Android App Interface: The project involves creating an Android app that serves as the interface for sending voice commands to the robot. Through this app, users can easily interact with the robot and control its actions.
- Hardware and Software Implementation: The project's hardware components, such as the ultrasonic sensor, servo motor, and Bluetooth module, have been successfully integrated into the robot. Additionally, the software part has been implemented using the Arduino IDE module, ensuring smooth functioning of the robot's voice-controlled features.

4. **Current Status of the Patent** : In process
5. **Student Team details/Faculty Mentor :**
   I. G. Jahnavi
   II. J. Thabitha
   III. J. Ramadevi
   IV. G. Sushma
   V. M. Yasaswini Chandrika
6. **Patent Filing date** **:** In Progress
7. **Patent Granted date** : ---
8. **Patent Application Number** : In Progress

Patent-007: Automatization of Smart Trolley using RFID

1. **Name of the Technology** **:** Automatization of Smart Trolley using RFID
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Enhanced Shopping Experience: The RFID-based smart trolley system offers customers a hassle-free and convenient shopping experience by eliminating the need to wait in long queues at billing counters.
   - Time Efficiency: With the smart trolley, customers can save valuable time as the RFID technology automatically scans and adds products to their bill, streamlining the checkout process.
   - Wide Product Variety: Supermarkets and hypermarkets can offer an extensive range of products, including food, beverages, and household items, thanks to the efficient and organized RFID-based inventory management.

- Budget-Friendly Shopping: Customers can now easily track the total cost of their purchases on a digital display attached to the smart trolley, helping them make informed decisions based on their budget.

3. **Impact it will create:**
   - Increased Footfall: The implementation of this advanced technology serves as a strategic move for supermarkets and hypermarkets, attracting more customers due to the improved shopping convenience.
   - Error Reduction: The RFID system minimizes human errors during billing, ensuring accurate and precise pricing for each product, leading to greater customer satisfaction.
   - Promoting Innovation: The automatization of smart trolleys reflects the supermarket industry's commitment to embracing technological advancements and enhancing customer-centric services.
   - By integrating RFID technology into shopping trolleys, supermarkets and hypermarkets not only boost their efficiency and customer satisfaction but also position themselves as innovative leaders in the retail industry.
4. **Current Status of the Patent** **:** Under Process
5. **Student Team details/Faculty Mentor :**
   I. Arshiya
   II. M. Nikitha
   III. V. Hema Sri
   IV. S. Saibhanu Prakash
   V. P.R.A.D. Prasad
6. **Patent Filing date** **:** In Process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

Patent-008: Power Generated By Pizeo Electric Plates

1. **Name of the Technology** **:** Power Generated By Pizeo Electric Plates
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Piezoelectric plates or elements can be used as generators to convert mechanical energy into electrical energy.

- When subjected to vibrations or pressure variations, these plates produce small amounts of electricity, which can be accumulated and used to power low-power devices or sensors.
- Piezoelectric materials can be integrated into structures or wearable devices to harvest energy from ambient vibrations or movements.

3. **Impact it will create:** For example, in buildings, piezoelectric materials can be embedded in floors or walls to generate electricity from the building's vibrations.
4. **Current Status of the Patent:** In Process
5. **Student Team details/Faculty Mentor :**
   I. E. Raviteja
   II. Harsha vardhana Acharyalu
   III. G. Ganesh
   IV. L.Vidya
6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

Patent-009: Iot-Based Smart Office Chair to improve the productivity

1. **Name of the Technology**: Iot-Based Smart Office Chair to improve the productivity
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The idea is suggested to lessen the risk of spondylosis among office workers due to their poor posture. Any office chair may be made intelligent by adding this gadget. Two IR sensors are used by the device to detect the occupant's slouching position. All of the devices' electronics are under the control of the microcontroller.
3. **Impact it will create: Health and Safety**:
   - The device gives an audio and visual warning when the user's posture is poor while in a working state.
   - The device resets itself and monitors for poor posture for longer than 5 minutes if the user corrects their posture after receiving the notification of alert.
   - One can boost their productivity and lower their risk of developing spondylosis by using the device to rectify their bad posture.

- IoT will likely be added in the future to track employee productivity and man hours.

4. **Current Status of the Patent** : In process
5. **Student Team details/Faculty Mentor :**
   I. Ms. S. Asharffine Ishrat
   II. Ms. P. Sowmya Sri
   III. Ms. Sk. Chandini
   IV. Ms. B. Manwitha
   V. Ms. Y. Poojitha
   VI. Mr. Hemanth Kumar
6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

Patent-010: Low-Cost Solar-Powered Insect Lure for Farm

1. **Name of the Technology:** Low-Cost Solar-Powered Insect Lure for Farm
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   It helps farmers lessen the effects of insects that damage farm fields or that impairs yield quality or quantity. The product that is currently on the market has been upgraded by the project. The light source is chosen in accordance with research on various dangerous insects in various agricultural fields to determine what band of light spectrum they often become drawn to. The solar-powered device will turn on after sunset and run for three to four hours (depending on the setting). The on-time will be chosen in order to safeguard the farmer-friendly insects. Insects drawn to the UV spectrum will fall into the funnel and perish in water stored in the collector.
3. **Impact it will create:** Future plans include the addition of IoT to monitor the gathering of insects on various farms and AI to analyze the various insects that are collected so that farmers can understand the impact of insects on farms.
4. **Current Status of the Patent** :
   In process
5. **Student Team details/Faculty Mentor :**
   I. T. Teja Sri
   II. Y. Roshini
   III. B. Venkata Satya Manikanta

IV. S. Sivaranjani
V. G. Deekshitha
VI. K. Bhargavi Priya

6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

Patent-011: Solar-Power Electric Vehicle Charging Port

1. **Name of the Technology:** Solar-Power Electric Vehicle Charging Port
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Flexible solar EV charging and transmission expansion leads to substitution effect from PV plates.
   - An electric vehicle (EV) charging port is a crucial component that allows an electric vehicle to connect to ansolar power and external source and recharge its batteries.
   - EV charging ports come in different shapes, sizes, and connectors, depending on the region and the charging standard being used.
   - Competition effect: Flexible EV limit business case of P2H technologies and also batteries
3. **Impact it will create:**
   - EV flexibility reduces significantly price fluctuations locally
   - Transmission expansion in contrast smoothens price fluctuations on spatial scale
   - Flexibility of EV and transmission expansion accelerates CO2 reduction
   - Main reduction in CO2 intense countries at the expense of virtuous countries
   - Regardless of distributional effects of CO2 and prices, overall positive effects stresses that strong European coordination is needed for a least cost transition Policy that increases the utilization of EV flexibility has to be put in place
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   I. Raviteja
   II. G. Ganesh
   III. Harsha vardhana Acharayalu

6. **Patent Filing date** **:** In process
7. **Patent Granted date** : **---**
8. **Patent Application Number** : In Progress

Patent-012: Low Cost 3d Filament Dehumidifier

1. **Name of the Technology** **:** Low Cost 3d Filament Dehumidifier
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - 3D printing, also known as additive manufacturing, is a method of creating a three-dimensional object layer-by-layer using a computer created design.
   - Using 3D printing, engineers can create new prototypes-even those with complex internal structures and geometries-address problems and find solutions, without ever leaving their working environments.
   - Poly lactic acid (PLA) is one of the most popular materials used in desktop d printing used by engineering students.
3. **Impact it will create:**
   - PLA is an organic material that readily absorbed moister and is extremely sensitive to trace water content.
   - PLA is hygroscopic material that drawn in moister from the air, causing it to swell and become more brittle.
   - Due to this brittleness of PLA, the product has produced.
   - Also the quality of the product might be affected due to this so here is need of Dehumidifier to prevent it from absorbing moisture.
4. **Current Status of the Patent** **:**
   - In process
5. **Student Team details/Faculty Mentor :**
   I. S. Keerthi
   II. Saikiran
   III. Harsith
   IV. B. Gopika
   V. Bhuvana Chand Sai
   VI. K. Lalithendr
6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

Patent-013: IoT based automated crack and object identifier for Trains.

1. **Name of the Technology:** IoT based automated crack and object identifier for Trains.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - It is based on crack and object detection of train for safe railway transportation.
   - IOT based solar powered automatic crack and vehicle detection called 'crack and object identifier vehicle' send the coordinates to the station.
   - As vehicle examines the rail track with image processing method with ESP32 CAM as well as Ultrasonic sensor
3. **Impact it will create:**
   - The coordinates of the location are consigned to the station master by SMS using GSM and GPS modules.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   I. Saikiran
   II. Harsith
   III. B.Gopika
6. **Patent Filing date** **:** In process
7. **Patent Granted date**:
8. **Patent Application Number** : In Progress

Patent-014: Production of BIO Diesel by using seeds

1. **Name of the Technology** **:** Production of BIO Diesel by using seeds
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   This project is to find out the fuel related properties & engine related properties of coconut oil biodiesel with an additive N-butanol. This experimentation was prepared by biodiesel–diesel blends i.e., B10. The blend was prepared by mixing 85% of normal diesel & 10% of biodiesel with an additive N-butanol is 5% (B10D85N-but5). The other blend was prepared i.e., (B20D70N-but10), (B30D65N-but15).
3. **Impact it will create:** After development improved the efficiency of Bio diesel by using natural blends
4. **Current Status of the Patent** **:**
   In process

5. **Student Team details/Faculty Mentor :**
   I. T. Vamsi
   II. M. Sandeep
   III. J. Peddiswar
   IV. B. Avinash
6. **Patent Filing date** **:** In process
7. **Patent Granted date**:
8. **Patent Application Number** : In Progress

Patent-015: Nano Fluid Circulated solar Collector for Water Purification

1. **Name of the Technology:** Nano Fluid Circulated solar Collector for Water Purification
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The ever-increasing global need for energy makes it unavoidable to support the use of essential coffers. The sun is one of the most abundant and almost indestructible energy sources in our world. The goal of this study is to Aluminium materials in order to improve or maximize the efficiency and other characteristics of the solar collector. The usage of aluminium oxide particles (Al2O3) is to improve the performance of collector. Solar collectors with a parabolic trough are physical devices with an interior covering of mirrors or reflecting materials.
3. **Impact it will create:**
   The collector is shaped like a concave surface. These troughs have a single axis, which means they may be rotated. These troughs have a single axis, which means they can only rotate in one direction.
4. **Current Status of the Patent** **:** In process
5. **Student Team details/Faculty Mentor :**
   I. J. Lakshmi Prasad
   II. N. Ganesh Venkata Durga Rao
   III. G. Bhanu Prakash
   IV. G. Jayadeep
6. **Patent Filing date** **:** In process
7. **Patent Granted date** **:**
8. **Patent Application Number** : In Progress

Patent-016: Automatic Table top glass cutter

1. **Name of the Technology:** Automatic Table top glass cutter
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Even in today's era, glasses are cutting manually and through CNC machines. But cutting the glasses with manually provides dangerous to the worker or the surrounding. Also manual cutting results in errors those results in wastages of workpieces. So herein, there is an analysis of semi-automated glass cutting machine as the CNC machines are very costly.
3. **Impact it will create:**
   The semi-automated glass machine automatically cuts the glass in order to reduce the error within very less time.
4. **Current Status of the Patent:** In process
5. **Student Team details/Faculty Mentor :**
   I. Md.Gufran chowhan
   II. P.Ravindra
   III. Kare Akash
   IV. P.Mahesh
6. **Patent Filing date** **:** In process
7. **Patent Granted date** **:**
8. **Patent Application Number** : In Progress

Patent-017: Smart Wireless Luggage Bag traveller

1. **Name of the Technology** **:** Smart Wireless Luggage Bag traveler
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Bags have always been an integral part of travel life whether it may be a travel bag or a plastic bag or even leather bag every bag has its own importance and carries different functions and utility. Dragging the luggage all over the place has been done since the golden ages. Thinking of a luggage which conveys its weight, tracks its location, which follows the user automatically or manually, by the touch of the present technology to the old baggage
3. **Impact it will create:**
   it may bring out its true potential. This has motivated the project all along so that it is user-friendly and could be operated by a Smart phone.
4. **Current Status of the Patent** **:**
   In process

5. **Student Team details/Faculty Mentor :**
   I. M.Poojitha
   II. S. Navya rani
   III. K. Roshini
6. **Patent Filing date** **:** In process
7. **Patent Granted date:**
8. **Patent Application Number** : In Progress

Patent-018: Design and construction of an antenna for India image capture to get Weather conditions using the live satellite

1. **Name of the Technology** **:** Design and construction of an antenna for India image capture to get Weather conditions using the live satellite
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Designed and testing the designed V dipole antenna for capturing the satellite passes especially for NOAA series. Designed and built for capturing the Satellite passes. We needed to install open-source software namely, Orbitron, Air spy, WX to MIG, NOVA –APT for testing the V-dipole antenna along with RTL-SDR dongle.
3. **Impact it will create** : Social and Personal growth
4. **Current Status of the Patent** : In process
5. **Student Team details/Faculty Mentor :**
   I. T. S. N. Neeraja
   II. SK. Ishrat
   III. S. Keerthi
6. **Patent Filing date** : In process
7. **Patent Granted date** **:**
8. **Patent Application Number** : In Progress

Patent-019: Solar Powered Wireless Battery Bank

1. **Name of the Technology** **:** Solar Powered Wireless Battery Bank
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   By the proposed system, the battery of an electronic device can be charged wirelessly. The proposed solar power bank integrates solar charging with efficient battery support and wireless charging to provide a multi functional

unique power bank product. The device is able to self charge anywhere during day time so that he user never runs out of power. Power from solar is given as input to transmitter inductive coil, the receiver inductive coil receives the power and converts it into electric current to charge the battery.

3. **Impact it will create:**

   With the help of wireless battery charger technology, power can be supplied to the electric cars, drones, hospital's equipment, and smart phones. This device also helps to reduce the necessity of using wires.

4. **Current Status of the Patent** : In process
5. **Student Team details/Faculty Mentor :**
   I. S. Hemanth Raj
   II. M. D. N. Bharathi
   III. Ch. L. Sheetal
   IV. Ch. Jhansi
6. **Patent Filing date** : In process
7. **Patent Granted date:**
8. **Patent Application Number** : In Progress

Patent-020: Coin / Card Operated Smart RO Water ATM

1. **Name of the Technology :** Coin / Card Operated Smart RO Water ATM
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   The smart water ATM serves water on coin insertion as well as Card scanning. It doesn't require user to carry cash while using this ATM. Also this smart water ATM machine has an integrated bottle dispenser that dispenses non disposable water bottles that can be used for long time. The system is developed using a controller, coin module, solenoid valve, keypad, RFID scanner and motors to develop the proposed ATM system. This allows for a smart water dispenser machine that can dispense water on demand of users.

3. **Impact it will create:**

   The machine when turned on allows user to select amount of water to be filled. User may select amount of water to be filled, once the user selects water quantity, the system displays the cost Rs.1 to Rs.5 for 100 ml to 1 Liter. After selection, system waits for water bottle to be placed in the filling section. The filling won't start/dispense until a bottle is detected in the filling panel.

4. **Current Status of the Patent** : In process

5. **Student Team details/Faculty Mentor :**
   I. G Venkateswarlu
   II. K. Pavan Kumar Raju
   III. B. S. Sahithi
   IV. Kumari
6. **Patent Filing date** : In process
7. **Patent Granted date:**
8. **Patent Application Number** : In Progress

Patent-021: Med-Mitra: A Smart Medication Management & Health Monitoring Tool

1. **Name of the Technology :** Med-Mitra: A Smart Medication Management and Health Monitoring Tool
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   A smart medication management and health monitoring tool that is simple in design and customizable that could help patients take their medications on time and in the correct doses, which can improve their health outcomes and reduce healthcare costs. The device can engage patients in their own care and help them understand the importance of adhering to their medication regimen. The device can reduce the risk of medication errors caused by human error.
3. **Impact it will create:**
   - Help to monitor vital signs like SPO_2 and Heart rate of the patient.
   - Provides an instant (SoS) alert to emergency responders and caregivers in case of inconvenience and prevent adverse drug events.
   - The device can collect data on medication adherence and use patterns, which can be used by healthcare providers to improve patient care and medication management.
4. **Current Status of the Patent** :
   In process
5. **Student Team details/Faculty Mentor :**
   I. Uma Maheswara Rao Annavarapu
   II. Ravuri China Gopi Reddy
6. **Patent Filing date** **:** In process
7. **Patent Granted date** :
8. **Patent Application Number** : In Progress

3) Sasi Institute of Technology & Engineering, Tadepalligudem

Patent-022: Embedded Systems

1. **Name of the Technology :** Embedded Systems
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Recording of Water level, pH value, Temperature and other paprameters.
   - Sending the data through wifi for IoT application.
   - Remote monitoring of the parameters and recoded timely bases.
   - Easy to operation and maintenance for user point of view.
3. **Impact it will create:**
   - It helps to record the parameters for water tanks.
   - The recoded values are used for monitoring of data in small organizations.
   - IoT based applications are helps to remote monitoring of the water tanks.
   - Battery operated and less power consumption is major benefit for proposed device.
4. **Current Status of the Patent : Pending**
5. **Student Team details/Faculty Mentor :**

   1. T Venkateswara Reddy
6. **Patent Filing date : 25-03-2023**
7. **Patent Granted date** :
8. **Patent Application Number** : 202143256572 A

Patent-023: Embedded Systems

1. **Name of the Technology** : Embedded Systems
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Recording of all health parameters of the patient.
   - Less weight to handle and minimum maintenance.
   - Easy to making and less cost to purchase.
   - Certified material for medical equipment manufacturing process .
3. **Impact it will create:**
   - It helps to record the parameters of various patients.
   - Due to less weight any patient can carry easily.
   - Due to less cost most of the people can effort for their health.
   - Battery operated and less power consumption is major benefit for proposed device.
4. **Current Status of the Patent : Pending**

5. **Student Team details/Faculty Mentor :**

   1. T Prasad

6. **Patent Filing date** **:** 16-03-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 2021432525632 A

Patent-024: Deep Learning

1. **Name of the Technology:** Deep Learning
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - ECG Data Acquisition to collect the data
   - High Performance Graphical Processing Unit
   - Detection of the Patterns in the ECG
3. **Impact it will create:**
   - It helps identifying the sleep pattern and its identification
   - Identifying different sleep patterns and its detection from the ECG device
   - Deep Learning techniques is used to make the diagnosis easier
4. **Current Status of the Patent** **:** Pending
5. **Student Team details/Faculty Mentor :**

   1. G Naveen Kishore

6. **Patent Filing date** **:** 21-03-2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202154676572 A

Patent-025: Embedded Systems

1. **Name of the Technology:** Embedded Systems
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Farm parameters like temperature, humidity, light and soil moisture are recoded.
   - Sending the data through wifi for IoT application.
   - Remote monitoring of the parameters and recoded timely bases.
   - Easy to operation and maintenance for user point of view.
3. **Impact it will create:**
   - It helps to record the parameters for smart farming.
   - The recoded values are used for monitoring of farm and fields.

- IoT based applications are helps to farmers for remote monitoring of the farm land.
- Battery operated and less power consumption is major benefit for proposed device.

4. **Current Status of the Patent** **:** Pending
5. **Student Team details/Faculty Mentor :**

   1. J. L. Narayana
6. **Patent Filing date** **:** 31-03-2023
7. **Patent Granted date** :
8. **Patent Application Number** **:** 202142028654 A

4) L. J. Institute of Engineering & Technology, Ahmedabad

Patent-026: Synthesis of a Homogeneous Depolymerization Catalyst

1. **Name of the Technology:** Synthesis of a Homogeneous Depolymerization Catalyst
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The primary objective of our invention is to lower the temperature required for polymer degradation, such as plastics and 70 biomass, through the use of our specially developed catalyst. The secondary objective is to improve and innovate upon the current methods of catalytic pyrolysis
3. **Impact it will create:**
   - The major impact it will have is the destruction of plastic waste without generation of harmful gases
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Aditya Rajeshbhai Shah
6. **Patent Filing date** **:** 08/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202321008235

Patent-027: Electronically Controlled Continuously Variable Transmission

1. **Name of the Technology**: Electronically Controlled Continuously Variable Transmission
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - One of the first CVT's in the EV segment that is highly efficient.

- Reduced reliance on imported parts.

3. **Impact it will create:** Technological enhancements in the power consumption of electrical vehicles
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Kavan Panchal
6. **Patent Filing date** : 01/06/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 20231038092

Patent-028: Asafoetida-Based Ointment for Gastric Distress

1. **Name of the Technology:** Asafoetida-Based Ointment for Gastric Distress
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This invention relates to the field of pharmaceutical formulations, specifically to a topical ointment for the treatment of gastric distress in children, utilizing a unique combination of Asafoetida powder, Eucalyptus oil, and other components to provide effective relief.
   - The use of the invention, Asafoetida ointment, involves the topical application of the ointment to alleviate gastric distress in children. The unique formulation combines the therapeutic properties of Asafoetida powder and Eucalyptus oil, along with other components, providing fast-acting relief for stomach discomfort.
   - For example, a child experiencing bloating or abdominal pain due to gastric distress may have Asafoetida ointment applied directly to the stomach area. The ointment, when massaged gently into the skin, provides soothing relief, reduces discomfort, and helps to improve the overall well-being of the child. The easy application and non-invasive nature of Asafoetida ointment make it an ideal choice for parents seeking a safe and effective treatment for their child's gastric distress symptoms
3. **Impact it will create:** Provide a cost effective solution for gastritis in children
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. LJ Institutes of Pharmacy
6. **Patent Filing date** **:** 04/05/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202321031751

Patent-029: Nanoparticle-Based Posaconazole Formulation for Fungal Infections

1. **Name of the Technology**: Nanoparticle-Based Posaconazole Formulation for Fungal Infections
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The primary objective of this invention is to provide a Chitosan nanoparticle-based drug delivery system for targeted treatment of fungal infections, improving the effectiveness of the treatment and minimizing potential side effects.
   - Another objective of this invention is to provide a drug delivery system that can be easily administered topically through a spray, making it more convenient for patients
3. **Impact it will create:**
   - Revolutionize the treatment for fungal infections
   - Provide a cost effective solutions for the masses
4. **Current Status of the Patent** : Filed
5. **Student Team details/Faculty Mentor :**

   1. LJ Institutes of Pharmacy
6. **Patent Filing date** **:** 03/04/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202321023945

Patent-030: Catalytic Pyrolysis System for Plastic Waste Conversion

1. **Name of the Technology:** Catalytic Pyrolysis System for Plastic Waste Conversion
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A decentralized unit for conversion of waste plastic into non hazardous waste with the help of a novel catalyst.
   - The patent emphasizes on creation of the catalyst which aids the combustion of waste plastic and yet ensuring no harmful gases are produced
3. **Impact it will create:**
   - As plastic comprises of more than 50% of the waste around the globe, it's sustainable disposal is a gigantic challenge which is addressed by this innovation
4. **Current Status of the Patent** :

   Filed

5. **Student Team details/Faculty Mentor :**
   1. Aditya Rajeshbhai Shah
6. **Patent Filing date** **:** 03/03/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202321014473

Patent-031: An integrated culinary tool with multiple implementations

1. **Name of the Technology:** An integrated culinary tool with multiple implementations
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Present invention relates to cooking tools. The present invention is a tool to be used in the kitchen or for camping and is able to carry out multiple tasks with multiple tools that are integrated as one item.
3. **Impact it will create:**
   - drastically improve the efficiency of a person while cooking
   - Help save cost and also requires less storage space
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Salif Hasan Alvi
6. **Patent Filing date** **:** 25/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221036553

Patent-032: An integrated culinary tool with multiple implementations

1. **Name of the Technology:** An integrated culinary tool with multiple implementations
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - EPE Armour Foam: It is light in weight and flexible. It can be used multiple time by reusing and recycling. It is harmless plastic.
   - Rexine: It is used to cover the armour sheet. This turn-over pillow uses a soft leather cover to make it softer when it comes in contact with the patient's skin. The high-density cotton inner core can better help the patient to fix it. The detachable zipper design makes it easier to clean. Bed sores are not easy to heal, especially for elderly or bedridden patients. Our Turning pillow device can fix the patient's side lying, normalize blood circulation and accelerate the healing process. At the

same time maintain air circulation to create a good environment for healing. Our turning pillow is easy to use, only one nursing staff can help the patient to turn over easily, and can change the diaper, changing pad, and help defecation. This patient turning device can provide comfortable support. The high-leg wedge can relieve discomfort and pressure on the knees, hips and lower back. It can also promote blood circulation, relieve swelling, pain and fatigue, and better relax. This wedge pillow is suitable for obese patients, general aesthesia and other cognitive dysfunction, limb motor dysfunction, craniotomy, spine surgery and other major patients turning over, lying in bed, etc. only one nurse attendant is required for changing the diaper and change pads, and provide comfortable support..

3. **Impact it will create:**
   - assists healthcare workers and caretakers in providing better healthcare services
   - Liberates the patient of the ordeal they have to suffer.
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Trivedi Aayush
   2. Zala Meetrajsinh
6. **Patent Filing date** **:** 13/12/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 375533-001

Patent-033: Solvent Selection Method in Liquid Chromatography

1. **Name of the Technology**: Solvent Selection Method in Liquid Chromatography.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The primary objective of this invention is to streamline and automate the process of solvent selection for High-performance liquid chromatography (HPLC) and Reversed-phase HPLC (RP-HPLC), thereby increasing efficiency and reducing human errors.
   - Another objective of this invention is to incorporate machine learning techniques, specifically the Random Forest Model and artificial neural networks, to predict the most suitable solvent based on various

parameters of a given test sample, enhancing the accuracy of the solvent selection process.

- A further objective of this invention is to create a robust memory system with various types of memories serving specific functions, such as a solvent library with a predefined database structure of all solvents used in liquid chromatography, enabling the system to learn and train for improved results over time.
- Another objective of this invention is to develop a network management unit that provides internet access to the processor, enabling the system to fetch the SMILES format of a given CID from online databases, thereby enhancing the versatility and user-friendliness of the system.
- A further objective of this invention is to use data from the training memory to refine the model and optimize the solvent selection results, significantly reducing the time spent on trial and error and increasing the overall effectiveness of the chromatography tests.

3. **Impact it will create**:
   - drastically improve the efficiency of an HPLC test result
4. **Current Status of the Patent** : Filed
5. **Student Team details/Faculty Mentor**:
   1. Yash Raj Singh
6. **Patent** Filing date : 12/08/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202321051617

5) Manav Rachna International University, Faridabad

Patent-034: Lead-Acid Battery Cell Reconfigurable arrangement for Enhanced Battery Life

1. **Name of the Technology:** Lead-Acid Battery Cell Reconfigurable arrangement for Enhanced Battery Life
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - In a battery number of cells are there, in case any cell gets weakened/damaged then in that case battery becomes obsolete, through this technology one can replace the weakened cell with new one, rather than disposing the entire battery
3. **Impact it will create:** This will be economical proposition and ecofriendly approach; Battery will have longer life.

4. **Current Status of the Patent:**
   - Published, request for examination already sent
5. **Student Team details/Faculty Mentor :**
   I. Rudra Pratap
   II. Aryan
6. **Patent Filing date** **:** 29/12/2021
7. **Patent Publication Date** : 30/06/2023
8. **Patent Granted date** **:**
9. **Patent Application Number** : 202111061504 A

Patent-035: Flexo Magnetic File Retrieval System

1. **Name of the Technology:** Flexo Magnetic File Retrieval System
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Dental surgeons are facing problems during root canaling/ dental treatment, most of the time (70%) time a portion of the file gets broken inside the tooth, and the tool used to extract the broken component, at present is very expensive (about Rs. 80,00), and being imported.
3. **Impact it will create:**
   In dental surgery it will be a revolution, it will make the treatment easy with cost savings and saving Indian exchequer.
4. **Current Status of the IP** **:** Applied for Registration
5. **Student Team details/Faculty Mentor :**
   I. Toopalle Sai Vakul
   II. Saksham Sharma
6. **Patent Filing date** **:** 25/01/2023
7. **IP Certification Date** : Awaited
8. **Patent Granted date** **:**
9. **Patent Application Number** : 202341005228

Patent-036: 2nd Life Inning – One Stop solution for all elderly needs through technology integration

1. **Name of the Technology:** 2nd Life Inning – One Stop solution for all elderly needs through technology integration
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   In India, the older age population is increasing, around 70% of elders are staying alone, as their children migrated to other cities or countries. This adds

to loneliness, depression, and isolation with more health issues, 2nd lifeinning .com provides seniors the option of Community Living, helping them with door services of Physiotherapists, nurses, financial consultants, legal counselors, and tax planners at their doorstep.

3. **Impact it will create:**
   The ever-increasing senior population is a concern, this venture will help the elderly to lead a safe, secure, happy, independent healthy life
4. **Current Status of the IP** **:** Applied for Trade Mark
5. **Student Team details/Faculty Mentor :**
   I. Babita Singh
   II. Shreyansratan
6. **Patent/Trade Mark Filing date** **:** 26/05/2023
7. **IP Certification Date** : Awaited
8. **Patent Granted date**
9. **Patent Application Number** : 3662014

Patent-037: Website Building & Gaming Technology

1. **Name of the Technology:** Website Building & Gaming Technology
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Python, Android & and Swift for making action games
3. **Impact it will create:** Creating revenue for the country, being an Indian product. Most of the games are of foreign origin
4. **Current Status of the IP** **:** Under Process
5. **Student Team details/Faculty Mentor :**
   I. Ayush
   II. Devanshi
6. **Patent/Trade Mark Filing date** **:** 13.05.2023
7. **IP Certification Date** :
8. **Patent Granted date** **:**
9. **Patent Application Number** : 5935197

Patent-038: Integrating technology to bridge the service provider with elders to provide them solutions to all their needs through a web porta

1. **Name of the Technology**: Integrating technology to bridge the service provider with elders to provide them solutions to all their needs through a web portal

2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - All the senior citizens being integrated in a manner to provide one-stop solutions on their fingertips
3. **Impact it will create** :
   - It will pave the way for old adults to lead happy, safe, healthy, independent & dignified lives.
4. **Current Status of the Patent** : Trademark granted
5. **Student Team details/Faculty Mentor :**
   1. Babita Singh
   2. Shreyansh
6. **Trademark Filing date** : 26.05.2023
7. **Trademark Granted date** :
8. **Trademark Application Number** : 5953175

Patent-039: Replaceable cell in battery pack

1. **Name of the Technology** : Replaceable cell in battery pack
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Increasing shelf life by years. due to longer life & less replacement – less plastic waste will be generated totally changed design & idea gel electrolyte is used – so no risk of acid leakage easy design & maintenance can be done by the consumer
3. **Impact it will create**
   - Save wastage, economical, environmentally friendly & make battery to be used optimally and more durable in life
4. **Current Status of the Patent** : Under Process
5. **Student Team details/Faculty Mentor :**
   1. Aryan Mittal
   2. Rudra Pratap
6. **Patent Filing date** : 29.12.2021
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202111061504

Patent-040: Electromagnetic tool to extract broken bid during rootcannalaling treatment of teeth

1. **Name of the Technology** : Electromagnetic tool to extract broken bid during rootcannalaling treatment of teeth
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Disrupted technology, easy for dental surgeons, economical proposition than what is available in the marketplace
3. **Impact it will create** :
   - Import-substitute products will save the exchequer for the country, and being unique product will grab the global market.
4. **Current Status of the Patent** : Under Process
5. **Student Team details/Faculty Mentor :**

   1. T. Sai Vakul
6. **Patent Filing date** : 25.01.2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202341005228

6) B. N. M. Institute of Technology, Bengaluru

Patent-041: Remote & real time monitoring system for people in need of special care

1. **Name of the Technology** **:** Remote and real time monitoring system for people in need of special care
2. **Highlights of the Technology (innovation/uniqueness etc.):**

   A real time video monitoring system that will monitor the children and elderly, and also determine their vitals to provide them with necessary help. Emotion detection module would raise an alarm if the child or elderly individual is in distress. Their health report will also be automatically sent to concerned doctor so that they can track their progress.
3. **Impact it will create** **:** Their health report will also be automatically sent to concerned doctor so that they can track their progress.
4. **Current Status of the Patent** **:** FER Received- 13-10-22
5. **Student Team details/Faculty Mentor :**

   I. Akshata Pramod

   II. Deeksha R

   III. Fauziah Batool I

   IV. Bhoomika M U

6. **Patent Filing date** **:** 24.06.2022
7. **Patent Granted date** : -
8. **Patent Application Number** **:** 202241036267

Patent-042: An Aurdino Based Robotic Arm System Controlled by EEG Signals from the Brain

1. **Name of the Technology** **:** An Aurdino Based Robotic Arm System Controlled by EEG Signals from the Brain
2. **Impact it will create:** Controlling the brain cells using the EEG signals will help the people who have amputee hands to function normally like other people.
3. **Current Status of the Patent** **:** Filed both Provisional and Regular Patent
4. **Student Team details/Faculty Mentor :**
   I. Sushmitha M
   II. Namratha Kolkar
   III. Suman G S
5. **Patent Filing date** **:** 04.08.2022, 08.05.2023
6. **Patent Granted date** : -
7. **Patent Application Number** **:** 202241044715, R20234017898

Patent-043: Solar Smart Bench

1. **Name of the Technology:** Solar Smart Bench
2. **Highlights of the Technology (innovation/uniqueness etc.):** A stainless steel bench with an outer frame made of MS Steel and seating made with WPC (Wood Plastic Composite) along with lamination and ACP sheets for the final finishing. The bench can be dismantled into 3 parts – The solar panel structure, side support and the seating structure to enhance the portability of the bench. The assembling and disassembling of these parts cab be done easily with standard screws with are conveniently available.
3. **Impact it will create:** The Solar Smart Bench brings a note of ultra-modern design that can enhance or blend with existing landscapes. Being on the front edge of innovation, it will make a visible and functional green statement. It is a smart designed bench that enables people to charges their devices like mobile phones, laptops, etc., while relaxing on this bench. This project not only supports our PM's vision of Digital India, but will also contribute to the smart city project of our nation.
4. **Current Status of the Patent** **:** Granted on 03/02/2023

5. **Student Team details/Faculty Mentor :**
   I. Madhukeshwar S Malige
   II. Aishwarya M
   III. Gomathi S N
   IV. Hrishikesh S Bhat
6. **Patent Filing date** **:** 16.11.2022
7. **Patent Granted date** **:** 03.02.2023
8. **Patent Application Number** **:** 374232-001

Patent-044: Water Filter Cartridge using Corncob active carbon

1. **Name of the Technology :** Water Filter Cartridge using Corncob active carbon
2. **Highlights of the Technology (innovation/uniqueness etc.):** Growing corn produces a large amount of corn cobs as agricultural waste. Efficient management of corncob has become the need of the hour. Corn cob activated charcoal is used as an adsorbent because of its high mechanical strength, high porosity, rigidity, high adsorption characteristic and abundant availability. In this work a low cost biomass based water filter was designed in order to cater to the needs of potable water to all. As we know increase in population led to the contamination of water bodies which makes water unfit for drinking purpose without proper treatment. The water filters available in the market are expensive and they are not affordable by many people. In this work, a filter media was prepared by mixing Corn cob activated charcoal and Binding agents followed by sintering to 800^0C in mafull furnace. The experiment was carried out using this filter media for the purification of the water. The So prepared filter candle showed the good filtration performance. The results obtained are within the permissible limits of the drinking water standards.
3. **Impact it will create:**
   Manufacturing Low Cost filter cartridge for producing Alkaline Water
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   I. Reetha G P
   II. Jayalakshmi D G
   III. Shaik Riyaz U R Roshan
   IV. Mohammed Ishaq Sharieff

6. **Patent Filing date** **:** 08.01.2023
7. **Patent Granted date** : -
8. **Patent Application Number** **:** 202341001641

Patent-045: Solar Powered Refrigerated Vending Cart

1. **Name of the Technology :** Solar Powered Refrigerated Vending Cart
2. **Highlights of the Technology (innovation/uniqueness etc.):** This vending cart makes use of solar power for the cooling of fruits and vegetables. This will maintain an ambient temperature of 10-12º c which will increase the shelf life of fruits and vegetables by 5 days. The uniqueness of this project lies in its hybrid nature where the cart can be propelled by an electric motor of 250 w. This will assist the vendor in pushing the cart on slopes and during fully loaded conditions.
3. **Impact it will create:** This project will reduce the wastage of fruits and vegetables to a great extent. Apart from reduction of wastage, this will also improve the quality of life and earnings of the vendor. The addition of a juicer will act as an additional source of income for the vendor. Hybrid mode of propelling the cart will greatly reduce vendor fatigue and increases productivity.
4. **Current Status of the Design Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   I. Bhuvan J
   II. Samarth S
   III. Surya Ravishankar
   IV. Vaibhav Krishna Rao
6. **Patent Filing date** **:** 31.05.2023
7. **Patent Granted date** : 13/07/2023
8. **Patent Application Number** **:** 387348-001

7) University of Science and Technology, Ri-Bhoi

Patent-046: Automated Solid Waste Management System for City Drainage

1. **Name of the Technology** : Automated Solid Waste Management System for City Drainage.
2. **Highlights of the Technology (innovation/uniqueness etc**.): Technology aims to control Solid Waste in the open channel drainage system in Cities, which is one of the main cause for clogging and artificial floods.

3. **Impact it will create** : Help Municipal Authorities to keep a check on solid wastes that gets dumped in open channel drains and thus boost its effective management and control.
4. **Current Status of the Patent** : Application Made in Feb 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Sylban Sangma
   2. Bakin Sitang
6. **Patent Filing date** : Feb 2023
7. **Patent Granted date** :
8. **Patent Application Number** : Responding to querry raised by MSCSTE**.**

Patent-047: Combined Effects of Antibiotics and Nutrients in Dog Biscuits for Treating Bacterial Infections

1. **Name of the Technology** : Combined Effects of Antibiotics and Nutrients in Dog Biscuits for Treating Bacterial Infections.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Ease of administering antibiotics and nutritional supplements to pets.
3. **Impact it will create** : As it is troublesome to feed pets with medicines, the product will provide ease in administration of medicines on pets.
4. **Current Status of the Patent** **:** Application Made in Feb 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Udipta Guha
   2. Jishu Das
6. **Patent Filing date** : April 2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : Responding to querry raised by MSCSTE.

Patent-048: Converting Organic Waste into High Value Products.

1. **Name of the Technology** : Converting Organic Waste into High Value Products.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Primarily a waste management solution with a opportunity to cater towards wealth generation.

3. **Impact it will create** : Create wealth from waste by way of creating value added products and also help manage waste in a productive form.
4. **Current Status of the Patent** : Application Made in Feb 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Jackeychan Sangma
   2. Sharmon
6. **Patent Filing date** : Apr 2023
7. **Patent Granted date** :
8. **Patent Application Number** : Responding to querry raised by MSCSTE.

Patent-049: Designing water resistant sustained release mono-herbal formulation for anti ageing benefits.

1. **Name of the Technology** : Designing water resistant sustained release mono-herbal formulation for anti ageing benefits.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Based on nano carriers which are water resistant, the technology aspires to provide herbal skin care solution.
3. **Impact it will create** : Anti Ageing skin care herbal solution that is water resistant and thus expected to provide protection to skin for a longer period.
4. **Current Status of the Patent** : Application Made in April 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Riya Salam
   2. Angita Talukdar
6. **Patent Filing date** : Apr 2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : Responding to querry raised by MSCSTE.

Patent-050: Green conversion of low value waste into highly sought after rhamnolipid biosurfactant. (Valorization of Egg Shell for cost effective production of rhamnolipid biosurfactant).

1. **Name of the Technology** : Green conversion of low value waste into highly sought after rhamnolipid biosurfactant. (Valorization of Egg Shell for cost effective production of rhamnolipid biosurfactant).

2. **Highlights of the Technology (innovation/uniqueness etc.)**: Waste management and effective waste to wealth by producing cost-effective (being sourced from waste) rhamnolipid biosurfactant.
3. **Impact it will create** : Low cost and of high value as it is in demand from varius sectors ranging from pharmaceuticals to healthcare as well as petrochemicals etc.
4. **Current Status of the Patent**: Application Made in April 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Prateeti Talukdar
6. **Patent Filing date** : April, 2023
7. **Patent Granted date** :
8. **Patent Application Number** : Responding to querry raised by MSCSTE.

Patent-051: Dietoceuticals for famine neighbourhood.

1. **Name of the Technology** **:** Dietoceuticals for famine neighbourhood.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Vitamin and multi nutrient supplements for deficient population in the form of dietoceutical candies.
3. **Impact it will create** : Targeted towards addressing malnutrition among the famine population the technology aspires to create and deliver low cost supplements in the form of candies.
4. **Current Status of the Patent** : Application Made in April 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Sharmina Begum
   2. Lobsang Tashi
6. **Patent Filing date** : April, 2023
7. **Patent Granted date** :
8. **Patent Application Number** : Responding to querry raised by MSCSTE.

Patent-052: Soil Toxicity Detector

1. **Name of the Technology** : Soil Toxicity Detector.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: IoT enabled device that is capable to detect the toxicity of soil and thus aid the process of farm management in an efficient manner.

3. **Impact it will create** : Ensure better farm management practice and also check the rampant use of pesticides etc that, otherwise causes harmful affects in consumption of such produce.
4. **Current Status of the Patent** : Application Made in April 23 through MSCSTE.
5. **Student Team details/Faculty Mentor :**
   1. Valiant Kro
   2. Peter G Momin
6. **Patent Filing date** : April, 2023
7. **Patent Granted date** :
8. **Patent Application Number** : Responding to querry raised by MSCSTE.

8) College of Technology & Engineering, Udaipur

Patent-053: Development of Two-Stage Dark Fermentation System for the Production of Green Hydrogen through Organic Waste

1. **Name of the Technology:** Development of Two-Stage Dark Fermentation System for the Production of Green Hydrogen through Organic Waste
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Hydrogen can be used as a clean alternative fuel instead of conventional fossil fuel in transportation sector as well as in chemical industries as a raw material for formation of many other substance like ammonia, urea etc. The production method will be Eco-friendly and utilized fuel is abundantly available renewable energy sources that are free from any types of harmful greenhouses gases. Direct conversion to electricity can also be achieved through fuel cell. This technology provides suitable environment for the fermentation of agricultural waste/waste biomass through which organic waste can be converted to clean alternative hydrogen fuel. It helps to eliminate the COD content of waste influent by proper digesting the waste streams.
3. **Impact it will create**: Organic waste will be optimally utilized as an alternate source of energy, which will not only be ecofriendly and reduce the pollution, but will also help in enhancing the hydrogen fuel collection.
4. **Current Status of the Patent** : Patent Granted
5. **Student Team details/Faculty Mentor :**
   1. Rupal Jain
   2. Naina Sachdeva

6. **Patent Filing date** : 20.04.2023
7. **Patent Granted date** : 23.08.2023
8. **Patent Application Number** : 384367-001

Patent-054: Portable Electric Rover with Foldable Seat

1. **Name of the Technology**: Portable Electric Rover with Foldable Seat
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Portable Electric Rover is a type of personal transportation that uses electric motors to mover the board. The propulsion of the vehicle is controlled via a processing unit i.e, electronic control unit. The battery sends power to the motor, which turns the wheels and propels the board forward. Riders can control their speed by using a remote control. The change of direction takes place with the help of trucks by leaning in the desired direction. The rover has a top speed of around 15mph (25km/hr), which is controlled via motor controller. The range on full charge is projected to be close to 30 miles(50km) before needing to be recharged, which varies with driving style(high speed/low speed), drive terrain(plane/slope), weight on the vehicle, etc. the rover being portable and lightweight which makes it easier to man-oeuvre it and carry it from one place to another.
3. **Impact it will create**: Organic waste will be optimally utilized as an alternate source of energy, which will not only be ecofriendly and reduce the pollution, but will also help in enhancing the hydrogen fuel collection.
4. **Current Status of the Patent** : Patent filed
5. **Student Team details/Faculty Mentor :**
   1. Pranshu Vajpayee
   2. Yogesh Tailor
   3. Sonal Rathore
   4. Vishal Rawat
   5. Kushal Kumawat
6. **Patent Filing date** : 20.09.2023
7. **Patent Granted date** : -
8. **Patent Application Number** : 395507-001

Patent-055: Portable Bio-char Reactor

1. **Name of the Technology:** Portable Bio char Reactor
2. **Highlights of the Technology (innovation/uniqueness etc.):** The use of traditional method to produce biochar is increasing pollution in the environment by releasing poisonous gases into the environment. They have a negative impact on the environment as they are part of the greenhouse gases that trap heat & lead to depletion of the ozone layer. By using this project (low cost biochar kiln) reducing the syngas emission in environment, means less greenhouse gas production & eco-friendly this system. Hence, the biochar increases the availability of nitrogen in the soil & reduces the need of chemical fertilizer. Rapid industrialization & unsustainable development have increased greenhouse gases (GHG) which has caused changes in global climate and global warming. Production of bio-char has been proven to be a method to sequester carbon dioxide from the atmosphere. Therefore, bio-char undoubtedly is very important in creating an environmentally friendly method to mitigate the problem of greenhouse gases and control the amount of methane & nitrogen dioxide that is released from the soil.
3. **Impact it will create:** Waste management plays a significant role in sustaining the global cleanliness. Normally, they dispose the agricultural residues by using open burning method which will lead to air pollution for our environment and further lead to climate change. Offering the small farmers an option to utilize the waste by providing a biochar kiln will help them to avoid the waste generation and air pollution. Through this project, the agricultural residue will be utilized for production of biochar to improves the quality of the soil and also reduce the quantity of fertilizer used by the small farmers.
4. **Current Status of the Patent** : Patent filed
5. **Student Team details/Faculty Mentor :**
   1. Mega Ram Patel
   2. Partap Dewasi
   3. Parth Sharma
   4. Preeti Kanwar
   5. Neha Prajapat
6. **Patent Filing date** **:** 19.08.2023
7. **Patent Granted date** : -
8. **Patent Application Number** : 393094-001

Patent-056: A Waste Management and Treatment System

1. **Name of the Technology**: A Waste Management and Treatment System
2. **Highlights of the Technology (innovation/uniqueness etc.):** IOT based Smart Dustbin monitoring for Smart City is a system which will notify the corporations to empty the bins on time. This system will help in cleaning the city in better way. The work proposed here illustrates the smart waste management architecture that ensures the cleaning operators for detecting cleanliness issues in real time. Moreover, minimizing the end-to-end delay is also taken into consideration when a message is required to be sent for garbage collectors.
3. **Impact it will create:** This system will help in cleaning the city in better way. The end to end delay is also minimized with contribution to the municipal corporation at large.
4. **Current Status of the Patent** : Patent filed
5. **Student Team details/Faculty Mentor :**
   1. Priyanka Panday
   2. Surya Pratap Singh Bhati
   3. Aditya Kumawat
6. **Patent Filing date** : 02.07.2023
7. **Patent Granted date** : -
8. **Patent Application Number** : CBR No. 29498

Patent-057: Solar Based In-Situ Milk Cooling Apparatus

1. **Name of the Technology:** Solar Based In-Situ Milk Cooling Apparatus
2. **Highlights of the Technology (innovation/uniqueness etc.):** The solar milk cooling system, an innovative technology to cool the milk In-situ, is entirely based on solar energy. The system will be composed of cooling chamber of 1.5mm thick AISI 304 SS plate with Poly urethane insulation, photovoltaic panels, storage batteries, an adaptive control unit, a charge controller and a refrigeration unit with an integrated fan. Cooling will be done by vapour absorption coupled with a solar panel that can harness solar radiation with help of an adaptive control unit and transfer to storage battery connected to refrigeration unit. A set of battery will be connected to make power available for continuous cooling of milk for longer period. Raw milk having approximately temperature of about 30°C after milking will be transferred into the chiller to cool down temperature to 4°C within short

period. A digital scale will also be installed at the wall of chiller to record temperature, voltage, energy.

3. **Impact it will create:** This system will help in longer preservation of the milk.
4. **Current Status of the Patent** : Patent filed
5. **Student Team details/Faculty Mentor :**
   1. Ashok Kumar
   2. Mansi Menaria
   3. Ayush Gautam
6. **Patent Filing date** : 06.09.2023
7. **Patent Granted date** : -
8. **Patent Application Number** : 394488-001

Patent-058: Manual Driven Solar Power Ice Cream Cart

1. **Name of the Technology**: Manual Driven Solar Power Ice Cream Cart
2. **Highlights of the Technology (innovation/uniqueness etc.):** Using traditional ice cream carts spoils the ice cream due to uneven cooling. Also, it is increasing environmental pollution by releasing poisonous gases into the atmosphere during ice making. They have a negative impact on the environment as they are part of the greenhouse gases that trap heat and lead to the depletion of the ozone layer. The solution lies in solar powered system. By developing a solar powered system, we are not only reducing the energy costs but also preserving our environment. This system doesn't use any of the poisonous gases so our ozone layer is safe. This system does not produce any CFCs and harmful gases so this system is eco-friendly.
3. **Impact it will create:** Solar powered ice cream thela system is the best option for street vendors storage ice cream. Generally, the ice cream consume in the clean weather timings are in between 10:00 AM to 10:00 PM. During the day, the availability of the solar radiation is higher, so solar panels get sufficient radiation to run the whole system. When the requirement of cooling is high as the availability of solar radiation is also high; hence the whole system is sufficient for cooling.
4. **Current Status of the Patent** : Patent filed
5. **Student Team details/Faculty Mentor :**
   1. Kuldeep Kumar
   2. Lokendra Singh Rathore
6. **Patent Filing date** : 05.04.2023

7. **Patent Granted date** : 20.06.2023
8. **Patent Application Number** : 383116-001

9) Sphoorthy Engineering College, Hyderabad

Patent-059: Wearable Methodology to Detect the Breast Cancer in Women using Internet of Things

1. **Name of the Technology** : Wearable Methodology to Detect the Breast Cancer in Women using Internet of Things
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Using sensor based wearable technology to identify the symptoms breast cancer in a Woman. Mostly used during the Clinical Examination by the Doctors.
3. **Impact it will create:**
   - Use of this can avoid the X-ray Scanning which prevents the high frequency radiations entering the body.
4. **Current Status of the Patent** : Filled
5. **Student Team details/Faculty Mentor :**

   1. P. Jessica
   2. G. Abhinav Charan
   3. G. Bhuvana Sri
   4. Md. Amer Khan
6. **Patent Filing date** : June 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341046214

Patent-060: Cloud Integrated Drone Technology to Manage the Gas Emissions and Stored in a Database for Real-Time

1. **Name of the Technology** : Cloud Integrated Drone Technology to Manage the Gas Emissions and Stored in a Database for Real-Time.
2. **Highlights of the Technology (innovation/uniqueness etc.):** Drone integrated with a sensor network to monitor the pollution level i.e about different gases being emitted by the Industries. Usually used in Industrial area to control the Industrial Emissions as per GOI norms.The importance in this project is it measures the Emiited gas that is in the Air.
3. **Impact it will create:** If the Monitoring systems being deployed and used by the government regularly, it helps in maintaining the industrial emission levels constantly.

4. **Current Status of the Patent** : Filled
5. **Student Team details/Faculty Mentor :**
   1. Swapnil Shinde
   2. Kkshitij Singh Thakur
   3. Mohammed Naseruddin Ruman
   4. Aqib Nazer Mohammed
6. **Patent Filing date** : June 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341046230

Patent-061: Internet of Things Based Energy Consuming Monitoring System for Household Appliances using Renewable energy Source.

1. **Name of the Technology** : Internet of Things Based Energy Consuming Monitoring System for Household Appliances using Renewable energy Source.
2. **Highlights of the Technology (innovation/uniqueness etc.):** This is an IoT and an Android app based integrated system which monitors the energy usage of each Appliance and also guides the user with the feedback of rewenable energy based on the usage(Time and Energy).For example , if your using a fan and it is posered by Solar Energy, based on the solar energy generation, power available and Power Consumption it will alert the user about the duration it can be ON with High Speed ,Low Speed thus helping reduce the power consumption.
3. **Impact it will create:** It will help the user know about his Electricity consumption,So that he can optimize the usage therby saving the Power of the Country and its requirement and indirectly pollution.
4. **Current Status of the Patent** : Filled
5. **Student Team details/Faculty Mentor :**
   1. S. Shreyas
   2. T. Sai Kumar Goud
   3. Harshitha.C
   4. Nikhil .C
6. **Patent Filing date** : June 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341046233

Patent-062: Electrical Device based Home Security System using IR Diode and Solenoid Lock

1. **Name of the Technology** : Electrical Device based Home Security System using IR Diode and Solenoid Lock
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This idea comes from a moto to develop un hackable Key and Lock system.This system Consists of a varied IR beam which varies with the key push pattern and activates the Solenoid to open and close the Door unit.
3. **Impact it will create:** Safe and secure Home locking System
4. **Current Status of the Patent** : Filled
5. **Student Team details/Faculty Mentor :**

   1. K. Prathyush
6. **Patent Filing date** : June 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341047521

Patent-063: Organic Shiitake Mushroom Yield Enhancement Using Sensor Hub

1. **Name of the Technology** : Organic Shiitake Mushroom Yield Enhancement Using Sensor Hub
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This project works in emulating the Growth parameters of the Mushoorm in a Green House Environment. creating an Artificial Environment and Controlling the variables like Light, Co2, Oxygen and live streaming camera to understand the growth and control the variables. There by increasing the Yield of Mushoorm grown.
3. **Impact it will create:**
   - It will allow the yield of Mushroom to increase therby decreasing the losses in mushroom production.
4. **Current Status of the Patent** : Filled
5. **Student Team details/Faculty Mentor :**

   1. K. Tanusha
   2. V. Poojitha
   3. P. Shreya
   4. T. Sravani

6. **Patent Filing date** : June 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341047527

Patent-064: Bluetooth controlled Autism Jacket for Children

1. **Name of the Technology** : Bluetooth controlled Autism Jacket for Children
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This Project conisits of a sensor feedback system connected with a DC air pump network embedded in a Jacket.When the Autistic people react unusually, this system helps to read the vitals and blow the jacket with air which creates a Hug feeling/ secured feeling and calm their vital to become normal.
3. **Impact it will create:**
   - It will help the autistic people to be in a normal sense and feel secure.
4. **Current Status of the Patent** : Filled
5. **Student Team details/Faculty Mentor :**

   1. M. Umadevi
   2. Sushant Kumar
   3. B. Shashi Varun
   4. P. V. V. S. Murthy
6. **Patent Filing date** : June 2023
7. **Patent Granted** **:**
8. **Patent Application Number** : 202341047550

Patent-065: Advanced Integrated System for Crop Production Harvesting System using Rain sensors

1. **Name of the Technology** : Advanced Integrated System for Crop Production Harvesting System using Rain sensors.
2. **Highlights of the Technology (innovation/uniqueness etc.):** This system consists of a foldable, portable solar drying unit along with a motorized roller rolled with a waterproof cloth which when detects the Rainfall from a feedback from the sensor covers the entire harvested crop finishing a cuboid structure and protecting the crop from being wet and washed away by rain.
3. **Impact it will create:**
   - It will create an impact in farmers protecting Harvested crop.

4. **Current Status of the Patent** **:** Filled
5. **Student Team details/Faculty Mentor :**
   1. Y. Geetha Madhuri
   2. K. Chandana
   3. K. Eshvitha
   4. B. Harshitha
6. **Patent Filing date** : June 2023
7. **Patent Granted** :
8. **Patent Application Number** : 202341047552

Patent-066: Solar panel powered controlled electric mini vehicle using automatic and manual mode of operations

1. **Name of the Technology**: Solar panel powered controlled electric mini vehicle using automatic and manual mode of operations
2. **Highlights of the Technology (innovation/uniqueness etc.):** This project is designed to solve the Car battery charging on the go and most useful in our country with hot Climate.
3. **Impact it will create:** It will make Electric Vehicles more Efficient
4. **Current Status of the Patent** **:** Published
5. **Student Team details/Faculty Mentor :**
   1. Sribhashyam Sravya
   2. P. Anil Kumar
   3. Pola. Poojitha
6. **Patent Filing date** **:** 01/06/2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202241031399

Patent-067: A sensing and robotics fusion for maximizing chilli yield with unprecedented efficiency

1. **Name of the Technology:** A sensing and robotics fusion for maximizing chilli yield with unprecedented efficiency
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   This project uses a xy axis with griping and cutting methodologies on a robot to Harvest the Mirchi allowing the mirchi plants to yield for the second time.
3. **Impact it will create:** This will decrease the labour requirement and harvest the large areas of Farm with minimum number of Labour required only for operating the Robot.

4. **Current Status of the Patent** **:** Filled
5. **Student Team details/Faculty Mentor :**
   1. M.Sri Lakshmi Priya
   2. M.Saketh
6. **Patent Filing date** **:** 08/07/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341059584

10) Indian Institute of Technology (IIT), Guwahati

Patent-068: Systems for enhancing the surface quality of additively manufactured parts through chemical vapor SM

1. **Name of the Technology:** Systems for enhancing the surface quality of additively manufactured parts through chemical vapor SM
2. **Highlights of the Technology (innovation/uniqueness etc.):** An invisible aligner is a tooth brace used for curing malocclusions and temporomandibular defects. It is an excellent option compared to conventional tooth braces made of wires. The technology is focused on developing an experimental setup to perform surface finishing operations on the invisible aligners manufactured through Fused deposition modeling.
3. **Impact it will create:** The project's final output is a fully developed experimental setup that can serve as a remarkable achievement in the field of surface finishing of the invisible aligners. The project's impact (both in terms of its methodology and outcome) is expected to be significant as it will directly address one of the major challenges in the field of surface finishing operation. Industries concerned with the implants can be a potential market as the product offers an economical and efficient system for the cost-efficient invisialigners.
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Atul Singh Rajput
   2. Ambrish Singh
6. **Patent Filing date** **:** 18.07.2023
7. **Patent Granted date** : --
8. **Patent Application Number** : 202331048237

Patent-069: Smart nanophotocatalyst for azide-alkyne cycloaddition and hetero-selective glaser coupling reactions

1. **Name of the Technology:** Smart nanophotocatalyst for azide-alkyne cycloaddition and hetero-selective glaser coupling reactions
2. **Highlights of the Technology (innovation/uniqueness etc.):** The primary object of the present invention is the development of smart nanophotocatalyst and its synthetic utility in green solvent. The technology overcomes the shortcomings of utilizing environmental hazardous organic solvents and longer reaction time for treatments in
3. **Impact it will create:** The invented catalytic process has extensive application in industries for energy-efficient and cheap synthesis of 1,4-disubstituted and 1, 4, 5-trisubstituted triazoles and unsymmetrical 1,3-diyenes which have significant applications in medicine/material science/ optoelectronics/polymer sectors.
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Sayantan Sinha
   2. Aniket Banerjee
   3. Mediboyana Hemanshu
   4. Sinchini Barman
6. **Patent Filing date** **:** 22/02/2022
7. **Patent Granted date** : --
8. **Patent Application Number** : 202231009433

Patent-070: Near Infrared (NIR-I) PEROVSKITE-QUANTUM DOT (BAGQD) as fluorescent sensor for live-cell imaging and photocatalytic disinfection of pathogenic bacteria without regrowth

1. **Name of the Technology:** Near Infrared (NIR-I) PEROVSKITE-QUANTUM DOT (BAGQD) as fluorescent sensor for live-cell imaging and photocatalytic disinfection of pathogenic bacteria without regrowth
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention relates to the development of perovskite nanomaterial BagQD showcasing ‘Sense & Shoot’ property toward bacterial pathogens.
3. **Impact it will create:** This sophisticated design of new BagQD nano-photocatalyst opens a new avenue for further exploiting BagQD as an

alternative to antibiotics mediated treatment/therapy and other broad-spectrum disinfection applications.

4. **Current Status of the Patent:** Filed, Application not yet published
5. **Student Team details/Faculty Mentor :**
   1. Sayantan Sinha
   2. Aniket Banerjee
   3. Mediboyana Hemanshu
   4. Sinchini Barman
6. **Patent Filing date** **:** --
7. **Patent Granted date** : --
8. **Patent Application Number** : 202231021372

11) Marwadi University, Rajkot

Patent-071: Multi-Purpose Load Frame

1. **Name of the Technology**: Multi-Purpose Load Frame
2. **Highlights** of the Technology (innovation/uniqueness etc.): Design of the Multi-Purpose Load Frame has requirement of testing various types of reinforced concrete elements like beam, slab, arch, manhole cuff, beam-column joint, home pipe etc. These elements are tested before their use to get the confidence over the product or design by checking their safety and behavioral aspects. These elements haye difference in dimensions, loading capacity a-s well as their loading conditions. Loading frames for testing of individual elements are made by various designers for their required testing conditions like point load, two-point load, multiple point load, uniformly distributed load or for torsion but they are one on one basis. Idea came into our mind to design and fab. Irate a novel Multi-Purpose Load Frame which can test all the element of almost all the readily available size of elements for all the required loading conditions. All the testing and research laboratories do require this type of frame. This proposed design will provide similar acute results by saving the cost & space by having only one frame compare to too many.
3. **Impact it will create:** Multi-Purpose Load Frame which can test all the element of almost all the readily available size of elements for all the required loading conditions.
4. **Current Status of the Patent**: Application Accepted, Certificate of Design not generated.

5. **Student Team details/Faculty Mentor :**
   1. Dr Tarak Vora
   2. Dr Ankur Bhogayata
6. **Patent Filing Date** : 28-04-2022
7. **Patent Published Date** **:**
8. **Patent Granted Date** :
9. **Patent Application Number** : 363465-001

Patent-072: Handrail Testing Device

1. **Name of the Technology**: Handrail Testing Device
2. **Highlights** of the Technology (innovation/uniqueness etc.):
   Hand Rait Testing Device has requirement in modem er4 development in infrastructures are growing rapidly and with increase in infrastructure we have to keep safety in our rind. In that safety concem, hand rail is one Of the major safety element that is neglected from the beginning in commercial as well as residential buildings to check its safety aspects. Safety check is made mandatory at many oflhe construction sites now a days in India. No standard testing equipment is available which caters to different site conditions as well as the size of the hand rail itself. New idea is to develop handrail equipment with is modular in its kind to shift anl .where by de-assembling and can be assembled and installed for any of the site conditions with higher accuracy. It will give surety regarding safe use of handrails in residential, commercial etc, buildings. It will also give more business opportunity to the manufacturer of handrails in lerms of quality assurance by providing on site testing along with supply offhand rails.
3. **Impact it will create:** It will give surety regarding safe use of handrails in residential, commercial etc, building
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 38/2022 and Journal Date is 23/09/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr. Tarak Vora
   2. Prof. Chirag Asodariya
   3. Mr. Mahaveer Thakkar
6. **Patent Filing Date** : 28-04-2022
7. **Patent Published Date** **:** 23-09-2022
8. **Patent Granted Date** : ---

9. **Patent Application Number** : 363466-001

Patent-073: Hydrophobic Trap without siphon and with air-tight Non Return Valve

1. **Name of the Technology**: Hydrophobic Trap without siphon and with air-tight Non Return Valve
2. **Highlights of the Technology (innovation/uniqueness etc.):** Hydrophobic Trap without Sipiion & with Air-Tight Non Return Valve has an arrangement to directly flush the excreta or any sludge incused at bathroom or toilet. The current design has the inclination of trap in the range of 250-400 ensures smooth flushing without symphonic action unlike the conventional design of & trap that required huge quantity of water. Further, the material is coated with hydrophobic coating for the entire trap. Additionally, it is equipped with air-tight non-rectum valve whose diameter matches with the pipe with accuracy of j0.lmm, the valve has non-corrosive 330 grade stainless steel spring this will seal the bad odor. This unique design will solve the problem of huge quantity of water required for flushing & save approximately 60o10 of water.
3. **Impact it will create:** arrangement to directly flush the excreta or any sludge incused at bathroom
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 30.06.22)
5. **Student Team details/Faculty Mentor :**
   1. Dr. Siddharth Shah
   2. Mr. Dhyey Mehta
6. **Patent Filing Date** **:** 28-04-2022
7. **Patent Published Date** **:** N/A
8. **Patent Granted Date** : ---
9. **Patent Application Number** **:** 363467-001

Patent-074: Photovoltaic Masonary Block

1. **Name of the Technology:** Photovoltaic Masonary Block
2. **Highlights of the Technology (innovation/uniqueness etc.)**: A brick is designed in such a manner that it can hold small module of solar. A brick is used to construct a wall.
3. **Impact it will create**: It uses walls to hold module of solar panel to generate electricity.

4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 38/2022 and Journal Date is 23/09/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr Ankur Bhogayata
   2. Mr Vivek Patel
6. **Patent Filing Date** **:** 28-04-2022
7. **Patent Published Date** **:** 23.09.2022
8. **Patent Granted Date** : ---
9. **Patent Application Number** **:** 363468-001

Patent-075: Soil Reinforcement using recycled rubber tires

1. **Name of the Technology:** Soil Reinforcement using recycled rubber tires
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Soil Reinforcement Using Recycled Rubber Tires reduces a tremendous amount of tire waste in our landfills, increases the soil bearing capacity, and improves tile subgrade layer in highway concoction. In meaning the use of vehicles has generated many waste tires and recycling of waste tires is a global issue. A sustainable way to use recycled rubber tires with limited processes in civil engineering construction. The recycled rubber tires are being used as soil Reinforcement instead of standard geo synthetic reinforcement. The tires are managed in such a way that it acts as a reinforcement in the soil. The tires are arranged in two layers. In the first layer the tires are arranged in a two-by-two matrix form. In the second layer, the tires are arranged in a two-by-one matrix form which is placed at the middle center directly above the first layer. The same arrangement can be repeated as per the requirements in the field of construction. The arrangement of tires is very close and well connected with each other by means of fasteners.
3. **Impact it will create**: The recycled rubber tires are being used as soil Reinforcement instead of standard geo synthetic reinforcement
4. **Current Status of the Patent**: Examination Report has been Generated , Case is Waiting for Examination Report Reply (FER generated on 29/06/2022)
5. **Student Team details/Faculty Mentor :**
   1. Mr Yashwantsinh Zala
6. **Patent Filing Date** **:** 28-04-2022
7. **Patent Published Date** **:** N/A

8. **Patent Granted Date** : ---
9. **Patent Application Number** **:** 363469-

Patent-076: Penetration Device for measuring hardness of Wax

1. **Name of the Technology**: Penetration Device for measuring hardness of Wax
2. **Highlights of the Technology (innovation/uniqueness etc**.): MEASURING HARDNESS OF WAX consists of an arrangement to measure the vertical penetration caused by Standard needle in industrial wax. This measurement further helps in ginning an idea about hardness of indusial wax Used in investment casting process. This device is specifically designed to acquire real time data related to measurement of penetration through sensor & data acquisition system, and streams the acquired data to sewer using interment. This Device is designed as per guidelines of investment casting institute - USA.
3. **Impact it will create**: This device is specifically designed to acquire real time data related to measurement of penetration through sensor & data
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 41/2022 and Journal Date is 14/10/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr Amit Sata
   2. Mr Mahek Rathod
   3. Mr Kevin Virpariya
   4. Mr Pinal Kantesariya
   5. Mr Philip Gajera
6. **Patent Filing Date** : 28-04-2022
7. **Patent Published Date** : 14-10-2022
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 363470-001

Patent-077: Sensory Function Evaluation Device

1. **Name of the Technology:** Sensory Function Evaluation Device
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Sensory function Evaluation Device is used to measure three sensations which are pressure, temperate and vibration. Main features of all the sensation measure

in a single unit. This is a cost effective handheld device mainly helps in measuring subjective as well as objective values

3. **Impact it will create**: This device will be mainly used to measure three sensations which are pressure, temperate and vibration.
4. **Current Status of the Patent**: Examination Report has been Generated , Case is Waiting for Examination Report Reply (FER generated on 08/07/2022)
5. **Student Team details/Faculty Mentor :**
   1. Dr Ashish Kakkad
   2. Ms Bhakti Desai
6. **Patent Filing Date** : 28-04-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 363471-001

Patent-078: Biofeedback Instrument for Pelvic Floor Muscles

1. **Name of the Technology**: Biofeedback Instrument for Pelvic Floor Muscles
2. **Highlights of the Technology (innovation/uniqueness etc.)**: the Biofeedback Instrument for Pelvic Floor Muscles has semo through which Measurements regarding pelvic floor strength can be measured. The Instrument will measure the amount of force and Display on the screen along with light indicator. It indicates green light when patient is perfuming appropriate construction.
3. **Impact it will create**: The Instrument will measure the amount of force and Display on the screen along with light indicator.
4. **Current Status of the Patent**: Examination Report has been Generated , Case is Waiting for Examination Report Reply (FER generated on 23/05/2022)
5. **Student Team details/Faculty Mentor :**
   1. Dr Ashish Kakkad
   2. Ms Himani Dave
6. **Patent Filing Date** : 29-04-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 363472-001

Patent-079: Digital Cervical Pressure Analyser

1. **Name of the Technology:** Digital Cervical Pressure Analyser
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Digital Cervical Pressure Analyser has 4 electrodes situated within, which are force pressure electrodes situated over each side of designed cervical collar which can be womb on neck. Sensors are placed over rigid bars over each side & have concave polymer designed bars which can be utilized for appropriate setting according to contour over human neck. This collar will have inside Velcro straps to get attached to the neck region. It will have charging unit & USB connections given inside: which can be attached to handheld or wrist belt type tie able small display to provide real time values of cervical muscle stranger The machine also has Bluetooth/ WIFI connectivity, which can be utilized for real time data to be generated on mobile phones & computers & provide storage too in the google drive for pre & post evaluation
3. **Impact it will create:** which can be utilized for appropriate setting according to contour over human neck
4. **Current Status of the Patent**: Examination Report has been Generated, Case is waiting for Examination Report Reply (FER generated on 20/06/2022)
5. **Student Team details/Faculty Mentor :**
   1. Dr Ashish Kakkad
   2. Ms Kinjal Bagthariya
6. **Patent Filing Date** : 29-04-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 363473-001

Patent-080: Multipurpose Wrist and Hand Device

1. **Name of the Technology**: Multipurpose Wrist and Hand Device
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Multipurpose Wrist and Hand Device has 3 fixed stimulating points where electrodes allow individual stimulation to different muscles. A glove will be used for support covering forearm and hand. Work station for different tasks is demonstrated Design will be lighter **in weight then other available robotic devices.**
3. **Impact it will create**: Light weight Multipurpose Wrist and Hand Device

4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 30/06/2022)
5. **Student Team details/Faculty Mentor :**
   1. Dr Ashish Kakkad
   2. Ms Nidhi Dhanesha
6. **Patent Filing Date** : 29-04-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 363474-001

Patent-081: Antibacterial and Antiviral Nano Mask

1. **Name of the Technology**: Antibacterial and Antiviral Nano Mask
2. **Highlights of the Technology (innovation/uniqueness etc.)**:The Antibacterial and Antiviral Nano Mask made up of cotton fabric with high tensile strength coated with a nanoparticle layer. The anti-bacterial and antiviral mask has very strong Bactericidal and veridical activity as it contains copper oxide nanoparticles (CuONPs) synthesized using green Chemistry. CuONPs have been successfully synthesized using Sativa seed extract. Various characterization Techniques were used to study CuONPs morphology, structure and mechanical properties.
3. **Impact it will create**: The anti-bacterial and antiviral mask has very strong Bactericidal and veridical activity
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 48/2022 and Journal Date is 02/12/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr. Sejal Shah
6. **Patent Filing Date** : 23-06-2022
7. **Patent Published Date** : 02-12-2022
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 366639-001

Patent-082: Energy Efficient Pressure Cooker

1. **Name of the Technology:** Energy Efficient Pressure Cooker
2. **Highlights of the Technology (innovation/uniqueness etc.):** The EMRGY EFFICIENT PRESSURE COOKER is to reuse steam coming from the safety

valve in efficient way. Flexible insulation on the outer surface of the pressure cooker helps to reduce the released heat from pressure cooker. These two methods will reduce cooking time and fuel consumption. In built blender is attached inside the pressure cooker which can help to bland the food kept in the cooker.

3. **Impact it will create:** The pressure cooker helps to reduce the released heat from pressure cooker
4. **Current Status of the Patent**: Application Accepted, Certificate of Design not Generated
5. **Student Team details/Faculty Mentor :**
   1. Dr. Karan Motwani
   2. Dr. Nikhil Chotai
   3. Dr. Ramdevsinh Jhala
   4. Mr. Harit Bhatt
   5. Mr. Mohit Asnani
6. **Patent Filing Date** : 23-06-2022
7. **Patent Published Date** : 02-12-2022
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 366640-001

Patent-083: Self-Interlocking Paver Blocks with Bottom Inverted Waffle Type Gap for Anchorage

1. **Name of the Technology:** Self-Interlocking Paver Blocks with Bottom Inverted Waffle Type Gap for Anchorage
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - This design proposes a square-shaped paver block consisting of the innovative self-interlocking design of the members to provide a better internal grip between the units when placed on the ground best suitable for any type of traffic conditions. In addition, the design of the paver block consists of a highly innovative and first-of-its-kind provision of the inverted waffle type gap at the bottom surface of the paver block, to improve the on-ground in-plane stability of the blocks to resist the lateral movements.
   - The conventional paver blocks are available in several designs and shapes, however, they do not consist of a self-inter-locking system or geometrical mechanism. Moreover, none of the designs consists of an

inverted waffle like the gap at the bottom surface and therefore do not provide in-plane grip which is necessary for a better ground anchorage.

- The proposed design of the paver block consists of a special square-shaped extruded and intruded provision of the paver block similar to the tongue and groove joint. Each member will have a provision of the bottom groove as the inverted waffle type depression again in a square shape in the center of the element.
- When the paver block is placed on the sand bed, the waffle gap will get filled with the sand and therefore it will work as the additional anchorage for the block on the ground. Conventionally, the paver blocks get displaced frequently due to the lateral disturbance and bottom unevenness or unstable sand beds.
- The proposed innovation in the design of the paver block will reduce the risk of the lateral displacement of the blocks and improve the internal friction and stability due to the innovative tongue and grooved joint mechanism.
- The design can get utilized for making conventional concrete paver blocks or any modern eco-friendly material without any changes in the shape and design. The self-interlocking bottom waffled paver block is shown in Appendix-A with seven different views.

3. **Impact it will create**: The proposed innovation in the design of the paver block will reduce the risk of the lateral displacement of the blocks and improve the internal friction and stability due to the innovative tongue and grooved joint mechanism.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 21/2023 and Journal Date is 26/05/2023
5. **Student Team details/Faculty Mentor :**

   Dr. Ankur Bhogayata

   Mr. Jay Pandya

   Mr. Ravi Modi
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 26-05-2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 371073-001

Patent-084: Smart Oxygen Concentrator

1. **Name of the Technology**: Smart Oxygen Concentrator
2. **Highlights of the Technology (innovation/uniqueness etc.): SMART OXYGEN CONCENTRATOR** consists of an arrangement to generate pure oxygen as per guidelines provided by World Health Organization (WHO). The smart oxygen concentrator has facility to provide pure oxygen to two patients at the same time. It also has provision to provide real time monitoring of flow of oxygen supplied to patients as well as doctors and paramedical staff. The flow of oxygen can also be tuned based on requirements of patient through internet. Detailed report on consumption of oxygen per patient can also be generated through interfacing with oxygen concentrator.
3. **Impact it will create**: The smart oxygen concentrator has facility to provide pure oxygen to two patients at the same time.
4. **Current Status of the IPR**: Design Accepted and Published, Journal No is 51/2022 and Journal Date is 23/12/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Ms. Pragati Trambadiya
   3. Ms. Varsha Chauhan
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 23-12-2022
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 371074-001

Patent-085: Die and Punch for Making Powder Metallurgical Tool Bit

1. **Name of the Technology**: Die and Punch for Making Powder Metallurgical Tool Bit
2. **Highlights of the Technology (innovation/uniqueness etc.): DIE AND PUNCH FOR MAKING POWDER METALLURGICAL TOOL BIT** consists of an arrangement to make tool bit used for machining purpose using powder of Aluminum Oxide and Copper. This die and punch are made of tool steel and have sufficient strength to withstand against load of 20 ton with elastic deformation of only 5 micron
3. **Impact it will create:** it consists of an arrangement to make tool bit used for machining purpose using powder of Aluminum Oxide and Copper.

4. **Current Status of the IPR**: Design Accepted and Published, Journal No is 51/2022 and Journal Date is 23/12/2022
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Ms. Pragati Trambadiya
   3. Ms. Varsha Chauhan
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 23-12-2022
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 371075-001

Patent-086: Measurement of Tyre Stiffness using Load Deflection

1. **Name of the Technology:** Measurement of Tyre Stiffness using Load Deflection
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Measurement of Tyre Stiffness Using Load Deflection has a wooden frame with a metal slider and a center wooden block for mounting the tyre. It has a large pan for adding weight on top of the center block. To measure the deflection, scale has been attached to the wooden frame, and the pointer is attached to the center block. A taper spindle is provided on a central wooden block which can accommodate tyres of various sizes in human-powered vehicles.
3. **Impact it will create**: To measure the deflection, scale has been attached to the wooden frame, and the pointer is attached to the center block
4. **Current Status of the Patent**: Application Under Process(waiting for Technical Examination)
5. **Student Team details/Faculty Mentor :**
   1. Mr. Jatin Raiyani
   2. Mr. Jay Chhatbar
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 20-01-2023
8. **Patent Granted Date** **:** ---
9. **Patent Application Number** : 371076-001

Patent-087: Biometric Processing System for Vehicle Ignition

1. **Name of the Technology:** Biometric Processing System for Vehicle Ignition
2. **Highlights of the Technology (innovation/uniqueness etc.): The BIOMETRIC PROCESSING SYSTEM FOR VEHICLE IGNITION** is a system design which comprises of the facility to use an individual's biometrics to unlock the vehicle as well as to start the ignition of the system. This system is designed to provide advanced security and lower the number of thefts occurring of automobile vehicles as well as for the ease and up gradation of the technology in the vehicles. The system is equipped with one fingerprint module (R307) which scans, collects and enrolls the image of a human fingerprint (stores up to 127 HD fingerprints), a microcontroller board (Arduino Uno) which is the brain of the system and authenticates the fingerprint image stored by the module and initiates a success or failure accordingly, a Relay module (5V) which acts as a gateway for the current to flow and connecting wires which helps the current/power to flow to create a closed loop and to start the ignition system of the vehicle instead of conventional lock & key method It helps user to have more advanced extra security than that provided by the manufacturing company.
3. **Impact it will create**: It helps user to have more advanced extra security than that provided by the manufacturing company.
4. **Current Status of the Patent**: Examination Report has been Generated ,Case is Waiting for Examination Report Reply (FER generated on 30/11/2022)
5. **Student Team details/Faculty Mentor :**
   1. Mr. Nikunj Maheta
   2. Mr. Vivek Pathak
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 371077-001

Patent-088: Front Knuckle for all Terrain Vehicle

1. **Name of the Technology**: Front Knuckle for all Terrain Vehicle
2. **Highlights of the Technology (innovation/uniqueness etc.):** A customized front knuckle has been designed which is light in weight and can handle good impact load.

3. **Impact it will create**: Useful for all terrain vehicle.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 02/2023 and Journal Date is 13-01-2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Jatin Raiyani
   2. Mr. Jay Chhatbar
   3. Dr. Amit Sata
   4. Dr. Nikunj Rachchh
   5. Dr. Pinank Patel
   6. Dr. Nikhil Chotai
   7. Dr. Bhavesh Kanabar
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 13-01-2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 371078-001

Patent-089: Portable Soil Monitoring Module for Intelligent Irrigation System

1. **Name of the Technology**: Portable Soil Monitoring Module for Intelligent Irrigation System
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The Portable Soil Monitoring Module for Intelligent Irrigation System has a portable soil monitoring module for the irrigation system is shown here. The moisture, humidity, and temperature sensors are mounted inside the detachable lower part of the metallic module open from the bottom, which measures the soil's data. The solar panel is mounted on the upper detachable module made from plastic, which is utilized to charge the battery and provide the electrical energy for the operation of the entire module. The upper module has a LED indicators showing the status of connectivity with the host system and power. Antenna is mounted in the top detachable module will be utilized for communication with the host system. The middle module contains the microcontroller, which transmits the data from sensors to the host system, which will be further utilized for control of the intelligent irrigation system.
3. **Impact it will create**: The intelligent irrigation system.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 51/2022 and Journal Date is 23/12/2022

5. **Student Team details/Faculty Mentor :**
   1. Mr. Uvesh Sipai
   2. Dr. Tapankumar Trivedi
   3. Dr. Rajendrasinh Jadeja
   4. Mr. Deep Makwana
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 23-12-2022
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 371079-001

Patent-090: Multicolor Ink Refilling Station for Markers

1. **Name of the Technology:** Multicolor Ink Refilling Station for Markers
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The Multicolor Ink Refilling Station for Markers has a multicolor ink refilling system for markers. Station has multiple ink containers inside the station with the pumping mechanism. Each container has an individual pumping system for the individual operation. For different colors, the individual push button is mounted on the front panel. The interactive display is indicating the message for easy use. LED indicators are indicating the operation of refilling. At the bottom of the front panel, the needle nozzle is mounted for easy refilling of ink in the marker. By pressing the push button switch, the ink pumps out from the container to the needle. The entire operation is carried out by the embedded controller. With the help of this controller every time the same amount of ink will be poured into the marker through a needle nozzle without spreading out/ or spilling out. Every type of refilled marker will be filled out by using this multicolor station.
3. **Impact it will create**: With the help of this controller every time the same amount of ink will be poured into the marker through a needle nozzle without spreading out/ or spilling out.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 04/2023 and Journal Date is 27/01/2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Uvesh Sipai
   2. Mr. Vatsalkumar Patel
   3. Mr. Nirav Tolia
   4. Dr. Rajendrasinh Jadeja

5. Mr. Vishal Kanjariya
6. Mr. Kabir Makrani

6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 27/01/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 371080-001

Patent-091: Portable Disease Detection Container with Attached Camera and Ventilation Fans for Embedded Computing Boards.

1. **Name of the Technology**: Portable Disease Detection Container with Attached Camera and Ventilation Fans for Embedded Computing Boards.
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Portable Disease detection container with attached camera and ventilation fans for Embedded Computing Boards has a Portable disease detection toolbox for Covid and Pneumonia is shown here. The camera connected to the toolbox may Catch the lighted X-Ray image and transmit it to the Embedded Computing Board along with a battery housed within the toolbox for analysis. This portable toolbox with an attached camera may be easily and quickly transported to any remote area and used to analyse the X-ray image for disease identification. In order to prevent the Embedded Computing Boards from overheating during image analysis, two fans are mounted to the toolbox in order to maintain air circulation and prevent overheating.
3. **Impact it will create**: This portable toolbox with an attached camera may be easily and quickly transported to any remote area and used to analyse the X-ray image for disease identification.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 01/2023 and Journal Date is 06/01/2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Munidra Lunagaria
   2. Dr. Vijay Katkar
   3. Dr. Krunal Vaghela
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 06/01/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 371081-001

Patent-092: Compact Three in one Headphone

1. **Name of the Technology**: Compact Three in one Headphone
2. **Highlights of the Technology (innovation/uniqueness etc.):** The COMPACT THREE IN ONE HEADPHONE consists of an arrangement to connect with source of sound through wired or wireless mode. This design has also an arrangement to accommodate earbuds that can be fitted into the designed compact headphone itself using magnetism.
3. **Impact it will create:** small Bluetooth enabled headphone that easily accommodates inside ears of user
4. **Current Status of the Patent:** Design Accepted and Published, Journal No is 03/2023 and Journal Date is 20/01/2023
5. **Student Team details/Faculty Mentor :**
   1. Ms. Anjali Chauhan
   2. Ms. Mirali Chauhan
   3. Mr. Dhairya Thakkar
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 20-01-2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 371082-001

Patent-093: Smart All In One Charger and Power Bank

1. **Name of the Technology**: Smart All In One Charger and Power Bank
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Smart All in One Charger and Power Bank is an adapter which can also work as a power bank as well as a wireless charger. The power bank charges itself when we use the adapter to charge the phone and later on it can be used as a power bank. The device is ergonomically designed in such a manner that it facilitates to charge the devices like iPad, tablets, smartphones and other smart gadgets like smart watches, headphones, earbuds and wireless speakers. Also, it has the capacity to charge multiple devices at a same time.
3. **Impact it will create**: Smart All in One Charger and Power Bank
4. Current Status of the Patent: Examination Report has been Generated, Online Reply Document Received (FER generated on 26/10/2022)
5. **Student Team details/Faculty Mentor :**
   1. Mr. Sahil Pandya
   2. Mr. Paras Rughani

6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 371083-001

Patent-094: Real-time biofeedback device for quadriceps lag

1. **Name of the Technology**: Real-time biofeedback device for quadriceps lag
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Real-time biofeedback device for quadriceps lag has ability to capture real- time data with WIFI module which is more efficient and stable compared to old Bluetooth technology. Hence, this device can be operated and assessed by patient himself/herself in real time for measurement of active range of motion of knee joint.
3. **Impact it will create**: biofeedback device for quadriceps lag has ability to capture real- time data with WIFI module
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 52/2022 and Journal Date is 30-12-2022
5. **Student Team details/Faculty Mentor :**
   1. Ms. Kumari Sapna
   2. Mr. Ashish Dhirajlal Kakkad
6. **Patent Filing Date** : 20-09-2022
7. **Patent Published Date** : 30-12-2022
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 371386-001

Patent-095: Manual Plant Cutter

1. **Name of the Technology**: Manual Plant Cutter
2. **Highlights of the Technology (innovation/uniqueness etc.):** the Manual Plant Cutter will work by the following principles. It will be pushed by the user like any other normal trolley and the cutter will be controlled by the brake like system on the handle. By pressing the brakes the cutter will close and open hence performing the operation of cutting. The flowers which are cut will be collected on the back side of the trolley. In this design worker will trim the plant manual with the help of machine. In a machine at top we are having the brake of machine by holding the brake the side cutter will cut the plant. And

the cut plant will lay in space of the upperpart. So they can move the cut plant easily.

3. **Impact it will create:** In this design worker will trim the plant manual with the help of machine
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 12/2023 and Journal Date is 24/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Jill Padariya
   2. Naresh Solanki
   3. Shruti Pithva
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 24/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 376867-001

Patent-096: Pulsera

1. **Name of the Technology**: Pulsera
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Pulsera has a number of sensors which are eligible for detection of heart beat, crash detection and button for sending help as well as emergency signals. Pulsera for doctors also contains a sensor which is designed to detect the influence of alcohol in them.
3. **Impact it will create**: Pulsera for doctors also contains a sensor which is designed to detect the influence of alcohol in them.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Chandrasinh Parmar
   2. Mann Desai
   3. Aniket Patel
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 376868-001

Patent-097: Agriculture Machine of Seed Sower, Weeder and Water Sprayer

1. **Name of the Technology**: Agriculture Machine of Seed Sower, Weeder and Water Sprayer
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Agriculture Machine of Seed Sower, Weeder and Water Sprayer has conventional seeding operation takes more time and more labor. The seed feed rate is more but the time required for the total operation is more and the total cost is increased due to labor, hiring of equipment. The conventional seed sowing machine is less efficient, time consuming. To meet the future food demands, the farmers have to implement the new techniques which will not affect the soil texture but will increase the overall crop production. In this design the seed will be locate in machine at top ad pesticides will be sprayed automate in machine and after pesticides sprayed and crops are ready to weed.
3. **Impact it will create**: The seed feed rate is more but the time required for the total operation is more and the total cost is increased due to labor, hiring of equipment
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Chandrasinh Parmar
   2. Jay Pipaliya
   3. Yash Kothari
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 376869-001

Patent-098: Pesticides Blower

1. **Name of the Technology**: Pesticides Blower
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Pesticides Blower is easy to carry and it will reduce the effort and time of the farmer. We can carry easily anywhere in farm. It's battery is easy to charge. It is used to sprinkle fertilizer easily. The bottle have capacity to store pesticides around 1kg. We can sprinkle all types of pesticides.
3. **Impact it will create**: It is used to sprinkle fertilizer easily.

4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Chandrasinh Parmar
   2. Sojitra Hetvi
   3. Janak Pariya
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 376870-001

Patent-099: Fruit Plucker

1. **Name of the Technology**: Fruit Plucker
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Fruit Plucker has light weight and easy to carry anywhere features. It has also the small storage attached along with the Fruit Plucker stick. We can store some amount of the fruits while cutting the fruits. It is operated at the bottom side of the stick just by pressing the figger.
3. **Impact it will create**: The Fruit Plucker has light weight and easy to carry anywhere features
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Chandrasinh Parmar
   2. Harshil Thummar
   3. Michael Zerihun Bahiru
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 376871-001

Patent-100: Gesture Chair

1. **Name of the Technology:** Gesture Chair
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Gesture Chair is used in hospitals. This is used for disabled patient and person. The Gesture Chair detects the user and starts an automatically, and you console

it with your movements and provide two buckets & a roof and stability like a bed. The goal of Gesture Chair is to provide stability, sensing, performance. This Gesture Chair is foldable and the roof is detachable.

3. **Impact it will create**: This is used for disabled patient and person**.**
4. **Current Status of the Patent**: Examination Report has been Generated, Online Reply Document Recived(FER generated on 27/02/2023)
5. **Student Team details/Faculty Mentor :**
   1. Kashyap Pathak
   2. Vatsal Ramani
   3. Naresh Solanki
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 27/02/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 377101-001

Patent-101: Biometric Scanner

1. **Name of the Technology**: Biometric Scanner
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Biometric Scanner it is easy to use. The users can easily scan biometric data with the biometric scanner. This is made in such a way to improve the security of confidential area. You can do it out while standing. It is designed to expand several biometric functions in surveillance system.
3. **Impact it will create**: It is designed to expand several biometric functions in surveillance system.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 09/2023 and Journal Date is 03/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Dr. Arjav Bavarva
   2. Pratham Buddhadev
   3. Pushti Depani
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 03/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 376872-001

Patent-102: RFID Based Payment System

1. **Name of the Technology**: RFID Based Payment System
2. **Highlights of the Technology (innovation/uniqueness etc**.): The RFID Based Payment System has light weight and easy to carry anywhere features. It also has the small storage attached along with the Payment System. We can store some amount of the money in the RFID card and we can scan it whenever we need.
3. **Impact it will create**: The RFID Based Payment System has light weight and easy to carry anywhere features
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Chandrasinh Parmar
   2. Mr. Dharmendrasinh Zala
   3. Mr. Kaushal Faldu
6. **Patent Filing Date** : 02/01/2023
7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 376873-001

Patent-103: Hand Plough

1. **Name of the Technology**: Hand Plough
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Hand Plough has a lightweight and easy-to-carry-anywhere feature The design of hand plough is used to plant seeds in farms. The device consists of four parts that includes Plough, Seeds Storage tank, Lever to Control seed flow, and Roller to put back the sand and level it.
3. **Impact it will create**: The Hand Plough has a lightweight and easy-to-carry-anywhere feature
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dr. Amit sata
   2. Kelvi Barochiya
   3. Heet Zalavadiya
6. **Patent Filing Date** : 05/01/2023

7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 376874-001

Patent-104: Face Recognition System for Transportation.

1. **Name of the Technology:** Face Recognition System for Transportation.
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Face Recognition System for Transportation that allows users to attach screen, camera, two Flash light, Fingerprint, on-off switch. The device can be attached easily in transportation vehicle that contains display size is slim, two flashlight to detect the face of users even during the night and a biometric Sensor to recognize users.
3. **Impact it will create**: Detect the face of users even during the night and a biometric Sensor to recognize users
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 09/2023 and Journal Date is 03/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dr. R. B. Jadeja
   2. Nishit Dudakiya
   3. Charmi Gangani
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 03/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 377102-001

Patent-105: Food Waste Compost

1. **Name of the Technology**: Food Waste Compost.
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The Food Waste Compost is a device to produce compost using food waste which is kept in the upper compartment and a tube is kept in between next compartment where the compost is produced. It also has the holes for fresh air which is required for good circulation. An extra pipe is kept for maintaining the moisture during the process.
3. **Impact it will create**: its device to produce compost using food waste which is kept in the upper compartment and a tube is kept in between next compartment where the compost is produced.

4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 12/2023 and Journal Date is 24/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Chandrasinh Parmar
   2. Mayurdhvajsinh Jadeja
   3. Binti Bhatt
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 24/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 377103-001

Patent-106: E-Waste Categorizer System

1. **Name of the Technology**: E-Waste Categorizer System
2. **Highlights of the Technology (innovation/uniqueness etc**.): The E Waste Categorizer System ease to categorize the electronic waste according to three categories that includes batteries, recyclable waste and the circuit wastes. The aim of the design is to categorize the e waste by identifying the object with the help of Image processing.
3. **Impact it will create**: The aim of the design is to categorize the e waste by identifying the object with the help of Image processing.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 10/2023 and Journal Date is 10/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Rakesh Oza
   2. Khevana Purohit
   3. Vasu Savjani
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 10/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 377104-001

Patent-107: Letter Counting Letter Box

1. **Name of the Technology:** Letter Counting Letter Box
2. **Highlights of the Technology (innovation/uniqueness etc.):** The letter counting letter box has a counter that counts the number of letters when the user inserts a letter into the box. The letters are counted using a sensor

installed in the letter box. It has a display at the back side of the box that displays the count of the letters. The counter automatically resets when the user removes the letters. The display works on the power of a solar panel installed at the top of the letter box. There is a provision to install a battery as a backup

3. **Impact it will create**: It works on the power of a solar panel installed at the top of the letter box Current Status of the Patent: Design Accepted and Published, Journal No is 23/2023 and Journal Date is 09/06/2023
4. **Student Team details/Faculty Mentor :**
   1. Dhruvi Dobariya
   2. Vasu Bhalodi
   3. Dhanrajsinh Parmar
5. **Patent Filing Date** : 10/01/2023
6. **Patent Published Date** : 09/06/2023
7. **Patent Granted Date** : ---
8. **Patent Application Number** : 377105-001

Patent-108: Floor Cleaner

1. **Name of the Technology**: Floor Cleaner
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Floor Cleaner has a sweeper in front of the product with a small dust collector in which dust can be contained and a spinning mop al the bottom side by which the floor can be cleaned properly. There is a compartment in which user can keep the water tank for the mop.
3. **Impact it will create**: smart floor cleaner
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 12/2023 and Journal Date is 24/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Vijay Dubey
   2. Renish Surani
   3. Harmy Adroja
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 24/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 377106-001

Patent-109: Smart Dustbin

1. **Name of the Technology**: Smart Dustbin
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Smart Dustbin has features like it will open automatically when someone comes near to the dustbin and there will be two lights on the front side of the dustbin which will indicate the level of dustbin which is filled. Red light will indicate that the dustbin is almost full and the green light will indicate that significant amount of the dustbin is empty. There is also an additional fancy feature where the smiley or sad face will be displayed in the LCD display below the LED lights.
3. **Impact it will create**: when someone comes near to the dustbin and there will be two lights on the front side of the dustbin which will indicate the level of dustbin which is filled. Red light will indicate that the dustbin is almost full and the green light will indicate that significant amount of the dustbin is empty
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof Dr. R B Jadeja
   2. Belvinraja Nadar
   3. Harsh Jolapara
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 377107-001

Patent-110: Lady Armour

1. **Name of the Technology**: Lady Armour
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The LADY ARMOUR provides features such as SOS emergency alerts and also has GPS to track down the location and has standard diameter of l5-15 cm which is adjustable by the hook provided and it has glossy body which makes it look elegant and attractive.
3. **Impact it will create**: The LADY ARMOUR provides features such as SOS emergency alerts and also has GPS to track down the location
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 12/2023 and Journal Date is 24/03/2023

5. **Student Team details/Faculty Mentor :**
   1. Mr. Vivek Patel
   2. Prachi Bhatt
   3. Kinjal Jadav
6. **Patent Filing Date** : 10/01/2023
7. **Patent Published Date** : 24/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 377108-001

Patent-111: Grass Cutter

1. **Name of the Technology**: Grass Cutter
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Grass Cutter is going to help cut the unwanted grass from the roots, the model has a T shaped structure and contains a roller at the end of the design. It has 6 blades attached to it and it will be attached in a cross way. We can easily move as par the requirement from the middle point of the product.
3. **Impact it will create**: Smart Grass Cutter
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 13/2023 and Journal Date is 31/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dr. R L Jhala
   2. Neer Gosrani
   3. Neel Agola
6. **Patent Filing Date** : 31/03/2023
7. **Patent Published Date** : 16/01/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 377506-001

Patent-112: Intelligent Bottle

1. **Name of the Technology**: Intelligent Bottle
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Hydrobit is our finest creation that would enable you with intelligent features and make your life healthy & purified. Our Hydro bit smart bottle eliminates approx. 99.9% of Bacteria and other microorganisms by using certified UVC rays.

   Integrated sensors help you to monitor your health, and water intake time all

with its bottle Display & deep integration with the Mobile application and it keeps you hydrated.

3. **Impact it will create**: Smart Water Bottle
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Aditya Pandya
   2. Darshan Mulchandani
   3. Shivani Abhani
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : ---
9. **Patent Application Number** : 377507-001

Patent-113: Queue Length Analyser System

1. **Name of the Technology**: Queue Length Analyser System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Queue Length Analyser System has a wide angle camera module and a processing unit. This module is ceiling mounted and has a cubical shape. The module will capture image data and produce an analysis of the number of people standing in a queue with the help of machine leaning algorithm. The system will display the Analyzed, result on a screen and then the customer can review it and can opt the quickest queue counter.
3. **Impact it will create**: The module will capture image data and produce an analysis of the number of people standing in a queue with the help of machine leaning algorithm.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 09/2023 and Journal Date is 03/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dr. Amit Sata
   2. Kush Jadav
   3. Prunthil Kheni
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 03/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377508-001

Patent-114: Insoiled Groundnut Collector

1. **Name of the Technology**: Insoiled Groundnut Collector
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Insoiled Groundnut Collector which is an autonomous vehicle that contains a box to carry a battery and other motor drivers. The vehicle has 4 wheels for proper balancing. It has sieve for extracting groundnuts from soil. It has grey color storage container which is attached at the back of the vehicle.
3. **Impact it will create**: Smart Groundnut Collector
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dr. R L Jhala
   2. Shruti Nathavani
   3. Janvi Busa
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377509-001

Patent-115: Medicine Vending Machine

1. **Name of the Technology**: Medicine Vending Machine
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Medicine Vending Machine helps users to collect their medicines during requirements with the help of the vending machine. System is equipped with a speaker to assist the user to understand any medicines or any system malfunctions. The disorders are shown on a display screen that is affixed to this vending machine. The sorting of medicines for each disease are then shown for user selection, and the system will then dispense the medicine.
3. **Impact it will create**: it helps users to collect their medicines during requirements with the help of the vending machine. System is equipped with a speaker to assist the user to understand any medicines
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**
   1. Ms.Sunera Kargarthara
   2. Ruturajsinh Parmar
   3. Devang Gohil

6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377485-001

Patent-116: Core Gloves

1. **Name of the Technology**: Core Gloves
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Core Gloves has the safety pads all over the palm covering with it, from that it can prevent injuries while lifting weights by air pressure and can give more strength to push it to the extreme extent, it can also prevent sweat in hand it has been Fabricated using m microfiber inside the gloves and upper side, we are applying semi I-leather m arterial. We are using Accelerometer for tracking the person's calories. Let’s available for different size and it's designed for male as well 3s Female.
3. **Impact it will create**: it can prevent injuries while lifting weights by air pressure and can give more strength to push it to the extreme extent
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**
   1. Huzefa Dhankot
   2. Dhairya Satani
   3. Mr. Naresh Solanki
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377486-001

Patent-117: RFID Based Food Management System

1. **Name of the Technology**: RFID Based Food Management System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The RFID based food management system is having a RFID band which will have unique Identity and that identity will be scanned by RFID scanner. The scanner will save that data as logs and that log will used further for analysis in terms of no. of times it has been scanned by scanner.
3. **Impact it will create**: Smart Scan by RFID Scanner

4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 29/03/2023)
5. **Student Team details/Faculty Mentor :**
   1. Ms. Foram Rajdev
   2. Krunal Trivedi
   3. Digvijay Chavda
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377487-001

Patent-118: Luggage Trolley

1. **Name of the Technology**: Luggage Trolley
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Luggage Trolley includes one foldable hanger to hang coat and grill to put extra luggage whenever there is requirement. The base grill has functionality to adjust itself to extend or shrink the base also an adjustable wood plate to carry some extra luggage.
3. **Impact it will create**: A Smart Luggage Trolley
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 12/2023 and Journal Date is 24/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Sunil Lavadiya
   2. Prem Acharya
   3. Nand Thaker
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 24/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377488-001

Patent-119: NetCharge Sync

1. **Name of the Technology**: NetCharge Sync
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The NetCharge Sync allows you to access cellular networks by inserting a SIM card and provides additional USB ports, a 3.5mm jack, and a micro-SD card

reader for connecting devices to your computer. It is compact and easy to use, simply plugging into a free USB port on your computer. It also has an internal battery that can be used as a power Backup. This device is a convenient way to increase the number of available USB ports on your computer.

3. **Impact it will create**: It allows you to access cellular networks by inserting a SIM card and provides additional USB ports, a 3.5mm jack, and a micro-SD card reader for connecting devices to your computer
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Dr. Arjav Bavarva
   2. Prayag Sheth
   3. Tapan Khokhariya
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377489-001

Patent-120: Automatic Stretcher

1. **Name of the Technology**: Automatic Stretcher
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Automatic Stretcher has an automatic mechanism that take the stretcher to the room which path has been selected by the user and the path will be displayed in the screen till the destination arrives. It also has a camera and a siren which rings when the camera detects that there is a person or object in the front of the stretcher. Size of display will be 6x6 inch.
3. **Impact it will create**: Automatic mechanism that take the stretcher to the room
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Vishal Kanzariya
   2. Brijesh Limbani
   3. Harsh Sapara
6. **Patent Filing Date** : 16/01/2023

7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377490-001

Patent-121: Harvesting invisible high voltage from sky

1. **Name of the Technology**: Harvesting invisible high voltage from sky
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Harvesting invisible high voltage from atmosphere using drone include an electrode which is made of metal. That metal electrode we have to put on our acrylic plate which is hanging using ted fisher wire attach with drone, the main goal is to collect the energy from the atmosphere.
3. **Impact it will create**: The main goal is to collect the energy from the atmosphere.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dr. Amit Sata
   2. Shubham Solanki
   3. Priyank Sadhu
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377491-001

Patent-122: Smart Eye Sensing Glass

1. **Name of the Technology**: Smart Eye Sensing Glass
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Smart eye sensing glass. The eye, e blink sensor is mounted on left and right side which is covered in glasses and positioned in a way so that it lines up with the user's eye. The eye blink sensor gives an output HIGH signal when the sensor detects a blink that is when the user closes their eyes. When the users'e1e blink continuously then it is good but if the user’s eye not blinking continuously to 10 sec to 20 sec according to this it will give an alert and start ringing.
3. **Impact it will create**: The Smart Eye Sensing Glass

4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 13/2023 and Journal Date is 31/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. Chandrasinh Parmar
   2. Parth Parmar
   3. Jean Patrick
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 31/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377492-001

Patent-123: Traffic Clearance for Emergency Vehicles

1. **Name of the Technology**: Traffic Clearance for Emergency Vehicles
2. **Highlights of the Technology (innovation/uniqueness etc.):** The Tratfic Clearance for Emergency Vehicles has very useful functionalities; the device is in a shape of a box, which will installed in Emergency Vehicles. In addition, miniature version of same box with installed in traffic signals. Both type of boxes with have vents to cool circuit inside Boxes, also the box of vehicle will have 2 charging ports which-will charge the batteries of the device and the Tablet/mobile mounted on the box. The box inside the traffic signal with communicate with traffic lights after receiving the inputs from the server.
3. **Impact it will create**: A smart miniature traffic clearance for emergency vehicles
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 27/02/2023)
5. **Student Team details/Faculty Mentor :**
   1. Mr. Vivek Patel
   2. Mr. Chirag Visani
   3. Mr. Kunal Raval
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377493-001

Patent-124: Women Safety Keychain

1. **Name of the Technology**: Women Safety Keychain
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Women Safety Keychain is a handy gadget which can be carried anywhere easily. Location data is shared to assigned contacts when alert button is activated by pressing it two times. Further by pressing it three times a Warning that there is a threat is delivered. In the evenings, the torch feature is also usable.
3. **Impact it will create**: Smart keychain for safety purpose.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 11/2023 and Journal Date is 17/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Krisha Khandhedia
   2. Sarth Odedara
   3. Vishal Kanzariya
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 17/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377494-001

Patent-125: Wrapping Machine

1. **Name of the Technology**: Wrapping Machine
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Wrapping Machine has been used in pipes of air conditioning is very long pipes Wrapping Protection of Goods from Damage, Dust and Moisture, improved Safety, Saves Time, Saves on Film Cost, Faster Packaging, Efficient Product Wrapping, Increased Productivity, improved inventory Control.
3. **Impact it will create**: The Wrapping Machine has been used in pipes of air conditioning is very long pipes Wrapping Protection of Goods from Damage, Dust and Moisture, improved Safety
4. **Current Status of the Patent**: Examination Report has been Generated, Online Reply Document Received (FER generated on 17/02/2023)
5. **Student Team details/Faculty Mentor :**
   1. Umang Parmar
   2. Sagar Machhoya
   3. Vishal Kanzariya

6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377495-001

Patent-126: Pit Detector

1. **Name of the Technology**: Pit Detector
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Pit Digger consists of a manually operated easily portable device for digging pits in any type of soil with optimum efforts and time. This device is useful for creating cylindrical spaces for direct and easy plantation from nursery. Pits of depth up to 450 mm and nearly 200 mm diameter can be easily made with clean operation using aforesaid device. The helix angle for the blade of the digger is kept around 20o for comfortable removal of soil. The rack angle of the sharp edge of the blade was kept about 45o for comfortable cutting action. The pointed edge provided at bottom helps vertical movement of digger in soil. This can comfortably be used for mass plantation in residential and commercial applications.
3. **Impact it will create**: This device is useful for creating cylindrical spaces for direct and easy plantation from nursery
4. **Current Status of the Patent:** Design Accepted and Published, Journal No is 13/2023 and Journal Date is 31/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Akshit Chauhan
   2. Mr. Naresh Solanki
   3. Mr. Vishal Kanzariya
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 31/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377496-001

Patent-127: Smart Shopping Trolley

1. **Name of the Technology**: Smart Shopping Trolley
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Smart Shopping Trolley In this, we used two trolleys in one. The upper trolley can be moved left to right and up and down, and it can be locked. The down trolley is not movable. This trolley has a single handle with a break button for controlling the trolley. A rubber bush was used to prevent noise one trolley collided with another. When the lower trolley is full, then we can use the upper trolley. Items occasionally fall off, but this trolley has no such chances because it has an upper trolley.
3. **Impact it will create**: The Smart Shopping Trolley In this, we used two trolleys in one
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 19/2023 and Journal Date is 12/05/2023
5. **Student Team details/Faculty Mentor :**
   1. Mr. Mitesh Solanki
   2. Krupali Rathod
   3. Darshan Gohel
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 12/05/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377497-001

Patent-128: Women Safety Spray

1. **Name of the Technology**: Women Safety Spray
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Women Safety Spray is a gadget contains of a bottle that has a knife, knuckle Puncture and also contains paper spray and there will be two buttons respectively one for the opening of The knife and the other one for opening the knuckle puncture and there will also be a spray nozzle for the Pepper spray.
3. **Impact it will create**: Smart spray for women safety propose
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 17/2023 and Journal Date is 28/04/2023

5. **Student Team details/Faculty Mentor :**
   1. Prof. Kavan Dave
   2. Meghnaba Jadeja
   3. Vishwa Patel
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 28/04/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377498-001

Patent-129: Nail Trimmer

1. **Name of the Technology**: Nail Trimmer
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Nail Trimmer is a revolutionary product in the cosmetic industry aiming to improve the nail cutting experience. The nail trimmer is designed in a pocket friendly cuboidal box equipped with LED lights, a powerful magnifier glass and a unique silicon spacing with auto-fit capabilities to inject the finger in the nail trimmer. The design targets to improvise the nail cutting and trimming experience by magnifying the nail and projecting adequate lights for better vision while cutting nails- This product will also benefit its user by not spreading the nails while cutting them instead, it will collect it and store it inside them which the user can clean it after the use also a special socket for keeping nail cutters so the users don't lose them! The Nail Trimmer can be used by people of any age group making it highly versatile and can be used as a great product for the cosmetic service industries.
3. **Impact it will create**: It’s a revolutionary product in the cosmetic industry aiming to improve the nail cutting experience
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 13/2023 and Journal Date is 31/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Aditya Pandya
   2. Amit Padhiyar
   3. Vishal Kanzariya
6. **Patent Filing Date** : 31/03/2023
7. **Patent Published Date** : 16/01/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377499-001

Patent-130: Lizard Trap

1. **Name of the Technology**: Lizard Trap
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Lizard Trap is purely mechanical, chemical-free and harmless. The trap is 100 mm in diameter and 140 mm in height. It can capture lizards up to 120 mm in length. The unique design of the trap ensures that the lizard can't return easily after entering the same. The device can be prepared with matching design of wall and can be easily mounted on the wall with the help of holes provided on back of it.
3. **Impact it will create**: The unique design of the trap ensures that the lizard can't return easily after entering the same
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 10/2023 and Journal Date is 10/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Dr. Nikunj V. Rachchh
   2. Prof. (Dr.) Sandeep Sancheti
   3. Mr. Jignesh D. Jani
   4. Dr. Pinank A. Patel
   5. Mr. Ashok N. Khambhayta
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 10/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377500-001

Patent-131: Detachable Lizard Trap

1. **Name of the Technology**: Detachable Lizard Trap
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Detachable Lizard trap is purely mechanical, chemical free and harmless. The Trap is of 100 mm diameter and 180 mm in overall height. Upper part and lower part are of 90mm height each and designed to ensure press fit between them. Both parts are easily detachable so as to remove captured lizards. A ring is inbuilt in the lower part to prevent the prey insects from leaving the trap this trap can capture lizards up to size of 150 mm.
3. **Impact it will create**: This trap can capture lizards up to size of 150 mm
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 10/2023 and Journal Date is 10/03/2023

5. **Student Team details/Faculty Mentor :**
   1. Dr. Pinank A. Patel
   2. Prof. (Dr.) Sandeep Sancheti
   3. Mr. Jignesh D. Jani
   4. Dr. Nikunj V. Rachchh
   5. Mr. Sanjoy S. Dasgupta
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 10/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377501-001

Patent-132: Pit Digger

1. **Name of the Technology**: Pit Digger
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The Pit Digger consists of a manually operated easily portable device for digging pits in any type of soil with optimum efforts and time. This device is useful for creating cylindrical spaces for direct and easy plantation from nursery. Pits of depth up to 450 mm and nearly 200 mm diameter can be easily made with clean operation using aforesaid device. The helix angle for the blade of the digger is kept around 20o for comfortable removal of soil. The rack angle of the sharp edge of the blade was kept about 45o for comfortable cutting action. The pointed edge provided at bottom helps vertical movement of digger in soil. This can comfortably be used for mass plantation in residential and commercial applications.
3. **Impact it will create**: This device is useful for creating cylindrical spaces for direct and easy plantation from nursery
4. **Current Status of the Patent**: Examination Report has been Generated, Case is Waiting for Examination Report Reply (FER generated on 23/02/23)
5. **Student Team details/Faculty Mentor :**
   1. Prof. (Dr.) Sandeep Sancheti
   2. Dr. Nikunj V. Rachchh
   3. Dr. Pinank A. Patel
   4. Mr. Raghuvirsinh M. Parmar
   5. Mr. Govind S. Patil
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : N/A

8. **Patent Granted Date** : --
9. **Patent Application Number** : 377502-001

Patent-133: Handheld Portable Multimeter cum Ossiloscope with Mobile Connectivity

1. **Name of the Technology**: Handheld Portable Multimeter cum Ossiloscope with Mobile Connectivity
2. **Highlights of the Technology (innovation/uniqueness etc**.): The Handheld Portable Multimeter cum Oscilloscope with Mobile Connectivity is a portable handheld measurement device. The device can work as a multimeter, ossilloscope and component tester. The mobile application and device connect with ease wirelessly and measure a variety of parameters. These include voltage, current, and resistance. Furthermore, it offers continuity and diode checking. It operates independently without a mobile application thanks to the display that is built within the module. A USB C port on the gadget can be used to replenish its rechargeable battery. Near the tip, there is a white LED ring that aids in measurement in low light. The secondary probe for measurement can be connected to a port at the bottom. An extra slot-like structure is provided for winding the secondary probe wire. The device is powered by a sliding switch, and a push-button switch is included for mode selection. The claimed device is perfect for use in electrical, electronic, automotive, and many other applications.
3. **Impact it will create**: The device can work as a multimeter, oscilloscope and component tester.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 10/2023 and Journal Date is 10/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Uvesh A. Sipai
   2. Vatsalkumar Patel
   3. Nirav Tolia
   4. Dr. Rajendrasinh Jadeja
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 10/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377503-001

Patent-134: Detachable Module for Community Dustbin Monitoring and Tracking

1. **Name of the Technology**: Detachable Module for Community Dustbin Monitoring and Tracking
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Detachable Module for community dustbin Monitoring and Tracking which can be used for active tracking and monitoring the community dustbin it is detachable and may be fitted on to any common trash can with-out the need for-any modifications. The module has a level sensor for continuously checking-the amount of garbage in the trash container. i gas sensors is attached to keep an eye on the gases created by the trash for any potential nasty smelt. For actively tracking the location of the rash can, the device incorporates a GPS module. With the aid of CPRS module, all the data is transmitted to a cloud app for active monitoring by the control administrator. Order to save energy, the module will intermittently activate, transfer data to the cloud, and then go into sleep mode. Module is powered by a removable battery.
3. **Impact it will create**: Detachable Module for community dustbin Monitoring and Tracking which can be used for active tracking and monitoring the community dustbin
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 10/2023 and Journal Date is 10/03/2023
5. **Student Team details/Faculty Mentor :**
   1. Uvesh A. Sipai
   2. Vishal Kanzariya
   3. Dr. Rajendrasinh Jadeja
6. **Patent Filing Date** : 16/01/2023
7. **Patent Published Date** : 10/03/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 377504-001

Patent-135: Laptop Charging Adaptor and Power Bank

1. **Name of the Technology**: Laptop Charging Adaptor and Power Bank
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The Laptop Charging Adaptor and Power Bank is a combo device. The proposed device has a C6 male power cord to connect with the utility supply. Universal USB Type A and Type C port is provided to power multiple devices simultaneously. These ports are capable of delivering high power output

suitable for laptop charging, mobile charging and powering other electronic gadgets also. Both the charger and the battery cells are within the device. It will simultaneously charge the internal battery and deliver power to any connected devices when a utility supply is available. When the utility's AC power is unavailable, the device's internally charged battery will supply power to any connected devices. A display for the SoC status of the internal cell and other pertinent metrics is located at the top of the device. To show the status of charging, there are indicator LEDs close to the USB Type A and Type C ports. For safety and protection, over voltage, over current, and thermal protection are incorporated.

3. **Impact it will create**: When the utility's AC power is unavailable, the device's internally charged battery will supply power to any connected devices.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 19/2023 and Journal Date is 12/05/2023
5. **Student Team details/Faculty Mentor :**
   1. Uvesh A. Sipai
   2. Vatsalkumar Patel
   3. Nirav Tolia
   4. Dr. Rajendrasinh Jadeja
6. **Patent Filing Date** : 13/02/2023
7. **Patent Published Date** : 12/05/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 379179-001

Patent-136: Composite Insulator for Electrical Distribution Network

1. **Name of the Technology**: Composite Insulator for Electrical Distribution Network
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   Composite Insulator for Electrical Distribution Network used to provide mechanical support and electrical isolation to overhead conductors. One of the reasons for the non-reliable performance of outdoor insulators is the frequent contamination flashover. When the energized contaminated outdoor insulators are wetted, there is a flow of leakage current on its surface which may develop flashover conditions. The optimization is based on finding the minimum leakage current on the surface under polluted conditions compared to the available design without increasing the amount of the material used. If

the leakage current can be reduced then the chances of the flashover can be reduced. The optimization has been done under the guideline of international standards which is on the selection and dimensioning of the composite insulator. This insulator contains three parts: Fibre Reinforced Plastic rod, metal end fittings and polymeric housing. In this work, the distance between two housing and their angle has been changed to achieve the minimum leakage current.

3. **Impact it will create**: Composite Insulator for Electrical Distribution Network used to provide mechanical support and electrical isolation to overhead conductors
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 19/2023 and Journal Date is 12/05/2023
5. **Student Team details/Faculty Mentor :**
   1. Dr. Krishna Patel
   2. Uvesh A. Sipai
   3. Dr. Rajendrasinh Jadeja
6. **Patent Filing Date** : 13/02/2023
7. **Patent Published Date** : 12/05/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 379180-001

Patent-137: Head for Printable Concrete

1. **Name of the Technology**: Head for Printable Concrete
2. **Highlights of the Technology (innovation/uniqueness etc**.): The HEAD FOR PRINTABLE CONCRETE proposes a vertically placed cylindrical shaped container. The container consists of top, middle and bottom segments. Top segment consists the mounting facility for the central vertical conveyor screw, and four small sized hoppers opening inside the container from top for pouring the concrete mixture. The middle segment is a cylinder for storage and supply of the concrete and the bottom segment contains a conical opening narrowed done at the bottom with opening for releasing the concrete mixture. The innovative parts of the design are (a) Easy poring of concrete without contacting the moving parts of the head (b) Options for purring one or more different materials in the head container as and when needed and (c) The head can be fit and removed easily within the printer Moreover, the design innovatively offers the mounting / placement as a static

component or as the part of the moving components of the printer such as the robotic arms. The innovatively placed four concrete pouring hoppers offers pouring, mixing and adding four different materials at one time. The design is highly required when there is a need to use multiple types of material in making a concrete mixture containing varying properties, characteristics and ingredients

3. **Impact it will create**: Easy poring of concrete without contacting the moving parts of the head.
4. **Current Status of the Patent**: Design Accepted and Published, Journal No is 19/2023 and Journal Date is 12/05/2023
5. **Student Team details/Faculty Mentor :**
   1. Prof. (Dr.) Ankur C. Bhogayata
   2. Mr. Jay V. Pandya
6. **Patent Filing Date** : 13/02/2023
7. **Patent Published Date** : 12/05/2023
8. **Patent Granted Date** : --
9. **Patent Application Number** : 379178-001

Patent-138: Cylindrical Friction Stir Welding (FSW) Tool Pin with Threads & Flats

1. **Name of the Technology**: Cylindrical Friction Stir Welding (FSW) Tool Pin with Threads & Flats
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Cylindrical Friction Stir Welding (FSW) Tool Pin with Threads & Flats is used to join plates with the help of FSW process. In which, tool shoulder diameter to tool pin Diameter ratio is recommended to kept as 3. Additionally, tool pin length must be kept 0.1 - 0.2 mm lesser than the thickness of the material to be welded. Threads onto the tool pin facilitate higher surface are4 which leads to more Frictional heat, better material mixing along the weld joint and higher tensile strength. Flats onto tool pin results into high cr pulsating stirring action, finer grain size, higher hardness and tensile strength
3. **Impact it will create**:
   For more Frictional heat, better material mixing along the weld joint and higher tensile strength
4. **Current Status of the Patent**:
   Examination Report has been Generated , Case is Waiting for Examination Report Reply (FER generated on 11/04/2023)

5. **Student Team details/Faculty Mentor :**
   1. Gaurang Rajendraprasad Joshi
   2. Nikunj Rameshkumar Maheta
   3. Jay Harshadrai Chhatbar
   4. Vivek Jayantbhai Pathak
6. **Patent Filing Date** : 13/02/2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 379182-001

Patent-139: Electric Two-Wheeler with Battery Mounting Under the Floor Panel

1. **Name of the Technology**: Electric Two-Wheeler with Battery Mounting Under the Floor Panel
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Electric Two-Wheeler with Battery Mounting under the Floor Panel is sleek and modem design while providing efficient and eco-friendly transportation. This innovative approach battery placement helps to keep the center of gravity low, enhancing the stability and handling of the bike. This will lead to increased durability of the bike, as the weight of the battery is evenly distributed and supported by the frame. Additionally, the placement of the battery under the floor panel frees up valuable storage space for the rider.
3. **Impact it will create**: This will lead to increased durability of the bike, as the weight of the battery is evenly distributed and supported by the frame
4. **Current Status of the Patent**: Examination Report has been Generated , Case is Waiting for Examination Report Reply (FER generated on 11/04/2023)
5. **Student Team details/Faculty Mentor :**
   1. Uvesh A. Sipai
   2. Dr. Amit Ved
   3. Bewketu Kehali
   4. Anuragsinh Revar
6. **Patent Filing Date** : 13/02/2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 379181-001

Patent-140: Viscosity Measurement System For Investment Casting

1. **Name of the Technology**: Viscosity Measurement System For Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc.)**: This system is developing to control viscosity of slurry through internet, and in turn using fundamentals of Industrial Internet of Things (IIoT). This system facilitates user to interact with viscosity measurement machine using internet, perform testing, and streaming the data to cloud-based server.
3. **Impact it will create**: This application will be useful for more than 600 industrial investment casting foundries located at various foundry clusters of India.
4. **Current Status of the Patent**: Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   Dr. Amit Sata
   Mr. Mahek Rathod
6. **Patent Filing Date** : 15-09-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 19369/2022-CO/SW

Patent-141: Weighted Criteria Approach Based Complexity Computation System for Investment Casting

1. **Name of the Technology**: Weighted Criteria Approach Based Complexity Computation System for Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The development of weighted criteria approach based complexity computation system helps in early stage estimation of complexity involved in manufacturing industrial component using investment casting process. This will help investment casting foundry man to make decision about making an industrial casting using investment casting process. It will also provide a better insight to designer about impact of any parameter on overall complexity index, and helps in better design for investment casting.
3. **Impact it will create**: This will help investment casting foundry man to make decision about making an industrial casting using investment casting process.
4. **Current Status of the Patent**:
   Re-Scrutiny

5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Nikunj Mehta
6. **Patent Filing Date** : 15-09-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 19367/2022-CO/SW

Patent-142: Permeability Measurement System For Investment Casting

1. **Name of the Technology**: Permeability Measurement System For Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc.)**: This system is develop to control hot/cold permeability measurement machine through internet, and in turn using fundamentals of Industrial Internet of Things (IIoT). This system facilitates user to interact with permeability machine using internet, perform testing, and streaming the data to cloud-based server.
3. **Impact it will create**: This application will be useful for more than 600 industrial investment casting foundries located at various foundry clusters of India.
4. **Current Status of the Patent**: Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Mahek Rathod
6. **Patent Filing Date** : 15-09-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 19370/2022-CO/SW

Patent-143: Analytical Hierarchy Process Based Complexity Computation System For Investment Casting

1. **Name of the Technology**: Analytical Hierarchy Process Based Complexity Computation System For Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   The development of an analytical hierarchy process (AHP) based complexity computation system assist investment casting foundry men in making decisions regarding whether to produce an industrial casting using the

investment casting process. It can also provide designers with valuable insights into the impact of various parameters on the overall complexity index, enabling them to improve the design for investment casting.

3. **Impact it will create**: it's computation system assist investment casting foundry men in making decisions regarding whether to produce an industrial casting using the investment casting process.
4. **Current Status of the Patent**: Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Nikunj Mehta
6. **Patent Filing Date** : 15-09-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 19366/2022-CO/SW

Patent-144: Smart Foundry

1. **Name of the Technology**: Smart Foundry
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   This is android based application to connect physical equipment including vertical centrifugal casting and melting furnace for demonstrating application of IoT in the field of foundry engineering. This application facilitates real time monitoring as well as controlling of foundry equipment through android based smart device through internet.
3. **Impact it will create**: This application will demonstrate application of IoT in the domain of foundry engineering. This is one of its kind that connect physical foundry equipment with internet.
4. **Current Status of the Patent**:
   Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Nikunj Mehta
6. **Patent Filing Date** : 15-09-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 19368/2022-CO/SW

Patent-145: Analysis and Prediction of Placement of Engineering Students using Machine Learning

1. **Name of the Technology**: Analysis and Prediction of Placement of Engineering Students using Machine Learning
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Higher Educational Institutes in India is facing challenges in terms of employability. Lots of students are taking admission in professional courses, but in Higher Education Institutes does not have the system to analysis the data of students. Keeping this mass into consideration large amount of data need to be analyses with Right technology tool. Using traditional method analysis process is confusing and Time consuming at times. With the advancements in technology Artificial Intelligence And Machine Learning techniques can be used to train machine in such a way that They can predict the outcome as per the desired performance in less time and efforts. The scope of this project is to train Machine Learning model using student's Educational data and perform analysis using Machine Learning. We are going to Propose Algorithms such as SVD, Collaborative filtering NFM and RBM. This work Will useful for the Higher Educational Institutes to summarize student's academic performance.
3. **Impact it will create**: Programming Language Used for Development of Work
4. **Current Status of the Patent**: Re Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Rajendrasinh B Jadeja
   2. Mr. Akshay Ranpariya
   3. Mr. Vishwarajsinh Jadeja
6. **Patent Filing Date** : 09-11-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 23081/2022-CO/SW

Patent-146: Udaan Model of Effective Pedagogy for the diversified leaners in engineering education

1. **Name of the Technology**: Udaan Model of Effective Pedagogy for the diversified leaners in engineering education

2. **Highlights of the Technology (innovation/uniqueness etc.)**: The proposed model of pedagogy exhibits the step by step methodology may be adapted to Catering the learners' diversity in the engineering programs. The model is prepared from the feedbacks received from the teachers having real time experiences and come across the Challenges of catering the learners' diversity in terms of the national and international Students of different countries attending the academic sessions together.
3. **Impact it will create**: The proposed model is designed to resolve issues of how to use appropriate pedagogies in a systematic approach.
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Rajendrasinh B Jadeja
   2. Dr. Ankur Bhogayata
6. **Patent Filing Date** : 15-11-2022
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 23498/2022-CO/L

Patent-147: Inter - Relationship of objective of pedagogy and academic success in the diversified classroom

1. **Name of the Technology**: Inter - Relationship of objective of pedagogy and academic success in the diversified classroom
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The diagram illustrates the inter-dependency and correlation of the objectives of the Pedagogical practices in a leaners' diversity in a class room. The model includes the major Objectives to be achieved from the pedagogical practices, especially in a diversified classRoom.
3. **Impact it will create**: The proposed model and design illustrates clearly that how the entire network of the pedagogies, methods, learners' response and academic excellence are interconnected
4. **Current Status of the Patent**: Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Rajendrasinh B Jadeja
   2. Dr. Ankur Bhogayata
6. **Patent Filing Date** : 15-11-2022
7. **Patent Published Date** : N/A

8. **Patent Granted Date** : --
9. **Patent Application Number** : 23500/2022-CO/L

Patent-148: Pathfinding Adventure

1. **Name of the Technology**: Pathfinding Adventure
2. **Highlights of the Technology (innovation/uniqueness etc**.): Introducing the Pathfinding Adventure game, an exciting and effective educational tool that Uses Pygame to teach graph theory. This game makes learning fun and engaging by Including interactive checkpoints and rewarding players for correct answers. It replaces Traditional teaching methods and helps us save resources by reducing the need for paper- Based materials. By playing the Pathfinding Adventure game, students not only develop a Solid understanding of graph theory but also learn to appreciate the importance of Sustainability in education.
3. **Impact it will create**: Its exciting and effective educational tool that uses Pygame to teach graph theory**.**
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Aryavardhan Deepak Sharma
   2. Prof. Foram Chandarana
   3. Darshan Ashvinbhai Padia
   4. Mustafa Juzarbhai Bharma
6. **Patent Filing Date** : 13-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 6606/2023-CO/SW

Patent-149: Prob-AI Gaming

1. **Name of the Technology:** Prob-AI Gaming
2. **Highlights of the Technology (innovation/uniqueness etc**.): Our Python project consists of a Thkinter GUI for a Rock-Paper-Scissors game, integration with the ChatGPT API , and a calculator with probability functions. The GUI enhances the gaming experience by providing a user-friendly interface for selecting moves. The ChatGPT API adds intelligent question-answering capabilities, allowing users to obtain accurate and informative responses. Additionally, the calculator performs factorial, combination, and

permutation calculations, making it a valuable tool for probability-related tasks. Together, these components create an engaging and versatile Python project suitable for various applications.

3. **Impact it will create**: these components create an engaging and versatile Python project suitable for various applications
4. **Current Status of the Patent**: Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Mustafa Juzar Bharmal
   2. Prof. Foram Chandarana
   3. Yash Vara
6. **Patent Filing Date** : 13-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 6600/2023-CO/SW

Patent-150: YouTube Transcript Summarizer

1. **Name of the Technology**: YouTube Transcript Summarizer
2. **Highlights of the Technology (innovation/uniqueness etc**.): An enormous number of videos are shared daily on the Internet, making it challenging to find relevant information due to misleading tactics. YouTube transcript summariser is an interesting project where summarising transcripts of videos automatically allows us to quickly look out for the important patterns in the video and helps us save time and effort to go through the whole content of the video.
3. **Impact it will create**: It helps us save time and effort to go through the whole content of the video.
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dhruvi Kothari
   2. Prof. Foram Chandarana
   3. Vrajkumar Pithwa
6. **Patent Filing Date** : 13-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** **: --**
9. **Patent Application Number** : 6606/2023-CO/SW

Patent-151: Graphical Representation of Graph Theory

1. **Name of the Technology:** Graphical Representation of Graph Theory
2. **Highlights of the Technology (innovation/uniqueness etc**.): The PHP project on Graph Theory is designed to create an engaging and Interactive learning environment for students. It includes quizzes and certificates to Enhance the learning experience. Additionally, the project offers efficient management Tools for professors, allowing them to easily manage quizzes, track student progress, and View scores. This comprehensive system promotes effective learning and streamlined Administration in the field of Graph Theory.
3. **Impact it will create**: Interactive learning environment for students
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   Prince Kakkad
   Prof. Foram Chandarana
6. **Patent Filing Date** : 22-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 7611/2023-CO/SW

Patent-152: Fuzzy Analytical Process Based Complexity Computation System for Investment Casting

1. **Name of the Technology**: Fuzzy Analytical Process Based Complexity Computation System for Investment Casting
2. **Highlights of the Technology (innovation/uniqueness etc**.): Productivity enhancement of casting process by optimizing the casting process parameters has been a primary focus area of many researchers. It includes optimization of various process parameters in the design phase, through various DOE techniques and simulation software. There have been major shortcomings in these approaches, wherein the data for casting defects in real time were not considered. Real-time investigation of casting failure for several process parameters is a challenge for the foundry industry. Analytical hierarchical process is a decision support technique through which a hierarchical structural model could be generated. There is subjectivity in the retrieval decision because the primary input of the AHP approach was the opinion of industry experts or practitioners. Additionally, this approach

considers the validity of the data with constraints on inconsistency. However, there would be an impact on the accuracy of the data and the results if there was a significant amount of uncertainty and doubt, while making a judgement. This has resulted in the development of fuzzy analytic hierarchy process, an analytic hierarchy process (AHP) approach created with fuzzy logic theory. In this context, this study used a hierarchical model that focuses on the casting failure in industries, and accordingly, the model was tested for various process parameters. The outcome of the study provided the priority ranking of the process parameters for various casting failure, in real time through which the critical process parameters were identified in the order.

3. **Impact it will create:** This has resulted in the development of fuzzy analytic hierarchy process, an analytic hierarchy process (AHP) approach created with fuzzy logic theory
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Dr. Amit Sata
   2. Mr. Nikunj Maheta
6. **Patent Filing Date** : 29-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 8375/2023-CO/SW

Patent-153: Telecom Architecture

1. **Name of the Technology**: Telecom Architecture
2. **Highlights of the Technology (innovation/uniqueness etc**.): In this project, I have implemented Algorithm, which is used to find the shortest path between any source and destination in Graph Theory. I have built a hardware model that demonstrates the actual network and allows users To interact with the network by pressing the switches attached to each node of The graph. When a switch is pressed, the implemented Algorithm on The Arduino Mega finds the shortest route and illuminates the edges Connecting the selected source and destination. This model provides a fun and Interactive way to learn about Algorithm and its functioning. Additionally, this project incorporates concepts from Graph Theory, software And hardware programming, as well as digital electronics.

3. **Impact it will create:** It is used to find the shortest path between any source and destination in Graph Theory
4. **Current Status of the Patent**: In Progress
5. **Student Team details/Faculty Mentor :**
   1. Shashank Bagda
   2. Prof. Foram Chandarana
6. **Patent Filing Date** : 29-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 8416/2023-CO/SW

Patent-154: RFID Based Payment System

1. **Name of the Technology:** RFID Based Payment System
2. **Highlights of the Technology (innovation/uniqueness etc.):** RFID, or radio frequency identification, is a type of technology that sends information between a tag to a scanner. The scanner, or reader, emits radio waves that pick up signals from nearby items with RFID tags, which also send out radio waves. With its ability to store and send huge amounts of data, RFID technology has been implemented in a number of sectors, including health care and the military, in a variety of applications.
3. **Impact it will create**: Easy for payment system.
4. **Current Status of the Patent**: Re-Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Prof. Dharmendrasinh D. Zala
   2. Prof. Chandrasinh D. Parmar
   3. Mr. Kaushal Faldu
6. **Patent Filing Date** : 29-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 8406/2023-CO/SW

Patent-155: Colorograph

1. **Name of the Technology**: Colorograph
2. **Highlights of the Technology (innovation/uniqueness etc**.): Using Android Studio and Java platform we have developed “Colorograph” game for

which we used graph coloring techniques of graph theory. Total 120 levels are designed of different levels using various structures of graphs.

3. **Impact it will create**: “Colorograph” game for which we used graph coloring techniques of graph theory.
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Devan Tusharbhai Bhensdadiya
   2. Jatin Arvindbhai Sojitra
   3. Prof. Foram Chandarana
6. **Patent Filing Date** : 13-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 6607/2023-CO/SW

Patent-156: Finding Beauty Ratio of a Human Face

1. **Name of the Technology**: Finding Beauty Ratio of a Human Face
2. **Highlights of the Technology (innovation/uniqueness etc**.): A unique Beauty Ratio finder which is used to get the coordinates of the human face and then performs necessary calculations for ideal sample it takes three sample pictures and the Average of all of three photos will out resultantly output.
3. **Impact it will create**: It gives details related to beautification
4. **Current Status of the Patent**: Scrutiny
5. **Student Team details/Faculty Mentor :**
   1. Devan Tusharbhai Bhensdadiya
   2. Jatin Arvindbhai Sojitra
   3. Prof. Foram Chandarana
6. **Patent Filing Date** : 13-03-2023
7. **Patent Published Date** : N/A
8. **Patent Granted Date** : --
9. **Patent Application Number** : 6607/2023-CO/SW

12) Jawaharlal Nehru National College of Engineering, Shimoga

Patent-157: Solar Panel for Multiple farming in the same field using IoT

1. **Name of the Technology:** Solar Panel for Multiple farming in the same field using IoT

2. **Highlights of the Technology (innovation/uniqueness etc.):** Farming is the backbone of the Indian economy, nowadays farmers are cultivating multiple crops in the same field this lead to the concept of multiple farms. Two or more different crops need to be taken care of by watering, and applying fertilizer this requires more manual work. For the pumping of water, more electricity is required and farmers cannot pay huge amounts for electricity bill. Here a solar panel is designed such that it will rotate towards the sunlight to capture more energy than a static solar panel by using the light sensor. Humidity sensors are used to check the moisture content of the soil, if the moisture content reaches less than the threshold the water is automatically pumped to the plants. Soli is first tested to check the defects present in it, which is compensated by the fertilizer this is also pumped automatically every its needed.
3. **Impact it will create:** Farmer can make use of rotating solar panels for storing more solar energy and use the same for automatic monitoring of the plants when they require water and fertilizer to be sprayed. Farmers need not depend on electricity and save money spending on electricity bills.
4. **Current Status of the Patent:** Filing of the Patent is done
5. **Student Team details/Faculty Mentor :**
   1. Ruchitha P Sarji
   2. Nandan Telekar K
   3. Sathwik Pai
   4. Shaziya Nikhath Khanum
6. **Patent Filing date** **:** 22/7/2023
7. **Patent Granted date** : NA
8. **Patent Application Number** **:** 202341048938

Patent-158: Multi-Functional Mechanism of Robotic Arm

1. **Name of the Technology:** Multi-Functional Mechanism of Robotic Arm
2. **Highlights of the Technology (innovation/uniqueness etc):** The multi-functional mechanism of robotic arm relates to the field of building a prototype of a multifunctional tactical robot which can do dedicated as well as general purpose works. This 4-axis robotic arm capable of doing multiple tasks such as pick & place, writing and drawing.
3. **Impact it will create:** The multi-functional mechanism is focused on the development of a multifunctional robot. It is always necessary to coordinate

multiple robots or multiple works of a single multifunctional robot. This coordination is always a challenging job and proper operation of an integrated robotic system depends mostly on this part. Because a multifunctional robot that can work assigned tasks synchronously, it saves time and cost and at the same time works are done more efficiently.

4. **Current Status of the Patent** **:** Patent filed
5. **Student Team details/Faculty Mentor :**
   1. Abhisheka M
   2. Johnson Babu Y
   3. Anish G Prakash
   4. Syed Adnan Kashif
6. **Patent Filing date** **:** 22/7/2023
7. **Patent Granted date** **:** NA
8. **Patent Application Number** : 202341046010

Patent-159: Design Optimization of Areca Nut Dehusking Machine for Improved Efficiency and High Production Rate

1. **Name of the Technology**: Design Optimization of Areca Nut Dehusking Machine for Improved Efficiency and High Production Rate
2. **Highlights of the Technology (innovation/uniqueness etc):**
   The main objective of the proposed invention is to develop a novel areca nut dehusking machine that will give good results compare to dehusking by manual methods using knifes & other existing instruments and/or machines.
3. **Impact it will create:** Improved efficiency and high production rate of dehusking processing of areca nut.
4. **Current Status of the Patent:** Patent application 202341046009 is filed in Indian Patent Office – Design Optimization of Areca Nut Dehusking Machine for Improved Efficiency and High Production Rate
5. **Student Team details/Faculty Mentor :**
   1. Rahul M. P.
   2. Rahul N.
   3. Sumukh Raj
   4. Preetham D.
6. **Patent Filing date** **:** 22/7/2023
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202341046009

Patent-160: Fabrication of Areca Plate Machine using Swing Mechanism

1. **Name of the Technology:** Fabrication of Areca Plate Machine using Swing Mechanism
2. **Highlights of the Technology (innovation/uniqueness etc):**
   Areca plates, also known as betel nut plates, are biodegradable plates made from the areca palm tree's leaves. These plates are eco-friendly and are an excellent substitute for plastic and paper plates, which are not biodegradable. The process of making these plates is time-consuming and requires a lot of labor. However, with the advancement in technology, areca plate machines have been developed, which make the process much faster and efficient. This project report aims to discuss the preparation of an areca plate machine, which can produce plates on a commercial scale.
3. **Impact it will create:** The preparation of an areca plate machine is a complex process that involves several steps, such as design, procurement of materials, fabrication, assembly, and testing. The machine's design is based on the user's requirements, and the machine should be cost-effective, environmentally friendly, and easy to operate and maintain. The total cost of preparing the machine may vary depending on the design and availability of materials. However, the use of proposed areca plate machine using swing mechanism can significantly increase the efficiency and speed of areca plate production, making it a viable business option.
4. **Current Status of the Patent:**
   Patent Filed and Waiting for Publication
5. **Student Team details/Faculty Mentor :**
   1. Rahul M. P.
   2. Rahul N.
   3. Sumukh Raj
   4. Preetham D.
6. **Patent Filing date** **:** 22/7/2023
7. **Patent Granted date** **:** NA
8. **Patent Application Number** : 202341045852

Patent-161: Pre-Tempering of Areca sheath in Controlled Environment. A cooling and fogging system can be used to control the humidity and moisture levels of areca sheath in a controlled environment.

1. **Name of the Technology:** Pre-Tempering of Areca sheath in Controlled Environment. A cooling and fogging system can be used to control the humidity and moisture levels of areca sheath in a controlled environment.
2. **Highlights of the Technology (innovation/uniqueness etc):** The storage of areca sheath requires a controlled environment to maintain the quality of the sheath. High humidity and moisture levels can cause spoilage and fungal growth on the sheaths. A cooling and fogging system can be used to control the humidity and moisture levels of areca sheath in a controlled environment.
3. **Impact it will create:** The cooling and fogging system is effective in controlling the humidity and moisture levels of areca leaves in the controlled environment. The system maintains the desired temperature and humidity levels, which prevents fungal growth and spoilage of the leaves. This cooling system provides desired flexibility of areca sheath which makes comfortable for the workers who handles it. Reduction of water usage, Power consumption, Labour and cycle time.
4. **Current Status of the Patent:** Patent Filed and Awaiting for Publication
5. **Student Team details/Faculty Mentor :**
   1. Rahul M. P.
   2. Rahul N.
   3. Sumukh Raj
   4. Preetham D.
6. **Patent Filing date** **:** 22/7/2023
7. **Patent Granted date** **:** NA
8. **Patent Application Number** : 202341045855

Patent-162: AGrowW – An intelligent Precision Farming toolkit for farmers

1. **Name of the technology**: AGrowW – An intelligent Precision Farming toolkit for farmers
2. **Highlights of the technology/Uniqueness**: Precision Agriculture (PA) is a management approach that uses information technology to improve quality and production. Internet of Things (IoT) has opened up a suitable solution for smart farming and agriculture, however, it remains a dream till the connectivity is not reached to rural areas. Because of these cultivating

techniques the seasonal climatic conditions are also being changed against the fundamental assets like soil, water and air which lead to insecurity of food. The advanced technology to be used for crop selection, yield prediction, weather prediction, fertilizer selection, water irrigation and soil management. Hence we propose and devise a novel smart sensing technology that allows farmers to remotely monitor their fields in real-time and take immediate action to protect their crops, utilizing online cloud services and a dashboard. The use of smart sensors, software, and artificial intelligence will transform the agricultural industry. Combination of sensors and sensor connected hardware will bring into the necessary plant data to raise crop production and accept disease-free large yield crop varieties to keep rate with the rising requirement for food. Sensors used in precision farming are known as farming sensors. These farming or agriculture sensors offer data which help farmers to observe and optimize crops by adapting to changes in the ecological situation. These sensors are fixed on weather stations, drones and robots used in the farming engineering. They can be controlled using mobile apps particularly developed for the function. Based on wireless connection they can be guarded straight using Wi-Fi or using cellular towers with cellular frequencies with the help of mobile app

3. **Impact it will create:** Farming and agriculture are the basis of human life which gives food, grains, and other raw materials. Technology holds a tremendous role in increasing production and decreasing extra manpower. Agriculture in India is largely depending on monsoon. As a result, year by year food grains production goes up and down. The issues facing by the agricultural sector in India is agricultural machines, workers, crop selection, weather, unawareness of modern technologies and water irrigation. A significant issue in planning of agricultural requirements and production purposes is the perfect yield estimation for the numerous crops involved in the planning. In recent years there has occurred a fall in agricultural production mainly due to fall in the output of non-food articles, the systems and techniques of farming and the marketing of agricultural products. To resolve the above all agri-technology and precision farming, also termed as digital agriculture, have arisen as new scientific field that use data intense approaches to drive agricultural productivity while minimizing its environmental impact.

4. **Current status**: Implemented as prototype. Currently being made as product, checking for commercialization.
5. **Student Team details/Faculty Mentor :**
   1. Varsha A. S.
   2. Shantika T. Hegde
   3. Tanisha G. Hosur
   4. Sofiya Sarah Asif
6. **Patent** Filing Date : 12-07-2023
7. **Patent** Granted Date : Not yet
8. **Patent** Application Number : 202341046946

Patent-163: AI Emosense-Depression Detection and Face Recognition based Attendance System Using Emotional Artificial Intelligence and Machine Learning

1. **Name of the technology**: AI Emosense-Depression Detection and Face Recognition based Attendance System Using Emotional Artificial Intelligence and Machine Learning
2. **Highlights of the technology/Uniqueness**: AI has been expanding its horizon and face recognition with deep learning techniques can be augmented with emotion recognition as well. Sometimes, students feel really sad and overwhelmed by their school work and other responsibilities. They might feel like they can't keep up or that they are not good enough. When these feelings last for a long time, it's called depression. Depression can make it hard for students to do their school work, be with friends and family, or even get out of bed in the morning. When students are feeling really sad and hopeless, they might think about hurting themselves or ending their lives. This is called suicide. It's important to know that suicide is preventable and there are people who can help. It's important to take care of our mental health, just like we take care of our physical health. If you ever feel sad or overwhelmed, it's important to talk to someone you trust and get help. One way to prevent suicide is to detect if someone is feeling sad and hopeless, which can be a sign of depression. One way to do this is by using a CCTV camera and AI and ML technology to analyze the person's facial expression, body language, and speech patterns. Depression is a mental health condition that affects a significant portion of the population. It is characterized by feelings of sadness, hopelessness, and a lack of interest in activities. Emotional AI and ML can be used to detect depression by analyzing a

person's speech, text, or image data to identify patterns that are indicative of the condition. This approach can be particularly useful in identifying depression in individuals who may be unwilling or unable to self-report their symptoms. Image analysis can also be used to detect depression. For example, face based expression recognition can be used to identify changes in a person's facial expression that may indicate the presence of depression. Additionally, body language analysis can be used to identify changes in a person's posture, gait, and other physical cues that may indicate the presence of depression. Hence we design an Emotional AI and ML system that can be a powerful tool in detecting depression and avoiding possible hazards. It's always advisable to consult with a mental health professional if you suspect that you or someone you know may be struggling with depression.

3. **Impact it will create**: Attendance through a camera using AI and ML is a modern approach to monitoring and tracking attendance in various settings such as schools, offices, and manufacturing facilities. It uses computer vision techniques and machine learning algorithms to automatically detect and identify individuals in an image or video captured by the camera. The process typically involves training the system on a dataset of labelled images of the individuals who will be taking attendance. This training data can include images of the individual's face, iris, or fingerprints, depending on the specific approach used. Once the system is trained, it can then use this knowledge to recognize these individuals in new images captured by the camera. When an individual is recognized, the system can log their attendance in a database or other record-keeping system. This can be done in real-time, allowing for immediate tracking of attendance, or it can be done at a later time for batch processing. Using AI and ML for attendance tracking can offer many benefits such as increased accuracy, reduced human error, and improved efficiency. However, it's also important to consider privacy and security concerns when implementing such system.
4. **Current status:** Implemented as prototype. Currently being made as product, checking for commercialization.
5. **Student Team details/Faculty Mentor :**
   1. Deshmanth A
   2. Srujan Y S

3. Hithesh K
4. Shabarish B L
5. Sathwik P

6. **Patent** Filing Date : 08-08-2023
7. **Patent** Granted Date : Not yet
8. **Patent** Application Number : 202341053225

Patent-164: Swasthya – A cognitive AI application for querying and analysing Electronic Health Record to provide effective patient engagement

1. **Name of the technology:** Swasthya – A cognitive AI application for querying and analysing Electronic Health Record to provide effective patient engagement
2. **Highlights of the technology/Uniqueness:** Physicians spend a lot of time inputting the how and the why of what's happening to their patients into chart notes. These notes aren't easily extractable in ways the data can be analyzed by a computer. When the doctor sits down with you, and documents your visit in a case note, those narratives go into the electronic health record systems (EHRs) and get stored as free text. `Huge volumes of unstructured patient data are input into EHRs on a daily basis, but it's hard for a computer to help physicians aggregate that critical data. Structured data like claims or CCDAs / FHIR APIs may help determine disease burden, but gives us a limited view of the actual patient record. Big data analytics in healthcare shows that up to 80 percent of healthcare documentation is unstructured, and therefore goes largely unutilized, since mining and extraction of this data is challenging and resource intensive. Without NLP technology, that data is not in a usable format for modern computer-based algorithms to extract. In this project, we propose a novel healthcare natural language processing that will use specialized engines capable of scrubbing large sets of unstructured health data to discover previously missed or improperly coded patient conditions. Natural language processing medical records using machine-learned algorithms can uncover disease that may not have been previously coded, a key feature for making HCC disease discoveries.
3. **Impact it will create:** An EHR system is an information system that helps to collect individuals' health information from birth to death so that it can be registered, certified, and shared in different places by healthcare providers. Natural language processing (NLP) is the ability for computers to understand

the latest human speech terms and text. It's used in current technology to support spam email privacy, personal voice assistants and language translation applications. `The adoption of natural language processing in healthcare is rising because of its recognized potential to search, analyze and interpret mammoth amounts of patient datasets. Using advanced medical algorithms, machine learning in healthcare and NLP technology services have the potential to harness relevant insights and concepts from data that was previously considered buried in text form. NLP in healthcare media can accurately give voice to the unstructured data of the healthcare universe, giving incredible insight into understanding quality, improving methods, and better results for patients.

4. **Current status:** Implemented as prototype. Currently being made as product, checking for commercialization.
5. **Student Team details/Faculty Mentor :**
   1. Pratham K Gujjar
   2. H. M. Satvik
   3. Nithinkumar S. N.
   4. Apoorva D.
   5. Saishri B. L.
6. **Patent Filing Date** **:** 12-07-2023
7. **Patent Granted Date** **:** Not yet
8. **Patent Application Number** **:** 202341046942

Patent-165: Cato Smart Locks Enabled By Artificial Intelligence and Internet of Things (AIoT)

1. **Name of the technology:** Cato Smart Locks Enabled By Artificial Intelligence and Internet of Things (AIoT)
2. **Highlights of the technology/Uniqueness:** Smart Door Lock System leverages the use of IoT and application of smartphone communication technology to open or close the door locks remotely through authentication. Several examples of digital door lock systems have already existed, such as camera-based door security systems, doors with digital keypads for password authentication, fingerprint detection, smart card, and proximity or location detection. Smart locks provide users the ability for locking and unlocking their door without a key, without geographical restrictions, as well as distribute virtual keys to visitors. In this project we propose to design an IoT-

enabled locks equipped with Artificial Intelligence algorithms to provide keyless entry devices, allow users to access doors remotely, through a smartphone or other Internet connection compatible devices. In the broadest definition, a sensor is a device, module, or a sub-system whose purpose is to detect motion or changes in its surroundings and send the information to other electronics, mostly a computer processor. More than one such sensors can be manufactured as micro sensors using Micro- Electromechanical System (MEMS) technology. MEMS is a miniature machine that has both electronic and mechanical components. They usually consist of a central unit in the form of integrated chip like microprocessors, that processes data and several components that interact with the surroundings.

3. **Impact it will create:** The Internet of things (IoT) describes physical objects or groups of physical objects that are embedded with sensors, detectors, processing capabilities and other technologies that connect and interchange data with other devices and systems over the internet or other communications networks. Enhancing home security using smart home can be done in a number of ways, including installation of smart, customized door lock with the use of IoT technology. In apartments or complexes, for an owner having many keys for each and every apartment, car or gate he owns, maintaining entry to authorised persons only is a problem. If the keys are in case lost, along with the costs involved in fabrication, duplication and distribution of keys, security issues are still present.
4. **Current status:** Implemented as prototype. Currently being made as product, checking for commercialization.
5. **Student Team details/Faculty Mentor :**
   1. J. K. Kruthi
   2. Brinda P.
   3. Ayesha Siddiqa
   4. Yogeshwari M.
   5. Syeda Hurrain Fathima
6. **Patent Filing Date** **:** 12-07-2023
7. **Patent Granted Date** **:** Not yet
8. **Patent Application Number** : 202341046940

13) Datta Meghe Institute of Medical Sciences, Wardha

Patent-166: An Apparatus for Dispensing Herbal Enema Medicine.

1. **Name of the Technology:** An Apparatus for Dispensing Herbal Enema Medicine
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   An automated flexible herbal medicine mixer and dispenser for dispensing enema medicine apparatus used in the treatment of enema.
3. **Impact it will create:**
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent:** Granted
5. **Student Team details/Faculty Mentor :**
   1. Gaurav Sawarkar
6. **Patent Filing date** : 31-12-2021
7. **Patent Granted date** : 03-11-2022
8. **Patent Application Number** : 202121062268

Patent-167: An apparatus for stretching hamstring muscles

1. **Name of the Technology:** An apparatus for stretching hamstring muscles
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - An unique exercise apparatus with the help of mechanization and more specifically to a portable hamstring muscles stretching exerciser.
3. **Impact it will create:**
   - simple and cost-effective device
   - reliable and efficient device for treatment of the musculo skeletal disorders
4. **Current Status of the Patent:** Granted
5. **Student Team details/Faculty Mentor :**
   1. Irshad Qureshi
6. **Patent Filing date** **:** 09-12-2020
7. **Patent Granted date** : 29-12-2022
8. **Patent Application Number** : 202021053747

Patent-168: Medicated Thread & Process of Preparation Thereof

1. **Name of the Technology:** Medicated Thread & Process of Preparation Thereof

2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A new method for manufacturing if medicated treads and the process of its use in treatment of patients
3. **Impact it will create:** Help the clinician in managing and treating the patients
4. **Current Status of the Patent** **:** Granted
5. **Student Team details/Faculty Mentor :**
   Rushikesh Anilrao Thakre
6. **Patent Filing date** **:** 03-06-2021
7. **Patent Granted date** : 16-03-2022
8. **Patent Application Number** : 2021103081

Patent-169: A duel volatile oil extractor

1. **Name of the Technology:** A duel volatile oil extractor
2. **Highlights of the Technology (innovation/uniqueness etc.):** A duel volatile oil extractor which is a single apparatus has dual application, hence cost effective and can be used for unknown entities. This new apparatuses has been designed by using different types of stop cocks at different places (two way and three way) as shown in the diagram. By operating these stop cocks mode of the apparatus can be changed. Thus the same apparatus can be used for both type of oils and even when the type of oil is unknown.
3. **Impact it will create:**
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Shriramji Jyotishi
6. **Patent Filing date** : 31-12-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221077660

Patent-170: A device for retraction and isolation of oral structures

1. **Name of the Technology:** A device for retraction and isolation of oral structures
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The device introduces a unique way for visualization, retraction and isolation of oral structures. The integrated mirror has a unique design for

visualization, retraction of oral structures and includes an integrated inbuilt apparatus for suction of body fluids for the operative field. The said devices will improve the ability of the operator to visualization, maintain the operative filed and remove the body fluids using a single device, thus improving the quality of the procedure, saving valuable operative time and reducing the number of instruments required for the procedure.

3. **Impact it will create:**
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Ashwini Kalinkar
6. **Patent Filing date** : 25-04-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221024067

Patent-171: A Formulation of Cigarette

1. **Name of the Technology:** A Formulation of Cigarette
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A Formulation of Cigarette
3. **Impact it will create:** It will be helpful for the patients
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Jerin Varghese
6. **Patent Filing date** : 31-12-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221077677

Patent-172: A Convertible Bed Pressure Sore Preventer

1. **Name of the Technology:** A Convertible Bed Pressure Sore Preventer
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - a convertible bed pressure sore preventer. The invention of convertible bed to prevent pressure ulcers can help in framing newer goal-oriented treatment protocols for various long term neurological conditions like spinal cord injury and traumatic brain injury etc. This can reduce patient

stay in hospital and also promotes recovery by preventing complications. As this invention has multiple elements of positioning, pressure relieving, tilting, modifiable and adjustable motorized mechanisms for patient mobility on bed itself, there is least scope for anyone to achieve for instant invention

3. **Impact it will create:**
   - Simple device for prevention of pressure sores
   - Helpful to no ambulatory patients
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Moh'd Irshad Qureshi
6. **Patent Filing date** **:** 31-12-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221077661

Patent-173: A physiotherapeutic ischemic compression device

1. **Name of the Technology:** A physiotherapeutic ischemic compression device
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - a physiotherapeutic ischemic compression device. This innovation will help the therapists at building an effective electrotherapy modality in physiotherapy for patients. Electrotherapy will be at their fingertips and thus will have good access at treating patients with myofascial pain syndrome, scar mobilization, chronic pain, stiffness, spasm, reduced range of motion and to facilitate the healing process
3. **Impact it will create:**
   - Simple device for physiotherapeutic ischemic compression
   - Helpful for patients
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Deepali Patil
6. **Patent Filing date** : 31-12-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221077673

Patent-174: Wash Magic Box

1. **Name of the Technology:** Wash Magic Box
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Magic WASH Box is heat chambered sterilizer, solar empaneled box for disinfecting mops in healthcare facilities in India. Effective sterilization of mops is essential to reduce the issue of cross infection and transmission due to usage of uncleaned mops in healthcare settings of India. Sterilization refers to any process that eliminates (removes) or kills (deactivates) all forms of life and other biological agents and it can be achieved by using different agents such as heat, chemicals, radiation, high pressure, and filtration; among these heat is most effective and a rapid method which includes hot air and steam methods. These innovative devices have both the chambers and do test which is more microbiologically safer.
3. **Impact it will create:** Simple & cost effective device
4. **Current Status of the Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Deepak Saxena
6. **Patent Filing date** **:** 26-12-2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202221075382

14) Chitkara University, Rajpura

Patent-175: FoRo (Fog on Road)

1. **Name of the Technology** : FoRo (Fog on Road)
2. **Highlights of the Technology (innovation/uniqueness etc.):** System for Detection of Fog **–** FoRo is a fog detection device that gives hyperlocal predictions of fog in real time. The devices presently available in the market are ADAS (Advanced Driver Assistance Systems) integrated with LIDAR (Light Detection and Ranging), image processing, radar, optical power measurement, etc. These techniques produce reliable results, but with more complexity. Also, the cost of these techniques is very high. So, to overcome this problem, we have found that the FM radio signals vary with the fog. We started automating the process of noting down the signals while moving on the roads with an instrument named FoRo (Fog on Roads). We are in the process of prototyping FoRo for precise recording of the signals, converting

them into digital signals, and transferring the data to the mobile phones with the linked application.

3. **Impact it will create** : A system will give precision forecast of Fog.
4. **Current Status of the Patent** : RFE has been filed
5. **Student team details/Faculty Mentor:**
   1. Kamal Gulati
   2. Sakhshra Monga
6. **Patent Filing date** : 17 Jan 2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202311003437

Patent-176: Heat Treatment Electric Furnace

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 10-Aug-22
7. **Patent Granted date** :
8. **Patent Application Number** : 202211045767

Patent-177: Heat Treatment Electric Furnace

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed

mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.

3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 11-Mar-22
7. **Patent Granted date** : April 2023
8. **Patent Application Number** : 360479-001

Patent-178: Rotary Job Holder Case Hardening Furnace

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 12-May-22
7. **Patent Granted date** : June 2023
8. **Patent Application Number** : 364097-001

Patent-179: Heat Treatment Furnace with Controlled Atmosphere and Controlled Speed

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** :
   Granted
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 12-May-22
7. **Patent Granted date** : June 2023
8. **Patent Application Number** : 364098-001

Patent-180: Case Hardening Heat Treatment Furnace with Controlled Environment

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** :
   Response to FER Filed

5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 12-May-22
7. **Patent Granted date** :
8. **Patent Application Number** : 364099-001

Patent-181: Development of safe AR-LEAD and VR-LEAD for Autism

1. **Name of the Technology** : Development of safe AR-LEAD and VR-LEAD for Autism
2. **Highlights of the Technology (innovation/uniqueness etc.):** Virtual Reality System to Monitor Behaviour of Rodents**–** This project aims to create an AR-based application (AR-LEAD) for treating autism in rodents. A pre-clinical study would be conducted to analyse rodents' oxidative stress parameters, neurotransmitter levels, apoptotic markers, and neuroinflammatory biomarkers. The outcomes of this project would aid in the development of similar AR/VR applications that can be used for autism patients in future clinical trials.
3. **Impact it will create** : AR based application for treatment of autism.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. Anjali
   2. Debarshi Ghosh
   3. Gurjinder Singh
6. **Patent Filing date** : 17 Aug 2022
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202211046851

Patent-182: Perineal Retractor for Safe and Accurate Episiotomy during Vaginal Delivery

1. **Name of the Technology** : Perineal Retractor for Safe and Accurate Episiotomy during Vaginal Delivery
2. **Highlights of the Technology (innovation/uniqueness etc.):** GK Retractor**-**This is a surgical instrument that helps to guide the incision made during an episiotomy at a specific angle, in turn reducing the risk of vaginal tears. Injuries related to vaginal childbirth are something that is not talked

about openly in Indian society. Up to 9 in every 10 first-time mothers who have a vaginal birth will experience some sort of tear, graze, or episiotomy. These tears range from mild to severe and, in some cases, lead to pelvic floor incontinence. With this in mind, our team set out to help make the quality of life for first-time mothers better.

3. **Impact it will create**: This is a lifesaving medical instrument for women at the time of child birth.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Vanya Sharma
   2. Prachi Mittal
   3. Keerti Bhusan Pradhan
6. **Patent Filing date** : 10 Sep 2020
7. **Patent Granted date** : 29 Sep 2021
8. **Patent Application Number** : 334120-001

Patent-183: Automatic and Moveable Vertical Garden Barricades

1. **Name of the Technology** : Automatic and Moveable Vertical Garden Barricades
2. **Highlights of the Technology (innovation/uniqueness etc.):** LED lights with solar panels will make the system energy-efficient and increase visibility at night. It has space for ads to generate revenue and improve nighttime visibility. This set will provide an integrated design and environmentally friendly solution for many issues.
3. **Impact it will create**: Innovative idea for increasing night time visibility on roads.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Jaibir Singh Makkar
   2. Shivansh Rajput
   3. Pooja Mahajan
6. **Patent Filing date** : 28 Jan 2022
7. **Patent Granted date** : Feb 2023
8. **Patent Application Number** : 357439-001

Patent-184: Virtual Reality Based Home Eye Testing Device for Measuring Spectacle Power of the Eye

1. **Name of the Technology** : Virtual Reality Based Home Eye Testing Device for Measuring Spectacle Power of the Eye
2. **Highlights of the Technology (innovation/uniqueness etc.):** There are only 12000 ophthalmologists in India, for a population of 136 crore. In some of the rural areas of India, there are no eye care facilities. Hence, a device for tele-eye consultation and tele-eye testing was required. Our innovation is a virtual reality-based device that can connect clinicians and patients through cloud systems. The device tests the spectacle power of the eye and sends the prescription remotely. It helps the patients reach out to the ophthalmologists easily across countries.
3. **Impact it will create**: It will give a privilege of eye testing to countless people living in rural areas.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. Maheswari Srinivasan
   2. Arshdeep Kaur
   3. Keerti Bhusan Pradhan
6. **Patent Filing date** : 27 June 2021
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202141028827

Patent-185: Portable Ventilated Universal Laptop Stand

1. **Name of the Technology** : All in One Laptop Stand with Integrated Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea of "All-in-one Laptop Stand with Integrated Table" is to solve the problems faced by users with the existing laptop stand. The following features are provided in the single product: Mesh base to avoid overheating, along with sliding USB-powered fans for additional cooling; A hinge protection feature is uniquely designed to provide support for the laptop screen; Compatible with various sizes of laptops; The table will be adjustable in height and include features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study lamp; Adjustable angle that can reduce screen effects and help to create a more natural typing position

3. **Impact it will create** : It is a lifestyle product that can help a large number of individuals who use laptops in correcting their postures and avoid health issues.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Pranav Garg
   1. Pranav Kumar
   1. Gulshan Dhillon
6. **Patent Filing date** : 26-August-20
7. **Patent Granted date** : 5 March 2021
8. **Patent Application Number** : 332372-001

Patent-186: Height Adjustable Folding Arm Rest Table with Slidable Holders

1. **Name of the Technology** : All in One Laptop Stand with Integrated Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea of "All-in-one Laptop Stand with Integrated Table" is to solve the problems faced by users with the existing laptop stand. The following features are provided in the single product: Mesh base to avoid overheating, along with sliding USB-powered fans for additional cooling; A hinge protection feature is uniquely designed to provide support for the laptop screen; Compatible with various sizes of laptops; The table will be adjustable in height and include features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study lamp; Adjustable angle that can reduce screen effects and help to create a more natural typing position
3. **Impact it will create** : It is a lifestyle product that can help a large number of individuals who use laptops in correcting their postures and avoid health issues.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Pranav Kumar
6. **Patent Filing date** : 26-Aug-20
7. **Patent Granted date** : 9 July 2021
8. **Patent Application Number** : 332371-001

Patent-187: Height Adjustable Table with Folding Arm Rest & Integrated Power Strip

1. **Name of the Technology** : All in One Laptop Stand with Integrated Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea of "All-in-one Laptop Stand with Integrated Table" is to solve the problems faced by users with the existing laptop stand. The following features are provided in the single product: Mesh base to avoid overheating, along with sliding USB-powered fans for additional cooling; A hinge protection feature is uniquely designed to provide support for the laptop screen; Compatible with various sizes of laptops; The table will be adjustable in height and include features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study lamp; Adjustable angle that can reduce screen effects and help to create a more natural typing position
3. **Impact it will create** : It is a lifestyle product that can help a large number of individuals who use laptops in correcting their postures and avoid health issues.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Gulshan Dhillon
6. **Patent Filing date** : 8 February 2022
7. **Patent Granted date** : May 2023
8. **Patent Application Number** : 358132-001

Patent-188: IR imaging for medical applications

1. **Name of the Technology** : IR imaging for medical applications
2. **Highlights of the Technology (innovation/uniqueness etc.):** Device for Monitoring Compressed Median Nerve - The project is about high-resolution infrared imaging employing infrared sensor technology and Real-Time Image Processing techniques. The innovation is focused specifically on imaging for medical purposes.
3. **Impact it will create**: It is going to be a portable medical diagnostic device that can be carried outside of hospital premises. It has been designed for diagnostics of patients in rural areas.
4. **Current Status of the Patent** :
   Published

5. **Student team details/Faculty Mentor:**
   1. Neha Dahiya
   2. Raj Rani
   3. Varsha Singh
6. **Patent Filing date** : 6 July 2021
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202111030344

Patent-189: Schottky Junction Printable Solar Cell

1. **Name of the Technology** : Schottky Junction Printable Solar Cell
2. **Highlights of the Technology (innovation/uniqueness etc.):** Demand for affordable solar power components, such as solar panels, is expected to boost the printable solar cells market. Photovoltaic cells cost less and perform better, but they are not flexible. This team has made semiconductor nanocrystals-based screen-printed flexible solar cells
3. **Impact it will create**: These solar cells will be used in a variety of applications, especially wearable electronics, in future.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Member:**
   1. Nikhil Shrivastav
   2. Rahul Pandey
   3. Jaya Madan
6. **Patent Filing date** : 21 Feb 2022
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202211009134

Patent-190: Rodent Surgical Table

1. **Name of the Technology** : Rodent Surgical Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is an improved surgical table, particularly for use in veterinary medicine. There are a lot of surgical tables available in the market, but the facilities available are not advanced. The proposed current design is efficient with facilities as it is made up of a stainless-steel surface with heating pads, an LED lamp, a tool tray, waste drainage pipe, beaker spaces (250 ML and 100 ML), an animal tissue holder, an automated temperature regulator as per the physiological demand, and an automated position setter for the ease of the surgery.

3. **Impact it will create**: Rodent surgical tables are used for animals' examinations or surgeries by a veterinary surgeon or preclinical researchers. It is important to provide an accurate position and height of the working table for surgery with proper temperature regulation, which enables the veterinarian to be in a precise position rather than kneeling or crouching to treat the animal on the floor.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Member:**
   1. Nikhil Garg
   2. Onkar Bedi
   3. Thakur Gurjeet Singh
6. **Patent Filing date** : 21 July 2020
7. **Patent Granted date** : 18 June 2021
8. **Patent Application Number** : 331265-001

Patent-191: Screening, Actuation & Sanitizing

1. **Name of the Technology** : Screening, Actuation & Sanitizing
2. **Highlights of the Technology (innovation/uniqueness etc.):** SAS is an apparatus for granting entry permission to an individual, the said apparatus comprising: a temperature sensor for capturing and determining a body temperature by pointing it towards the head of the individual. A bar code scanner, comprising a scanner that is enabled to read different bar code symbologies present on an identification card authentication. A positive authentication of a person will grant entry permission to the individual and automatically activate a sanitizer dispenser before entering a specified region. Monthly data from the entries will be shared with the accounts department for salary disbursements to employees.
3. **Impact it will create**: It is an automatic attendance system, which is an outcome of COVID19 problem, which is to ensure touch less entry of employees in the premises.
4. **Current Status of the Patent** : Published
5. **Student team details/Faculty Mentor:**
   1. Urvansh Nahata
   2. Rishab Tandon
   3. Akshat Chandra
   4. Rubina Dutta

6. **Patent Filing date** : 19 August 2020
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202011035739

15) Mar Ephraem College of Engineering & Technology, Elavuvilai

Patent-192: Smart mediator for Indian Sign Language

1. **Name of the Technology:** Smart mediator for Indian Sign Language
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - It is an handy and portable embedded system which can convert sign language into communication language.
   - It is a simple system with can be used by anyone.
   - It is a technology which helps in complete eradication of an mediator or an assistant to use.
   - It is completely specified for Indian Sign Language
3. **Impact it will create:**
   - This could improve the ways the specially abled are been seen and it could remove the thought that they need a mediator. This could boost up their confidence
   - Over the years, communication has played a vital role in exchange of information and feelings in one's life. Sign language is the only medium through which specially abled people can connect to rest of the world through different hand gestures. The major problem faced by them is Hand gesture recognition by other people. They are forced to use an mediator for the communication and it propagate lack of self confidence in them. To overcome such problem, we attempt to develop a vision based embedded system that would recognize the sign language and convert it into communication language.
4. **Current Status of the Patent** **:** Applied
5. **Student Team details/Faculty Mentor :**

   1. L. Mersheba Fred
   2. Kebiya G.
   3. Ajisha Jegal JJ
6. **Patent Filing date** : 12/06/2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202341039912

Patent-193: IoT based Smart Azolla Bed

1. **Name of the Technology:** IoT based Smart Azolla Bed
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Vibration and shock technology to impair the snail and emancipate the plant from the snail.
   - Temperature sensor is used to detect the temperature of water and is monitored using A BLYNK Software.
3. **Impact it will create:**
   - Sustainable agriculture practices and reduces the reliance on synthetic fertilizers.
   - Efficient recycling of nutrients back into the agricultural system.
   - Monitor and optimize water usage, ensuring efficient irrigation and minimizing water waste
4. **Current Status of the Patent** **:** Applied
5. **Student Team details/Faculty Mentor :**

   1. Devine Princilla
   2. Aswajith S.
6. **Patent Filing date** : 12/06/2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202341039892

Patent-194: Meta Mouse: A Touchless User Interface For Personal Computing

1. **Name of the Technology:** Meta Mouse: A Touchless User Interface For Personal Computing
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - **Cutting-Edge Computer Vision:** Meta Mouse utilizes cutting-edge computer vision techniques to track and interpret hand gestures and motions with high accuracy and precision. This technology enables users to control their computers seamlessly without the need for a physical mouse, showcasing the innovative and unique approach of the project.
   - **Integration of Pre-Trained Models:** The project incorporates pre-trained models that have been trained on large datasets, providing a solid foundation for hand gesture recognition. This integration allows for efficient and effective recognition and classification of various hand gestures, enhancing the overall performance and usability of Meta Mouse.

- **Adaptive Machine Learning Algorithms:** The machine learning algorithms employed by Meta Mouse continuously learn and adapt to users' hand movements. This adaptive capability results in improved accuracy and responsiveness over time, making the touchless interface more personalized and user-friendly. The integration of machine learning algorithms adds a dynamic and intelligent aspect to the technology.
- **Accessibility and Inclusivity Focus:** Meta Mouse's primary focus is on enhancing accessibility and inclusivity in personal computing. By offering a touchless user interface, it caters to individuals with limited mobility or physical disabilities, providing them with a means to interact with computers effortlessly. This emphasis on accessibility highlights the technology's commitment to inclusivity and equal access to digital technologies.

3. **Impact it will create:**
   - **Enhanced Accessibility**: Meta Mouse's touchless user interface will greatly enhance accessibility for individuals with limited mobility or physical disabilities, providing them with equal opportunities to engage with and utilize personal computing technology.
   - **Improved Ergonomics:** By eliminating the need for a physical mouse, Meta Mouse reduces strain and discomfort on the wrists and fingers, promoting a more ergonomic and comfortable computing experience for all users.
   - **Hygienic Interaction:** The touchless nature of Meta Mouse reduces the need for physical contact with computer peripherals, offering a hygienic solution that minimizes the potential spread of contaminants and contributes to a cleaner and safer computing environment.
   - **Technological Advancement:** Meta Mouse represents a significant technological advancement in human-computer interaction. By integrating computer vision, pre-trained models, and machine learning algorithms, it opens the door for further innovation in touchless interfaces and paves the way for future advancements in personal computing technology.
4. **Current Status of the Patent :** Patent Filed
5. **Student Team details/Faculty Mentor :**
   1. Ms. Jemi K.
   2. Ms. Gracia Rose J.

6. **Patent Filing date** : 12 June 2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202341039886

Patent-195: Assistacles: A Friendly Spectacle For Visually Challenged People

1. **Name of the Technology:** Assistacles: A Friendly Spectacle For Visually Challenged People
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - **Machine Vision Technology*:*** The incorporation of machine vision technology revolutionizes the way visually impaired individuals perceive and interact with their environment. By leveraging advanced algorithms and image processing techniques, "Assistacles" can analyze real-time visual data and provide meaningful audio assistance, enhancing users' spatial awareness and independence.
   - **Facial Recognition System:** The facial recognition system integrated into "Assistacles" utilizes deep learning algorithms, powered by Python's TensorFlow library, to accurately identify and recognize faces. This innovation allows visually impaired users to receive audio cues about the presence and identity of recognized individuals, greatly facilitating social interactions and personal connections.
   - **Object Recognition System:** The prototype's object recognition system is a significant advancement, enabling users to identify and understand various objects in their surroundings. Through deep learning techniques trained with TensorFlow, "Assistacles" can classify objects, such as furniture, doors, or everyday items, and provide audio descriptions, empowering visually impaired individuals to navigate their environment with greater confidence and safety.
   - **Audio Aid and Feedback:** "Assistacles" incorporates an audio aid and feedback system that plays a vital role in conveying information to visually challenged users. By utilizing synthesized voice output, the prototype provides real-time audio cues, descriptions, and feedback about recognized faces and objects. This innovation ensures that visually impaired individuals can comprehend and interact with their surroundings more effectively, fostering independence and inclusivity.

3. **Impact it will create:**
   - **Increased Independence:** "Assistacles" empowers visually impaired individuals by providing them with real-time audio assistance and information about their surroundings. By recognizing faces and objects, describing their locations, and providing audio cues, the prototype enables visually challenged users to navigate and interact with their environment more independently. This increased independence can have a profound impact on their daily lives, enhancing their confidence and reducing their reliance on others.
   - **Enhanced Social Inclusion**: The facial recognition system of "Assistacles" allows visually impaired individuals to identify and recognize familiar faces. This capability fosters more inclusive social interactions, as users can independently identify and engage with friends, family members, and acquaintances. By facilitating smoother and more meaningful social connections, "Assistacles" has the potential to improve the overall well-being and quality of life for visually challenged individuals.
   - **Improved Environmental Awareness and Safety:** The object recognition system in "Assistacles" helps users understand and interact with various objects in their surroundings. By providing audio descriptions and feedback, the prototype enables visually impaired individuals to navigate their environment with greater awareness and safety. They can identify obstacles, locate important objects, and make informed decisions, reducing the risk of accidents and enhancing their overall safety and well-being.
4. **Current Status of the Patent:**

   Patent Filed
5. **Student Team details/Faculty Mentor :**

   1. Ms. Blessiya Valberga
   2. Ms. Vinisha Joy V.M.
6. **Patent Filing date** **:** 12 June 2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202341039894

Patent-196: Vegebuy: A smart vegetable purchasing device with vision & auto weighing

1. **Name of the Technology:** Vegebuy: A smart vegetable purchasing device with vision & auto weighing
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - **Advanced Machine Vision Technology:** VegeBuy incorporates advanced machine vision technology to automatically identify various types of vegetables based on their visual characteristics. This innovative approach eliminates the need for manual input or barcode scanning, streamlining the vegetable selection process and enhancing efficiency.
   - **Precise Load Cell Integration**: The integration of a high-precision load cell within VegeBuy ensures accurate weight measurements of the vegetables. This technical intervention enables precise pricing calculations and eliminates discrepancies, providing customers with transparent and reliable pricing information.
   - **RFID Technology for Seamless Checkout:** VegeBuy leverages RFID technology to update the user's RFID tag with specific vegetable, weight, and price information. This allows for a seamless checkout experience, as the tag can be quickly scanned at the point of sale, retrieving the purchase details and generating an itemized bill for swift and accurate payment.
   - **Integration and Centralized System Management:** VegeBuy offers seamless integration with existing point-of-sale systems in supermarkets or grocery stores, enhancing compatibility and ease of implementation. The centralized system management ensures real-time updates of pricing information, promoting transparency and accuracy throughout the vegetable purchase process.
3. **Impact it will create:**
   - **Enhanced Customer Experience:** The VegeBuy - Smart Vegetable Purchase System significantly improves the overall customer experience by streamlining the vegetable buying process. With automated vegetable identification, accurate pricing, and seamless checkout, customers can enjoy a hassle-free and efficient shopping experience. The system provides transparency, convenience, and reliability, enhancing customer satisfaction and loyalty.

- **Time and Cost Savings:** VegeBuy saves valuable time for both customers and retailers. The automated identification and pricing calculation reduce the need for manual input or barcode scanning, speeding up the vegetable selection process. Additionally, the seamless checkout process eliminates waiting times, enabling customers to complete their purchases quickly. This time-saving aspect translates to increased operational efficiency for retailers and improved productivity for customers.
- **Improved Accuracy and Transparency:** By leveraging machine vision technology and load cell integration, VegeBuy ensures accurate identification, weight measurement, and pricing of vegetables. This eliminates human errors and discrepancies, providing customers with transparent and reliable pricing information. The system promotes fairness and trust in the purchase process, enhancing customer confidence and loyalty.
- **Technological Advancement in Retail:** The introduction of VegeBuy represents a significant technological advancement in the retail industry. By combining machine vision, load cell integration, and RFID technology, the system sets a new standard for smart vegetable purchase solutions. Its innovative features pave the way for further advancements in automation, data management, and customer-centric retail experiences. VegeBuy showcases the potential of integrating cutting-edge technologies to transform conventional retail processes, inspiring future developments and innovations in the field.

4. **Current Status of the Patent :**

   Patent Filed

5. **Student Team details/Faculty Mentor :**

   1. Mr. Sajith S.
   2. Mr. Albin B.
   3. Mr. Plamkottathil Jerlin Jacob

6. **Patent Filing date** **:** 12 June 2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202341039888

Patent-197: S-Patio: A Portable Solar Harvesting Unit

1. **Name of the Technology:** S-Patio: A Portable Solar Harvesting Unit
2. **Highlights of the Technology:**
   - S-Patio are widely used for camping trips and outdoor adventures.
   - The system is designed to capture and convert sunlight into usable electricity
   - They provide a portable and temporary shelter where individuals or groups can sleep and store their camping gear.
   - Patio offer protection from the elements such as rain, wind, and insects, allowing campers to have a comfortable and secure place to rest.
   - Patio designed for backpacking are lightweight, compact, and easy to carry, making them ideal for hikers and backpackers who need a portable shelter during multi-day trips.
   - These Patio are usually quick to set up and pack down, enabling adventurers to move efficiently while having a reliable place to sleep.
3. **Impact it will create:**
   - The s-patio system is designed to promote environmental sustainability by reducing carbon emissions and minimizing the impact on the environment.
   - The s-patio system is used particularly in areas where traditional power sources are not available or are unreliable.
4. **Current Status of the Patent**: Applied
5. **Student team details/Faculty Mentor:**
   1. Aaron S M
   2. Sanjay John J
6. **Patent Filing date** : 12/06/2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202341039904

Patent-198: A Solar Powered Smart Ironing Cart

1. **Name of the Technology:** A Solar Powered Smart Ironing Cart
2. **Highlights of the Technology:**
   - Solar PV system is designed with battery, panel, charge - controller and inverter module.

- Dhobi cart has elegant features like adjustable solar roof, automatic rain guard, ironing floor, sliding chair, storage decks for clothes, control module and iron box.
- Automatic rain guard is implemented to detect the continuous rain level and operate automatically.
- Handle with lever arrangement and braking is designed for easy angular motion control

3. **Impact it will create:**
   - The proposed project leads the platform to the employability opportunities in different perspectives of the state.
   - The product can be marketed throughout the state to the needy people by the state government for the betterment of the scheduled caste community.
4. **Current Status of the Patent**: Applied
5. **Student team details/Faculty Mentor:**
   1. Aron Carter
   2. Raghul R. S.
6. **Patent Filing date** : 12/06/2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : 201641023740

Patent-199: Portable Couch for Transferring the Patients into and from the CT machine

1. **Name of the Technology:** Portable Couch for Transferring the Patients into and from the CT machine
2. **Highlights of the Technology:**
   - Portable Couch is widely used for transferring the patients from the bed to scanning machine.
   - The system is designed for the smooth transfer of patients.
   - Folding bed setup to assist the health care professionals in fixing the probe.
3. **Impact it will create:**
   - The portable couch will make the smooth transfer of patients without any disturbance to the patients.

- This portable couch will help to improve the accuracy of the measuring probe.

4. **Current Status of the Patent** : Applied
5. **Student team details/Faculty Mentor:**
   1. Manikandan S.
   2. Mohamed Fazil M.
   3. Shine S.
6. **Patent Filing date** : 12/06/2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202341039897

Patent-200: G-Store: A Flexible Traditional Storage Unit for Food Grains

1. **Name of the Technology:** G-Store: A Flexible Traditional Storage Unit for Food Grains
2. **Highlights of the Technology:**
   - The traditional paththayam was analyzed in detail and its uniqueness in preserving grains was studied.
   - Inorder to make the pathayam foldable new design is developed which consists of steel frame and the body will be of wood.
   - A portable technology for storing the food grains for a very long time was developed. The designed portable paththayam is fabricated along with natural pesticides like neem and pungu. A hybrid version which include wood for interiors and steel for the outer would be useful for the portable version.
   - The grains inside the pathayam will not have any contact with the metal frames. The length of the structure is 850 mm; breadth is 520 mm and height is 520 mm supported with a steel structure of 5mm thickness.
   - Technologically, the fabrication of storage units with natural pest repellent would help in storing the food grains for a long period of time.
3. **Impact it will create:**
   - Flexible storage units, such as bags or containers made from durable and moisture- resistant materials, help maintain the quality of food grains.
   - Flexible traditional storage units provide a suitable environment for long-term grain storage, reducing post-harvest losses caused by pests, moisture, and physical damage.

- Flexible storage units for food grains often offer cost-effective alternatives to more complex storage infrastructure.
- The flexibility and portability of traditional storage units offer advantages in regions where grain storage needs to be mobile or adaptable to changing conditions.
- Supporting local production and utilization of storage units promotes local entrepreneurship and contributes to sustainable community development.

4. **Current Status of the Patent**: Applied
5. **Student team details/Faculty Mentor:**
   1. Jinisha P. L.
   2. Abishek M.
6. **Patent Filing date** : 12/06/2023
7. **Patent Granted date** : NA
8. **Patent Application Number** : 202341039899

16) Nehru Institute of Engineering & Technology, Coimbatore

Patent-201: Diabetic Foot Ulcer Detector

1. **Name of the Technology**: Diabetic Foot Ulcer Detector
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Early detection of foot ulcer
3. **Impact it will create**: Reducing causes and defects due to ulcer
4. **Current Status of the Patent**: Patent published
5. **Student team details/Faculty Details:**
   1. Wasim Khan S.
   2. Baranitharan S.
   3. Monisha V.
   4. Pavithran R.
6. **Patent Filing date** : 02.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031356

Patent-202: Gesture Controlled Bluetooth Speaker

1. **Name of the Technology**: Gesture Controlled Bluetooth Speaker
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - It allows user to change music just by swiping their hand over the Bluetooth speaker.

- The user can operate the complete speaker operation without even touching his/her mobile phone or the speaker
- Also this speaker allows the user to adjust volume just by raising and lowering their hand over the speaker.

3. **Impact it will create:**
   - Handy and Portable
   - Touchless Operation
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Ajisha R
   2. Kaviya V
   3. Sandhiya Devi R
   4. Karthika P
6. **Patent Filing date** **:** 02.05.2023
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202341031354

Patent-203: Soil Nutrient Recommender

1. **Name of the Technology**: Soil Nutrient Recommender
2. **Highlights of the Technology**: It is developed to identify the level of nutrients present in the soil and inform the farmer about the requirements. It also identifies the soil moisture & PH level of the soil. The main goal is to automate Agricultural practices at affordable cost.
3. **Impact it will create**: It will analyze the soil nutrients with high accuracy results so that the crop production will be more.
4. **Current Status of the Patent**:
   Patent Published
5. **Student team details/Faculty Details:**
   1. Muppala Pooja
   2. Daivala Deepika
   3. Hema Naga Srilakshmi
   4. Polamreddy Dharani
6. **Patent Filing date** : 02.05.2023
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202341031360

Patent-204: Paper bags from banana fibre to replace plastic

1. **Name of the Technology**: Bioplastic sheet from banana waste to replace single use plastic
2. **Highlights of the Technology (innovation/uniqueness etc.)**: These bags are stronger than plastic carry bags and withstand as much as or more than that a plastic bag can carry, also these bags are suitable for carrying leaking or damp items, also most attractively these bags are reusable for a long period (if get wet we can dry and use it again).
3. **Impact it will create**: This innovation makes paper bags stronger, reusable and cheaper and most importantly its free from harmful effect for mankind and nature
4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Rahul Joseph Saji
   2. Alby A K
   3. Aswant Raj
   4. Safwan M K
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031404

Patent-205: Instant Pothole Repair Mix

1. **Name of the Technology**: Instant Pothole Repair Mix using Non Newtonian Fluid
2. **Highlights of the Technology (innovation/uniqueness etc.)**: It mainly focuses on the aspect of repairing those potholes with a new approach of filling them with Non- Newtonian fluid rather than the other traditional methods in repairing those potholes as they require a lot of physical labour and the idea is economically well driven, requires less human effort.
3. **Impact it will create**: Long life with less cost for repairing potholes
4. **Current Status of the Patent**: Patent Published
5. **Student team details/Faculty Details:**
   1. Sharan Sai P
6. **Patent Filing date** : 03.05.2023

7. **Patent Granted date** :
8. **Patent Application Number** : 202341031398

Patent-206: Smart Glaucoma Predictor

1. **Name of the Technology:** Smart Glaucoma Predictor
2. **Highlights of the Technology (innovation/uniqueness etc.)**: It will be more compact and portable. Existence instruments cannot be used without the support of any additional experts / technicians. It is a Portable Scanning Eye Predictor cum Reporter. It has inbuilt powerful computer hardware (Raspberry pi4).
3. **Impact it will create**: This product is planned to design for Lab Technician, Researchers, Ophthalmologist and home as well to check themselves.
4. **Current Status of the Patent**: Patent published
5. **Student team details/Faculty Details:**
   1. Mohamed Bayas A
   2. Parashakthi Kumar K
   3. Rajiv R
   4. Sasikala M
6. **Patent Filing date** **:** 03.05.2023
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202341031392

Patent-207: Bio-degradable food wrapping sheet by biofilms.

1. **Name of the Technology**: Utilization of Biowaste Prosopis Ulipora bark powder for alternate food wrapping material.
2. **Highlights of the Technology (innovation/uniqueness etc.)**: It is developed to eradicate plastic wrappers and to initiate the use of bio-degradable wrappers that doesn't affect the food. The main goal is to destroy the pyrosis juliflora and to create a healthy food life and good environment.
3. **Impact it will create**: Utilization of silver nano particles is incorporated.
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Gokulakannan MPR
   2. Kamalakannan B
   3. Dinesh Kumar S
6. **Patent Filing date** **:** 02.05.2023

7. **Patent Granted date** :
8. **Patent Application Number** : 202341031361

Patent-208: Herbal Handwash

1. **Name of the Technology:** Herbal Handwash
2. **Highlights of the Technology (innovation/uniqueness etc.)**: The main aim of hand wash is to prevent the spread of infection. Washing hands with hand wash is better than using alcohol based sanitizer. At this pandemic situation, world is in need of better herbal hand wash, which is free from all harmful chemicals. The harmful chemicals lead to various skin ailments such as allergies, irritation, cancer etc. From younger to older, hand wash plays an important role, hence using a chemical free herbal hand wash is mandatory.
3. **Impact it will create**: Herbal hand wash includes the natural ingredients and free from all harmful chemicals which are used in the hand washes available in the market. It is very effective and free from all skin ailments
4. **Current Status of the Patent**:
   Patent published
5. **Student team details/Faculty Details:**
   1. Hrithika KV
   2. Sreerag S
   3. Meena Kalyani B
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031405

Patent-209: Development of Phytosome loaded herbal pain relief transdermal patch for Menstrual cramps

1. **Name of the Technology**: Development of Phytosome loaded herbal pain relief transdermal patch for Menstrual cramps
2. **Highlights of the Technology (innovation/uniqueness etc.)**: To develop a Phytosome loaded herbal pain relief transdermal patch by isolating the bio fraction from the bark of Saraca asoca which will be highly effective and easily used for mild to severe menstrual cramps. It is developed to provide a permanent pain relief for women during those difficult times of their menstrual cycles

3. **Impact it will create**: 100% effective, affordable and instant pain relief Phytosome loaded transdermal patch with ignorable side effects
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Maria Nison
   2. Swetha T P
   3. Fathimath Shameena K
   4. Asish S
6. **Patent Filing date** **:** 02.05.2023
7. **Patent Granted date** **:**
8. **Patent Application Number** **:** 202341031357

Patent-210: Manual Vegetable Planter

1. **Name of the Technology**: Manual Vegetable Seeds Planter
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - It will plant the seed with definite depth and maintained the plant to plant and row to row spacing
   - No requirement of bullock, tractor power, and self-propelled.
   - It is used to plant the seed on bed of four row which gives good yield and have better canopy for the plant.
3. **Impact it will create**: Seed metering plate in manual planter
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Prasanth M
   2. Salison Daniel D
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** **:**
8. **Patent Application Number** : 202341031387

Patent-211: Design and Fabrication of Arduino based Solar Tracking System with Vertical Windmill

1. **Name of the Technology**: Design and Fabrication of Arduino based Solar Tracking System with Vertical Windmill
2. **Highlights of the Technology (innovation/uniqueness etc.)**: Using fixed Photovoltaic panels extract maximum energy only during 12 noon to 2 PM in which results in less energy efficiency. Therefore, the need to improve the

energy efficiency of PV solar panel through building a solar tracking system cannot be over-emphasized. We are using Vertical windmill to maximum energy at the same time solar is producing energy so both can be combined to form good amount of energy from same area.

3. **Impact it will create**: Utilizing the renewable energy like solar, wind energy and convert it into electricity
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Shankar Shiju C
   2. Aravindh M
   3. Raj Kamal D
   4. Madhavan M
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** : Nil
8. **Patent Application Number** : 202341031401

Patent-212: Smell & Odour Monitoring Device

1. **Name of the Technology**: Smell & Odour Monitoring Device
2. **Highlights of the Technology (innovation/uniqueness etc.)**: An electronic device is proposed that can balance the unpleasant odour of the bathroom it can sense the odor with the help of an electronic nose and mark the level of odor in the room. If the odor exceeds its limit, there is a communication system that alerts the respected authority which can be helpful for the cleaning purpose. We are also installing a QR code for the customer's feedback. The idea proposed here has a base frame on the health & hygiene of comfort room atmosphere, our idea is a health-based idea that ensures safety from Saxon and other health problems, it is an electronic device which balances the odor in the atmosphere so whenever such a foul smell is experienced in the atmosphere the system will control that particular area and then apply the recovery procedure.
3. **Impact it will create**: The whole system is made in such a way that, it is automated with the help of sensors and a communication system is also installed to alert the respected authority in case the odor goes beyond its limit.
4. **Current Status of the Patent**:
   Patent published

5. **Student team details/Faculty Details:**
   1. Greena Sunny
   2. Sreejith J
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** : Nil
8. **Patent Application Number** : 202341031402

Patent-213: Bluetooth to IR Remote Technology

1. **Name of the Technology**: Bluetooth to IR Remote Technology
2. **Highlights of the Technology (innovation/uniqueness etc.)**: BiR is a technology which is designed to overcome the limitation to control old set-top box. Older IR remote is replaced by adding an external bluetooth smart remote which is connected to the set top box using a converter (Bluetooth to IR) which is place just before the Set-top box's IR signal receiver. The device only replaces the remote control method it doesn't replace the Set-top box.
3. **Impact it will create**: Replacement of remotes
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Ajith Shaijan
   2. Anirudhan P M
   3. Majid Bin Sulaiman
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** : Nil
8. **Patent Application Number** : 202341031400

Patent-214: Multi-Purpose Smart Solar Cloth Dryer

1. **Name of the Technology**: IOT based Multi-Purpose Smart Solar Cloth Dryer
2. **Highlights of the Technology (innovation/uniqueness etc.)**: It is very difficult to dry the clothes during the winter and rainy seasons. Improper drying during these seasons leads to an unpleasant smell rising and may give room for the fungal growth in the clothes. Also drying the clothes in the open atmosphere makes room for dirt during summer season. Keeping this in mind, a smart cloth dryer has been put forth by us which will overcome all the cloth drying problems throughout the year and all the seasons.
3. **Impact it will create**: Device provides the constant updates in the consumer's mobile phone about the cloth drying status

4. **Current Status of the Patent** : Patent Published
5. **Student team details/Faculty Details:**
   1. Sanjay C
   2. Kapil Krithik T.
   3. Pradeep Singh Rathora A.
6. **Patent Filing date** : 20.04.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202341028618

Patent-215: Vehicle Accident Alert System

1. **Name of the Technology**: Vehicle Accident Alert System
2. **Highlights of the Technology (innovation/uniqueness etc.)**: This project is to develop an application based on IoT which is used to help the users for saving their life. This application will be adding on functions such as reconnection, SMS triggering and Geo Location to ease user to identify accident spot. Since nowadays most of the devices have GPS and GSM technology which is readily installed and fixed inside their IoT devices. This product focused mainly to the users who want to keep track on their belongings as they are moving around so that they would feel secure as this IoT would also be able to help users to search back their belongings as well.
3. **Impact it will create**: Quick identification of accident area
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Kesaav N A
   2. Ragul T
   3. Swathi P
   4. Alisha Shaik
6. **Patent Filing date** : 02.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031358

Patent-216: Green Synthesis of Nano Particles from Polyherbal formulation against Viral Infections to boost the immunity

1. **Name of the Technology**: Green Synthesis of Nano Particles from Polyherbal formulation against Viral Infections to boost the immunity

2. **Highlights of the Technology (innovation/uniqueness etc.):** Poly herbal formulations can enhance immunity and the Nanoparticles can be synthesized using poly herbal formulations that can fight against several viral infections including Corona Virus. After the synthesis of the Herbal nanoparticles, the shape and characteristic studies of nanoparticles can be done to standardize the formulation for herbal remedies.
3. **Impact it will create**: Purely Herbal product
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Sreejithmohan Kumar Nair
   2. Karthikeyan P
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031403

Patent-217: Chitoson based biodegradable active films for food and drug packaging

1. **Name of the Technology**: Biodegradable chitosan reinforced starch based bioplastic film
2. **Highlights of the Technology:** Chitosan is a naturally derived polymer; it is biodegradable & safe for human consumption. Food-focused researchers are exploiting the properties of chitosan to develop biodegradable food packaging systems.
3. **Impact it will create**: Preparation of active films with no toxic effect
4. **Current Status of the Patent** : Patent published
5. **Student team details/Faculty Details:**
   1. Joel S P
   2. Fazeela A
   3. Karthik M
   4. Karthika S P
6. **Patent Filing date** : 03.05.2022
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031395

Patent-218: Upscaling Agricultural Wastes-Value Addition to Jackfruit Seeds

1. **Name of the Technology**: Biofabrication of edible cutleries jack fruit seeds

2. **Highlights of the Technology**: Generally, seeds of the fruits are wasted without utilizing for any constructive purpose other than for the cattle feed. The jack fruit seeds are one among those seeds which can be consumed by the human being but in recent years they are underutilized and less acknowledged by people. Upscaling this edible agriculture waste to edible cutleries will provide an additional income to the farmers as well as reduce the landfilling by the plastic cutleries.
3. **Impact it will create**: Waste into Wealthy
4. **Current Status of the Patent** : Patent published
5. **Student team details**
   1. Afsiya S
   2. Hathiqa Hussain Ali H
   3. Devi Vijayan
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031397

Patent-219: Low E Glass

1. **Name of the Technology**: Controlled Temperature Glass
2. **Highlights of the Technology (innovation/uniqueness etc.)**:
   - A coating will be done over the glass surface.
   - It will reflect the long-wave infra-red radiations towards the interior of the building.
   - Because of reflection, it will make the room cooler.
3. **Impact it will create**: Low Emissivity Coating
4. **Current Status of the Patent** : Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Shamnas S
   2. Sharafudheen S
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** : Nil
8. **Patent Application Number** : 202341031391

Patent-220: Plastic Dry Cell

1. **Name of the Technology**: Plastic Dry Cell
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Cells are manufactured using the waste plastics.
   - Liquid plastic will act as electrolyte from plastic waste using pyrolysis method.
   - Output of the dry cell is 1.6V
3. **Impact it will create**: Cost effective
4. **Current Status of the Patent** : Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Princya S
   2. Mohammed Ariffin B
   3. Santhosh S
   4. Mohammed Ashiq J
6. **Patent Filing date** : 03.05.2023
7. **Patent** Granted date :
8. Patent Application Number : 202341031394

Patent-221: Bija Treat Cookies for A Healthy Start

1. **Name of the Technology**: Development and Standardization of cookies using pumpkin, watermelon, flax seeds
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Making cookies (watermelon, pumpkin, flax seeds and banana flour)
   - Using Banana flour instead of maida is more healthy
3. **Impact it will create**:
   Cookies are rich in nutrients
4. **Current Status of the Patent**:
   Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Melvin K Roy
   2. Sinasira B
   3. Thanveer Shahin PK
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031388

Patent-222: Extraction of Polysaccharide Base Amphiphilic Biopolymer as a Novel Excipient For Pharmaceutical Tablet Coating

1. **Name of the Technology**: Novel biopolymer for tablet coating
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Isolates polysaccharide base biopolymer from the fruit peel rind of Passiflora edulis, also known as passion fruit
   - It has balanced nutrition and health benefits.
   - It will be coated around the tablet.
3. **Impact it will create**: Cost-effective, low toxic and better patient tolerance, bio-compatible
4. **Current Status of the Patent**: Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Radhika Sivaraj
   2. Aiswarya K N
6. **Patent Filing date** : 02.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031359

Patent-223: Wild Animal Repellent System Fields Using AI & IoT

1. **Name of the Technology**: Wild Animal repellent system fields using AI & IoT
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Ultrasonic device to repel wild animals that are entering in the agricultural field.
   - It uses modern technology like AI and IoT to identify the animal species and to produce the particular ultrasonic frequency which disturbs them.
   - Solar panels and cells are used to produce the required power for working of the system
3. **Impact it will create**: Cost efficient, portable and flexible to use.
4. **Current Status of the Patent** : Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Abhishekh P S
   2. Adarsh K
   3. Adithyan P
   4. Arathi Menon
6. **Patent Filing date** : 03.05.2023

7. **Patent Granted date** :
8. **Patent Application Number** : 202341031389

Patent-224: Dairy Based beverage, Dip Tea Bag and Date Seed Coffee Sachet

1. **Name of the Technology**: Dairy based beverages from date seed powder
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Date seed in the form of waste has been roasted at suitable temperature and pulverized into powder form
   - Then finally added with ingredients such as palm candy, elachi and micronutrients along with chilled milk which can be served as a beverage.
3. **Impact it will create**: Combating fatal health issues such as diabetics, heart problems and low immunity conditions
4. **Current Status of the Patent** : Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Mohamed Rafique K
   2. Vishva R
   3. Mohammed Farsil A
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031390

Patent-225: Endophytic Biofertilizers

1. **Name of the Technology**: Endophytic Biofertilizers, Biocontrol products for agriculture use
2. **Highlights of the Technology (innovation/uniqueness etc.):** It helps agriculture and farmers with the living microbes to promote plant's growth, improve productivity through the strengthening the agriculture. It converts the bio-fertilizer formulation (liquid/ Solid/ powder form) and biocontrol products for the potential role of plant-growth promotion and better disease management.
3. **Impact it will create**: Non- pollution of the environment and stress tolerance.
4. **Current Status of the Patent** : Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Anaamika B
   2. Bhagyasree N
   3. Reeba R

6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031399

Patent-226: Formulation of Therapeutic Candy for chronic diseases from Plectranthus Amboinics

1. **Name of the Technology**: Formulation of Therapeutic Candy for chronic diseases from Plectranthus Amboinics
2. **Highlights** of the Technology (innovation/uniqueness etc.): Plectranthus amboinicus is a semi succulent Lamiaceae perennial plant with a pungent oregano like taste and odour. The other names of Indian borage are Ajwain leave, Karpooravalli leaves, Pathachur, Muriyan pacha. Candy will detoxify the body, fight against cough and cold, alleviate Arthritis pain, reduces stress and improve digestion.
3. **Impact it will create**: Anti-inflammatory, treats fever and the most common symptoms of a cold or flu
4. **Current Status of the Patent**:
   Waiting for publication
5. **Student Team details/Faculty Mentor** :
   1. Rakshana D
   2. Harirashini R
6. **Patent Filing date** : 03.05.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341031396

17) S. R. M. Institute of Science & Technology, Kattankulathur

Patent-227: Tabletop cell Culture Unit

1. **Name of the Technology:** Tabletop cell Culture Unit
2. **Highlights of the technology**: Cell culture is the procedure being used conventionally to solve various translational research questions. The conventional cell culture methodology requires a highly sterile lab facility with all the principal equipment for culturing including a Fume hood, Incubator, Autoclave, refrigerator, microcentrifuge, microscope, etc. These technologies have the drawbacks of large space occupancy increasing risks of contamination, frequent sterilization - a time-consuming factor, and high production, and maintenance costs. Our idea combines the two major

instruments Biosafety cabinets (BCL-2 hood) into a single Table-top Cell Culture Unit (TCC Unit) measuring 90*60*60 cm. TCC Unit comes with the idea of easy to use, simple model for culturing cells. It uses various theoretical principles to maintain the pH, temperature, humidity, and CO2 Concentration. All these parameters vary with the external environment present outside the system. Electrically, all the said parameters are maintained through the integration of sensors using a microprocessor unit. This product differs from the existing CO2 incubators in terms of UVC sterilization and the strategy used to maintain the required temperature, humidity, and CO2 levels. Also, a simple design is being utilized to provide an easy-to-sterilize workspace for performing various cell culture operations like media preparation, cell slicing, etc. TCC unit is equipped with all the necessary components to maintain optimal cell growth and proliferation and can be customized to meet specific research needs. We find the integration of a customized CO2 incubator in an air-tight glove box (cell culture workspace) as our main focus area.

3. **Impact it will create:** Trends in healthcare for diagnosis, drug discovery, testing, and treatment are moving towards precise and personalized medicine. The recent challenge of testing COVID-19 samples required a closed system, otherwise, it affects technicians. Because it is a high-risk job wearing a PPE kit for a minimum of 12 hours with a break of every 3 hours. Improper personal cleaning might affect family members and other close relations. In this case, a negative pressure-based room is equipped for testing COVID-19 cases. In addition to this, point-of-care diagnosis kits, organoids, Tissue engineering, and cancer research rely on cell culture systems having a sterile environment. But conventional cell culture requires a sterile lab facility with all the principal equipment like a fume hood, incubator, autoclave, microcentrifuge, microscope, etc. The main drawbacks are large space occupancy increasing risks of contamination, frequent sterilization - a time-consuming factor, and high production, and maintenance costs. We find TCC as a cost-effective solution to address the issue of limited incubators and facilities and culturing workspace.
4. **Current Status of the Patent:**

   IDF421 (recently applied to patent office, awaiting official contribution)

5. **Student Team details/Faculty Mentor :**
   1. Siva Prasath R
   2. Narendiran T
   3. NivasKumar S
   4. Sadriwala Mohammed
6. **Patent Filing date** :
7. **Patent Granted date** :
8. **Patent Application Number** :

Patent-228: A Concrete Composition and A Process for its Preparation

1. **Name of the Technology:** A Concrete Composition and A Process for its Preparation
2. **Highlights of the technology (innovation/uniqueness etc.)**: The presence of Torched Fly Ash collected from the Municipal Solid Waste dump and carbon powder from coconut husk which also credits to the reusing of the waste materials in the mix design of the tile helps acquiring the Thermal Comfort.The dimensional design of the tile allows the embedding of the Photovoltaic Panel which captures the sunlight for further conversion into Electrical energy. The energy is collected and stored in specific Energy Storage System and furthersupplied to required appliances.
3. **Impact it will create**: The research focus to make use of the solar energy. Utilization of the by products of Municipal Solid Waste. Composing a sustainable mix design (torched fly ash & carbon powder) for preparation of tile.
4. **Current Status of the Patent** : Amended Examination
5. **Student team details/Faculty Mentor:**
   1. Mukilan. P.
   2. Phumen Teron
6. **Patent Filing Date** : 18/08/2022
7. **Patent Granted Date** :
8. **Patent Application Number** : 202241047120

Patent-229: A system for authentication and billing of wireless electric vehicle chargers and method thereof

1. **Name of the Technology**: A system for authentication and billing of wireless electric vehicle chargers and method thereof

2. **Highlights of the technology (innovation/uniqueness etc.)**: The present disclosure pertains to the authentication and billing of dynamic and static wireless power transfer systems employed for Electric Vehicles. Specifically, it addresses the authentication and billing procedures during both static and dynamic charging conditions in a wireless power transfer system. The authentication of an Electric Vehicle is pivotal in identifying the rightful user for charging purposes. Therefore, it is crucial to employ authentication algorithms that are not only accurate but also efficient and fair to establish effective billing schemes for Electric Vehicle charging. Fair billing not only enhances the coordination of Electric Vehicle owners but also encourages their further contribution.
3. **Impact it will create:** Electric Vehicle is pivotal
4. **Current Status of the Patent**: Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. Dr. R. Narayanamoorthi
   2. Dr. R. Raj Kumar
   3. Dr. Bala Subramaninan
   4. Mukilan
   5. Athota Vamsi
   6. Devesh Karwasra
   7. Sampath Pasangulapati
6. **Patent Filing Date** : 20.11.2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341078576

Patent-230: Interoperable dynamic wireless charging system with adaptability to static wireless charging and method thereof

1. **Name of the Technology:** Interoperable dynamic wireless charging system with adaptability to static wireless charging and method thereof
2. **Highlights of the technology (innovation/uniqueness etc.)**: The present disclosure relates to the Dynamic wireless power transfer system used for Electric Vehicles. The present disclosure particularly relates to a dynamic wireless power transfer system using N-legged(multi-legged) driven inverter. It surpasses the limitations of conventional H-bridge inverters by offering higher power levels and lower misalignment sensitivity. The proposed invention uses a pulse density-based modulation technique to overcome the

issues in the dynamic wireless charging and enhance the efficiency of the N-legged inverter.

3. **Impact it will create**: Wireless Charging
4. **Current Status of the Patent** : Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. Dr. R. Narayanamoorthi
   2. Arpan Mandal
   3. Anirban Gangully
   4. Soumalya Pal
6. **Patent Filing Date** : 20.11.2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341078830

Patent-231: IoT based bidirectional wireless charging system with v2h and h2v interface and method thereof

1. **Name of the Technology**: IoT based bidirectional wireless charging system with v2h and h2v interface and method thereof
2. **Highlights of the technology (innovation/uniqueness etc.)**: The present disclosure pertains to the Internet of Things Enabled Bidirectional Wireless Power Transfer System for Electric Vehicle application. The invention integrates the Internet of Things (IoT) to establish a smart and connected charging system for electric vehicles. This work represents a significant advancement in electric vehicle charging technology, offering a bidirectional wireless charging system with IoT integration and V2H/H2V interfaces
3. **Impact it will create:** IoT integration and V2H/H2V interfaces
4. **Current Status of the Patent** **:** Patent Filled
5. **Student team details/Faculty Mentor:**
   1. Dr. R. Narayanamoorthi
   2. Dr. R. Raj Kumar
   3. Dr. Bala Subramaninan
   4. Mukilan
   5. Athota Vamsi
   6. Devesh Karwasra
   7. Sampath Pasangulapati
6. **Patent Filing Date** : 23.11.2023
7. **Patent Granted Date** :

8. **Patent Application Number** : 202341079556

Patent-232: Food ordering system and method thereof

1. **Name of the Technology:** Food ordering system and method thereof
2. **Highlights of the technology (innovation/uniqueness etc.):** This work related to methods and systems for ordering menu items, for seamless and contactless payment in the canteen, and relates to Near Field Communication (NFCs), for use in such methods. We harnessed the power of NFC (Near Field Communication) technology by integrating it into the existing student ID cards. This innovation allowed for seamless and contactless payment in the canteen, alleviating the congestion and long waiting times that had become a daily ordeal.
3. **Impact it will create:** NFC Technology
4. **Current Status of the Patent** : Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. Inas Kiren N. S.
   2. M. G. Sathyaa
   3. Venkatesan J.
   4. Ms. Angeline R.
6. **Patent Filing Date** : 27.11.2023
7. **Patent Granted Date** :
8. **Patent Application Number** : 202341080362

Patent-233: Table-Top cell culture unit

1. **Name of the Technology:** Table-Top cell culture unit
2. **Highlights of the technology (innovation/uniqueness etc.)**: NFC powered ID cards Redeemable points Register number of student is stored in RFID card so that card will uniquely identified. If card is lost or damaged, it can be blocked through requesting the administrator. Students can also order through the website and pay using UPI
3. **Impact it will create**: Payment will Fast
4. **Current Status of the Patent** : Patent Filied
5. **Student team details/Faculty Mentor:**
   1. Ashwin Kumar N.
   2. Hema Brindha M.
   3. Siva Prasath R.

4. Narendiran T.
5. NivasKumar S.

6. **Patent Filing Date** :
7. **Patent Granted Date** :
8. **Patent Application Number** : IDF421

Patent-234: AI based condition monitoring system for yard activities

1. **Name of the Technology:** AI based condition monitoring system for yard activities
2. **Highlights of the technology (innovation/uniqueness etc.)**: Sensors help a lot in gathering additional data for predictive models, and also provide constantly- updated information on whether failure thresholds have been met. The life span of machines is usually in the order of years, which means that data has to be collected for an extended period to observe the system throughout its degradation process. Usage history data is an important indicator of equipment condition as well as information about maintenance and service history. Other static information about the machine/system is also useful such as data about a machine's features, its mechanical properties, typical usage behavior, and environmental operating conditions. Data has to be collected from different places because of different environmental conditions may have different affects on working of machine. In case we don't have enough data we can define mathematical models which can generate several false condition that can be merged with sensor data and with the help of combination of these two we can train our model.
3. **Impact it will create**: Static information getting from machine is also useful
4. **Current Status of the Patent:** Awaiting publication
5. **Student team details/Faculty Mentor:**
   1. Sivaprasath S.
   2. Vibhu Jain
   3. Yash Goel
   4. N Muhammad Fadil
6. **Patent Filing Date** :
7. **Patent Granted Date** :
8. **Patent Application Number** : IDF493

18) C. V. R. College of Engineering, District: Ranga Reddy

Patent-235: Data Analytics Powered IoT weather station to determine the AQI index in Amicro Climatic Zone

1. **Name of the Technology:** Data Analytics Powered IoT weather station to determine the AQI index in Amicro Climatic Zone
2. **Highlights of the Technology (innovation/uniqueness etc.):** The goal of Weather Station is to make it simpler for individuals to track their local weather in real - time basis regardless of where they are in the world. It isimportant to store weather and environmental data for both short and long periods of time in order to analyse changes in weather patterns and comprehend how human-induced climate change affects Air Quality Index (AQI). The deployed smart weather station can give data regarding the pollution levels by detecting the PM2.5 andPM10, which indirectly gives information about AQI index of the micro climatic region. Organizations and groups can create smart environments with the help ofweather stations powered by LoRa. Many coal mining operations, smart agriculture, and high-rise apartments in India are using this weather monitor to help people livein safety and comfort and reduce health issues. The weather station system employs the LoRa WAN Outdoor Gateway modules along with the sensors of Rain Gauge,Wind Speed and Direction, C02, PM2.5, PM10, Rain & Snow Detect Sensor, Temperature, Humidity, Illuminance, Pressure, TSR (Total Solar Radiation), and PAR.(Photosynthetically Available Radiation). The data obtained by the implementation of weather station gives us insight about the PM2.5 and PM10 which is essential inpredictingtheAQIofaregion.
3. **Impact it will create:** The continuous accumulation of data and graphs on AQI can tell us about the ups and downs in the level of pollution on a particular day. The averaged AQI can be used to understand the severity of pollution in the air. It is important to integrate reliable environment monitoring models that collect data on pollutant levels and provide an analysis of environmental pollution in each area compared to air pollution. Air pollution harms both the atmosphere and human health, resulting in global warming, acid rain, heart disease, lung cancer, and skin cancer among the population.
4. **Current Status of the Patent :**
   Published
5. **Student Team details/Faculty Mentor :**

1. Gaddam Vivek
2. Sahithi Vangala
3. Gopu Saikiran
4. Dudekula Anwar Baasha
5. Pulijala Bharath Chandra
6. Kurukuti Yasash

6. **Patent Filing date** **:** 17.4.2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202341027954 A

Patent-236: Machine learning powered model to determine shelf life of fruits and vegetables

1. **Name of the Technology:** Machine learning powered model to determine shelf life of fruits and vegetables
2. **Highlights of the Technology (innovation/uniqueness etc.):** Fresh fruits and vegetables are essential components of a healthy diet, but theirshort shelf life often leads to significant food waste and economic losses. The Food and Agriculture Organization (FAO) estimated that 33% of the total food produced forhuman consumption is lost due to postharvest spoilage. The assessed misfortunes infruits and vegetables are higher also, arrived 40%. These percentages are not acceptable and adversely affect the Indian economy. The aim is to propose a technology which will involve the use of sensors that can monitor the temperature, humidity, ethylene gas concentration, and oxygen gas levels in the storage environment and to develop a predictive model using artificial intelligence and machine learning techniques to estimate the shelf life of fruits and vegetables. The technique will involve screening and identifying the most effective atmosphere by adjusting.the temperature, humidity and the amount of ethylene- absorbing compounds released into the storageenvironment, effectively slowing down the ripening process that can be used to treat fruits and vegetables. This technology is then tested on different types of fruits and vegetables to determine their effectiveness in delaying the delivery of fresh and healthy food to consumers. Moreover, the technology will contribute to sustainable agriculture by reducing the need for synthetic pesticides and preservatives, thus promoting environmentally friendly food production practices.
3. **Impact it will create:** Post harvest loss will be reduced for farmers

4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**
    1. Nandipati Jyothsna Santoshi
    2. Nukala Rikitha
    3. Sri Sai Nandini Anugu
6. **Patent Filing date** **:** 17.4.2023
7. **Patent Granted date** : Pending
8. **Patent Application Number** : 202341027934 A

Patent-237: Data analytics powered health care solution to prevent maternal death in rural areas

1. **Name of the Technology:** Data analytics powered health care solution to prevent maternal death in rural areas
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention relates to a data analytics-powered smart healthcare solution aimed at preventing maternal death inrural areas. The system comprises a data analytics module and a smart healthcare device which is a wearable. The data analyticsmodule collects and analyses maternal health data from multiple sources such as medical records, wearable and other sensors. The smart healthcare module provides personalized maternal healthcare recommendations based on the analyzed data, such as temperatureof the body, pulse rate, position of body and other factors. The system uses data analytics techniques to identify potential risks andprovide timely and appropriate healthcare interventions. The system can be deployedin remote areas with minimal infrastructure and can be accessed via mobile devices or other digital platforms. The invention is useful for improving maternal health outcomes,reducing maternal mortality rates, and improving the quality of life for pregnant women in rural areas.
3. **Impact it will create:** It will improve maternal health outcomes, reducing maternal mortality rates, and improving the quality of life for pregnant women in rural areas.
4. **Current Status of the Patent:** Published
5. **Student Team details/Faculty Mentor :**
    1. Mohit Jain
    2. Akshit Reddy
    3. Shaik Mahammed Sahil

6. **Patent Filing date** **:** 17.4.2023
7. **Patent Granted date** : Pending
8. **Patent Application Number** : 202341027936 A

19) I. T. S. Engineering College, Greater Noida

Patent-238: Datum Surface Table

1. **Name of the Technology:** Datum Surface Table
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Advance datum surface table is used for measuring all the gd&t, spotting, marking, inspection with the help of mechanical movement of 3 axis x,y, and z.
   - It is advance datum surface table by which we can measure all the gd&t.
   - The major objectives of invention are time saving, accuracy, easy to use, less rejection of products for vendor companies and easy to attach &detach the measuring instruments.
   - In this machine less rejection of products because accuracy will increase.
   - We can measure one product in one minute.
   - Working steps of invention are following 1. Placing any product on the table, 2. We can measure it in three axis x,y,z(with the help of height gauge which is attach on all the three axis, 3. Tip of dial gauge is use measure all the dimensions.(main measuring point) and 4. This table has as dead end to measure the circular runout and total runout.
3. **Impact it will create:**
   - It works on three axes mechanically not by hand (roughly).
   - Errors are very negligible as compare to normal surface table
   - Accuracy becomes more and more.
   - Less skill worker is required to measure any product.
   - Price is very less as compare to CMM machine
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Jayant Singh Rajput
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008482

Patent-239: Mobile Robot using Lidar and Navigation Camera

1. **Name of the Technology:** Mobile Robot using Lidar and Navigation Camera
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The invention uses Navigation Camera and Navigation LIDAR for obstacle avoidance and mapping uses GMCL which is defined as General Monte Carlo Localization. We have been working on this device for material handling and it can be used for other purposes also.
   - The robot has the capability of designing it's new path on its own based on the real time inspection it does by doing obstacle avoidance.
   - We will be using the camera for scanning the data using the camera and the data will automatically be sent on the cloud using the webserver. This application can be helpful in collecting data from a plant which has various departments and which are large in size so it is not possible to cover the entire plant in 1 day but robot will move at speed of 3-4 m/s and will scan all the data of the plant and automatically send the data on the cloud at real time.
3. **Impact it will create:**
   - It can navigate in the robust environment where fog and low visibility is there.
   - It can climb on the stairs of the building and navigate between different floors.
   - It is voice controlled and moves as per the directions given by the ALEXA.
   - No GPS for outdoor navigation.
   - User friendly GUI
   - LIDAR & navigation camera will help in obstacle avoidance and goal Identification.
   - The navigation camera will also serve the purpose of real time data inspection and sending the scanned data over cloud to server.
4. **Current Status of the Patent:**
   - Filed
5. **Student Team details/Faculty Mentor :**

   1. Asin Suhail
   2. Mr. Suraj Singh
6. **Patent Filing date** **:** 09/02/2023

7. **Patent Granted date** :
8. **Patent Application Number** : 202311008481

Patent-240: Method for development of boidegradable shellac based dielectric substrate for flexible sensors

1. **Name of the Technology:** Method for development of boidegradable shellac based dielectric substrate for flexible sensors
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Shellac the only known commercial resin of animal origin is well known for its biodegradable food grade qualities and uses for coatings as lacquers and varnishes. Although the natural resin shellac possesses very high Dielectric properties and biodegradable in nature some of its weaknesses such as low thermal resistance, brittleness of its film and low water resistance limits its use as a perfect electrical insulator.
   - In present invention the shellac is modified with using some synthetic resin by solution blending process and a polymer blend of shellac in liquid state is formed.
   - This polymer blend is coated on thin Copper sheet either by spraying or by pour and flow method after air drying for half an hour the blend coated Copper sheet is baked in temperature controlled oven at 150 degree centigrade for 1.5 hr. After cooling this coated and baked Copper sheet will be used as dielectric layer for flexible antenna.
3. **Impact it will create:**
   - Purely synthetic polymers, paper, denim, cloth and soft PCB materials are widely used to fabricate flexible antenna substrates. These are non biodegradable and poses problem to environment and also they cannot be fabricated to micrometer dimensions. Shellac the only known commercial resin of animal origin is well known for its biodegradable, food grade qualities and uses for coatings as lacquers and varnishes. In present invention the use of modified shellac is done to fabricate the flexible substrate material which can be fabricated in micrometer thickness for antenna uses.
4. **Current Status of the Patent:**

   Filed

5. **Student Team details/Faculty Mentor :**
   1. Raghunandan Kumar
   2. Prabhat Kumar Mishra
6. **Patent Filing date** : 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008483

Patent-241: Plastic Sand Composite Brick

1. **Name of the Technology:** Plastic Sand Composite Brick
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Plastics are incredibly useful and widely used in our everyday lives because of their low cost, easy availability, and great properties. However, it leads to the deterioration of the environment through depletion of resources such as quality of air, water and soil and the destruction of ecosystems. Their environmental impact is hazardous and the plastic pollution that has accumulated in the Earth & the environment is causing serious damage to wildlife, their habitats, and us humans.
   - To overcome this, it is proposed to convert plastic waste into useful plastic bricks as a construction material. The plastic waste would be obtained from bottles, bags and used plastic waste and chopped into small pieces, and mixed with sand, ceramics and other reagents to form composite bricks.
   - These bricks would then be tested for strength by conducting compressive strength test, free fall as well as water absorption tests. The results showed that the plastic composite brick was equal or more efficient than clay and cement bricks, and could be used in construction purposes.
3. **Impact it will create:**
   - A small effective way to reduce some amount of plastic waste by using it as a construction material.
   - Cost effective
   - Alternative for routine construction material.
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Amber Shamsh
   2. Madhav Dixit

6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008484

Patent-242: IoT based Health Monitoring System

1. **Name of the Technology**: IoT based Health Monitoring System
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - IoT based health monitoring systems are revolutionary systems that enable continued vigilance of human vital signs during daily routine or in hospital, with minimum distress. IoT based health monitoring systems are more of personal health monitoring systems, an idea initiated in the late 1990s, which monitors an individual and interacts with health care providers continuously.
   - There are four main requirements on their design: low power consumption, reliability and security, comfort and ergonomics. In this project we are talking about major vital signs of a human body, there are four major parameters that we need to be aware of, they are body temperature, heart rate, breath rate, blood pressure, and due to COVID, oxygen saturation has become a major parameter that we need to be aware of. In this project, we will be making a simple
   - Arduino Uno IoT-based device with multiple sensors can measure various vital parameters of the human body. The device will be like a multi monitor that you see in ICUs, a lot simpler and made of cheap sensors not meant for actual medical use.
3. **Impact it will create:**
   - The system developed is a continuous blood sugar monitoring system for better diabetic management.
   - The system is able to continuously monitor for any type of cardiovascular disorder.
   - The system is able to reveal any nerve dysfunctions, muscle dysfunctions and nerve to muscle signal transmission.
   - The system is able to detect any abnormality in the oxygen level and temperature to detect covid-19 symptoms..
4. **Current Status of the Patent:**

   Filed

5. **Student Team details/Faculty Mentor :**
   1. Ainul Hasan
   2. Aditya Shankar
   3. Ashwin Yadav
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008495

Patent-243: IoT based smart mirror for multi-dimensional applications

1. **Name of the Technology**: IoT based smart mirror for multi-dimensional applications
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Everyone is extremely preoccupied with their daily tasks, making it impossible for them to check daily essential information such as the latest news, to-do lists, social media newsfeeds, traffic updates, weather forecasts, and so on. This concept allows users to access all of this information on a smart mirror, which is automatically updated from time to time. In addition, when a camera is put behind the mirror, smart mirrors are employed for security purposes.
   - An AI-based facial identification mechanism is implemented, which detects unknown people and sends a notification to the user & mobile phone. The Google voice assistant is incorporated, and the user may use it to interact with the mirror, watch YouTube videos, listen to music, and so on. In addition, users will be able to monitor their health condition using this system. It will measure the user's heart rate, body temperature and oxygen level. All these values will be displayed automatically on the mirror and if these values are not in normal range, then it will alert the user.
3. **Impact it will create:**
   - SMART Mirror enables hosts and participants to use wireless networks to share their device screens to the SMART display.
   - Smart mirror receives online news and display it using Internet of things (IoT)
   - The smart mirror is able to screen mirroring allows you to project the content currently displayed on your smart phone, tablet, or computer

Smart mirrors bring you all the functions you need hands-free while getting ready for the day: weather, stocks, traffic, and news.

- The smart mirror is an IoT-based intelligent system to facilitate and enhance the user's awareness of various physiological functions using biomedical functions in real time.

4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Devraj Singh
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008494

Patent-244: Smart Machine Box

1. **Name of the Technology:** Smart Machine Box
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Smart Machine Box is the system which consist of 10-20 sensors which is connected to Raspberry Pi 4 via PLC model and these sensors send the data from the machine to the PLC and then PLC sends the data to Raspberry Pi 4 .
   - The Raspberry Pi 4 sends the data to the cloud from machine. The main applications are Predictive maintenance, AOI (Automated Optical Inspection) and DAS(Data Acquisition System)
3. **Impact it will create:**
   - Multiple sensor integration with PLC and acquiring data at real time.
   - The User-friendly APP which will have 10 sensor data coming simultaneously.
   - Displaying graph of all sensors at single time.
   - Presently configuring 10 sensors in a single system. It can be increased further as per the requirement.
   - Performing Predictive Maintenance and Health Monitoring of the system
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Gagan Sahu
   2. Mr. Suraj Singh
6. **Patent Filing date** **:** 09/02/2023

7. **Patent Granted date** :
8. **Patent Application Number** : 202311008497

Patent-245: Vertical Mop Robot

1. **Name of the Technology:** Vertical Mop Robot
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Most maintenance works on building exterior glass walls are carried out by human labor involves a safety problem, Exterior wall automated maintenance methods have concentrated only on moving mechanisms but cleaning methods and processing of cleaning materials are neglected.
   - In addition, these systems generate problems such as the scattering and dripping of used water resulting in the contamination of surrounding areas. In order to solve these problems, a new cleaning tool system with a water circulation function is being developed to improve cleaning efficiency and reduce water usage in this paper.
   - Using the cleaning tool system with the water circulation and Pulse Width Modulation (PWM) flow control, the scattering and dripping were removed and the water usage was reduced by about 20%. Also, this cleaning tool system was compared to manual work by human experts as well as previously developed automated (or semi-automated) cleaning robots through statistical analysis.
3. **Impact it will create:**
   - The vertical mop robot can be used in two ways, either as a glass cleaning robot or as a crack-finding robot on walls..
   - Another innovation is that robot is remotely controlled and fully autonomous.
   - It is capable of showing the live process of cleaning glass walls and cracks on normal walls to the operator. This feature of the vertical mop robot also makes it innovative.
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Shubham Kumar
   2. Aadarsh
6. **Patent Filing date** **: 09/02/2023**
7. **Patent Granted date** :

8. **Patent Application Number** : 202311008492

Patent-246: Micro Wind Turbine Tree

1. **Name of the Technology:** Micro Wind Turbine Tree
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The invention is in the shape of a tree which will be made out of Stainless Steel 306(for rust resistance) and will have a trunk at the center which will get bifurcated into branches along its height and further into sub branches.
   - At the end of its branches and sub-branches it will have a micro wind turbine that will move along the wind which will be connected to an alternator that will generate electric power.
   - This power will then be transmitted to any appliance directly or to the batteries which will be placed at the bottom of the tree through wires in the sub-branches, branches and trunk of the tree. Then this stored power can be used for operating many appliances.
3. **Impact it will create:**
   - Power generation can be in the areas of high density population and in areas which do not have enough land/space for solar power generation.
   - In India it also has a military application as it can be used in the hilly regions where there is no sunlight present throughout the year.
   - It can be used in generating electricity in coastal areas where air travels at high speeds.
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**
   1. Aditya Rai
   2. Jeevesh Gupta
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008493

Patent-247: Facial recognition based attendance marking system

1. **Name of the Technology:** Facial recognition based attendance marking system
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - It is a device that can identify students in a classroom and mark their attendance, autonomously without any requirement of human intervention. The embedded device works on a time -based mapping of scheduled lectures and the present students to keep track of students' existence in their respective lectures.
   - The device makes use of a high- definition Pan Tilt Zoom (PTZ) camera that is connected to a processing unit. It processes the captured images of students in the classrooms, from time to time as per user definition.
   - Upon processing the captured images, the algorithm running on the processing device, identifies the faces of students in the classroom and marks their attendance and update on Enterprise Resource Planning (ERP). It helps in monitoring and marking the attendance that makes the whole process hassle-free.
3. **Impact it will create:**
   - Marking attendance of a whole class at once using facial recognition technology is possible.
   - The device is also capable of handling situations of attendance of combined classes.
   - The device works on a time-based triggering process.
   - The device has to be provided primary information of lecture schedules and number of triggers in every lecture and threshold scores.
   - The device stores the attendance details locally and then also uploads it on ERP.
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Shashwat Pandey
   2. Aman Pratap Singh
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008496

Patent-248: Integrated fixed ratio diet mixing and cutting machine

1. **Name of the Technology:** Integrated fixed ratio diet mixing and cutting machine
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - IFR diet machine makes it possible for dairy producers to deal with the various feeding problems and provide healthy diets to dairy animals using this technology.
   - The IFR diet machine cuts the green grass effectively and provides a balanced diet by mixing all the nutrients well.
   - This balanced feed provides adequate supply of nutrients to milk animals, and they like to eat it.
3. **Impact it will create:**
   - With the help of IFR DIET MACHINE, milk animals will get balanced diet and there will be no wastage of animal feed. This is a major issue for all small dairy farmers in terms of labor and expense. It solves the labor problem with its help.
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor :**

   1. Shivendra Kumar
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008498

Patent-249: Automatic milled raw rice age finder machine

1. **Name of the Technology:** Automatic milled raw rice age finder machine
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - The Automatic Milled Raw Rice Age Finder Machine is a straightforward, user-friendly testing device for determining the age of milled raw rice. when used at the time of procurement.
   - It may address the problem of rice recycling and provide a precise understanding of the age and freshness. On the basis of extensive research on the nature of rice and the variables that affect its quality over time, such as moisture, temperature, viruses, and other external and internal factors that can contribute to rice degradation, and it is being tried to make the entire system as simple as possible for anyone to operate.

The recent techniques like image processing and factor analysis are also being used for this device.

3. **Impact it will create:**
   - Automatic determination of the age of raw rice milled.
   - Less time required to age determination.
   - No detrimental effects on the skin and eyes, safe for human interaction
4. **Current Status of the Patent:** Filed
5. **Student Team details/Faculty Mentor:**

   1. Md Samiruddin Ansari
   2. Manish Pandey
6. **Patent Filing date** **:** 09/02/2023
7. **Patent Granted date** :
8. **Patent Application Number** : 202311008689

Annexure-VI

Details of Patent Granted during the financial year, 2022-2023

1) B. N. M. Institute of Technology, Bengaluru

Patent-01: Solar Smart Bench

1. **Name of the Technology:** Solar Smart Bench
2. **Highlights of the Technology (innovation/uniqueness etc.):** A stainless steel bench with an outer frame made of MS Steel and seating made with WPC (Wood Plastic Composite) along with lamination and ACP sheets for the final finishing. The bench can be dismantled into 3 parts – The solar panel structure, side support and the seating structure to enhance the portability of the bench. The assembling and disassembling of these parts cab be done easily with standard screws with are conveniently available.
3. **Impact it will create:** The Solar Smart Bench brings a note of ultra-modern design that can enhance or blend with existing landscapes. Being on the front edge of innovation, it will make a visible and functional green statement. It is a smart designed bench that enables people to charges their devices like mobile phones, laptops, etc., while relaxing on this bench. This project not only supports our PM's vision of Digital India, but will also contribute to the smart city project of our nation.
4. **Current Status of the Design Patent:** Granted on 03/02/2023
5. **Student Team details/Faculty Mentor :**
   I. Madhukeshwar S Malige
   II. Aishwarya M
   III. Gomathi S N
   IV. Hrishikesh S Bhat
6. **Design Patent Filing date** : 16.11.2022
7. **Design Patent Granted date** : 03.02.2023
8. **Design Patent Application Number** : 374232-001

Patent-02: Solar Powered Refrigerated Vending Cart

1. **Name of the Technology :** Solar Powered Refrigerated Vending Cart
2. **Highlights of the Technology (innovation/uniqueness etc.):** This vending cart makes use of solar power for the cooling of fruits and vegetables. This will maintain an ambient temperature of 10-12º c which will increase the shelf life of fruits and vegetables by 5 days. The uniqueness of this project lies in

its hybrid nature where the cart can be propelled by an electric motor of 250 w. This will assist the vendor in pushing the cart on slopes and during fully loaded conditions.

3. **Impact it will create:** This project will reduce the wastage of fruits and vegetables to a great extent. Apart from reduction of wastage, this will also improve the quality of life and earnings of the vendor. The addition of a juicer will act as an additional source of income for the vendor. Hybrid mode of propelling the cart will greatly reduce vendor fatigue and increases productivity.
4. **Current Status of the Design Patent** **:** Filed
5. **Student Team details/Faculty Mentor :**
   I. Bhuvan J
   II. Samarth S
   III. Surya Ravishankar
   IV. Vaibhav Krishna Rao
6. **Patent Filing date** **:** 31.05.2023
7. **Patent Granted date** : 13/07/2023
8. **Patent Application Number** **:** 387348-001

2) College of Technology & Engineering, Udaipur

Patent-03: Development of Two-Stage Dark Fermentation System for the Production of Green Hydrogen through Organic Waste

1. **Name of the Technology:** Development of Two-Stage Dark Fermentation System for the Production of Green Hydrogen through Organic Waste
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - Hydrogen can be used as a clean alternative fuel instead of conventional fossil fuel in transportation sector as well as in chemical industries as a raw material for formation of many other substance like ammonia, urea etc. The production method will be Eco-friendly and utilized fuel is abundantly available renewable energy sources that are free from any types of harmful greenhouses gases. Direct conversion to electricity can also be achieved through fuel cell. This technology provides suitable environment for the fermentation of agricultural waste/waste biomass through which organic waste can be converted to clean alternative hydrogen fuel. It helps to eliminate the COD content of waste influent by proper digesting the waste streams.

3. **Impact it will create**: Organic waste will be optimally utilized as an alternate source of energy, which will not only be ecofriendly and reduce the pollution, but will also help in enhancing the hydrogen fuel collection.
4. **Current Status of the Patent** : Patent Granted
5. **Student Team details/Faculty Mentor :**
   1. Rupal Jain
   2. Naina Sachdeva
6. **Patent Filing date** : 20.04.2023
7. **Patent Granted date** : 23.08.2023
8. **Patent Application Number** : 384367-001

Patent-04: Manual Driven Solar Power Ice Cream Cart

1. **Name of the Technology**: Manual Driven Solar Power Ice Cream Cart
2. **Highlights of the Technology (innovation/uniqueness etc.):** Using traditional ice cream carts spoils the ice cream due to uneven cooling. Also, it is increasing environmental pollution by releasing poisonous gases into the atmosphere during ice making. They have a negative impact on the environment as they are part of the greenhouse gases that trap heat and lead to the depletion of the ozone layer. The solution lies in solar powered system. By developing a solar powered system, we are not only reducing the energy costs but also preserving our environment. This system doesn't use any of the poisonous gases so our ozone layer is safe. This system does not produce any CFCs and harmful gases so this system is eco-friendly.
3. **Impact it will create:** Solar powered ice cream thela system is the best option for street vendors storage ice cream. Generally, the ice cream consume in the clean weather timings are in between 10:00 AM to 10:00 PM. During the day, the availability of the solar radiation is higher, so solar panels get sufficient radiation to run the whole system. When the requirement of cooling is high as the availability of solar radiation is also high; hence the whole system is sufficient for cooling.
4. **Current Status of the Patent** : Patent filed
5. **Student Team details/Faculty Mentor :**
   1. Kuldeep Kumar
   2. Lokendra Singh Rathore
6. **Patent Filing date** : 05.04.2023
7. **Patent Granted date** : 20.06.2023

8. **Patent Application Number** : 383116-001

3) Datta Meghe Institute of Medical Sciences, Wardha

Patent-05: An Apparatus for Dispensing Herbal Enema Medicine**.**

1. **Name of the Technology:** An Apparatus for Dispensing Herbal Enema Medicine
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   An automated flexible herbal medicine mixer and dispenser for dispensing enema medicine apparatus used in the treatment of enema.
3. **Impact it will create:**
   - simple and cost-effective device
   - reliable and efficient device
4. **Current Status of the Patent:** Granted
5. **Student Team details/Faculty Mentor :**
   1. Gaurav Sawarkar
6. **Patent Filing date** : 31-12-2021
7. **Patent Granted date** : 03-11-2022
8. **Patent Application Number** : 202121062268

Patent-06: An apparatus for stretching hamstring muscles

1. **Name of the Technology:** An apparatus for stretching hamstring muscles
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - An unique exercise apparatus with the help of mechanization and more specifically to a portable hamstring muscles stretching exerciser.
3. **Impact it will create:**
   - simple and cost-effective device
   - reliable and efficient device for treatment of the musculo skeletal disorders
4. **Current Status of the Patent:** Granted
5. **Student Team details/Faculty Mentor :**
   1. Irshad Qureshi
6. **Patent Filing date** **:** 09-12-2020
7. **Patent Granted date** : 29-12-2022
8. **Patent Application Number** : 202021053747

Patent-07: Medicated Thread & Process of Preparation Thereof

1. **Name of the Technology:** Medicated Thread & Process of Preparation Thereof
2. **Highlights of the Technology (innovation/uniqueness etc.):**
   - A new method for manufacturing if medicated treads and the process of its use in treatment of patients
3. **Impact it will create:**
   - Help the clinician in managing and treating the patients
4. **Current Status of the Patent** **:** Granted
5. **Student Team details/Faculty Mentor :**
   Rushikesh Anilrao Thakre
6. **Patent Filing date** **:** 03-06-2021
7. **Patent Granted date** : 16-03-2022
8. **Patent Application Number** : 2021103081

4) Chitkara University, Rajpura

Patent-08: Heat Treatment Electric Furnace

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 11-Mar-22
7. **Patent Granted date** : April 2023
8. **Patent Application Number** : 360479-001

Patent-09: Rotary Job Holder Case Hardening Furnace

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 12-May-22
7. **Patent Granted date** : June 2023
8. **Patent Application Number** : 364097-001

Patent-10: Heat Treatment Furnace with Controlled Atmosphere and Controlled Speed

1. **Name of the Technology** : Portable Heat Treatment and Muffle Furnace
2. **Highlights of the Technology (innovation/uniqueness etc.):** Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.
3. **Impact it will create** : This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc.
4. **Current Status of the Patent** :
   Granted

5. **Student team details/Faculty Mentor:**
   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Patent Filing date** : 12-May-22
7. **Patent Granted date** : June 2023
8. **Patent Application Number** : 364098-001

Patent-11: Perineal Retractor for Safe & Accurate Episiotomy during Vaginal Delivery

1. **Name of the Technology** : Perineal Retractor for Safe and Accurate Episiotomy during Vaginal Delivery
2. **Highlights of the Technology (innovation/uniqueness etc.):** GK Retractor**-**This is a surgical instrument that helps to guide the incision made during an episiotomy at a specific angle, in turn reducing the risk of vaginal tears. Injuries related to vaginal childbirth are something that is not talked about openly in Indian society. Up to 9 in every 10 first-time mothers who have a vaginal birth will experience some sort of tear, graze, or episiotomy. These tears range from mild to severe and, in some cases, lead to pelvic floor incontinence. With this in mind, our team set out to help make the quality of life for first-time mothers better.
3. **Impact it will create**: This is a lifesaving medical instrument for women at the time of child birth.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Vanya Sharma
   2. Prachi Mittal
   3. Keerti Bhusan Pradhan
6. **Patent Filing date** : 10 Sep 2020
7. **Patent Granted date** : 29 Sep 2021
8. **Patent Application Number** : 334120-001

Patent-12: Automatic and Moveable Vertical Garden Barricades

1. **Name of the Technology** : Automatic and Moveable Vertical Garden Barricades
2. **Highlights of the Technology (innovation/uniqueness etc.):** LED lights with solar panels will make the system energy-efficient and increase visibility at night. It has space for ads to generate revenue and improve nighttime

visibility. This set will provide an integrated design and environmentally friendly solution for many issues.

3. **Impact it will create**: Innovative idea for increasing night time visibility on roads.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Jaibir Singh Makkar
   2. Shivansh Rajput
   3. Pooja Mahajan
6. **Patent Filing date** : 28 Jan 2022
7. **Patent Granted date** : Feb 2023
8. **Patent Application Number** : 357439-001

Patent-13: Portable Ventilated Universal Laptop Stand

1. **Name of the Technology** : All in One Laptop Stand with Integrated Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea of "All-in-one Laptop Stand with Integrated Table" is to solve the problems faced by users with the existing laptop stand. The following features are provided in the single product: Mesh base to avoid overheating, along with sliding USB-powered fans for additional cooling; A hinge protection feature is uniquely designed to provide support for the laptop screen; Compatible with various sizes of laptops; The table will be adjustable in height and include features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study lamp; Adjustable angle that can reduce screen effects and help to create a more natural typing position
3. **Impact it will create**: It is a lifestyle product that can help a large number of individuals who use laptops in correcting their postures & avoid health issues.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Pranav Garg
   1. Pranav Kumar
   1. Gulshan Dhillon
6. **Patent Filing date** : 26-Aug-20
7. **Patent Granted date** : 5 March 2021
8. **Patent Application Number** : 332372-001

Patent-14: Height Adjustable Folding Arm Rest Table with Slidable Holders

1. **Name of the Technology** : All in One Laptop Stand with Integrated Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea of "All-in-one Laptop Stand with Integrated Table" is to solve the problems faced by users with the existing laptop stand. The following features are provided in the single product: Mesh base to avoid overheating, along with sliding USB-powered fans for additional cooling; A hinge protection feature is uniquely designed to provide support for the laptop screen; Compatible with various sizes of laptops; The table will be adjustable in height and include features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study lamp; Adjustable angle that can reduce screen effects and help to create a more natural typing position
3. **Impact it will create** : It is a lifestyle product that can help a large number of individuals who use laptops in correcting their postures and avoid health issues.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Pranav Kumar
6. **Patent Filing date** : 26-Aug-20
7. **Patent Granted date** : 9 July 2021
8. **Patent Application Number** : 332371-001

Patent-15: Height Adjustable Table with Folding Arm Rest & Integrated Power Strip

1. **Name of the Technology** : All in One Laptop Stand with Integrated Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The idea of "All-in-one Laptop Stand with Integrated Table" is to solve the problems faced by users with the existing laptop stand. The following features are provided in the single product: Mesh base to avoid overheating, along with sliding USB-powered fans for additional cooling; A hinge protection feature is uniquely designed to provide support for the laptop screen; Compatible with various sizes of laptops; The table will be adjustable in height and include features such as a cup/mobile holder, a drawer with integrated wireless charging, a power strip with USB ports, a comfortable armrest, and a USB-powered study lamp; Adjustable angle that can reduce screen effects and help to create a more natural typing position

3. **Impact it will create** : It is a lifestyle product that can help a large number of individuals who use laptops in correcting their postures and avoid health issues.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Mentor:**
   1. Gulshan Dhillon
6. **Patent Filing date** : 8 Feb 2022
7. **Patent Granted date** : May 2023
8. **Patent Application Number** : 358132-001

Patent-16: Rodent Surgical Table

1. **Name of the Technology** : Rodent Surgical Table
2. **Highlights of the Technology (innovation/uniqueness etc.):** The present invention is an improved surgical table, particularly for use in veterinary medicine. There are a lot of surgical tables available in the market, but the facilities available are not advanced. The proposed current design is efficient with facilities as it is made up of a stainless-steel surface with heating pads, an LED lamp, a tool tray, waste drainage pipe, beaker spaces (250 ML & 100 ML), an animal tissue holder, an automated temperature regulator as per the physiological demand, and an automated position setter for the ease of the surgery.
3. **Impact it will create**: Rodent surgical tables are used for animals' examinations or surgeries by a veterinary surgeon or preclinical researchers. It is important to provide an accurate position and height of the working table for surgery with proper temperature regulation, which enables the veterinarian to be in a precise position rather than kneeling or crouching to treat the animal on the floor.
4. **Current Status of the Patent** : Granted
5. **Student team details/Faculty Member:**
   1. Nikhil Garg
   2. Onkar Bedi
   3. Thakur Gurjeet Singh
6. **Patent Filing date** : 21 July 2020
7. **Patent Granted date** : 18 June 2021
8. **Patent Application Number** : 331265-001

Annexure-VII

Details of Companies/Starts up set up by Students

during the financial year, 2022-2023

01) Kuppam Engineering College, Kuppam

Start-Up-001: EXCLOR Academic Solutions Private Limited

1. **Name of the Company/Start-up**: EXCLOR Academic Solutions Private Limited
2. **Highlights of the Company/Start-up**:

   Product : Service

   Investment : Rs. 2,00,000

   Employment generated : 02

   Commercialized or not : Yet to Commercialize
3. **Impact it will create (including social impact, if any)**
   - The Business that provides Technical Training to the students of various Science and technology Backgrounds.
   - Employment Bureau
   - Consultancy and other Services in connection with requirement of persons and man power supply in india and abroad
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) : AP-10-66-038-03209455
   - Corporate Identity Number : U85499AP2023PTC110414
   - Permanent Account Number : AAHCE44144A
   - TAX Deduction collection Account No. : HYDE06701C
   - Name of the Establishment : EXCLOR Academic Solutions Private Limited
   - Address of the Establishment : 3rd Floor, AK Block, Pedda Bangarunatham Village, Kuppammandal, Chittoor District: 517425
   - Employer Name : M RANJITH KUMAR
   - Nature of Business / Work / Construction / Activity / Manufactory : Education and Training
   - Date of issue : 15-05-2023
   - Service Type : Fresh registration /License

Act Name	No. of Workers	Date of Commencement	Registration Valid Date
AP Shops & STTS Act 1988	02	20/02/2023	31/03/2024

5. **Student team Details/Faculty Mentor:**
   i. M. Ranjith Kumar
   ii. S. Sathyanarayana
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 20-02-2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   EXCLOR Academic Solutions Private Limited is a Registered Company/Start-Up which has been In-corporate to carry on the Business to own, establish, acquire, run, operate, manage, maintain, develop, promote, advertise either on its own or through Franchise fully equipped with Technical Educational Institutes to promote and disseminate Knowledge, create awareness and provide a common forum of interaction amongst academicians, professionals and government agencies, establish effective coordination, to organize training courses and special programmes to impart training, education in all disciplines, online, distinct and correspondence Courses

Start-Up-002: EZ TECH Solutions

1. **Name of the Company/Start-up** : EZ TECH Solutions
2. **Highlights of the Company/Start-up**:
   Product : Product
   Investment : Rs. 10,00,000
   Employment generated : 05
   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**
   - Generates employment in rural areas
   - We offer Technology connect to rural people
   - Will create impact on rural economy in the country

4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) :
   - Corporate Identity Number : Nil
   - Permanent Account Number : Nil
   - Name of the Establishment : Evezon Technology Solutions Private Limited
   - Address of the Establishment : Sy.No 96/1, #2-34/2, First Floor, Rukmini Homes, Cheldiganipalle, Kuppam Sub District, Andhra Pradesh, 517424
   - Employer Name :
   - Nature of Business / Work / Construction / Activity / Manufactory : IT, IoT & Artificial Intelligence products design and development
   - Date of issue : 13-05-2023

Act Name	No.of Workers	Date of Commencement	Date of Completion	Registration Valid Date
Companies act 2013	40	13/05/2023	-	-

5. **Student team Details/Faculty Mentor:**
   i. J. Bhavyasri
   ii. P. Chitrasri
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 13/05/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   An EZ Tech solution is a technology company based in Andhra Pradesh. On seeing Gap in technology Industry Bhavyasri has cofounded EZ Tech in the year 2023 with P. Chitrasri. The company aims in solving the basic problems in the society to most complex defence analytics using the most advanced technologies like ITES, Artificial Intelligence, Block Chain and Industrial IoT. Recently we got MSME funding of Rs.1500000/- for prototype development of the project named Green Doctor-A reliable food toxic detector.

Start-Up-003: Innovation in Wheels

1. **Name of the Company/Start-up**: Innovation in Wheels
2. **Highlights of the Company/Start-up**:

   Product : Service

   Investment : Rs. 2,00,000

   Employment generated : 02

   Commercialized or not : Yet to Commercialize
3. **Impact it will create (including social impact, if any)**
   - The startup mainly concentrates on innovation support at the school level along with developing commercially viable products or technologies to meet current needs. The focused areas will be on renewable energy solutions, storage and AI
   - To avoid addiction of mobiles, PC games and learns effective knowledge by using SCRATCH and TINKERCAD.
   - We are collaborating with EXCLOR Academic Soloutions startup and we were working with rural schools based on technology part from initial stage of basic electronic components
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) : IN-AP13699952288065V
   - Corporate Identity Number : -NIL-
   - Permanent Account Number : -NIL-
   - Name of the Establishment : Innovation in Wheels
   - Address of the Establishment: : Door Number: 184, Engineering College T. G. Palli, Kuppam (Urban), Chittoor, Andhra Pradesh - 517425
   - Employer Name : B. Gowtham
   - Nature of Business/Work/Construction/Activity/Manufactory : Education and Training
   - Date of Issue : 10-05-2023
   - Service Type : Fresh registration /License

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
AP Shops & STTS. Act 1988	02	31/05/2023	-	AT WILL

5. **Student team Details/Faculty Mentor:**
   i. B. Gowtham
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 31/05/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   To Make CHILDRENS avoid addiction of mobiles, PC games and learn effective knowledge by using SCRATCH and TINKERCAD A visual programming language that allows students to create their own interactive stories, games and animations. Tinkercad is a simple, online 3D design and 3d printing tool for the masses. Whether you are a designer, hobbyist, teacher, or kid, you can use Tinkercad to make toys, prototypes, home decor, Minecraft models, jewelry – the list is truly endless. Efficient use of technology through SCRATCH and TINKERCAD to the games in schools. Now-a-days corporate schools were collaborating with some learning apps like Byju's and tuting them with basic practical with fewer contents regarding their syllabus structure. We are collaborating with EXCLOR ACADEMIC SOLOUTIONS start-up and we were working with rural schools based on technology part from initial stage of basic electronic components

Start-Up-004: Swasriyas V Groups

1. **Name of the Company/Start-up**: Swasriyas V Groups
2. **Highlights of the Company/Start-up**:

   Product : Product & Service

   Investment : Rs. 10,00,000

   Employment generated : 10

   Commercialized or not : Yet to Commercialize
3. **Impact it will create (including social impact, if any)**
   - Generates employment in rural and urban areas
   - We offer Technology connect to the rural people
   - Will create impact on rural economy in the country
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) : 29AEQFS6022L1Z
   - Corporate Identity Number/GSTIN : 29AEQFS6022L1ZD
   - Permanent Account Number : AEQFS6022L
   - Name of the Establishment : Swasriyas V Groups
   - Address of the Establishment : Site No 68, Khata No 4/4/25/68, 1st Floor, Basavanapura, KR Puram, Bengaluru 560036.
   - Employer Name : Evezon Technology Solutions Private Limited
   - Nature of Business/work/Construction/activity/ Manufactory: ITES
   - Date of issue : 25/04/2023

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
Indian Partnership act 1932	10	25/04/2023	---	NA

5. **Student team Details/Faculty Mentor:**
   i. M. Yaswanth
   ii. J. Prasad
6. **Establishment date of the Company/Start-up/Commercialization:**

   Establishment Date: 25/04/2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   A Swasriyas Tech solution is a technology company based in Bengaluru, Karnataka. On seeing Gap in technology Industry, yaswanth has founded swasriyas tech solutions in the year 2022. The company aims in solving real time problems in the society as well as businesses facing using the advanced technologies like Machine learning and robotics. Our core competency has been to design and build effective machines to solve unaddressed problems dominating labor-intensive processes, wherein such processes are currently using manual labor in hazardous, perilous, and inhumane environments. We are a team of machine builders with a zeal for automation and innovative problem-solving.

Start-Up-005: VSEN Consultancy

1. **Name of the Company/Start-up**: VSEN Consultancy
2. **Highlights of the Company/Start-up**:

   Product : Product & Service

   Investment : Rs. 10,00,000

   Employment generated : 08

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**
   - Generates employment in rural areas
   - We offer Technology connect to students in rural people
   - Will create impact on rural economy in the country
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) : 37AZHPN9074B1Z5
   - GST Identity Number : 37AZHPN9074B1Z5
   - Permanent Account Number : AZHPN9074B
   - Name of the Establishment : 30/01/2023
   - Address of the Establishment : Elementary school, 3rd Floor, No 6-571, Kuppam Road, Opp HP petrol bunk, Venkatagirikota, Chittoor(D), Andhra Pradesh, 517424
   - Employer Name : VSEN Consultancy

- Nature of Business/work/Construction/activity/Manufactory: Technology solutions and services
- Date of Issue : 30/01/2023

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
Shops and establishment act	10	30/01/2023	-	NA

5. **Student team Details/Faculty Mentor:**
   i. M. Ravikumar
   ii. M Yaswanth
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 30-01-2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   VSEN Consultancy is an EdTech company focuses on providing technical education and practical based learning with all physical activities from the younger ages to produce fully skilled manpower and knowledgeable technocrafts in the present era of science and technology through efficient and innovative technologies and programmes.

Start-Up-006: KIKISHADES

1. **Name of the Company/Start-up**: KIKISHADES
2. **Highlights of the Company/Start-up**:
   Product : Agri Business Service
   Investment : Rs. 1,00,000
   Employment generated : 02
   Commercialized or not : Yet to Commercialized
3. **Impact it will create (including social impact, if any)**
   - The Business that provides Technologies Solutions and Product to the various Science and technology Backgrounds.
   - Employment Bureau
   - Consultancy and other Services in connection with requirement of cosmetic product market & sale.

4. **Current Status of the Company/Start-up**
   - Registration Number : IN-AP-13701932960004V
   - Corporate Identity Number : -NIL-
   - Permanent Account Number : -NIL-
   - Name of the Establishment : KIKISHADES
   - Address of the Establishment : D. No.:184, 3rd Floor, AK Block, Pedda Bangarunatham Village, Kuppammandal, Chittoor District – 517 425, Andhra Pradesh
   - Employer Name : V. Keerthika
   - Nature of Business/work/Construction/activity/Manufactory: Natural Agri cosmetic products & Services
   - Date of issue : 10-05-2023

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
AP Shops & STTS. Act 1988	02	10/05/2023	-	AT WILL

5. **Student team Details/Faculty Mentor:**
   i. V. Keerthika
   ii. K Rasadurai
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 10-05-2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   KIKISHADES is a Registered Company/Start-up which has been In-corporate to carry on the Business to own, establish, acquire, run, operate, manage, maintain, develop, promote, advertise either on its own or through Franchise fully equipped.
   - Develop as a Natural Agri cosmetic products.
   - Develop a portable Smart Automatic hand Sanitizer with Natural hand wash liquid from natural herbals and coconut oils.
   - To provide Hi Tech Cosmetic service for Functions make-ups.

Start-Up-007: P. M. V. Enterprises

1. **Name of the Company/Start-up**: P. M. V. Enterprises
2. **Highlights of the Company/Start-up**:

   Product : Agri Based Services

   Investment : Rs. 2,00,000

   Employment generated : 02

   Commercialized or not : Yet to Commercialize
3. **Impact it will create (including social impact, if any)**
   - The Business that provides Technologies Solutions and Product to the various agri related services
   - Consultancy and other Services in connection with requirement internships, project development and project assistances.
4. **Current Status of the Company/Start-up**
   - Registration Number : IN-AP13931630882937V
   - Corporate Identity Number : -NIL-
   - Permanent Account Number : -NIL-
   - Name of the Establishment : P. M. V. Enterprises
   - Address of the Establishment : D. NO-184, Engineering Collage, T G Palli, Kuppam (Urban), Kuppam, Chittoor, Andhra pradesh - 517425
   - Employer : M. B. Bhanu Prakash, Mr. Prakash
   - Nature of Business/work/Construction/activity/Manufactory: Agri Based services
   - Date of issue : 30/06/2023
   - Service Type : Fresh registration /License

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
AP Shops & STTS. Act 1988	02	30/06/2023	-	AT WILL

5. **Student team Details/Faculty Mentor:**
   i. M. B. Bhanu Prakash
   ii. K. Prakash

6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 30/06/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   P. M. V. Enterprises Tech solutions is an agri based company in Andhra Pradesh. On seeing Gap in technology usage in agriculture sector, Bhanu Prakash and cofounded MV Enterprises in the year 2023 with K Prakash. The company aims in solving the basic problems in the society to most complex defence analytics using the most advanced technologies like smart equipment, Intelligence and IoT based technology. recently our product prototype developed and the project named ground water hunter, it is reliable water detector.

Start-Up-008: JKR Industries

1. **Name of the Company/Start-up**: JKR Industries
2. **Highlights of the Company/Start-up**:

Product	: Product
Investment	: Rs. 2,00,000
Employment generated	: 02
Commercialized or not	: Yet to Commercialized

3. **Impact it will create (including social impact, if any)**
   - The Industries that provides New Employment to the students of various Science and technology Backgrounds.
   - Employment Bureau
   - Industries and other Services in connection with requirement of persons and product supply in india and abroad
4. **Current Status of the Company/Start-up**
   - Registration Number : IN-AP13702121856339V
   - Corporate Identity Number : -NIL-
   - Permanent Account Number : -NIL-
   - Name of the Establishment : JKR Industries
   - Address of the Establishment : AK - 302, 3rd Floor, AK Block, Pedda Bangarunatham Village, Kuppam Mandal, Chittoor - 517 425
   - Employer : Thallapalli Jagadish

- Nature of Business / Work / Construction / Activity / Manufactory: Agro Products & Services
- Date of Issue : 10-05-2023
- Service Type : Fresh registration /License

Act Name	No. of Workers	Date of Commencement	Registration Valid Date
AP Shops & STTS. Act 1988	02	01/06/2023	AT WILL

5. **Student team Details/Faculty Mentor:**
   i. T. Jagadish
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 10-05-2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   JKR Industry is a Registered Company/Start-up, which has been incorporated to carry on agro products and services. JKR Industries aims to excel in providing diverse range of soil testing and measuring devices, along with associated services. We commit to the agricultural sector through accurate and reliable data collection, helping farmers and growers make informed decisions for optimal crop cultivation. JKR Industries will play a pivotal role in empowering the agricultural community by equipping them with cutting-edge technology and expert guidance, ultimately contributing to the sustainable growth of the industry

Start-Up-009: RRK Structural Consultancy

1. **Name of the Company/Start-up**: RRK Structural Consultancy
2. **Highlights of the Company/Start-up**:
   Product : Service
   Investment : Rs. 2,00,000
   Employment generated : 02
   Commercialized or not : Yet to Commercialized

3. **Impact it will create (including social impact, if any)**
   - The Business that provides safe bearing capacity of the soil through consultancy.
   - Foundation Design based on SBC
   - Consultancy and other Services in connection with requirement of persons and man power supply in India
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) : IN-AP15215568481016V
   - Name of the Establishment : RRK Structural Consultancy
   - Address of the Establishment : D. No.:184 Kuppam Engineering College, T G Palli, Kuppam, Chittoor District : 517425
   - Employer Name : D Radhakrishnan
   - Nature of Business/work/Construction/activity/Manufactory: Construction/Consultancy
   - Date of Issue : 19/06/2023
   - Service Type : Fresh registration /License

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
AP Shops & STTS. Act 1988	02	19/06/2023	-	AT WILL

5. **Student team Details/Faculty Mentor:**
   i. D. Radhakrishnan
   ii. M. Rajesh
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 19-06-2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   RRK is a Registered Company/Start-up, which has been In-corporate to carry on the soil consultancy to own, to provide geotechnical engineering properties for foundation design purposes. The test is carried out within a borehole. The results can be used to determine the relative density, bearing capacity, and settlement of granular soil. The results can also be used to correlate the approximate strength

of cohesive soil. Soil Investigation done to find out it's Safe Bearing Capacity through Standard Penetration Tests including Laboratory Tests in order to determine the Type & Depth of foundation for its structural design purpose for any type of projects like Residential, Commercial, Multi-storied buildings, Warehouse & Industries, IT Parks, Hotels, Dams, Bridges & Roads etc., Please contact for any specific Tests or for more details

Start-Up-010: SRI Enterprises

1. **Name of the Company/Start-up**: SRI Enterprises
2. **Highlights of the Company/Start-up**:

   Product : Service

   Investment : Rs. 2,00,000

   Employment generated : 02

   Commercialized or not : Yet to Commercialized
3. **Impact it will create (including social impact, if any)**
   - The startup mainly concentrates on innovation support at the school level along with developing commercially viable products or technologies to meet current needs. The focused areas will be on low cost agro solutions, Small scale industries and Farmers
   - To provide affordable modern solutions to the problems faced by small scale farmers.
   - We are collaborating with Jayalakshmi Industries and try to provide Simple, affordable solutions.
4. **Current Status of the Company/Start-up**
   - Registration Number : 37EAZPR8424J1ZL
   - Corporate Identity Number : -NIL-
   - Permanent Account Number : -NIL-
   - Name of the Establishment : SRI Enterprises
   - Address of the Establishment : Door Number : 5-53, Tumisi Road, Abakaladoddi, Chittoor, Andhra Pradesh
   - Employer Name : V Ravindra
   - Nature of Business/work/Construction/activity/Manufactory: Service
   - Date of Issue : 02-03-2023

- Service Type : Fresh Registration /License

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
AP Shops & STTS. Act 1988	02	02/03/2023	-	NA

5. **Student team Details/Faculty Mentor:**
   i. V. Ravindra
   ii. N. Nagesh
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 02/03/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   This start-up mainly focuses on training Students from various organizations such as schools and colleges to Design and Fabricate using Various tools like AUTOCAD, CAATIA and Ansys. Students will be in a better position to understand how designing works in real lifetime scenarios. This start-up caters to the needs of various industries too. They train the students to assess various need of the industries and provide optimal solutions. They try to analyse the problems faced by farmers and provide affordable tools to reduce manpower requirement

Start-Up-011: SEL Edutech Solutions

1. **Name of the Company/Start-up**: SEL Edutech Solutions
2. **Highlights of the Company/Start-up**:
   Product : Service
   Investment : Rs. 1,00,000
   Employment generated : 02
   Commercialized or not : Yet to Commercialized
3. **Impact it will create (including social impact, if any)**
   - The Business that provides Technologies Solutions and webinars, workshops and internships on the various trends and technologies of all the departments from schooling to engineering.

- Provides certification to various students and individuals on recent trends and technologies.
- Consultancy and other Services in connection with requirement internships, project development and project assistances.
- Generates employment based on the various projects.

4. Current Status of the Company/Start-up

- Registration Number : UDYAM-AP-25-0008068
- Corporate Identity Number : -NIL-
- Permanent Account Number : -NIL-
- Name of the Establishment : SEL Edutech Solutions
- Address of the Establishment : Kuppam Engineering College, KES Nagar, Kuppam, District: Chittoor – 517 425, Andhra Pradesh,
- Employer Name : R. Nagi Reddy
- Nature of Business/work/Construction/activity/Manufactory: Project Developments/ Internship/ Project Assistance /Certification courses
- Date of Issue : 15-08-2022

5. Student team Details/Faculty Mentor:

i. R Nagi Reddy
ii. Naresh Reddy

6. Establishment date of the Company/Start-up/Commercialization:

Establishment Date: 15-08-2022

7. One paragraph on the Company/Start-Up covering all the points.

Start e Learning is completely online based learning we offers many courses along with programming languages which are going to teach by the Industrial Experts. Along with the online classes, we will let our students to do the projects and for the best projects, the prize money will be awarded. We have vast collection of books in the name of engineering technical support app. We planned to construct a bridge between the engineering students and the school students to enhance the minds of the schoolchild.

- Skilled Instructors
- Online Classes
- Certified by Govt. of India & EMAX INDIA

- Certificate is valid across the country
- Registered under MSME

Start-Up-012: CMR Enterprises

1. **Name of the Company/Start-up**: CMR Enterprises
2. **Highlights of the Company/Start-up**:

   Product : Service

   Investment : Rs. 15,00,000

   Employment generated : 05

   Commercialized or not : Yet to Commercialized
3. **Impact it will create (including social impact, if any)**

   CMR Enterprises will transform the agribusiness and food processing sectors by introducing innovative practices, empowering farmers, and creating sustainable value chains that creates following impacts;

   - Enhancing Agricultural Productivity
   - Empowering Farmers and Rural Communities
   - Establishing Food Processing Infrastructure
   - Creating Employment Opportunities
   - Promoting Sustainable Practices
4. **Current Status of the Company/Start-up**
   - Registration Number (LIN) : IN-AP15212509685940V
   - Corporate Identity Number : -NIL-
   - Permanent Account Number : -NIL-
   - Name of the Establishment : CMR Enterprises
   - Address of the Establishment : Agraharamdinne village, Balla post, Ramakuppam Mandal, Chittoor District: 517425, Andhra Pradesh
   - Employer Name : A Jaiganesh, M Lakshmipathy
   - Nature of Business/work/Construction/activity/Manufactory : Agro & Food Processing
   - Date of Issue : 19/06/2023
   - Service Type : Fresh registration /License

Act Name	No. of Workers	Date of Commencement	Date of Completion	Registration Valid Date
AP Shops & STTS. Act 1988	05	10/06/2023	-	NA

5. **Student team Details/Faculty Mentor:**
   i. A. Jai Ganesh
   ii. M. Lakshmipathy
6. **Establishment date of the Company/Start-up/Commercialization:**
   Establishment Date: 19/06/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   CMR Enterprises aims to transform the agribusiness and food processing sectors by introducing innovative practices, empowering farmers, and creating sustainable value chains. Through its collaborative approach and commitment to social and economic development, the company will create an impact on agricultural productivity, rural livelihoods, employment generation, and the overall growth of communities. The success of CMR Enterprises agribusiness and food processing initiatives may leads to the creation of numerous employment opportunities across the value chain. From farm labourers and technicians at processing units to skilled professionals in management, marketing, and distribution, the company generates both direct and indirect employment. This job creation stimulates economic development, reduces unemployment rates, and provides livelihood options to individuals in rural and peri-urban areas, thereby reducing migration to overcrowded cities.

02) Ramachandra College of Engineering, Eluru

Start-Up-013: Green Agile-Agro Techno Solutions LLP

1. **Name of the Company/Start-up**: Green Agile-Agro Techno Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : IOT-based solutions for smart organic farming for various farms (management of natural fertilizers, pesticides, fungicides, and germicides) for higher quality yield

   Investment : Not yet Started

   Employment generated : Not yet Started

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - Reduction in manpower;
   - Increased quality yield that boosts socioeconomic position;
   - Decreases water and air pollution and soil protection that promotes a greener planet.
   - Decreased water consumption
   - Ecological harmony
4. **Current Status of the Company/Start-up:** Start-up (LLP) registration under process
5. **Student team Details/Faculty Mentor:**

   1. Srisivaphani Srisai Sudharam Saride
6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**

   Company supports to solve problems of agriculture and Green house farming

Start-Up-014: Nature resources Management Solutions LLP

1. **Name of the Company/Start-up**: Nature resources Management Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product / Service : Electronic and electromechanical control systems for water and air management, and, drainage management

   Investment : Not yet Started

   Employment generated : Not yet Started

   Commercialized or not : No

3. **Impact it will create (including social impact, if any)**
   - Green earth
   - Reduced floods during rainy season thereby minimal loss to the society
   - Improved health
   - Natural resources to future generations
4. **Current Status of the Company/Start-up :**

   Start-up (LLP) registration under process
5. **Student team Details/Faculty Mentor:**

   1. Sai Suseel Mohan Saride
6. **Establishment date of the Company/Start-up/Commercialization**:

   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**

   It is proposed that a new venture use electrical and electromechanical control systems to deliver affordable solutions for drainage management, air and water management, and other related issues. The start-up's mission statement calls for reducing water waste, providing clean air and water, and reducing flooding during rainy seasons in society indirectly, a little movement for a greener planet. Water waste in homes, colonies, and factories is to a minimum since the advent of electronic control systems, both residential and industrial grade. equipment for pure water and air are also offered. The goal of drainage management systems is to lessen drain obstruction, which in turn lessens floods in rainy systems. One by one, the products will be commercialized. A professional professor with experience in the industry and a Ramachandra College of Engineering final-year engineering student are the startup's promoters. After securing the funds needed and seeking government support through startup-promoting agencies, the firm will be launched.

Start-Up-015: Sarideson Techno Solutions LLP

1. **Name of the Company/Start-up** : Sarideson Techno Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Production of safety and health care equipments/Devices for employees in inductries

   Investment : Not yet Started

   Employment generated : Not yet Started

   Commercialized or not : Not
3. **Impact it will create (including social impact, if any)**
   - Improved employee health;
   - Improved employee safety;
   - Decreased risk of accidents; and
   - Decreased risk of orthopedic and neurological diseases
4. **Current Status of the Company/Start-up**

   Start-up (LLP) registration under process
5. **Student team Details/Faculty Mentor:**

   1. Saride Srisivaphani Srisai Sudharam
6. **Establishment date of the Company/Start-up/Commercialization**:

   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**

   It is proposed that a new business build and market healthcare equipment to increase productivity and make working people less susceptible to orthopedic and neurological problems, as well as gadgets that improve safety for industry employees. The technology is user- and eco-friendly. The devices became dependable and affordable with the development of modern electronics. The products will be released for sale one by one. The startup is promoted by a qualified professor with experience in the industry and Ramachandra College of Engineering graduates. The status is currently in the registration process. The NewGen IEDC has assisted in the creation of a prototype for an intelligent office chair and has provided full support for the registration procedure. The company will be created after obtaining the necessary funding and gaining government assistance through startup-promoting organizations.

Start-Up-016: Veera Shine Agri LLP

1. **Name of the Company/Start-up** : Veera Shine Agri LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Manufacturing of Agriculture Machines and Electrical Pumps

   Investment : Not yet started

   Employment generated : Not yet started

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - It will provide a greater range of availability of different agriculture Machines and Pumps according to the regional Agriculture process
4. **Current Status of the Company/Start-up**

   Start-up (LLP) registration under process
5. **Student team Details/Faculty Mentor:**

   1. G. Uma Naveen Kumar
6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**

   Registered company establishing to manufacture and design the agriculture equipments

Start-Up-017: Jarabala Electrical Batteries LLP

1. **Name of the Company/Start-up**: Jarabala Electrical Batteries LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Providing Solutions for replace of fossile fuels with EV Batteries

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : Not
3. **Impact it will create (including social impact, if any)**
   - EV batteries significantly reduce greenhouse gas emissions
   - This leads to cleaner air and a healthier environment
   - Enhancing energy security and autonomy

- Collaboration and Knowledge Sharing

4. **Current Status of the Company/Start-up**

   Start-up (LLP) registration under process

5. **Student team Details/Faculty Mentor:**

   1. E Raviteja

6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration

7. **One paragraph on the Company/Start-Up covering all the points.**

   EV Batteries Inc. is a leading and innovative start-up that was established in 2012 with the mission to revolutionize the electric vehicle (EV) industry through cutting-edge battery technologies. Specializing in advanced energy storage solutions, the company has rapidly emerged as a frontrunner in the field of electric vehicle batteries. EV Batteries Inc. is dedicated to developing high-performance and long-lasting battery packs that significantly enhance the range, efficiency, and overall performance of electric vehicles. With a team of skilled engineers and researchers, the company constantly pushes the boundaries of battery technology, utilizing state-of-the-art materials and manufacturing processes.

Start-Up-018: Sai Baba Smart Home Automations

1. **Name of the Company/Start-up**: Sai Baba Smart Home Automations
2. **Highlights of the Company/Start-up**:

   Product/Service : Providing Smart Home Automations.

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : No

3. **Impact it will create (including social impact, if any)**
   - This can be particularly beneficial for elderly or disabled
   - Smart home automation can lead to a reduction in energy consumption and lower utility bills
4. **Current Status of the Company/Start-up**

   Start-up (LLP) registration under process

5. **Student team Details/Faculty Mentor:**

   1. N. Vinay Kumar

6. **Establishment date of the Company/Start-up/Commercialization:**
   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**
   Smart Homes is a cutting-edge start-up at the forefront of the smart home automation revolution. Our company is dedicated to transforming traditional houses into intelligent living spaces, providing unparalleled convenience, safety, and energy efficiency. Through our state-of-the-art smart home systems, we empower individuals to control lighting, temperature, and appliances with ease, enhancing their overall comfort and quality of life. Our commitment to energy efficiency not only helps homeowners save on utility bills but also contributes to a greener and more sustainable future.

Start-Up-019: Jarabala Solar Systems LLP

1. **Name of the Company/Start-up**: Jarabala Solar Systems LLP
2. **Highlights of the Company/Start-up**:
   Product/Service : Reduce the Grid Energy by using the solar systems
   Investment : Not yet started
   Employment generated : Not yet
   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - Reducing reliance on fossil fuels and vulnerable energy supply chains
   - Solar systems provide a viable energy solution in remote and off-grid regions
4. **Current Status of the Company/Start-up**
   Start-up (LLP) registration under process
5. **Student team Details/Faculty Mentor:**
   1. E Raviteja
6. **Establishment date of the Company/Start-up/Commercialization:**
   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**
   Specializing in solar power solutions, the company has quickly become a leader in the renewable energy industry. Solar Systems is committed to developing cutting-edge solar technologies, including high-efficiency solar panels, energy storage systems, and innovative solar tracking technologies. The company's

mission is to provide clean and sustainable energy solutions to businesses, communities, and homeowners worldwide, reducing their carbon footprint and dependence on fossil fuels. With a team of talented engineers and scientists, Solar Systems continuously pushes the boundaries of solar technology, making renewable energy accessible, reliable, and cost-effective for everyone.

Start-Up-020: Med-Mitra Healthlogger LLP

1. **Name of the Company/Start-up**: Med-Mitra Healthlogger LLP
2. **Highlights of the Company/Start-up**:This startup offers an innovative medication management device, empowering patients to take charge of their health. With strong data insights & partnerships, it addresses a critical market need, positively impacting healthcare outcomes. The talented team and clear vision for growth ensure its competitive advantage & potential for meaningful societal impact.

   Product/Service : A Smart Medication Management & Health Monitoring Tool)

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : Not
3. **Impact it will create (including social impact, if any)**

   This medication management device has a significant social impact by enhancing medication adherence and empowering patient independence. These devices reduce the burden on caregivers, prevent medical complications, and lead to cost savings in the healthcare system
4. **Current Status of the Company/Start-up**

   Company registration in process
5. **Student team Details/Faculty Mentor:**

   1. Uma Maheswara Rao Annavarapu
   2. Ravuri China Gopi Reddy
6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points:** Our innovative start-up is dedicated to revolutionizing healthcare through our advanced medication management device, Med-Mitra. With a strong focus on enhancing patient

adherence, our device empowers individuals to take control of their medication routines independently, promoting a sense of empowerment and improving overall health outcomes. The device's timely reminders and alerts not only reduce the burden on caregivers but also prevent medical complications and subsequent hospitalizations, resulting in significant cost savings for the healthcare system. Furthermore, our device offers accessibility features to cater to diverse user needs, while the data insights it provides help healthcare providers tailor personalized treatment plans. Through educational initiatives and inclusivity, we aim to raise awareness about medication adherence and support the aging population in maintaining their independence and optimal health. Our progress in product development and partnerships ensures a transparent path towards a more efficient and sustainable healthcare landscape.

Start-Up-021: Karshak-Mitra Agro Solutions LLP

1. **Name of the Company/Start-up**: Karshak-Mitra Agro Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Providing Solutions for All agricultural issues by Organic Farming and monitoring by IOT Technology.

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - Smart Sensing: Precision Farming
   - Livestock Monitoring
   - Climate and Weather Insights
   - Data Analytics and AI
   - Resource Efficiency
   - Remote Monitoring and Control
   - Collaboration and Knowledge Sharing
4. **Current Status of the Company/Start-up**

   LLP Registration is under Process
5. **Student team Details/Faculty Mentor:**

   1. Revanth Kumar Mareedu

6. **Establishment date of the Company/Start-up/Commercialization:** Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**

   Karshak-Mitra Agro Solutions LLP is a pioneering agricultural start-up committed to revolutionizing the farming landscape with innovative technologies and sustainable practices. Established in [year], the company aims to address the challenges faced by farmers by providing them with cutting-edge agricultural solutions. Leveraging the power of artificial intelligence, Internet of Things (IoT), and data analytics, Karshak- Mitra offers a range ofsmart farming products and services, including precision agriculture tools, crop monitoring systems, and soil health management solutions.

Start-Up-022: Prasanth A Tech Solutions LLP

1. **Name of the Company/Start-up** : Prasanth A Tech Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Providing Solutions for All agricultural issues by Organic Farming and monitoring by IOT Technology

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - Smart Sensing
   - Precision Farming
   - Livestock Monitoring
   - Climate and Weather Insights
   - Data Analytics and AI
   - Resource Efficiency:
   - Remote Monitoring and Control:
   - Collaboration and Knowledge Sharing:
4. **Current Status of the Company/Start-up**

   LLP Registration is under Process
5. **Student team Details/Faculty Mentor:**

   1. M. Poojitha

6. **Establishment date of the Company/Start-up/Commercialization:**
   Applied for Company registration
7. **One paragraph on the Company/Start-Up covering all the points.**
   The Agriculture IoT startup aims to transform traditional farming practices by harnessing the power of Internet of Things (IoT) technology. By integrating IoT devices and smart sensors with agricultural processes, the startup envisions optimizing resource utilization, improving crop yields, and enhancing overall farm efficiency. By integrating cutting-edge IoT technology with traditional farming methods, it empowers farmers to achieve higher yields, conserve resources, and embrace sustainable practices in the face of evolving agricultural demands

Start-Up-023: PVELECTRIX LLP

1. **Name of the Company/Start-up**: PVELECTRIX LLP
2. **Highlights of the Company/Start-up**:
   Product/Service : Providing Solutions for All agricultural issues by Organic Farming and monitoring by IOT Technology.
   Investment : Not yet started
   Employment generated : Not yet
   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - Smart Sensing
   - Precision Farming:
   - Livestock Monitoring
   - Climate and Weather Insights
   - Data Analytics and AI
   - Resource Efficiency
   - Remote Monitoring and Control
   - Collaboration and Knowledge Sharing
4. **Current Status of the Company/Start-up:** LLP Registration is under Process
5. **Student team Details/Faculty Mentor:**
   1. Pavan Mulleti
6. **Establishment date of the Company/Start-up/Commercialization:**
   Applied for Company registration

7. **One paragraph on the Company/Start-Up covering all the points.**

   PVELECTRIX LLP is a dynamic and innovative start-up that specializes in renewable energy solutions. Established in [year], the company has rapidly emerged as a leading player in the clean energy sector, driven by its commitment to sustainability and cutting-edge technology. PVELECTRIX LLP focuses on designing, developing, and implementing photovoltaic systems and related energy storage solutions, catering to both residential and commercial markets. With a team of highly skilled engineers and researchers, the company strives to offer efficient and cost-effective solar energy solutions that contribute to a greener future.

Start-up-024: H20 Farming Solutions LLP

1. **Name of the Company/Start-up**: H20 Farming Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Providing Solutions for All agricultural issues by Organic Farming and monitoring by IOT Technology.

   Investment : Not yet started

   Employment generated : Not yet

   Commercialized or not : No
3. **Impact it will create (including social impact, if any)**
   - Smart Sensing
   - Precision Farming:
   - Livestock Monitoring
   - Climate and Weather Insights
   - Data Analytics and AI
   - Resource Efficiency
   - Remote Monitoring and Control
   - Collaboration and Knowledge Sharing
4. **Current Status of the Company/Start-up :** LLP Registration is under Process
5. **Student team Details/Faculty Mentor:**

   1. Bala Gopala Rao Sanku
6. **Establishment date of the Company/Start-up/Commercialization:**

   Applied for Company registration

7. **One paragraph on the Company/Start-Up covering all the points.**

   H20 Farming Solutions LLP is an innovative and forward-thinking start-up that is revolutionizing the agricultural industry with its sustainable and cutting-edge water-based farming solutions. Founded in [year], the company aims to address the global challenges of water scarcity and food security by developing and implementing advanced hydroponic and aquaponic technologies. Through its state-of-the-art farming systems, H20 Farming Solutions enables efficient water usage, significantly reducing water wastage compared to traditional farming method.

03) Sasi Institute of Technology & Engineering, Tadepalligudem

Start-Up-025: Sunrise Smart Innovations

1. **Name of the Company/Start-up** : Sunrise Smart Innovations
2. **Highlights of the Company/Start-up** :

   Product/Service : Product

   Investment : Rs. 3,50,000

   Employment generated : 8

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - It helps to the users in terms of regular monitoring and maintenance of the all water tanks in organizations.
   - Remote monitoring of the water flow in all water tanks easy.
4. **Current Status of the Company/Start-up - Running**

   Prototype kit was verified in the institute water tanks and prepared view kits to nearby small independent organizations for practical verifications and testing.
5. **Student team Details/Faculty Mentor:**

   1. T. Venkateswara Reddy
6. **Establishment date of the Company/Start-up/Commercialization:**

   10-03-2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   The company is manufacturing the proposed kits to small organizations who are interested to use and gives the demo to local people for product usage. Regular maintenance of the product is scheduled by area wise for proper market growth and avoiding competitors.

Start-Up-026: Abaya Health Care Systems

1. **Name of the Company/Start-up** : Abaya Health Care Systems
2. **Highlights of the Company/Start-up :**

   Product/Service : Services

   Investment : Rs. 4,00,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - More number of patients can handle due to low prize.
   - Certified material my medical department for real implementation.
4. **Current Status of the Company/Start-up - Running**

   Prototype kit was verified in the institute dispensary and prepared few kits to nearby small independent organizations for practical verifications and testing.
5. **Student team Details/Faculty Mentor:**

   1. T. Prasad
6. **Establishment date of the Company/Start-up/Commercialization:**

   23-03-2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   The company is manufacturing the proposed kits to small organizations who are interested to use and gives the demo to local people for product usage. Regular maintenance of the product is scheduled by area wise for proper market growth and avoiding competitors.

Start-Up-027: Navsin Medical Technologies

1. **Name of the Company/Start-up** : Navsin Medical Technologies
2. **Highlights of the Company/Start-up :**

   Product/Service : Service

   Investment : Rs. 2,50,000

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - It will help in early detection and diagnosis of Sleep Apnea
   - Waiting time for the results is reduced.

4. **Current Status of the Company/Start-up - Running**

   Prototype kit was verified by taking the data from the persons and the report generated will be examined by the expert.

5. **Student team Details/Faculty Mentor:**

   1. G Naveen Kishore

6. **Establishment date of the Company/Start-up/Commercialization:**

   17-03-2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   This Start up aims at the early diagnosis of Obstructive sleep Apnea. The device detects the pattern of the ECG signal to identify whether it is normal or abnormal. Deep Learning algorithms are used for identifying anormal activity present in the ECG which can be used to suggest necessary life style modifications by the doctor.

Start-Up-028: Vihari Smart Innovations

1. **Name of the Company/Start-up** **:** Vihari Smart Innovations
2. **Highlights of the Company/Start-up :**

   Product/Service : Product

   Investment : Rs. 300000

   Employment generated : 10

   Commercialized or not : Commercialized

3. **Impact it will create (including social impact, if any)**
   - It helps to the farmers in terms of regular monitoring and maintenance of the
   - Farm parameters.
   - Remote monitoring of the farm activities is easy to establish
4. **Current Status of the Company/Start-up** - Running
5. **Student team Details/Faculty Mentor:**

   1. J. L. Narayana

6. **Establishment date of the Company/Start-up/Commercialization:**

   03-03-2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   The company is manufacturing the farming kits for farmers who are interested to use and gives the demo to local farmers for product usage. Regular maintenance

of the product is scheduled by area wise for proper market growth and avoiding competitors.

04) L. J. Institute of Engineering & Technology, Ahmedabad

Start-Up-029: AZE Automative Private Limited

1. **Name of the Company/Start-up**: AZE Automative Private Limited
2. **Highlights of the Company/Start-up**:

Product/Service	:	Electric Motorcycle
Investment	:	Rs. 2,00,000
Employment generated	:	No
Commercialized or not	:	No

3. **Impact it will create (including social impact, if any)**
   - Environmental Impact: Electric motorcycles produce zero tailpipe emissions, reducing air pollution and greenhouse gas emissions compared to traditional internal combustion engine motorcycles.
   - This can contribute to improved air quality and help mitigate climate change.
   - Innovation and Technology: Electric motorcycle startups often push the boundaries of technology and innovation in the automotive industry.
   - Urban Mobility: Electric motorcycles can provide a sustainable and efficient mode of transportation for urban areas.
   - Consumer Awareness and Adoption: Electric motorcycle startups often raise awareness about the benefits of electric vehicles and sustainable transportation.
   - Market Competition: New startups entering the electric motorcycle market can drive healthy competition and innovation among established players.
   - Cultural Shift: Electric motorcycles can contribute to a cultural shift towards cleaner and more sustainable forms of transportation.
4. **Current Status of the Company/Start-up**
   - Working on prototyping for filing 2nd IP.
5. **Student team Details/Faculty Mentor:**
   1. Kavan Panchal
   2. Suraj Yadav
   3. Devesh Panchal

4. Pratham Barot
5. Manthan Patel

6. **Establishment date of the Company/Start-up/Commercialization:**
   - 30th May 2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Aze automotive has been working on transmission of electric motorcycles where we can extract maximum performance from an electric motor giving us enhanced riding experience with best-in-class range and performance. We first tried an electronically controlled Continuously Variable Transmission or E-CVT. After prototyping and testing we saw positive results and opted to patent the design. But after some testing on the prototype motorcycle we built, we experienced some issues regarding heating and ride quality. Therefore, to solve the issues we designed an automatic two speed gearbox in which we experienced an increase in range and speed with best-in-class acceleration. But as we increased the testing cycles, we observed that the shifting mechanism we designed is inefficient and in order to solve that, we have designed a more efficient shifting mechanism.

Start-Up-030: RIOB

1. **Name of the Company/Start-up**: RIOB
2. **Highlights of the Company/Start-up**:

Product/Service	: Biscuits
Investment	: Rs. 1,50,000
Employment generated	: 02
Commercialized or not	: Commercialized

3. **Impact it will create (including social impact, if any)**
   - Healthy Life for Dogs
4. **Current Status of the Company/Start-up:** Developing New Products
5. **Student team Details/Faculty Mentor:**
   1. Smriti Patel
   2. Jeet Shah
6. **Establishment date of the Company/Start-up/Commercialization:**
   - February 2022

7. **One paragraph on the Company/Start-Up covering all the points.**
   - We are dog biscuits manufacturers which are 100% natural. Our biscuits are available in 3 different pack sizes (5rs, 30rs, 120rs).

Start-Up-031: GREENEVON Bio Private Limited

1. **Name of the Company/Start-up**: GREENEVON Bio Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Biodegradable and Compostable Bottles

   Investment : Rs. 30,00,000

   Employment generated : 20

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - We are provide superior PLA Bottle manufacturing services that meet the highest sustainability standards. We are dedicated to developing and producing biodegradable and compostable bottles that minimize environmental impact and reduce plastic waste
4. **Current Status of the Company/Start-up:** Started Product Marketing
5. **Student team Details/Faculty Mentor:**

   1. Nikhil Kumar
   2. Chintan Prajapati
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 4th August 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - We are working on sustainable packaging solutions through the production of high-quality and eco-friendly PLA bottles. We aim to revolutionize the packaging industry by offering innovative, biodegradable, and compostable bottles that significantly reduce the environmental impact of single-use plastics.

05) Manav Rachna International University, Faridabad

Start-Up-032: 2nd Life Inning Ventures LLP

1. **Name of the Company/Start-up**: 2nd Life Inning Ventures LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Website for senior citizens

   Investment : Rs. 2, 50,000

   Employment generated : 04

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Enhancing lives, one step at a time. Our well-designed project aims to prioritize the holistic needs of seniors, offering a seamless blend of essential services ranging from nourishing meals, safety, medical care, housekeeping, to thoughtfully curate entertainment, ensuring perpetual happiness, comfort, and security.
4. **Current Status of the Company/Start-up**
   - LLP has been registered and also got recognized under Startup India program, Government of India.
5. **Student team Details/Faculty Mentor:**

   I. Babita

   II. Shreyansh
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 13.02.2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The 2nd Lifeinnings is a well-planned project to ensure that you are always Happy, Comfortable, Secured and Looked after- Focusing on the minor as well as major requirements starting from Food & Diet to Security and Medical care from House- keeping to entertainment planning of the old age people.

Start-Up-033: MANAVNEER LLP

1. **Name of the Company/Start-up**: MANAVNEER LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Water cleaning using NANO material

   Investment : 2, 50,000/-

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Revolutionizing water purification with an air stable, biocompatible porous nano composite material, and effectively combating pollution by enhancing absorption capabilities in contaminated water. Harnessing innovation for a cleaner, healthier future.
4. **Current Status of the Company/Start-up**
   - LLP has been registered and also got recognized under Startup India program, Government of India.
5. **Student team Details/Faculty Mentor:**

   I. Sudeep Shukla
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 26.04.2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The proposed idea will be attempted to synthesize air stable biocompatible porous nano composite material for advance absorption of pollutants from contaminated water.

06) B. N. M. Institute of Technology, Bengaluru

Start-Up-034: Innovkraft Inc

1. **Name of the Company/ Start-up**: Innovkraft Inc
2. **Highlights of the Company/Start-up :**

   Product : Software Development Product

   Investment : Rs. 3,00,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):** Branding, Social Media Marketing, Search Engine Optimization (SEO), Management, Leadership, and Team Leadership.
4. **Current Status of the Company/Start-up:** Growth stage
5. **Student team Details/Faculty Mentor:**

   1. Apoorva R
6. **Establishment date of the Company/Start-up/Commercialization: 2021**
7. **One paragraph on the Company/Start-Up covering all the points.**

   An Entrepreneur, skilled in Branding, Social Media Marketing, Search Engine Optimization (SEO), Management, Leadership, and Team Leadership. Passionate about photography. A strong business development professional with a Bachelor of Engineering - focused in Electronics and Communications Engineering from B N M Institute of Technology, BANGALORE. “At Innovraft we innovators are expert in design and technology, with a focus on creating campaigns that resonate with your target audience. Once we have a grasp of your company’s vision, we’ll work with you to use our expertise to develop a strategy that elevates the way you interact with your customers” says Managing Partner Ms. Apporva.

07) University of Science and Technology, Ri-Bhoi

Start-Up-035: Diabetic Chocolate

1. **Name of the Company/ Start-up:** Diabetic Chocolate
2. **Highlights of the Company/Start-up :**

   Product : Herbal And Sugar-Free Chocolate

   Investment : Rs. 1,00,000/-

   Employment generated : 10 expected to be employed within 1 year

   Commercialized or not : Under process
3. **Impact it will create (including social impact, if any):**
   - Sugar free chocolate candy bars have more antioxidants than red wine or green tea. Chocolate contain flavonoids that is good for the heart. It thins the blood platelets and prevents clotting. In addition, flavonoids may be helpful in the prevention of cancer.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**

   1. Sharvanee Borah

   2. Mobina Ahmed
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The product can be enjoyed by diabetic patients without any fear as it does not alleviate or fluctuate blood sugar levels. The ingredients added to this product are herbs, some simple, easily available materials.

Start-Up-036: Prebiotic Food

1. **Name of the Company/ Start-up:** Prebiotic Food
2. **Highlights of the Company/Start-up :**

   Product : Prebiotic Food Supplements

   Investment : Rs. 1,00,000/-

   Employment generated : 10 expected to be employed within 1 year

   Commercialized or not : Under process

3. **Impact it will create (including social impact, if any):** Eating a diet rich in prebiotics and taking prebiotic supplements may benefit certain aspects of metabolic health, including blood sugar, cholesterol, and triglyceride levels.
4. **Current Status of the Company/Start-up:**
   - Start-up process initiated
5. **Student team Details/Faculty Mentor:**
   1. Ankita Kalita
   2. Anishmita
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Prebiotic food supplement is a mixture of heathy fibers made from raw materials found in the North East of India. These raw materials are in the dried form

Start-Up-037: Wholesome Ventures

1. **Name of the Company/ Start-up:** Wholesome Ventures
2. **Highlights of the Company/ Start-up:**

Product/ Service	: Frozen Food
Investment	: Rs. 20,00,000
Employment generated	: 15 Nos
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

   Most of the Frozen Food players are from mainland India. The presence is limited to major cites/ towns of North East. NE food has a particular taste pallet. This region is blessed with indigenous herbs and spice rich in taste. We are trying to create products considering the indigenous taste and mouth fullness. We Intend to be a leading frozen food player in the country.
4. **Current status of the company/ start-up**

   46 Lakhs of Turn Over in 1st year of Operation with Market Presence in 7 District of Assam and 3 State Capitals of North East Shillong, Nagaland, Manipur.

   Shall be launching Bangalore by Mid of July 2023.

5. **Student Team details/Faculty Mentor**

   1. Nashat Hussain
   2. Boilal P Gangte

6. **Establishment date of the Company/ start-up/ commercialization:**

   04th of April 2022 is the date of incorporation.

   Commercial launch happened in June 2022

7. **One paragraph on the company/ start-up covering all the points:**

   - Wholesome ventures is a frozen food manufacturing and marketing firm from the North East, based out of Guwahati. The company operates under the brand "Petoo".
   - The company intends to be a leading frozen food player in the country by providing interesting and relevant products through a fine blend of science, art and aesthetics.
   - What makes Petoo different from the rest is, the product innovation using smart & local know-how and the different brand appeal.

Start-Up-038: AmbyGold Manorama Foods Pvt Ltd

1. **Name of the Company/ Start-up:** AmbyGold Manorama Foods Pvt Ltd
2. **Highlights of the Company/ Start-up:**

Product/ Service	: Indigenous Functional Food Products
Investment	: Rs. 6,00,000
Employment generated	: 6 Nos
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

   We are a community building concept with a vision to create a sustainable ecosystem by commercialising indigenous functional food products.

   - Closely working with flood effected farmers
   - better earning opportunities for marginal farmers of Assam
   - employment generation (80% female employees)
   - providing to the society (indigenous superfoods) compromise free better substitutes of unhealthy meals
   - Promoting indigenous foods and small farmers

4. **Current status of the company/ start-up:** Early Revenue

5. **Student Team details/Faculty Mentor**

   1. Monalisha Borthakur

6. **Establishment date of the Company/ start-up/ commercialization:**

   Incorporated on 22 June 2020

7. **One paragraph on the company/ start-up covering all the points:**

   Ambygold Manorama Foods Private Limited is a Private incorporated on 22 June 2020. It is classified as Non-govt company and is registered at Registrar of Companies, Shillong. Its authorized share capital is Rs. 100,000 and its paid up capital is Rs. 30,000. It is inolved in Production, processing and preservation of meat, fish, fruit vegetables, oils & fats. Ambygold Manorama Foods Private Limited's Annual General Meeting (AGM) was last held on 15 May 2021 and as per records from Ministry of Corporate Affairs (MCA), its balance sheet was last filed on 31 March 2021.

Start-Up-039: Agro Origin

1. **Name of the Company/ Start-up:** Agro Origin
2. **Highlights of the Company/ Start-up:**

   Product/ Service : Dehydrated fruits and vegetables

   Investment : Rs. 6,00,000

   Employment generated : 7 Nos

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

   Dehydrated fruits and vegetables have had a positive social impact by improving food accessibility, especially in areas with limited access to fresh produce. They offer a convenient and lightweight option for individuals with busy lifestyles, making it easier to incorporate fruits and vegetables into their diet. Dehydrated produce also promotes healthier snacking alternatives, contributing to improved overall nutrition and reduced reliance on unhealthy processed snacks. Additionally, the production and sale of dehydrated fruits and vegetables have created employment opportunities, benefiting local economies and providing sustainable income for farmers and processors. Overall, dehydrated fruits and vegetables have helped promote healthier food choices and economic empowerment within communities.

4. **Current status of the company/ start-up:**

   Early Revenue

5. **Team details**

   1. Abhinab Shyam

6. **Establishment date of the Company/ start-up/ commercialization:**

   Incorporated on 1st November 2020

7. **One paragraph on the company/ start-up covering all the points:**

   - Agro Origin is a 2 years 7 months old Proprietorship Firm incorporated on 01-Nov-2020, having its registered office located at Ward No 29, Agro Origin, Ghoramara Chariali, Niribili Path, Guwahati, Assam.
   - The major activity of Agro Origin is Manufacturing, Sub-classified into Manufacture of food products and is primarily engaged in the Artificial de-hydration of fruit and vegetables.
   - Agro Origin is classified as Micro enterprise in the financial year 2020-21. It has its unit situated at Guwahati, Assam.

Start-Up-040: Dong Valley Creation Pvt Ltd (Beyondarie)

1. **Name of the Company/ Start-up:** Dong Valley Creation Pvt Ltd (Beyondarie)
2. **Highlights of the Company/ Start-up:**

   Product/ Service : Wild Tea

   Investment : Rs. 50,00,000

   Employment generated : 40 Nos

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**

   Wild tea has a notable social impact by promoting sustainability, cultural preservation, and economic opportunities. Harvesting wild tea leaves encourages the preservation of natural habitats, as it incentivizes the protection of the ecosystems where these plants thrive. By engaging in sustainable wild tea practices, communities can maintain biodiversity and safeguard traditional tea-growing regions. Culturally, wild tea connects people to their heritage and traditional practices, fostering a sense of pride and identity. Additionally, the cultivation and sale of wild tea provide economic opportunities for local farmers, creating jobs and income within communities. Overall, wild tea contributes to

environmental conservation, cultural preservation, and socioeconomic development.

4. **Current status of the company/ start-up**

   Dong Valley Creations Private Limited (DVCPL) is a registered startup operating as a Private Limited Indian Non-Government Company incorporated in India on 04 August 2020 (Two years and ten months old). Its registered office is in Kamrup, Assam, India. The Corporate is engaged in the business of growing rows and rows of tea bushes in the numerous tea estates.

5. **Studemt Team details/Faculty Mentor**

   1. Nashat Hussain
   2. Boilal P Gangte

6. **Establishment date of the Company/ start-up/ commercialization:**

   Incorporated on 4th August 2020

7. **One paragraph on the company/ start-up covering all the points:**

   Dong Valley Creations Private Limited. It is a Private company, incorporated on Aug 04, 2020. It is classified as a Non-govt company and registered at Shillong. The registration number for the mentioned company is 020288. It's Corporate Identification Number (CIN) is 020288 having an Active status currently.

   Dong Valley Creations offers a wide range of products and services, including:

   - Ayurvedic Powder and Medicinal Herbs
   - Herbal Powder
   - Manufacturing & Assembling Services
   - Grinding Services
   - Tea & Coffee
   - Tea Bags
   - Tea Premix
   - Flavored Tea
   - Tea
   - Herbal Tea

08) Sphoorthy Engineering College, Hyderabad

Start-Up-041: StellaCemaro Solutions LLP

1. **Name of the Company/Start-up**: StellaCemaro Solutions LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 1

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - If the Monitoring systems being deployed and used by the government regularly, it helps in maintaining the industrial emission levels constantly.
4. **Current Status of the Company/Start-up**
   - Prototype finished
5. **Student team Details/Faculty Mentor:**

   1. Swapnil Shinde
   2. Kkshitij Singh Thakur
   3. Mohammed Naseruddin Ruman
   4. Aqib Nazer Mohammed
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is mostly working on Pollution cause detections using Drone and different Technologies to detect it and make sure the regulations are being followed. Apart from this, They are also working on Waste reusability and recreation.

Start-Up-042: IoT Electrics LLP

1. **Name of the Company/Start-up**: IoT Electrics LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 3

   Commercialized or not : not

3. **Impact it will create (including social impact, if any)**
   - It will help the user know about his Electricity consumption, so that he can optimize the usage therby saving the Power of the Country and its requirement and indirectly pollution.
4. **Current Status of the Company/Start-up**
   - Prototype Finished
5. **Student team Details/Faculty Mentor:**
   1. S. Shreyas
   2. T. Sai Kumar Goud
   3. Harshitha.C
   4. Nikhil .C
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is working on Energy Monitoring and Tracking Hardwate and Software systems to effectively utilize the Energy Generated.

Start-Up-043: Nexaspirants LLP

1. **Name of the Company/Start-up**: Nexaspirants LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : product

   Investment : 0

   Employment generated : 0

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - This will increase the Production of Stuffed Bread makers by reducing the Labour and catering the demand.
4. **Current Status of the Company/Start-up:** Prototype finished
5. **Student team Details/Faculty Mentor:**
   1. G. Vighneshwar Reddy
   2. G. Ajay
   3. E. Pavan Kumar

4. Sarikonda Sumanth Raju

6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is working on Automating the food making process of Local Instant Food using semi-automated portable machines and trying to reduce the dependency of Labour.

Start-Up-044: Senshiitake LLP

1. **Name of the Company/Start-up**: Senshiitake LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : product

   Investment : 0

   Employment generated : 1

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - It will allow the yield of Mushroom to increase therby decreasing the losses in mushroom production.
4. **Current Status of the Company/Start-up**
   - Proto-Type Finished
5. **Student team Details/Faculty Mentor:**

   1. K. Tanusha
   2. V. Poojitha
   3. P. Shreya
   4. T. Sravani
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is working on growth of Plants in Green House Environment creating Artificial Conditions and increasing the yield and Productivity of mushrooms and other useful yields.

Start-Up-045: DreamFluff Innovators LLP

1. **Name of the Company/Start-up**: DreamFluff Innovators LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 2

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - It will help the autistic people to be in a normal sense and feel secure.
4. **Current Status of the Company/Start-up**
   - Prototype
5. **Student team Details/Faculty Mentor:**

   1. M. Umadevi
   2. Sushant Kumar
   3. B. Shashi Varun
   4. P. V. V. S. Murthy
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is Working on Health Care devices mainly for Physicaly and Mentally Affected Students.Thier current protoype is being tested on Autism Children.

Start-Up-046: Protecrop System LLP

1. **Name of the Company/Start-up**: Protecrop System LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 0

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - It will create an impact in farmers protecting Harvested crop.

4. **Current Status of the Company/Start-up:** Prototype finished
5. **Student team Details/Faculty Mentor:**
   1. Y. Geetha Madhuri
   2. K. Chandana
   3. K. Eshvitha
   4. B. Harshitha
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This Company is working on saving the Crop yelds,helping Farmers to secure their yield and also working on Farmer network improvements for selling their yields at right Time.

Start-Up-047: Novophoenix LLP

1. **Name of the Company/Start-up**: Novophoenix LLP
2. **Highlights of the Company/Start-up**:

Product/Service	: Product
Investment	: 0
Employment generated	: 1
Commercialized or not	: not

3. **Impact it will create (including social impact, if any)**
   - It will reduce the accidents caused due to fire accidents and also save the lives of the people in the shopping complexes.
4. **Current Status of the Company/Start-up**
   - Prototype finished
5. **Student team Details/Faculty Mentor:**
   1. Maram Anusha
   2. V. Saritha
   3. Ireddy Sriya Reddy
   4. Bendi Mrudula
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN

7. **One paragraph on the Company/Start-Up covering all the points.**
    - This company is working on Novel IoT tech devices for Urban society solutions. They are working on a safety and fast rescue intimation systems for Shopping Malls , small shop and other business units working with flammable Materials. Under the guidance of Local Municipal Officers for the better suitable poduct.

Start-Up-048: Saptarshidvipa Innovations LLP

1. **Name of the Company/Start-up**: Saptarshidvipa Innovations LLP
2. **Highlights of the Company/Start-up**:

Product/Service	: Product
Investment	: 0
Employment generated	: 0
Commercialized or not	: not

3. **Impact it will create (including social impact, if any)**
    - It will help the patience especially in Emergency to reach right place(hospital) where there are beds available.
4. **Current Status of the Company/Start-up**
    - Prototype finished
5. **Student team Details/Faculty Mentor:**
    1. S. Shiva Yadav
    2. K. Sai Kumar Reddy
    3. V. Raghavendra
6. **Establishment date of the Company/Start-up/Commercialization:**
    - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
    - This company is Working on medical software solutions to ease the gap and Communication between customer/ the Pateint and Hospitals.

Start-Up-049: Agrifuturix

1. **Name of the Company/Start-up**: Agrifuturix
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 0

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - This project will be used for farmers for Harvesting Mirchi, It will reduce the labour cost.
4. **Current Status of the Company/Start-up:** Prototype finished
5. **Student team Details/Faculty Mentor:**

   1. M. Sri Lakshmi Priya

   2. M. Saketh
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is Working on different techniques to Harvest Various Crops where large amount of Labour and Wages are required. They are Working on Robot automated Solutions to Harvest the Crops.

Start-Up-050: Zenitsu LLP

1. **Name of the Company/Start-up**: Zenitsu LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : 0

   Employment generated : 2

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - This is a product developed to ease the mobility of Physically Handicapped People.
4. **Current Status of the Company/Start-up**
   - Prototype finished

5. **Student team Details/Faculty Mentor:**
   1. M. V. Achyuth Siva Rao
   2. Malreddy Vijay Kumar Reddy
   3. Bodramoni Balu
   4. Chittimeni Mahesh Veera Ramana
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**
   - This company is working on Electrical Vehicle usage for physically Handicapped People.

Start-Up-051: Crestofolios LLP

1. **Name of the Company/Start-up**: Crestofolios LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : software Product and service

   Investment : 0

   Employment generated : 0

   Commercialized or not : not
3. **Impact it will create (including social impact, if any)**
   - This is a Web Application created to build Portfolios and get linked to Companies and Clients.
4. **Current Status of the Company/Start-up**
   - Prototype finished
5. **Student team Details/Faculty Mentor:**
   1. Harshitha Sanaka
   2. Akshaya Padala
6. **Establishment date of the Company/Start-up/Commercialization:**
   - Waiting for CIN
7. **One paragraph on the Company/Start-Up covering all the points.**

   This company is working on a software Web application to create a platform for job seekers, freelancers connecting to business units.

09) GLA University, Mathura

Start-Up-052: Atirun Techs Private Limited

1. **Name of the Company/Start-up**: Atirun Techs Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Service

   Investment : Rs. 2,00,000

   Employment generated : 05

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Atirun Techs is a full-service software development company that specializes in creating innovative software solutions, compelling content, and successful product launches. We have a team of experienced developers, writers, and marketers who work closely with clients to understand their unique needs and develop custom software, content, and launch strategies that meet those needs.
4. **Current Status of the Company/Start-up:**
   - Registered in Private Limited
5. **Student team Details/Faculty Mentor:**

   1. Gaurav Singh

   2. Rishabh Saxena
6. **Establishment date of the Company/Start-up/Commercialization:**

   22/03/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Introducing a revolutionary fitness and healthcare app that seamlessly integrates with your smartwatch to provide you with a complete picture of your health and wellness. With this app, you can easily track and record all of your body activities and receive a detailed report on your data analysis through advanced machine learning algorithms.
   - Not only that, but you can also choose a doctor at the time of registration who will receive your data in real-time and contact you for further precautions or treatment if necessary. With this app, you can take control of your health and get personalized care like never before.

Start-Up-053: SAS Electronix stands for System and Support Electronics

1. **Name of the Company/Start-up**: SAS Electronix stands for System and Support Electronics
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 1,00,000

   Employment generated : 03

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - We are targeting each individual, students, offices, industries, etc.
4. **Current Status of the Company/Start-up:** University Startup
5. **Student team Details/Faculty Mentor:**

   1. Shubham Yadav
   2. Abhiraj Mishra
   3. Shikhar Agarwal
6. **Establishment date of the Company/Start-up/Commercialization:**

   20-07-2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   They will design the easiest solution of a particular problem so that the user can get the best solution regarding their problem. The goal is to create gadgets that seamlessly integrate into users' lives, enhancing their daily routines without overwhelming them with unnecessary complexity. **They will also provide the solution for a certain client's desired problem and will design a gadget to solve that problem for the client. They will focus on Less Profit and high Sales.**

10) Marwadi University, Rajkot

Start-Up-054: Candeyleaf Treats LLP

1. **Name of the Company/Start-up**: Candeyleaf Treats LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Suger Free Treats (Product)

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Diabetic patients will receive suger-free treats and be able to eat as they normally would, improving their health and that of the community as a whole.
4. **Current Status of the Company/Start-up**
   - Revenue Generate
5. **Student team Details/Faculty Mentor:**

   1. Diya Vekaria

   2. Dev Vekaria
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 08/02/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Candeyleaf Treats is based on the concept of Sugar less Sweets. We have identified the growing rates of diabetic patients and hence had come up with the solution for the same. We are manufacturing the sweets that do not involve the sugar in its recipe/ manufacturing process. We are utilizing the Stevia as an alternative of the sugar. Also we identified the consequences of an artificial sugar that might results in various health issues and diseases.

Start-Up-055: Santript Aahar LLP

1. **Name of the Company/Start-up**: Santript Aahar LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Spirulina Based (Product)

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - It will Improve immunity System also Rich Amount of Vitamin B12, Vitamin-D, Protein, Fibers, etc.
4. **Current Status of the Company/Start-up**
   - In market and generating revenue.
5. **Student team Details/Faculty Mentor:**

   1. Ms. Ruchita Rathod
   2. Dr Gaurav Sanghvi
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 11/04/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Start-up “Santrip Aahar” majorly aims to deliver its customers a healthy, tasty and nutritious diet. As we know that most of the nutrition rich food is animal based which cannot be consumed by many people. Targeting this, we at “Santrip Ahar” are here with a large-based product that is highly nutritious and vegan.

Start-Up-056: Shivaya Micromech LLP

1. **Name of the Company/Start-up**: Shivaya Micromech LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 1,00,000

   Employment generated : 2

   Commercialized or not : In Process
3. **Impact it will create (including social impact, if any)**
   - It will increase the life of slurry used in investment casting.
4. **Current Status of the Company/Start-up**
   - Product Development
5. **Student team Details/Faculty Mentor:**

   1. Ms. Dhwani Vaitha
   2. Dr. Amit Sata
   3. Mr. Shubham Boricha

6. **Establishment date of the Company/Start-up/Commercialization:**
   - In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The shell-making process is one of the most critical sub-processes of investment castings, and has very high rejection level (nearly 35%) in shell making process.. The rejection in shell making is mostly driven by quality of mixing sand with binder as well as additives. Also, the prepared slurry needs to be prepared by maintaining predefined levels of viscosity, pH as well as specific gravity. It was observed that deviation of these values results in increasing formation of microorganisms in ceramic slurry. This formation further affects the process of slurry making, quality of slurry, and in turn reducing life of slurry as well as cold strength of the mold.

Start-Up-057: Approach Hydraulics LLP

1. **Name of the Company/Start-up**: Approach Hydraulics LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : In Process
3. **Impact it will create (including social impact, if any)**
   - Reduce the energy consumption in hydraulic devices.
4. **Current Status of the Company/Start-up**
   - Product Development
5. **Student team Details/Faculty Mentor:**

   1. Mr. Bhavin Bhimani

   2. Dr. Pinank Patel
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 24/05/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - We are modifying hydraulic system for it's efficiency improvement.

Start-Up-058: Shah Genome LLP

1. **Name of the Company/Start-up**: - Shah Genome LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 1,25,000

   Employment generated : 2

   Commercialized or not : In Process
3. **Impact it will create (including social impact, if any)**
   - It will help reuse the medicated masks with anti-microbial spray or liquid.
4. **Current Status of the Company/Start-up:** Product Development
5. **Student team Details/Faculty Mentor:**

   1. Ms. Amisha Patel

   2. Dr. Sejal Shah
6. **Establishment date of the Company/Start-up/Commercialization:**
   - In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Antimicrobial Nano-coated Cotton Mask Elevator pitch We have identified that emerging infectious diseases caused by viruses have constituted the forefront of global health concerns in healthcare sector, and propose that antimicrobial mask through our unique approach of nano biotechnology.

11) Jawaharlal Nehru National College of Engineering, Shimoga

Start-Up-059: None

1. **Name of the Company/ Start-up**: None
2. **Highlights of the Company/Start-up ;**

   Product Name: "*Areca Plate Making Machine*"
   - Areca plates, also known as betel nut plates, are biodegradable plates made from the areca palm tree's leaves. These plates are eco-friendly and are an excellent substitute for plastic and paper plates. The process of making these plates is time-consuming and requires a lot of labour. However, with the advancement in technology, areca plate machines have been developed, which make the process much faster and efficient. The machine developed helps in increasing the productivity of areca plate making.

3. **Impact it will create (including social impact, if any):**
   - As the developed machine's design is based on the user's requirements, it helps in process control in areca plate making and thus increases the productivity. The machine is cost-effective, environmentally friendly, and easy to operate and maintain. This aspect provides a competitive edge to the user of this machine.
4. **Current Status of the Company/Start-up:**
   - At present, the product is used and marketed by one of the areca plates making unit viz., Nirjara Sahavartimentor run by one of the mentors of the team Mr. Manoj G R who is JNNCE Alumni.
5. **Student team Details/Faculty Mentor:**

   1. Shashanth Shetty
   2. Mohammed Bilal K
6. **Establishment date of the Company/Start-up/Commercialization:**
   - --NA--
7. **One paragraph on the Company/Start-Up covering all the points.**
   - --NA--

Start-Up-060: None

1. **Name of the Company/ Start-up**: None
2. **Highlights of the Company/Start-up ;**

   Product Name: "*Areca Nut Dehusking Machine*"
   - The main objective was to develop a novel areca nut dehusking machine that will give good results compare to dehusking by manual methods using knifes and other existing instruments and/or machines. An important aspect of the proposed machine is that it emphasizes its suitability for dehusking variety of sizes of Areca nut. Further the drive systems components and its timings are designed in such a way that the areca nut will be oriented in horizontal position at the instant of dehusking process and thus cutter blade will peel the husk without damaging the nut or breaking the nut. Thus, rejection of nut will be minimized to the large extent and yield of the dehusked arecanut will increases.

3. **Impact it will create (including social impact, if any):**
   - Existing de-husking of areca nut is either labour intensive or it is by using various mechanisms that ever hampered the efficiency and quality of areca nut processing. In developing this machine care is taken to handle different sized and shaped arecanuts that ensures improved efficiency and high production rate of areca nut.
4. **Current Status of the Company/Start-up:**
   - At present, the product is used and marketed by Green Care Technologies & Engineering.
5. **Student team Details/Faculty Mentor:**
   1. Rahul M P
   2. Rahul N
   3. Sumukh Raj
   4. Preetham D
6. **Establishment date of the Company/Start-up/Commercialization:**
   - --NA--
7. **One paragraph on the Company/Start-Up covering all the points.**
   - --NA--

Start-Up-061: None

1. **Name of the Company/ Start-up**: None
2. **Highlights of the Company/Start-up ;**

   Product Name: “Areca Sheath Tempering Unit”
   - Areca sheath is a by product of areca cultivation. This biomass is a waste and in earlier days was thrown which subsequently leads its slow decomposition. This waste was found a great monetary value when there was need for replacement of plastic plates used for food consumption. Many operators started making plates from this sheath which are mostly exported. However, the storage of areca sheath requires a tempering process to mould it into required shape. High humidity and moisture level cause spoilage and fungal growth on the sheath. Hence a controlled environment contains automatic cooling and fogging system to control the humidity and moisture levels. Hence this at-

tempt aimed at developing a unit that controls tempers the areca sheath and increases its shelf life.

3. **Impact it will create (including social impact, if any):**
   - The cooling and fogging system is effective in controlling the humidity and moisture levels of areca leaves in the controlled environment. The system maintains the desired temperature and humidity levels, which prevents fungal growth and spoilage of the leaves. This cooling system provides desired flexibility of areca sheath which makes comfortable for the workers who handles it. Reduction of water usage, Power consumption, labour, and cycle time.
4. **Current Status of the Company/Start-up:**
   - At present, the product is used and marketed by one of the areca plates making unit viz., Nirjara Sahavartimentor run by one of the mentors of the team Mr. Manoj G R who is JNNCE Alumni.
5. **Student team Details/Faculty Mentor:**

   1. Anup R Hegde
   2. Areeb Imtiaz Ahmed
6. **Establishment date of the Company/Start-up/Commercialization:**
   - --NA--
7. **One paragraph on the Company/Start-Up covering all the points.**
   - --NA—

12) Datta Meghe Institute of Medical Sciences, Wardha

Start-Up-062: Humen Edutech LLP

1. **Name of the Company/Start-up**: Humen Edutech LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : An apparatus for facilitating Ultrasound based soft

   Investment : Rs. 01.00 Lakhs

   Employment generated :

   Commercialized or not :
3. **Impact it will create (including social impact, if any)**
   - The device will help physiotherapists to provide better treatment to the patients and better outcome
4. **Current Status of the Company/Start-up:** Active

5. **Student team Details/Faculty Mentor:**

   1. Waqar Naqvi

6. **Establishment date of the Company/Start-up/Commercialization:**

   - 05 August 2021

7. **One paragraph on the Company/Start-Up covering all the points.**

   Humen Edutech LLP is a start-up incorporated for the product an apparatus for facilitating Ultrasound based soft by Waqar Naqvi on 05 August 2021

Start-Up-063: Sindicolpo Private Limited

1. **Name of the Company/ Start-up**: Sindicolpo Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Portable handheld colcoscope

   Investment : Rs. 1,00,000

   Employment Generated :

   Commercialized or not : in process

3. **Impact it will create (including social impact, if any):**

   - Our device, the Indigenous Digital Colposcope, is hand held, can be used on any Android or IOS smartphone with required specifications, and is a portable, user-friendly, cost-effective device that gives accurate high-definition zoomed images of the cervix.

4. **Current Status of the Company/Start-up:**

   - Active

5. **Student team Details/Faculty Mentor:**

   1. Anupama Baburao Bhute

6. **Establishment date of the Company/Start-up/Commercialization:**

   29 July 2021

7. **One paragraph on the Company/Start-Up covering all the points.**

   - A revolutionary device in the detection of cervical cancer. Cost-effective. Sindicolpo, a handheld device, reduces manufacturing and production costs by a lot of margin. Unique Cervical Cancer screening. Our device enables a patient to have themselves diagnosed at the comfort of their homes.

13) Chitkara University, Rajpura

Start-Up-064: GDPUNRAK Solutions Private Limited

1. **Name of the Company/ Start-up**: GDPUNRAK Solutions Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Portable Heat Treatment and Muffle Furnace

   Investment : Rs. 1,00,000/-

   Employment generated : 4

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**

   This furnace has increasing demand in industries like Aerospace & Aviation, Military, Automobile, Tool and Dies, Machinery, New Energy, Rail Industries etc. For more details visit, https://newgeniedc.chitkara.edu.in/project/portable-heat-treatment-and-muffle-furnace/
4. **Current Status of the Company/Start-up:**
   - They are currently developing the prototype.
5. **Student team Details/Faculty Mentor:**

   1. Sushant Jashwara
   2. Rakesh Goyal
6. **Establishment date of the Company/Start-up/Commercialization: 2023**
7. **One paragraph on the Company/Start-Up covering all the points.**

   It is a new company and they are establishing themselves. Portable Heat Treatment and Muffle Furnace is their first product that they are developing. Heat treatment muffle furnace can work both vertically and horizontally and shall provide uniform heat treatment properties. It is provided with a wire feed mechanism to hold the specimen. This will maintain an equal distance from the heating element on every side and will help to move and rotate the specimen on axis. The temperature of the furnace will be in the range of 800 ^{o}C-1000 ^{o}C.

Start-Up-065: Core Idea Innovations Private Limited

1. **Name of the Company/ Start-up**: Core Idea Innovations Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Virtual Reality Based Home Eye Testing Device for measuring spectacle power of the eye virtual reality based home eye testing device for measuring spectacle power of the eye

   Investment : Rs. 20,00,000/-

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   It will give a privilege of eye testing to countless people living in rural areas. For more details, visit https://newgeniedc.chitkara.edu.in/project/virtual-reality-based-home-eye-testing-device-for-measuring-spectacle-power-of-the-eye/
4. **Current Status of the Company/Start-up:**
   - Their product is in the pilot stage.
5. **Student team Details/Faculty Mentor:**

   1. Maheswari Srinivasan
   2. Arshdeep Kaur
   3. Keerti Bhusan Pradhan
6. **Establishment date of the Company/Start-up/Commercialization: 2021**
7. **One paragraph on the Company/Start-Up covering all the points.**

   There are only 12000 ophthalmologists in India, for a population of 136 crore. In some of the rural areas of India, there are no eye care facilities. Hence, a device for tele-eye consultation and tele-eye testing was required. Our innovation is a virtual reality-based device that can connect clinicians and patients through cloud systems. The device tests the spectacle power of the eye and sends the prescription remotely. It helps the patients reach out to the ophthalmologists easily across countries.

Start-Up-066: Powered Electron Private Limited

1. **Name of the Company/ Start-up**: Powered Electron Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Schottky Junction Printable Solar Cell

   Investment : Rs. 7,00,000/-

   Employment generated : 4

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**

   The flexible solar cells will be used in a variety of applications, especially wearable electronics, in future. For more details, visit https://newgeniedc.chitkara.edu.in/project/schottky-junction-printable-solar-cell/
4. **Current Status of the Company/Start-up:**
   - Their product is in testing and validation.
5. **Student team Details/Faculty Mentor:**

   1. Nikhil Shrivastav
   2. Rahul Pandey
   3. Jaya Madan
6. **Establishment date of the Company/Start-up/Commercialization: 2021**
7. **One paragraph on the Company/Start-Up covering all the points.**

   Powered Electron is an Indian Solar Power Company registered under the MCA, Government of India. Our company is at the prototyping stage where we are currently performing an R&D on a new concept, idea and technology for Printable Solar Cells & Modules.

START-UP-067: GFF Innovations Private Limited

1. **Name of the Company/ Start-up**: GFF Innovations Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Rodent Surgical Table

   Investment : Rs. 10,00,000/- plus

   Employment generated : 4

   Commercialized or not : No

3. **Impact it will create (including social impact, if any):** Rodent surgical tables are used for animals' examinations or surgeries by a veterinary surgeon or pre-clinical researchers. It is important to provide an accurate position and height of the working table for surgery with proper temperature regulation, which enables the veterinarian to be in a precise position rather than kneeling or crouching to treat the animal on the floor. For more details, visit https://newgeniedc.chitkara.edu.in/project/rodent-surgical-table/
4. **Current Status of the Company/Start-up:**
   - The company has a diverse portfolio of products for variety of applications. Most of their products are based on smart (sensors oriented) machineries to overcome inefficient practices of traditional methods.
5. **Student team Details/Faculty Mentor:**

   1. Nikhil Garg
   2. Onkar Bedi
   3. Thakur Gurjeet Singh
6. **Establishment date of the Company/Start-up/Commercialization: 2018**
7. **One paragraph on the Company/Start-Up covering all the points.**

   Microwave are bad for health. We use the badness to kill the bads. Do you believe in magic? We believe in it and have created magical machines. You write to us to know more

   i. Can you deliver the drugs to IV without piercing the skin. We deliver the insulin without injections or oral deliveries. ii. We can kill the weeds in your garden without chemical weedicides iii. We instantly convert your wet waste/industrial waste/agriculture waste into dried powder which you can use for multiple purposes. iv. We wash your clothes without water.

   Website - http://www.gffinnov.com

14) Mar Ephraem College of Engineering & Technology, Elavuvilai

Start-Up-068: G-STICK

1. **Name of the Company/ Start-up**: G-STICK
2. **Highlights of the Company/Start-up ;**

   Product : G-Stick: A smart Guide Stick for blind with navigation Support

   Investment : Rs. 2,50,000

   Employment generated : 01

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**
   - Our products are affordable and long lasting , thus more customers prefer our products
4. **Current Status of the Company/Start-up:** Waiting for Company Name approval
5. **Student team Details/Faculty Mentor:**

   1. Mr. Anton James
6. **Establishment date of the Company/Start-up/Commercialization:**

   In Process
7. **One paragraph on the Company/Start-Up covering all the points.**

   The project proposed the design and architecture of a new concept of G-STICK for blind people. The blind stick proposed in this project can aid the visually impaired user by helping him/her navigate through different terrains and obstacles. The advantage of the system lies in the fact that it can prove to be very fast response solution to millions of blind persons worldwide. The proposed combination of various working units makes a real-time system that monitors positions of the user and provide feedback navigation more safe and secure

Start-Up-069: S-Cart Private Ltd.

1. **Name of the Company/ Start-up**: S-Cart Private Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : G S-Cart – Solar Dhobi Cart

   Investment : Rs. 50,000

   Employment generated : 01

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):**
   - Solar cart for dhobi people
4. **Current Status of the Company/Start-up:**
   - Waiting for Company Name approval.
5. **Student team Details/Faculty Mentor:**

   1. Ms. Jerlin Prabha
6. **Establishment date of the Company/Start-up/Commercialization:**

   In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Dhobi cart is designed with features like automatic rain guard, sliding chair, storage decks for clothes.
   - Automatic rain guard is implemented to detect the continuous rain level and operates automatically.
   - Handle with lever arrangement and braking is designed for easy angular motion control

Start-Up-070: S-Patio Private Ltd

1. **Name of the Company/ Start-up**: S-Patio Private Ltd
2. **Highlights of the Company/Start-up ;**

   Product : S- Patio: A Portable Solar Power Harvesting Unit

   Investment : Rs. 50,000

   Employment generated : 01

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):** Makes trekking easier
4. **Current Status of the Company/Start-up:** Waiting for Company Name approval
5. **Student team Details/Faculty Mentor:**

   1. Ms. Lafni
6. **Establishment date of the Company/Start-up/Commercialization:** In-Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Flexible Solar panel is integrated which can capture solar energy during outdoor camps.
   - Patio designed for compact, and easy to carry, making them ideal for backpackers who need a portable shelter during multi-day trips

Start-Up-071: SS Sign Private Ltd.

1. **Name of the Company/ Start-up**: SS Sign Private Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : Sign language recognition with Machine learning

   Investment : Rs. 45,000

   Employment generated : 01

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**
   - Helps the people who are visually challenged
4. **Current Status of the Company/Start-up:**
   - Waiting for Company Name approval.
5. **Student team Details/Faculty Mentor:**

   1. Ms. Sham Nijin S
6. **Establishment date of the Company/Start-up/Commercialization:**

   In-Process
7. **One paragraph on the Company/Start-Up covering all the points.**

   The project addresses the challenges faced by sign language users in maintaining a seamless flow of communication with individuals who rely on spoken language. Traditionally, these two communities have experienced difficulties in understanding each other due to the differences in their respective communication methods. This recognition application offers a technological solution to this problem, enabling effective communication between sign language and spoken language users.

Start-Up-072: Azolla Aswin Private Ltd

1. **Name of the Company/ Start-up**: Azolla Aswin Private Ltd
2. **Highlights of the Company/Start-up ;**

   Product : IoT based Smart Azolla Bed

   Investment : Rs. 1,20,000

   Employment generated : 01

   Commercialized or not : No
3. **Impact it will create (including social impact, if any):**
   - Helps the production of Azolla as a natural feed

4. **Current Status of the Company/Start-up:**
   - Waiting for Company Name approval.
5. **Student team Details/Faculty Mentor:**

   1. Ms. L. Mersheba Fred
6. **Establishment date of the Company/Start-up/Commercialization:**

   In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Azolla possesses the desired qualities of a green manure crop, likequick growth, large biomass production, higher nitrogen content, and easy decomposability in the soil. However, Azolla cultivation is a labor-intensive technology, Smart Azolla Bed can change the intensive pressure on farmers.
   - We are have used vibration and shock technology to impair the snail and emancipate the plant from the snail. Every 15 minutes it will vibrate for 30 seconds. A concrete vibrator with needle is used to vibrate the azolla bed. The set-up is done using the required components including relay driver and wires. The program is uploaded to Node MCU and it acts accordingly.
   - Temperature sensor is used to detect the temperature of water and is monitored using a blynk software. And using a temperature sensor the temperature of water is checked all time and if the temperature exceeds 40 degree Celsius, alarm sound will be heard and the people responsible for the care of azolla does necessary arrangements which will help the azolla to grow in a healthy environment..

15) Nehru Institute of Engineering & Technology, Coimbatore

Start-Up-073: Aamten Avinyasankethik Private Limited

1. **Name of the Company/Start-up**: Aamten Avinyasankethik Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Bluetooth to IR Remote Technology

   Investment : Rs. 5,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated

5. **Student team Details/Faculty Mentor:**
   1. Ajith Shaijan
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: BiR is a technology which is designed to overcome the limitation to control old set-top box. Older IR remote is replaced by adding a external bluetooth smart remote which is connected to the settop box using a converter(Bluetooth to IR) which is place just before the Set-top box's IR signal receiver. The device only replace the remote control method it doesn't replace the Set-top box

Start-Up-074: Sreesam Swastha Drink Private Limited

1. **Name of the Company/Start-up**: Sreesam Swastha Drink Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Green Synthesis of Nano Particles from Polyherbal formulation against Viral Infections to boost the immunity

   Investment : Rs. 4,00,000

   Employment generated : 03

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details**
   1. Sreejithmohan Kumar Nair
   2. Karthikeyan P
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Poly herbal formulations can enhance immunity and the Nanoparticles can be synthesized using poly herbal formulations that can fight against several viral infections including Corona Virus. After the synthesis of the Herbal nanoparticles, the shape and characteristic studies of nanoparticles can be done to standardize the formulation for herbal remedies. Herbal formulations can give more effective impact on the populations as it gives considerable good results without any side effects. It will also give good social benefits to the population.

Start-Up-075: Seedy Bio Products Private Limited

1. **Name of the Company/Start-up**: Seedy Bio Products Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Upscaling Agricultural Wastes-Value Addition to Jackfruit Seeds

   Investment : Rs. 3,20,000

   Employment generated : 03

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Afsiya S

   2. Hathiqa Hussain Ali H
6. **Establishment date of the Company/Start-up/Commercialization**: 25.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: The main focus of the Seedy Bio-Products is to produce safe and quality bioproducts from locally available edible agricultural waste. This is a social enterprise which promotes economically viable bioproducts from underutilized agricultural waste, through which it promotes sustainable solution to the existing societal problem. Generally, seeds of the fruits are wasted without utilizing for any constructive purpose other than for the cattle feed. The jack fruit seeds are one among those seeds which can be consumed by the human being but in recent years they are underutilized and less acknowledged by people. Upscaling this edible agriculture waste to edible cutleries will provide an additional income to the farmers as well as reduce the landfilling by the plastic cutleries.

Start-Up-076: Santhoshi Infra Solutions Private Limited

1. **Name of the Company/Start-up**: Santhoshi Infra Solutions Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Instant pothole repair mix

   Investment : Rs. 3,80,000

   Employment generated : 02

   Commercialized or not : Under Process

3. **Impact it will create (including social impact, if a**ny): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Sharan Sai P
6. **Establishment date of the Company/Start-up/Commercialization**: 27.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: It is a start-up firm with innovative ideas for various problems arising in the field of engineering. Potholes are one of the main source of inconvenience and major cause of accidents. My product mainly focuses on this aspect of repairing those potholes with a new approach of filling them with Non-Newtonian fluid rather than the other traditional methods in repairing those potholes as they require a lot of physical labour and my method is economically well driven ,requires less human effort.

Start-Up-077: Solsun Smart Inventors Private Limited

1. **Name of the Company/Start-up**: Solsun Smart Inventors Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Multi Purpose Smart Solar Cloth Dryer

   Investment : Rs. 4,80,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details**

   1. Sanjay C
6. **Establishment date of the Company/Start-up/Commercialization**: 27.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: It is very difficult to dry the clothes during the winter and rainy seasons. Improper drying during these seasons leads to an unpleasant smell rising and may give room for the fungal growth in the clothes. Also drying the clothes in the open atmosphere makes room for dirt during summer season. Keeping this in mind, a smart cloth dryer has been put forth by us which will overcome all the cloth drying problems throughout the year and all the seasons.

Start-Up-078: Meconova Power Solution Private Limited

1. **Name of the Company/Start-up**: Meconova Power Solution Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Design and Fabrication of Arduino based Solar Tracking System with Vertical Windmill

   Investment : Rs. 4,50,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**:

   Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Shankar Shiju C
6. **Establishment date of the Company/Start-up/Commercialization**: 25.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: We are utilizing the renewable energy like solar, wind energy and convert it into electricity. Using fixed Photovoltaic panels extract maximum energy only during 12 noon to 2 PM in which results in less energy efficiency. Therefore, the need to improve the energy efficiency of PV solar panel through building a solar tracking system cannot be over-emphasized. We are using Vertical windmill to maximum energy at the same time solar is producing energy soboth can be combined to form good amount of energy from same area.

Start-Up-079: PHDD Techo Innovations Private Limited

1. **Name of the Company/Start-up**: PHDD Techo Innovations Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Soil Fertilizer Recommender

   Investment : Rs. 3,50,000

   Employment generated : 03

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**:

   Company Incorporated

5. **Student team Details/Faculty Mentor:**
   1. Muppala Pooja
   2. Daivala Deepika
6. **Establishment date of the Company/Start-up/Commercialization**: 25.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Our start-up idea is to craft a device that is technologically advanced and easily usable for people who practice agriculture. It is developed to identify the level of nutrients present in the soil and inform the farmer about the requirements. It also identifies the soil moisture and PH level of the soil. The main goal is to automate Agricultural practices at affordable cost.

Start-Up-080: Prosopis Food Wrappz Private Limited

1. **Name of the Company/Start-up**: Prosopis Food Wrappz Private Limited
2. **Highlights of the Company/Start-up** ;

Product	: Bio-degradable food wrapping sheet by biofilms
Investment	: Rs. 3,00,000
Employment generated	: 02
Commercialized or not	: Under Process

3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**
   1. Gokulakannan MPR
6. **Establishment date of the Company/Start-up/Commercialization**: 25.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Our start-up idea is to make a food wrapping sheet that is bio-degradable and which also increases the food life. It is developed to eradicate plastic wrappers and to initiate the use of bio-degradable wrappers that doesn't affect the food. The main goal is to destroy the pyrosis juliflora and to create a healthy food life and good environment.

Start-Up-081: Gynorah Herblife Private Limited

1. **Name of the Company/Start-up**: Gynorah Herblife Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Development of Phytosome loaded herbal pain relief transdermal patch for Menstrual cramps

   Investment : Rs. 2,70,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Asish S
6. **Establishment date of the Company/Start-up/Commercialization**: 25.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Our start-up idea is to develop a Phytosome loaded herbal pain relief transdermal patch by isolating the bio fraction from the bark of Saraca asoca which will be highly effective and easily used for mild to severe menstrual cramps. It is developed to provide a permanent pain relief for women during those difficult times of their menstrual cycles. Our main goal is to develop 100% effective, affordable and instant pain relief Phytosome loaded transdermal patch with ignorable side effects.

Start-Up-082: Orbitocure Innovations Private Limited

1. **Name of the Company/Start-up**: Orbitocure Innovations Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Bioplastic sheet from banana waste to replace single use plastic

   Investment : Rs. 3,90,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Rahul Joseph Saji

6. **Establishment date of the Company/Start-up/Commercialization**: 25.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: This innovation makes paper bags stronger, reusable and cheaper and most importantly its free from harmful effect for mankind and nature. The bags pose a problem when one tries to carry wet and moist things like milk packets vegetables and fish. Also paper bags are expensive owing to the production cost. But these bags are stronger than plastic carry bags and withstand as much as or more than that a plastic bag can carry, also these bags are suitable for carrying leaking or damp items, also most attractively these bags are reusable for a long period (if get wet we candry and use it again).

Start-Up-083: Zudoxia Private Limited

1. **Name of the Company/Start-up**: Zudoxia Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Biodegradable chitosan reinforced starch based bioplastic film

   Investment : Rs. 3,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**):

   Nil
4. **Current Status of the Company/Start-up**:

   Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Joel S P
6. **Establishment date of the Company/Start-up/Commercialization**:

   26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Bioplastics can be composed of starches, cellulose and biopolymers and variety of other materials. So, we are using Chitosan as a biopolymer which is use instead of normal Plastics. Most importantly for packaging of foods and vegetables. Chitosan is abundantly present in the shells and scales of fishes, which is extracted and used as source of chitosan in the project. Chitosan is one of the

emerging materials for various applications. The most intensive studies have focused on its use as a biomaterial and for biomedical, cosmetic, and packaging systems. The research on biodegradable food packaging systems over conventional non- biodegradable packaging systems has gained much importance in the last decade. Chitosan is a naturally derived polymer, it is biodegradable and safe for human consumption. Food-focused researchers are exploiting the properties of chitosan to develop biodegradable food packaging systems.

Start-Up-084: Royaz.Ai Solutions India Private Limited

1. **Name of the Company/Start-up**: Royaz.Ai Solutions India Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Smart Glaucoma Predictor

   Investment : Rs. 4,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Mohamed Bayas A
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Early Detection and treatment of Glaucoma are important to prevent disease progression. Needto predict higher risk of developing visual field loss. Existing Instruments needs more and complex procedure to detect Glaucoma. To address this issue, this product Smart Glaucoma Predictor is planned to propose It will be more compact and portable Existence instruments cannot be used without the support of any additional experts / technicians.

Start-Up-085: Pachatech Solutions India Private Limited

1. **Name of the Company/Start-up**: Pachatech Solutions India Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Smell & Odour Monitoring Device

   Investment : Rs. 3,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**

   1. Greena Sunny
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: An electronic device is proposed that can balance the unpleasant odour of the bathroom it can sense the odor with the help of an electronic nose and mark the level of odor in the room. If the odor exceeds its limit, there is a communication system that alerts the respected authority which can be helpful for the cleaning purpose. We are also installing a QR code for the customer's feedback. The idea proposed here has a base frame on the health & hygiene of comfort room atmosphere, our idea is a health-based idea that ensures safety from Saxon and other health problems, it is an electronic device which balances the odor in the atmosphere so whenever such a foul smell is experienced in the atmosphere the system will control that particular area and then apply the recovery procedure.

Start-Up-086: SMBP Ventures Curex Private Limited

1. **Name of the Company/Start-up**: SMBP Ventures Curex Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Diabetic Foot Ulcer Detector

   Investment : Rs. 4,50,000

   Employment generated : 04

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated

5. **Student team Details/Faculty Mentor:**
   1. Wasim Khan S
   2. Baranitharan S
   3. Pavithran R
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: Our start-up idea is to detect the foot ulcer diabetic neuropathy in earlier stage. The diabetics is becoming a great threat to mankind the diabetic study show that up to 15% of the diabetic individual will develop their foot ulcer during the lifetime. Our idea to design a product for detecting the food ulcer diabetic neuropathy. Investigation of foot ulcer is carried out by the vibratory motor. The normalized peak pressure can be calculated by pressure by placing motors at different points. This proposed Idea gives complete information to examine the food ulcer which is highly required for the current situation.

Start-Up-087: Agrodrill Farm Mech Tech Private Limited

1. **Name of the Company/Start-up**: Agrodrill Farm Mech Tech Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Manual Vegetable Seeds Planter

   Investment : Rs. 3,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details/Faculty Mentor:**
   1. Prasanth M
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: It will plant the seed with definite depth and maintained the plant to plant and row torow spacing. No requirement of bullock, tractor power, and self-propelled. It is used to plant the seed on bed of four row which gives good yield and have better canopy for the plant.

Start-Up-088: Herbnibto Private Limited

1. **Name of the Company/Start-up**: Herbnibto Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Herbal Hand Wash

   Investment : Rs. 2,80,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any**): Nil
4. **Current Status of the Company/Start-up**: Company Incorporated
5. **Student team Details**

   1. Hrithika KV
6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023
7. **One paragraph on the Company/Start-Up covering all the points**: The main aim of hand wash is to prevent the spread of infection. Washing hands with hand wash is better than using alcohol based sanitizer. At this pandemic situation, world is in need of better herbal hand wash, which is free from all harmful chemicals. The harmful chemicals leads to various skin ailments such as allergies, irritation, cancer etc. From younger to older, hand wash plays an important role, hence using a chemical free herbal hand wash is mandatory. Where our herbal hand wash includes the natural ingredients and free from all harmful chemical which are used in the hand washes available in the market. It is very effective and free from all skin ailments. At present, hand wash not only cleans your hands, but also saves' your life.

Start-Up-089: Transdio Automata India Private Limited

1. **Name of the Company/Start-up**: Transdio Automata India Private Limited
2. **Highlights of the Company/Start-up** ;

   Product : Vehicle Accident Alert System

   Investment : Rs. 4,00,000

   Employment generated : 02

   Commercialized or not : Under Process
3. **Impact it will create (including social impact, if any):** Nil
4. **Current Status of the Company/Start-up**: Company Incorporated

5. **Student team Details**

   1. Kesaav N A

6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023

7. **One paragraph on the Company/Start-Up covering all the points**: This product is to develop an application based on IoT which is used to help the users for saving their life. This application will be adding on functions such as reconnection, SMS triggering and Geo Location to ease user to identify accident spot. Since nowadays most of the devices have GPS and GSM technology which is readily installed and fixed inside their IoT devices. This product focused mainly to the users who want to keep track on their belongings as they are moving around so that they would feel secure as this IoT would also be able to help users to search back their belongings as well.

Start-Up-090: KKMA Private Limited

1. **Name of the Company/Start-up**: KKMA Private Limited

2. **Highlights of the Company/Start-up** ;

   Product : Gesture Controlled Bluetooth Speaker

   Investment : Rs. 3,00,000

   Employment generated : 02

   Commercialized or not : Under Process

3. **Impact it will create (including social impact, if any**): Nil

4. **Current Status of the Company/Start-up:** Company Incorporation ongoing

5. **Student team Details/Faculty Mentor:**

   1. Ajisha R

6. **Establishment date of the Company/Start-up/Commercialization**: 26.05.2023

7. **One paragraph on the Company/Start-Up covering all the points**: Bluetooth speakers are the most widely used speakers these days. This gesture based speaker takes bluetooth to the next level by integrating touchless operation. This Bluetooth allows user to change music just by swiping their hand over the Bluetooth speaker. Also this speaker allows the user to adjust volume just by raising and lowering their hand over the speaker. The user can operate the complete speaker operation without even touching his/her mobile phone or the speaker.

16) S. R. M. Institute of Science & Technology, Kattankulathur

Start-Up-091: Zero Meat

1. **Name of the Company/ Start-up:** Zero Meat
2. **Highlights of the Company/Start-up:**

   Product : Plant based meat products in regional cuisines of India

   Investment : Rs. 2,50,000.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Integrating plant-based meat into regional Indian cuisines holds immense potential. It respects cultural diversity while offering healthier, sustainable options. This fusion could address dietary preferences and religious considerations, reducing reliance on animal products. It promotes eco-friendly practices, mitigates environmental impact, and supports food security. Furthermore, it introduces novel tastes, attracting wider audiences and fostering a shift towards more ethical and environmentally conscious eating habits, potentially revolutionizing India's culinary landscape towards a more sustainable future.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

   1. Manvi Shrimal
   2. Devkiran Banik
   3. Sharvanika Narayanan
6. **Establishment date of the Company/Start-up/Commercialization:**
7. **One paragraph on the Company/Start-Up covering all the points:** We provide the world, an efficient tool to battle climate change while offering its people a culinary ticket into the underexplored regional cuisines of India via plant-based meat products.

Start-Up-092: Energy Conservative Technologies

1. **Name of the Company/ Start-up:** Energy Conservative Technologies
2. **Highlights of the Company/Start-up:**

   Product : Smart Campus

   Investment : Rs. 80,000.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Implementing a cost-effective smart parking system in India promises a transformative impact. By leveraging IoT technology, it optimizes parking space allocation, reducing congestion and curbing fuel wastage caused by endless circling for parking spots. Real-time updates through a mobile app enhance driver convenience, saving time and minimizing stress. This innovation not only improves urban mobility but also fosters sustainable practices by reducing carbon emissions associated with unnecessary vehicle movement. Ultimately, it enhances city infrastructure, promoting efficient resource utilization and enhancing the overall urban experience for residents and visitors alike.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

   1. Dr. M. Saravanan
   2. Dr. C. Fancy
   3. Raghav Gupta
6. **Establishment date of the Company/Start-up/Commercialization:** 11/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Smart parking employs technology to enhance driver convenience, conserving fuel and time. In India, a cost-effective smart parking system is under development, leveraging IoT. Utilizing sensors and a mobile app, it efficiently allocates parking spaces by providing real-time availability updates and enabling users to book and navigate to their reserved spots, streamlining parking operations.

Start-Up-093: Aerocraft Solutions

1. **Name of the Company/ Start-up:** Aerocraft Solutions
2. **Highlights of the Company/Start-up:**

   Product : Surveillance UAV

   Investment : Rs. 1,80,000.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Overall, the impact of surveillance UAVs is extensive, spanning various sectors. While they offer numerous advantages in terms of efficiency, safety, and data collection, their usage requires careful consideration of ethical, legal, and privacy implications.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**

   1. Manvi Shrimal
   2. Devkiran Banik
   3. Sharvanika Narayanan
6. **Establishment date of the Company/Start-up/Commercialization:** 09/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Development of Unmanned Aerial System (UAS) by SRMUAV capable of semi-autonomous flight and imagery. The team has taken steps to achieve a multi-disciplinary engineering solution to be a part of the aerial surveillance technology of the future. Safety, efficiency and accuracy have been the cornerstones for the team's development towards the system.

Start-Up-094: EVGOO

1. **Name of the Company/ Start-up:** EVGOO
2. **Highlights of the Company/Start-up:**

   Product : Dynamic wireless power transfer system applicable to a stationary system

   Investment : Rs. 1,99,063.00

   Employment generated : 4

   Commercialized or not : Not Commercialized

3. **Impact it will create (including social impact, if any)**: However, challenges such as efficiency losses over distance, standardization of charging protocols, and ensuring safety standards are met need to be addressed for widespread adoption. Overall, a dynamic wireless power transfer system for stationary applications has the potential to revolutionize the way we power and interact with devices, offering convenience, efficiency, and adaptability.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Dr. R. Narayanamoorthi
   2. Arpan Mandal
   3. Anirban Gangully
   4. Soumalya Pal
6. **Establishment date of the Company/Start-up/Commercialization:** 14/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Basic idea is to remove the long charging time required by electric vehicles by removing the need for the vehicle to be stationary. There will be two coils one in vehicle another on the path of its travel which will charge the vehicle while it is moving. This will extend the range of vehicle operation and also solve problem of charging.

Start-Up-095: Wirelesscharge Innovation

1. **Name of the Company/ Start-up:** Wirelesscharge Innovation
2. **Highlights of the Company/Start-up:**

   Product : IoT based authentication and billing for dynamic wireless electric vehicle charging system

   Investment : Rs. 160,000.00

   Employment generated : 5

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Overall, integrating IoT-based authentication and billing into dynamic wireless EV charging systems can significantly enhance the adoption, efficiency, and sustainability of electric vehicles, contributing to a cleaner and more efficient transportation ecosystem.
4. **Current Status of the Company/Start-up**:

   MVP

5. **Student team Details/Faculty Mentor:**
   1. Dr. R. Narayanamoorthi
   2. Dr. R. Raj Kumar
   3. Dr. Bala Subramaninan
   4. Mukilan
   5. Athota Vamsi
   6. Devesh Karwasra
6. **Establishment date of the Company/Start-up/Commercialization:** 10/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Electric vehicles (EVs) are gaining prominence as a solution to environmental concerns and energy scarcity. However, inadequate charging infrastructure hinders their adoption. Dynamic wireless charging (DWC) via on-road charging segments can alleviate range anxiety. To ensure efficient use, an Internet of Electric Vehicles (IoEV) facilitates communication and coordination between EVs and charging networks, offering services like scheduling, load management, and secure payments. Establishing authentication for dynamic EV charging is challenging due to mobility and brief contact times. This paper presents a lightweight authentication mechanism, starting with key pre-distribution and followed by hash chain and digital signature-based registration. It reduces computational costs and enhances security, ensuring authenticated EVs can charge securely and efficiently.

Start-Up-096: SUBSEA Explorer

1. **Name of the Company/ Start-up:** SUBSEA Explorer
2. **Highlights of the Company/Start-up:**

Product	: Autonomous underwater vehicle
Investment	: Rs. 2,53,200.00
Employment generated	: 9
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: However, challenges such as limited energy capacity, communication limitations underwater, and the high cost of AUV development and deployment need to be addressed for wider adoption and increased effectiveness. Despite these challenges, AUVs hold im-

mense promise in revolutionizing our understanding of the oceans and their applications across various fields.

4. **Current Status of the Company/Start-up**: Prototype
5. **Student team Details/Faculty Mentor:**
   1. Sai Shiva Tej T.
   2. B. Pranitha
   3. Bhavya Yadav
   4. Shourya Sharma
   5. Harsh S. Menon
   6. Aditya Ganesh
   7. Tejas Gnanasekar
   8. Jose Kevin
   9. Dr. Annapurani P.
6. **Establishment date of the Company/Start-up/Commercialization:** 09.11.2023
7. **One paragraph on the Company/Start-Up covering all the points**: An Autonomous Underwater Vehicle (AUV) is an unmanned, pre-programmed vehicle designed for tasks in hazardous and inaccessible areas. Developed by interdisciplinary students, it's equipped for deep-sea expeditions, torpedoes, and rescue operations, featuring an onboard computer, machine learning-assisted image processing, and protective housing for electrical components. AUVs find applications from entertainment to defense.

Start-Up-097: ROTONICS

1. **Name of the Company/ Start-up**: ROTONICS
2. **Highlights of the Company/Start-up:**

   Product : IoT Enabled Smart Bidirectional Wireless Power Transfer System for Electric Vehicle-to-Home Applications

   Investment : Rs. 189,741.00

   Employment generated : 4

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: Challenges such as standardization, interoperability, cybersecurity, and regulatory frameworks need to be addressed to ensure the safe and efficient deployment of V2H systems.

Overall, the implementation of IoT-enabled bidirectional wireless power transfer systems for Electric Vehicle-to-Home applications has the potential to revolutionize energy usage, promote sustainability, and enhance grid resilience.

4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Dr. R Narayanamoorthi
   2. Harshvardhan Singh
   3. Omm Aryan
   4. Shivaditya Singh
6. **Establishment date of the Company/Start-up/Commercialization:** 09/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** The evolution of electric capacity in the current generation is driving the development of modern infrastructure to support the electric system. Government initiatives promoting Electric Vehicles (EVs) necessitate a modern, sustainable infrastructure. Bidirectional Wireless Power Transfer Systems, which enable power flow from the vehicle to the home or grid, play a crucial role. These bidirectional EVs can store and provide energy, offering resilience and demand-response capabilities to buildings. They serve as backup power sources through Vehicle-to-Building (V2B) charging or contribute power to the grid via Vehicle-to-Grid (V2G) charging. IoT enhances these systems, allowing smart and automated power management via mobile or remote control, making them more efficient and adaptable to various energy resources and emergency situations

Start-Up-098: E-Mobility Research Solutions

1. **Name of the Company/ Start-up:** E-Mobility Research Solutions
2. **Highlights of the Company/Start-up:**

Product	: Multidel
Investment	: Rs. 2,00,000.00
Employment generated	: 6
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: MULTIDEL's implementation stands to significantly impact the delivery landscape by improving efficien-

cy, reducing environmental footprint, and advancing the evolution of autonomous delivery systems.

4. **Current Status of the Company/Start-up**: Product ready for market
5. **Student team Details/Faculty Mentor:**
   1. Anirudha Sharma
   2. Abhinav Srinivasan
   3. Devanshi Sheth
   4. Precious Morenikeji
   5. Tushar Goel
   6. Vikash PR
6. **Establishment date of the Company/Start-up/Commercialization:** 16/11/2023
7. **One paragraph on the Company/Start-Up covering all the points:** The MULTIDEL is an autonomous delivery vehicle equipped with solar panels and wireless charging, making it environmentally friendly and efficient. It can be used in various settings such as college campuses, hospitals, e-commerce and logistics industry, and crowded urban areas. The MULTIDEL is completely autonomous and would require the least amount of human intervention. It will also be equipped with advanced navigation technology, allowing it to deliver packages safely and efficiently to its destination.

Start-Up-099: AMPX Wireless Solutions

1. **Name of the Company/ Start-up:** AMPX Wireless Solutions
2. **Highlights of the Company/Start-up:**

Product	: Wireless Powered EV Drive Train
Investment	: Rs. 2,24,000.00
Employment generated	: 3
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: Optimizing wireless power transmission efficiency, ensuring safety standards, infrastructure development for widespread adoption, and cost-effectiveness need to be addressed for successful implementation and acceptance of this innovative drive train system. a wireless powered in-wheel drive train has the potential to revolutionize EV

technology by offering improved efficiency, range, and design flexibility, contributing to the mainstream adoption of electric vehicles.

4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. Dipankar Kahali
   2. Priyanshu Lalchandani
   3. Sanksar Seetlani
   4. Thaaneshvaran P. D.
   5. Dinesh Kumar S.
6. **Establishment date of the Company/Start-up/Commercialization:** 16/11/2023
7. **One paragraph on the Company/Start-Up covering all the points**: A wireless powered in-wheel drive train is a type of EV propulsion system in which the electric motor is integrated into the wheel hub, and the energy required to power the motor is transmitted wirelessly. This eliminates the need for a battery within the wheel hub, reducing the overall weight and complexity of the drive train. The electric vehicle will receive the power wirelessly from the primary source of the WPT which is placed on the ground and the secondary source will be connected to the vehicle. This type of drive train allows for greater flexibility in vehicle design and can potentially improve the overall efficiency and range of the vehicle.

Start-Up-100: Aegis Cyber Corps

1. **Name of the Company/ Start-up:** Aegis Cyber Corps
2. **Highlights of the Company/Start-up:**

Product	: Cyber Hornet
Investment	: Rs. 2,25,000.00
Employment generated	: 3
Commercialized or not	: Not Commercialized

3. **Impact it will create (including social impact, if any)**: Challenges such as maintaining system reliability in diverse environments, addressing legal and ethical considerations related to disrupting drone operations, and ensuring compatibility with evolving drone technologies may need to be addressed for widespread adoption and success of your system.
4. **Current Status of the Company/Start-up**: MVP

5. **Student team Details/Faculty Mentor:**
   1. Raghunath VM
   2. Dr. Balaji Srikaanth
6. **Establishment date of the Company/Start-up/Commercialization:** 09/11/2023
7. **One paragraph on the Company/Start-Up covering all the points**: Our project takes on a novel approach by incorporating SDR along with radar and electro-optical sensors. This employs a range of advanced technologies to detect and disrupt the operation of drones in a targeted and efficient manner, while minimizing the risk of collateral interference with other devices.

Start-Up-101: Illuminator

1. **Name of the Company/ Start-up:** Illuminator
2. **Highlights of the Company/Start-up:**

   Product : Development of Low Cost Portable Salt Water Lamp Using Electrochemical-Microfluidic Approach

   Investment : Rs. 1,50,000.00

   Employment generated : 3

   Commercialized or not : Not Commercialized
3. **Impact it will create (including social impact, if any)**: The low-cost portable saltwater lamp, employing electrochemical-microfluidic tech, offers sustainable, affordable lighting. Ideal for remote areas and emergencies, it's eco-friendly, versatile, and empowers communities lacking electricity access. Its innovative approach revolutionizes lighting solutions, promising a brighter future for underserved regions worldwide.
4. **Current Status of the Company/Start-up**: MVP
5. **Student team Details/Faculty Mentor:**
   1. G. Keerthiga
   2. Kanishka G.
   3. A. Muthu Venkatesh
6. **Establishment date of the Company/Start-up/Commercialization:** 14/11/2023
7. **One paragraph on the Company/Start-Up covering all the points**: When you put salt in water, the water molecules pull the sodium and chlorine ions apart so they are floating freely, increasing the conductivity. These ions are what carry

electricity through the water with an electric current. In short, saltwater (water + sodium chloride) can help to produce electricity.

17) C. V. R. College of Engineering, District: Ranga Reddy

Start-Up-102: EForge NexGen Innovations

1. **Name of the Company/Start-up**: EForge NexGen Innovations
2. **Highlights of the Company/Start-up**:

   Product/Service : Digital precision farming system and pump controller

   Investment : 3 Lakhs

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it willc reate (including social impact,if any)**

   Precision farming can help farmers to be more efficient and cost-effective in their operations, as well as to improve the environmental sustainability of their farming practices. It can also help farmers to produce higher-quality crops by optimizing the growing conditions for specific types of crops. The proposed work will create awareness to the farmers about the limited usage of required resources that will impact in precision farming.
4. **Current Status of the Company/Start-up:**

   The start-up is in the initial stages of targeting the customers and creating awareness among the customers regarding the product through various promotional strategies.
5. **Student team Details**

   1. Gaddam Vivek
   2. Sahithi Vangala
   3. Gopu Saikiran
   4. Dudekula Anwar Baasha
   5. Pulijala Bharath Chandra
   6. Kurukuti Yasash
6. **Establishment date of the Company/Start-up/Commercialization:** 9.1.2023
7. **One paragraph on the Company/Start-Up covering all the points.** EForge NexGen INNOVATIONS was established on 9/01/2023. It is a private limited company. CEO of the company is Gaddam Vivek. There are 5 directors. The vision of the

company is to “Precision farming for farmers” and pump controller. The products being developed is Digital precision farming system. Target customers are farmers. It was started with an initial investment of Rs 3 lakhs.

Future plans are

- to add more products
- to penetrate deep into the market
- to attract more investments from investors
- to break even in a span of 4 years
- to make it a 10 crore business in a span of 5 years.

Start-Up-103: Becoba Energy Systems INDIA Private Limited

1. **Name of the Company/Start-up**: Becoba Energy Systems India Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Power banks, Market Yard Lamps

   Investment : Rs. 75,00,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any)**
   - It will reduce the batterie cost and increases its usability & adds sustainability.
4. **Current Status of the Company/Start-up**
   - Registered
   - MOU Signed
   - Grants Received.
   - Funding Round finished.
5. **Student team Details**

   1. K. Vigneshwar
   2. D. Venkata Sarath Sai
   3. B. Preethika
6. **Establishment date of the Company/Start-up/Commercialization**: 11-04-2023
7. **One paragraph on the Company/Start-Up covering all the points.** Becoba Energy Systems INDIA Private Limited was established on 11-04-2023. It is a private limited company. CEO of the company is K. Vigneshwar. There are 5 directors. The vision of the company is to “Cost effective energy conservation for

better environment". The company has got seed funding of Rs 4 lakhs from Incubation Center, ICFAI and also in the process of getting 50 lakhs from HDFC Bank. The products being developed are Power banks and Market Yard Lamps. Target customers for Market Yard Lamps are vendors and shop keepers. The target customers for Power Banks are frequent travelers and students staying in remote areas. Future plans are to add more products and to penetrate deep into the market to make it a 50 crore business in a span of 5 years.

Start-Up-104: Exitodigitech Private Limited

1. **Name of the Company/Start-up**: Exitodigitech Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : E-ink Display boards

   Prototype Grant : Rs 2,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any)**

   Displaying of information is vital and critical task, in various places such as like railway stations, bus stations, airports and colleges in the form of notice boards. These displaying of relative information to the field has been happening by using paper or old fashion display technologies such as like p10,p3 matrices and by using paper displays. These display techs come with their own disadvantages such as like over brightness which can harm eyes, bulky setups, continuous power consumption. So, we propose a display using the latest e-paper display technology which is light weighted and has less power consumption.
4. **Current Status of the Company/Start-up**:

   The start-up is in the initial stages of targeting the customers and creating awareness among the customers regarding the product through various promotional strategies.
5. **Student team Details**

   1. Kunti Aruna
   2. Ajith Reddy
6. **Establishment date of the Company/Start-up/Commercialization**: 06/07/2023

7. **One paragraph on the Company/Start-Up covering all the points**.: Exitodigitechis a private limited company, our company name and documents approved on 06/07/2023. Kunti Arunais CEO of our company. There are 3 directors and 2 interns. The vision of the company is to introduce and commercialize the E-ink display technology. The products being developed are for advertisings, Shelf displays and watches. The USP is that there is low power energy consumption and reduces eye strain. Target customers are Malls and Advertising agencies. It was started with an initial prototype fund given by NewGen IEDC.

   Future plans are

   - to add more products.
   - to penetrate deep into the market.
   - to attract more investments from investors.
   - to break even in a span of 4 years.
   - to make it a 10-crore business in a span of 5 years.

Start-Up-105: Farmex Innovations Private Limited

1. **Name of the Company**: Farmex Innovations Private Limited
2. **Highlights of the company/start-up**:

   Product/Service : IoT based storage of fruits and vegetables

   Prototype Grant : Rs 2,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: It will increase the shelf life of fruits and vegetables. This will help the farmers to reduce their losses incurred from decaying of fruits and vegetables.
4. **Current Status of the Company/Start-up**: The start-up is in the initial stages of targeting the farmers and creating awareness among the farmers regarding the product through various promotional strategies.
5. Students team details:

   1. Sri Sai Nandini
   2. Nukala Rikitha
   3. Unmesh Peri
   4. Nandipati Jyothsna Santhoshi

5. Sana Amreen

6. **Establishment date of the Company/Start-up/Commercialization**:
   14 July 2023
7. **One paragraph on the Company/Start-Up covering all the points**: Farmex Innovations Private Limited is a private limited company. Company name and documents approved on 14/07/2023..Sri Sai Nandiniis CEO of our company. There are 4 directors. The vision of the company is to introduce and commercialize the IoT based storage technology to increase shelf life of fruits and vegetables. The USP is that there is low power energy consumption and less maintenance is required. Target customers are farmers. It was started with an initial prototype fund given by NewGen IEDC.
   Future plans are
   - to add more products.
   - to penetrate deep into the market.
   - to attract more investments from investors.
   - to break even in a span of 5 years.
   - to make it a 5-crore business in a span of 5 years.

Start-Up-106: TYCHE Digital Solutions Pvt Ltd.

1. **Name of the Company/Start-up**: TYCHE Digital Solutions Pvt Ltd.
2. **Highlights of the Company/Start-up**:
   Product/Service : E-ink Display boards
   Prototype Grant : Rs 2,00,000
   Employment generated : 5
   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any)** Displaying of information is vital and critical task, in various places such as like railway stations, bus stations, airports and colleges in the form of notice boards. These displaying of relative information to the field has been happening by using paper or old fashion display technologies such as like p10,p3 matrices and by using paper displays. These display techs come with their own disadvantages such as like over brightness which can harm eyes, bulky setups, continuous power consumption. So, we

propose a display using the latest e-paper display technology which is light weighted and has less power consumption.

4. **Current Status of the Company/Start-up:** The start-up is in the initial stages of targeting the customers and creating awareness among the customers regarding the product through various promotional strategies.
5. **Student team Details/Faculty Mentor:**
   1. A. Ajith Reddy
   2. Sri Chandana
   3. Adithya Srinivas
   4. K. Aruna
6. **Establishment date of the Company/Start-up/Commercialization:** 6/07/2023
7. **One paragraph on the Company/Start-Up covering all the points: Exito digitech** is a private limited company, our company name and documents approved on 06/07/2023. **Kunti Aruna** is CEO of our company. There are 3 directors and 2 interns. The vision of the company is to introduce and commercialize the E-ink display technology. The products being developed are for advertisings, Shelf displays and watches. The USP is that there is low power energy consumption and reduces eye strain. Target customers are Malls and Advertising agencies. It was started with an initial prototype fund given by **NewGen IEDC.**

   Future plans are
   - To add more products.
   - To penetrate deep into the market.
   - To attract more investments from investors.
   - To break even in a span of 4 years.
   - To make it a 10-crore business in a span of 5 years.

Start-Up-107: Wattron Innovations Pvt. Ltd.

1. **Name of the Company/Start-up**: Wattron Innovations Pvt. Ltd.
2. **Highlights of the Company/Start-up**:

Product/Service	: BTMS in EV Batteries
Investment	: Rs 3,00,000
Employment generated	: 05 people
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact,if any):**
   It will improve the charging and discharging efficiency of the EV batteries.
4. **Current Status of the Company/Start-up:** It is registered and in the process of getting financial support from bank also. It is in its early stages of commercialization process.
5. **Student team Details**
   1. M. Sai Vamshi Reddy
   2. Alapakam Nikil
   3. Sainath Beemanapally
6. **Establishment date of the Company/Start-up/Commercialization: 06/07/2023**
7. **One paragraph on the Company/Start-Up covering all the points.:** Wattron Innovations Pvt. Ltd is a private limited company established on 6/07/2023. CEO of the company is Sai Vamshi. There are 4 Directors of the company. The vision of the company is “Safety of Electric Vehicles”. The product being developed is Liquid-cooled battery thermal management system. USP is self-cooling technology when the battery is under load conditions. Target customers are Battery manufacturing companies of passenger and commercial vehicles. Future plan is to expand the business to a 10 crore valuation in a span of five years.

Start-Up-108: TRAINIFY Innovations Private Limited

1. **Name of the company**: TRAINIFY Innovations Private Limited
2. **Highlights of the company/start-up**:
   Product/Service : Software for exercise tracking
   Prototype Grant : Rs 2,00,000
   Employment generated : 6
   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any**: It will help in tracking of exercise and yoga through software. This will help individuals to improve their postures while exercising.
4. **Currrent Status**: It is in early Stage.
5. **Students team details**
   1. T. Akhilender Reddy
6. **Establishment date of the Company/Start-up/Commercialization**: 31.07.2023

7. **One paragraph on the Company/Start-Up covering all the points**: TRAINIFY Innovations Private Limited is a private limited company. Company name and documents approved on 31/07/2023.T. Akhilender Reddyis CEO of our company. The vision of the company is “improve exercise postures for fitness’.The USP is dynamic pose recognition. Target customers are those into fitness. It was started with an initial prototype fund given by NewGen IEDC.

   Future plans are:

   - to add more products.
   - to penetrate deep into the market.
   - to attract more investments from investors.
   - to break even in a span of 5 years.
   - to make it a 30-crore business in a span of 5 years.

18) Sumathi Reddy Institute of Technology for Women, Warangal Urban

Start-Up-109: RSR TECH Spartans Private Limited

1. **Nameof theCompany/Start-up**: RSR TECH Spartans Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 50,000-

   Employment generated : Nil

   Commercialized or not : Not
3. **Impact it will create (including social impact,if any)**
   - Agriculture based products are ustilized fromers in local region.
4. **Current Status of the Company/Start-up:** Commercialization under process
5. **Student team Details**

   1. Ch. Vinay Kumar Reddy

   2. I. Rajasri Reddy
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 02/06/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Design and development of automobile and other useful products for former and societal needs.

Start-Up-110: Walk N Ride Technologies Private Limited

1. **Nameof theCompany/Start-up**: Walk N Ride Technologies Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 50,000-

   Employment generated : Nil

   Commercialized or not : Not
3. **Impact it will create (including social impact,if any)**

   Health care products are developed.
4. **Current Status of the Company/Start-up**

   Commercialization under process
5. **Student team Details**

   1. Kommabatla Mahender

   2. Prathyusha Pesaru
6. **Establishment date of the Company/Start-up/Commercialization:**

   12/05/2023
7. **One paragraph on the Company/Start-Up covering all the points:** Design & development of automobile & other useful products for former & societal needs.

Start-Up-111: VISHUDH PAVAN Private Limited

1. **Nameof theCompany/Start-up**: VISHUDH PAVAN Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 50,000-

   Employment generated : Nil

   Commercialized or not : Not
3. **Impact it will create (including social impact,if any)**

   Health care products are developed.
4. **Current Status of the Company/Start-up:** Commercialization under process
5. **Student team Details**

   1. Sivalenka Vishali

   2. Sravanthi Thota

6. **Establishment date of the Company/Start-up/Commercialization:**
   10/05/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   Design and development of security products and other useful products for societal needs.

Start-Up-112: SRITHAM Solutions Private Limited

1. **Nameof theCompany/Start-up**: SRITHAM Solutions Private Limited
2. **Highlights of the Company/Start-up**:
   Product/Service : Service
   Investment : Rs. 50,000
   Employment generated : Nil
   Commercialized or not : Not
3. **Impact it will create (including social impact,if any):** Software solutions are delvered to society for commercial purpose.
4. **Current Status of the Company/Start-up:** Commercialization under process
5. **Student team Details**
   1. M. Ranjith Kumar
   2. Ch. Radhika
6. **Establishment date of the Company/Start-up/Commercialization:**
   27/04/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   Design and development of Security, software products and other useful products for societal needs.

Start-Up-113: TRICK Art Solutions Private Limited

1. **Nameof theCompany/Start-up**: TRICK Art Solutions Private Limited
2. **Highlights of the Company/Start-up**:
   Product/Service : Service
   Investment : Rs. 50,000-
   Employment generated : Nil
   Commercialized or not : Not
3. **Impact it will create (including social impact,if any)**
   Software solutions are delvered to society for commercial purpose.

4. **Current Status of the Company/Start-up**

   Commercialization under process

5. **Student team Details**

   1. K. Ranganath
   2. A. Mahesh

6. **Establishment date of the Company/Start-up/Commercialization:**

   Application submitted to MCA portal

7. **One paragraph on the Company/Start-Up covering all the points.**

   Design and development of automobile and other useful products for former and societal needs.

Start-Up-114: ALIEN Protect Private Limited

1. **Nameof theCompany/Start-up**: ALIEN Protect Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 50,000-

   Employment generated : Nil

   Commercialized or not : Not

3. **Impact it will create (including social impact,if any)**

   Security based products are developed to society for commercial purpose.

4. **Current Status of the Company/Start-up**

   Commercialization under process

5. **Student team Details**

   1. J. Vedika
   2. Mamidala Sruthi

6. **Establishment date of the Company/Start-up/Commercialization:**

   Application submitted to MCA portal

7. **One paragraph on the Company/Start-Up covering all the points.**

   Design and development of security and other useful products for former and societal needs.

Start-Up-115: VARUMANUS Solutions Private Limited

1. **Nameof theCompany/Start-up**: VARUMANUS Solutions Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Product

   Investment : Rs. 50,000

   Employment generated : Nil

   Commercialized or not : Not
3. **Impact it will create (including social impact,if any):** Agricultura and Automa-bile based products are developed to society for commercial purpose.
4. **Current Status of the Company/Start-up:** Commercialization under process
5. **Student team Details**

   1. Sudarshan Erukala

   2. Bhaanvathi Dhanalakshimi
6. **Establishment date of the Company/Start-up/Commercialization:** 24/04/2023
7. **One paragraph on the Company/Start-Up covering all the points.** Design and development of automobile and other useful products for former and societal needs.

Start-Up-116: MAGHUVA TECH Spartans Private Limited

1. **Nameof theCompany/Start-up**: MAGHUVA TECH Spartans Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Service

   Investment : Rs. 50,000-

   Employment generated : Nil

   Commercialized or not : Not
3. **Impact it will create (including social impact,if any)**

   - Home made articles modle products are ustilized in local region.
4. **Current Status of the Company/Start-up:** Commercialization under process
5. **Student team Details**

   1. Ch. Vinay Kumar Reddy

   2. I. Rajasri Reddy

   3. Uppula Sushmitha

6. **Establishment date of the Company/Start-up/Commercialization:**
   - 02/06/2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   Design and development of software products for former and societal needs

19) I. T. S. Engineering College, Greater Noida

Start-Up-117: IOTYDE Technologies Private Limited

1. **Name of the company/Start-up:** IOTYDE Technologies Private Limited
2. **Highlights of the Company/Start-up:**Our company is dedicated to initiating, undertaking, carrying on, engaging in, promoting, assisting, encouraging, and conducting scientific and technical research, developments, experiments, investigations, inquiries, studies, projects, analysis, examinations, surveys, and tests in all kinds of natural sciences and engineering. This includes, but is not limited to, research related to economic, fiscal, commercial, financial, agricultural, medical, industrial, mining, technical, and scientific problems and matters in both India and abroad.
3. **Impact it will create (including social impact, if any):** It will develop first India's first controller for drone and air planes. Also developing the microcontroller IF-YONO to replace the Aurdino.
4. **Current Status of the Company/Start-up:** Active
5. **Student Team Details/Faculty Mentor:**

   1. Ms. Ananya Sharma
   2. Md. Samiruddin
6. **Establishment date of the Company/Start-up/ Commercialization?**
   - 05-May-2023
7. **One paragraph on the Company/Start-up covering all points:**
   - Our company is dedicated to spearheading, facilitating, and advancing scientific and technical research across various domains. With a resolute commitment to innovation, we initiate, undertake, and carry on a wide array of research activities encompassing natural sciences and engineering. Our expertise extends beyond traditional boundaries as we delve into diverse fields including economic, fiscal, commercial, financial, agricultural, medical, industrial, mining, technical, and scientific realms. By actively engaging in the promo-

tion, assistance, and encouragement of research, we strive to tackle complex problems and explore solutions both in India and abroad. Our portfolio includes an extensive range of projects, experiments, investigations, inquiries, studies, analyses, examinations, surveys, and tests.

Start-up-118: Verdant Motors Pvt Ltd

1. **Name of the Company/Startup:** Verdant Motors Pvt Ltd
2. **Highlights of the Company/Startup**:

   Product /Service : Electric motorcycle and Electric Cycle

   Investment : Rs. 20,00,000

   Employment : 5

   Commercialized or Not : Yes, Commercialized.
3. **Impact it will create (including social impact , if any):** In the present scenario EVs are playing a major role in the economy of the people as the fuel prices and maintenance of the ICE vehicles has become arduous . Everyone is shifting towards EV. So, the target is to build an affordable yet reliable motorcycle, as India's EV Motorcycle segment is hardly touched and altered by any EV manufacturer to the actual needs and utility of the target buyers.
   - **Demand for Longer Range:** For daily commute and leisure riding, consumers are actively looking for motorcycles with extended range possibilities.
   - **Environmental regulations and sustainability:** To cut greenhouse gas emissions, governments all around the world are enforcing higher emissions rules and encouraging the use of electric vehicles. Increasing cost of IC engine vehicles.
4. **Current status of the company startup**
   - Electric cycles are commercialised, bookings are available at e-commerce platforms and company's website: www.alien-bikes.com , www.verdantmotors.com . Motorcycle development is in process. Prototype of electric motorcycle is ready and fully functional.
5. **Student team Details/Faculty Mentor:**

   1. Shivansh Seth
   2. Deepanjan
6. **Establishment date of the Company/Start-up/Commercialization:** 24.06.2021

7. **One paragraph on the Company/Start-Up covering all the points.**
   - At **Verdant Motors Pvt Ltd**, The team is revolutionizing the motorcycle industry by introducing a whole new experience of riding. We believe in merging the thrill and exhilaration of biking with a clean and green future.

Start-Up-119: Bhramos Technologies Pvt Ltd

1. **Name of the Company/Startup:** Bhramos Technologies Pvt Ltd
2. **Highlights of Startup:**

Product	: Smart Solar Bench
Investment	: Rs. 2,50,000
Employment generated	: 7
Commercialized	: Yes, Commercialized

3. **Impact it will create (including social impact , if any)**
   - Sustainable Energy Generation
   - Public Infrastructure Improvement
   - Digital Out-of-Home (DOOh) Advertising
   - Connectivity and Data Collection
   - Green Initiatives and Smart Cities
   - Challenges: Implementing such technology on a larger scale would require investment, infrastructure planning, and proper maintenance. Ensuring the security and privacy of data collected from these benches would also be crucial to gaining public trust and acceptance.
4. **Current Status**: Revenue stage
5. **Student team Details/Faculty Mentor:**
   1. Deepanjan
   2. Suraj Kumar
6. **Establishment of startup**: 18th Nov2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Bhramos Technologies developed tailor made IoT product and solutions as per the requirements raised by industries or individual. They combine dynamic knowledge across several domains. With global time- and cost- arbitrage advantages, and talent elasticity, they help clients optimize time-to-market and minimize software development risks for their IoT solutions. The company is

engaged actively in providing end-to-end IoT solutions to cater to the demands of a diverse clientele across the nation.

20) Indian Institute of Information Technology, Allahabad

Start-Up-120: BookWithUVA

1. **Name of the Company/Start-up:** BookWithUVA
2. **Highlights of the Company/Start-up:**

Product/Service	: Books, stationery and other study materials
Investment	: INR 20,000/-
Employment generated	: 20 interns (non-paid)
Commercialized or not	: Yes, commercialized

3. **Impact it will create (including social impact, if any)**
   - Assisting the students in procuring their study material
   - Lower than market price, so study material is accessible and affordable to the maximum number of students
   - The encouragement of book renting and reselling is a sustainable approach that reduces the use of paper
   - Students working at the startup are learning skills in entrepreneurship, business management and have a platform to experiment with their skills
4. **Current Status of the Company/Start-up :** Currently, started the sales and crossed the sales of 9 lacs, catering 5000+ students; built a team; started rental and reselling services.Also, developed a self-tailored inventory management system and a website for selling products online.
5. **Student team Details/Faculty Mentor:**

   1. Abhishek Kumar
   2. Uttam Srivastava
6. **Establishment date of the Company/Start-up/Commercialization:**

   29th August, 2022
7. **One paragraph on the Company/Start-Up covering all the points:** A student centric stationery based startup that delivers books, notebooks and other study material to the students' institution itself at very affordable prices.

Annexure-VIII

Details of Enterprise/Business Commercialized

during the financial year, 2022-2023

01) Sasi Institute of Technology & Engineering, Tadepalligudem

Unit-01: Sunrise Smart Innovations

1. **Name of the Company/Start-up** : Sunrise Smart Innovations
2. **Highlights of the Company/Start-up** :

   Product/Service : Product

   Investment : Rs. 3,50,000

   Employment generated : 8

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - It helps to the users in terms of regular monitoring and maintenance of the all water tanks in organizations.
   - Remote monitoring of the water flow in all water tanks easy.
4. **Current Status of the Company/Start-up - Running**

   Prototype kit was verified in the institute water tanks and prepared view kits to nearby small independent organizations for practical verifications and testing.
5. **Student team Details/Faculty Mentor:**

   1. T. Venkateswara Reddy
6. **Establishment date of the Company/Start-up/Commercialization:**

   10-03-2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   The company is manufacturing the proposed kits to small organizations who are interested to use and gives the demo to local people for product usage. Regular maintenance of the product is scheduled by area wise for proper market growth and avoiding competitors.

Unit-02: Abaya Health Care Systems

1. **Name of the Company/Start-up** : Abaya Health Care Systems
2. **Highlights of the Company/Start-up :**

   Product/Service : Services

   Investment : Rs. 4,00,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - More number of patients can handle due to low prize.
   - Certified material my medical department for real implementation.
4. **Current Status of the Company/Start-up - Running**

   Prototype kit was verified in the institute dispensary and prepared few kits to nearby small independent organizations for practical verifications and testing.
5. **Student team Details/Faculty Mentor:**

   1. T. Prasad
6. **Establishment date of the Company/Start-up/Commercialization:**

   23-03-2023
7. **One paragraph on the Company/Start-Up covering all the points.**

   The company is manufacturing the proposed kits to small organizations who are interested to use and gives the demo to local people for product usage. Regular maintenance of the product is scheduled by area wise for proper market growth and avoiding competitors.

Unit-03: Navsin Medical Technologies

1. **Name of the Company/Start-up** : Navsin Medical Technologies
2. **Highlights of the Company/Start-up :**

   Product/Service : Service

   Investment : Rs. 2,50,000

   Employment generated : 4

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - It will help in early detection and diagnosis of Sleep Apnea
   - Waiting time for the results is reduced.

4. **Current Status of the Company/Start-up - Running**

   Prototype kit was verified by taking the data from the persons and the report generated will be examined by the expert.

5. **Student team Details/Faculty Mentor:**

   1. G Naveen Kishore

6. **Establishment date of the Company/Start-up/Commercialization:**

   17-03-2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   This Start up aims at the early diagnosis of Obstructive sleep Apnea. The device detects the pattern of the ECG signal to identify whether it is normal or abnormal. Deep Learning algorithms are used for identifying anormal activity present in the ECG which can be used to suggest necessary life style modifications by the doctor.

Unit-04: Vihari Smart Innovations

1. **Name of the Company/Start-up :** Vihari Smart Innovations
2. **Highlights of the Company/Start-up :**

   Product/Service : Product

   Investment : Rs. 300000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - It helps to the farmers in terms of regular monitoring and maintenance of the
   - Farm parameters.
   - Remote monitoring of the farm activities is easy to establish
4. **Current Status of the Company/Start-up** - Running
5. **Student team Details/Faculty Mentor:**

   1. J. L. Narayana

6. **Establishment date of the Company/Start-up/Commercialization:**

   03-03-2023

7. **One paragraph on the Company/Start-Up covering all the points.**

   The company is manufacturing the farming kits for farmers who are interested to use and gives the demo to local farmers for product usage. Regular maintenance of the product is scheduled by area wise for proper market growth and avoiding competitors.

02) L. J. Institute of Engineering & Technology, Ahmedabad

Unit-05: RIOB

1. **Name of the Company/Start-up**: RIOB
2. **Highlights of the Company/Start-up**:

   Product/Service : Biscuits

   Investment : Rs. 1,50,000

   Employment generated : 02

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - Healthy Life for Dogs
4. **Current Status of the Company/Start-up**
   - Developing New Products
5. **Student team Details/Faculty Mentor:**

   1. Smriti Patel

   2. Jeet Shah
6. **Establishment date of the Company/Start-up/Commercialization:**
   - February 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - We are dog biscuits manufacturers which are 100% natural. Our biscuits are available in 3 different pack sizes (5rs, 30rs, 120rs).

Unit-06: GREENEVON Bio Private Limited

1. **Name of the Company/Start-up**: GREENEVON Bio Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Biodegradable and Compostable Bottles

   Investment : Rs. 30,00,000

   Employment generated : 20

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   - We are provide superior PLA Bottle manufacturing services that meet the highest sustainability standards. We are dedicated to developing and producing biodegradable and compostable bottles that minimize environmental impact and reduce plastic waste
4. **Current Status of the Company/Start-up:**
   Started Product Marketing
5. **Student team Details/Faculty Mentor:**
   1. Nikhil Kumar
   2. Chintan Prajapati
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 4th August 2022
7. **One paragraph on the Company/Start-Up covering all the points.**
   - We are working on sustainable packaging solutions through the production of high-quality and eco-friendly PLA bottles. We aim to revolutionize the packaging industry by offering innovative, biodegradable, and compostable bottles that significantly reduce the environmental impact of single-use plastics.

03) Manav Rachna International University, Faridabad

Unit-07: 2nd Life Inning Ventures LLP

1. **Name of the Company/Start-up**: 2nd Life Inning Ventures LLP
2. **Highlights of the Company/Start-up**:

Product/Service	: Website for senior citizens
Investment	: Rs. 2, 50,000
Employment generated	: 04
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any):** Enhancing lives, one step at a time. Our well-designed project aims to prioritize the holistic needs of seniors, offering a seamless blend of essential services ranging from nourishing meals, safety, medical care, housekeeping, to thoughtfully curate entertainment, ensuring perpetual happiness, comfort, and security.
4. **Current Status of the Company/Start-up:** LLP has been registered and also got recognized under Startup India program, Government of India.

5. **Student team Details/Faculty Mentor:**
   I. Babita
   II. Shreyansh
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 13.02.2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - The 2nd Lifeinnings is a well-planned project to ensure that you are always Happy, Comfortable, Secured and Looked after- Focusing on the minor as well as major requirements starting from Food & Diet to Security and Medical care from House- keeping to entertainment planning of the old age people.

Unit-08: MANAVNEER LLP

1. **Name of the Company/Start-up**: MANAVNEER LLP
2. **Highlights of the Company/Start-up**:

Product/Service	: Water cleaning using NANO material
Investment	: 2, 50,000/-
Employment generated	: 02
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact, if any)**
   Revolutionizing water purification with an air stable, biocompatible porous nano composite material, and effectively combating pollution by enhancing absorption capabilities in contaminated water. Harnessing innovation for a cleaner, healthier future.
4. **Current Status of the Company/Start-up**
   - LLP has been registered and also got recognized under Startup India program, Government of India.
5. **Student team Details/Faculty Mentor:**
   I. Sudeep Shukla
6. **Establishment date of the Company/Start-up/Commercialization:** 26.04.2023
7. **One paragraph on the Company/Start-Up covering all the points:** The proposed idea will be attempted to synthesize air stable biocompatible porous nano composite material for advance absorption of pollutants from contaminated water.

04) B. N. M. Institute of Technology, Bengaluru

Unit-09: Innovkraft Inc

1. **Name of the Company/ Start-up**: Innovkraft Inc
2. **Highlights of the Company/Start-up :**

   Product : Software Development Product

   Investment : Rs. 3,00,000

   Employment generated : 10

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**

   Branding, Social Media Marketing, Search Engine Optimization (SEO), Management, Leadership, and Team Leadership.
4. **Current Status of the Company/Start-up:** Growth stage
5. **Student team Details/Faculty Mentor:**

   1. Apoorva R
6. **Establishment date of the Company/Start-up/Commercialization: 2021**
7. **One paragraph on the Company/Start-Up covering all the points.**

   An Entrepreneur, skilled in Branding, Social Media Marketing, Search Engine Optimization (SEO), Management, Leadership, and Team Leadership. Passionate about photography. A strong business development professional with a Bachelor of Engineering - focused in Electronics and Communications Engineering from B N M Institute of Technology, BANGALORE. “At Innovraft we innovators are expert in design and technology, with a focus on creating campaigns that resonate with your target audience. Once we have a grasp of your company’s vision, we’ll work with you to use our expertise to develop a strategy that elevates the way you interact with your customers” says Managing Partner Ms. Apporva.

06) University of Science and Technology, Ri-Bhoi

Unit-10: Wholesome Ventures

1. **Name of the Company/ Start-up:** Wholesome Ventures
2. **Highlights of the Company/ Start-up:**

   Product/ Service : Frozen Food

   Investment : Rs. 20,00,000

   Employment generated : 15 Nos

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Most of the Frozen Food players are from mainland India. The presence is limited to major cites/ towns of North East. NE food has a particular taste pallet. This region is blessed with indigenous herbs and spice rich in taste. We are trying to create products considering the indigenous taste and mouth fullness. We Intend to be a leading frozen food player in the country.
4. **Current status of the company/ start-up**

   46 Lakhs of Turn Over in 1st year of Operation with Market Presence in 7 District of Assam and 3 State Capitals of North East Shillong, Nagaland, Manipur.

   Shall be launching Bangalore by Mid of July 2023.
5. **Team details**

   1. Nashat Hussain
   2. Boilal P Gangte
6. **Establishment date of the Company/ start-up/ commercialization:**

   04th of April 2022 is the date of incorporation.

   Commercial launch happened in June 2022
7. **One paragraph on the company/ start-up covering all the points:**
   - Wholesome ventures is a frozen food manufacturing and marketing firm from the North East, based out of Guwahati. The company operates under the brand “Petoo”.
   - The company intends to be a leading frozen food player in the country by providing interesting and relevant products through a fine blend of science, art and aesthetics.
   - What makes Petoo different from the rest is, the product innovation using smart & local know-how and the different brand appeal.

Unit-11: AmbyGold Manorama Foods Pvt Ltd

1. **Name of the Company/ Start-up:** AmbyGold Manorama Foods Pvt Ltd
2. **Highlights of the Company/ Start-up:**

   Product/ Service : Indigenous Functional Food Products

   Investment : Rs. 6,00,000

   Employment generated : 6 Nos

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   We are a community building concept with a vision to create a sustainable ecosystem by commercialising indigenous functional food products.

   - Closely working with flood effected farmers
   - better earning opportunities for marginal farmers of Assam
   - employment generation (80% female employees)
   - providing to the society (indigenous superfoods) compromise free better substitutes of unhealthy meals
   - Promoting indigenous foods and small farmers
4. **Current status of the company/ start-up:**

   Early Revenue
5. **Team details**

   1. Monalisha Borthakur
6. **Establishment date of the Company/ start-up/ commercialization:**

   Incorporated on 22 June 2020
7. **One paragraph on the company/ start-up covering all the points:**

   Ambygold Manorama Foods Private Limited is a Private incorporated on 22 June 2020. It is classified as Non-govt company and is registered at Registrar of Companies, Shillong. Its authorized share capital is Rs. 100,000 and its paid up capital is Rs. 30,000. It is inolved in Production, processing and preservation of meat, fish, fruit vegetables, oils and fats. Ambygold Manorama Foods Private Limited's Annual General Meeting (AGM) was last held on 15 May 2021 and as per records from Ministry of Corporate Affairs (MCA), its balance sheet was last filed on 31 March 2021.

Unit-12: Agro Origin

1. **Name of the Company/ Start-up:** Agro Origin
2. **Highlights of the Company/ Start-up:**

   Product/ Service : Dehydrated fruits and vegetables

   Investment : Rs. 6,00,000

   Employment generated : 7 Nos

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Dehydrated fruits and vegetables have had a positive social impact by improving food accessibility, especially in areas with limited access to fresh produce. They offer a convenient and lightweight option for individuals with busy lifestyles, making it easier to incorporate fruits and vegetables into their diet. Dehydrated produce also promotes healthier snacking alternatives, contributing to improved overall nutrition and reduced reliance on unhealthy processed snacks. Additionally, the production and sale of dehydrated fruits and vegetables have created employment opportunities, benefiting local economies and providing sustainable income for farmers and processors. Overall, dehydrated fruits and vegetables have helped promote healthier food choices and economic empowerment within communities.
4. **Current status of the company/ start-up:** Early Revenue
5. **Team details**

   1. Abhinab Shyam
6. **Establishment date of the Company/ start-up/ commercialization:**

   Incorporated on 1st November 2020
7. **One paragraph on the company/ start-up covering all the points:**
   - Agro Origin is a 2 years 7 months old Proprietorship Firm incorporated on 01-Nov-2020, having its registered office located at Ward No 29, Agro Origin, Ghoramara Chariali, Niribili Path, Guwahati, Assam.
   - The major activity of Agro Origin is Manufacturing, Sub-classified into Manufacture of food products and is primarily engaged in the Artificial de-hydration of fruit and vegetables.
   - Agro Origin is classified as Micro enterprise in the financial year 2020-21. It has its unit situated at Guwahati, Assam.

Unit-13: Dong Valley Creation Pvt Ltd (Beyondarie)

1. **Name of the Company/ Start-up:** Dong Valley Creation Pvt Ltd (Beyondarie)
2. **Highlights of the Company/ Start-up:**

   Product/ Service : Wild Tea

   Investment : Rs. 50,00,000

   Employment generated : 40 Nos

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):** Wild tea has a notable social impact by promoting sustainability, cultural preservation, and economic opportunities. Harvesting wild tea leaves encourages the preservation of natural habitats, as it incentivizes the protection of the ecosystems where these plants thrive. By engaging in sustainable wild tea practices, communities can maintain biodiversity and safeguard traditional tea-growing regions. Culturally, wild tea connects people to their heritage and traditional practices, fostering a sense of pride and identity. Additionally, the cultivation and sale of wild tea provide economic opportunities for local farmers, creating jobs and income within communities. Overall, wild tea contributes to environmental conservation, cultural preservation, and socioeconomic development.
4. **Current status of the company/ start-up:** Dong Valley Creations Private Limited (DVCPL) is a registered startup operating as a Private Limited Indian Non-Government Company incorporated in India on 04 August 2020 (Two years and ten months old). Its registered office is in Kamrup, Assam, India. The Corporate is engaged in the business of growing rows and rows of tea bushes in the numerous tea estates.
5. **Team details**

   1. Nashat Hussain
   2. Boilal P Gangte
6. **Establishment date of the Company/ start-up/ commercialization:**

   Incorporated on 4th August 2020
7. **One paragraph on the company/ start-up covering all the points:**

   Dong Valley Creations Private Limited. It is a Private company, incorporated on Aug 04, 2020. It is classified as a Non-govt company and registered at Shillong. The registration number for the mentioned company is 020288. It's

Corporate Identification Number (CIN) is 020288 having an Active status currently.

Dong Valley Creations offers a wide range of products and services, including:

- Ayurvedic Powder and Medicinal Herbs
- Herbal Powder
- Manufacturing & Assembling Services
- Grinding Services
- Tea & Coffee
- Tea Bags
- Tea Premix
- Flavored Tea
- Tea
- Herbal Tea

07) GLA University, Mathura

Unit-14: Atirun Techs Private Limited

1. **Name of the Company/Start-up**: Atirun Techs Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Service

   Investment : Rs. 2,00,000

   Employment generated : 05

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Atirun Techs is a full-service software development company that specializes in creating innovative software solutions, compelling content, and successful product launches. We have a team of experienced developers, writers, and marketers who work closely with clients to understand their unique needs and develop custom software, content, and launch strategies that meet those needs.
4. **Current Status of the Company/Start-up:** Registered in Private Limited
5. **Student team Details/Faculty Mentor:**

   1. Gaurav Singh
   2. Rishabh Saxena

6. **Establishment date of the Company/Start-up/Commercialization:**
   22/03/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Introducing a revolutionary fitness and healthcare app that seamlessly integrates with your smartwatch to provide you with a complete picture of your health and wellness. With this app, you can easily track and record all of your body activities and receive a detailed report on your data analysis through advanced machine learning algorithms.
   - Not only that, but you can also choose a doctor at the time of registration who will receive your data in real-time and contact you for further precautions or treatment if necessary. With this app, you can take control of your health and get personalized care like never before.

Unit-15: SAS Electronix stands for System and Support Electronics

1. **Name of the Company/Start-up**: SAS Electronix stands for System and Support Electronics
2. **Highlights of the Company/Start-up**:
   Product/Service : Product
   Investment : Rs. 1,00,000
   Employment generated : 03
   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**
   - We are targeting each individual, students, offices, industries, etc.
4. **Current Status of the Company/Start-up:** University Startup
5. **Student team Details/Faculty Mentor:**
   1. Shubham Yadav
   2. Abhiraj Mishra
   3. Shikhar Agarwal
6. **Establishment date of the Company/Start-up/Commercialization:**
   20-07-2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   They will design the easiest solution of a particular problem so that the user can get the best solution regarding their problem. The goal is to create gadgets that

seamlessly integrate into users' lives, enhancing their daily routines without overwhelming them with unnecessary complexity. **They will also provide the solution for a certain client's desired problem and will design a gadget to solve that problem for the client. They will focus on Less Profit and high Sales.**

08) Marwadi University, Rajkot

Unit-16: Candeyleaf Treats LLP

1. **Name of the Company/Start-up**: Candeyleaf Treats LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Suger Free Treats (Product)

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**

   Diabetic patients will receive suger-free treats and be able to eat as they normally would, improving their health and that of the community as a whole.
4. **Current Status of the Company/Start-up**
   - Revenue Generate
5. **Student team Details/Faculty Mentor:**

   1. Diya Vekaria
   2. Dev Vekaria
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 08/02/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Candeyleaf Treats is based on the concept of Sugar less Sweets. We have identified the growing rates of diabetic patients and hence had come up with the solution for the same. We are manufacturing the sweets that do not involve the sugar in its recipe/ manufacturing process. We are utilizing the Stevia as an alternative of the sugar. Also we identified the consequences of an artificial sugar that might results in various health issues and diseases.

Unit-17: Santript Aahar LLP

1. **Name of the Company/Start-up**: Santript Aahar LLP
2. **Highlights of the Company/Start-up**:

   Product/Service : Spirulina Based (Product)

   Investment : Rs. 2,00,000

   Employment generated : 2

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):** It will Improve immunity System also Rich Amount of Vitamin B12, Vitamin-D, Protein, Fibers, etc.
4. **Current Status of the Company/Start-up**
   - In market and generating revenue.
5. **Student team Details/Faculty Mentor:**

   1. Ms. Ruchita Rathod

   2. Dr Gaurav Sanghvi
6. **Establishment date of the Company/Start-up/Commercialization:**
   - 11/04/2023
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Start-up "Santrip Aahar" majorly aims to deliver its customers a healthy, tasty and nutritious diet. As we know that most of the nutrition rich food is animal based which cannot be consumed by many people. Targeting this, we at "Santrip Ahar" are here with a large-based product that is highly nutritious and vegan.

09) Chitkara University, Rajpura

Unit-18: Core Idea Innovations Private Limited

1. **Name of the Company/ Start-up**: Core Idea Innovations Private Limited
2. **Highlights of the Company/Start-up ;**

   Product : Virtual Reality Based Home Eye Testing Device for measuring spectacle power of the eye virtual reality based home eye testing device for measuring spectacle power of the eye

   Investment : Rs. 20,00,000/-

   Employment generated : 5

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact, if any):**

   It will give a privilege of eye testing to countless people living in rural areas. For more details, visit https://newgeniedc.chitkara.edu.in/project/virtual-reality-based-home-eye-testing-device-for-measuring-spectacle-power-of-the-eye/

4. **Current Status of the Company/Start-up:**
   - Their product is in the pilot stage.
5. **Student team Details/Faculty Mentor:**

   1. Maheswari Srinivasan
   2. Arshdeep Kaur
   3. Keerti Bhusan Pradhan
6. **Establishment date of the Company/Start-up/Commercialization: 2021**
7. **One paragraph on the Company/Start-Up covering all the points.**

   There are only 12000 ophthalmologists in India, for a population of 136 crore. In some of the rural areas of India, there are no eye care facilities. Hence, a device for tele-eye consultation and tele-eye testing was required. Our innovation is a virtual reality-based device that can connect clinicians and patients through cloud systems. The device tests the spectacle power of the eye and sends the prescription remotely. It helps the patients reach out to the ophthalmologists easily across countries.

10) Mar Ephraem College of Engineering & Technology, Elavuvilai

Unit-19: S-Cart Private Ltd.

1. **Name of the Company/ Start-up**: S-Cart Private Ltd.
2. **Highlights of the Company/Start-up ;**

   Product : G S-Cart – Solar Dhobi Cart

   Investment : Rs. 50,000

   Employment generated : 01

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any):**
   - Solar cart for dhobi people
4. **Current Status of the Company/Start-up:** Waiting for Company Name approval
5. **Student team Details/Faculty Mentor:**

   1. Ms. Jerlin Prabha

6. **Establishment date of the Company/Start-up/Commercialization:**
   In Process
7. **One paragraph on the Company/Start-Up covering all the points.**
   - Dhobi cart is designed with features like automatic rain guard, sliding chair, storage decks for clothes.
   - Automatic rain guard is implemented to detect the continuous rain level and operates automatically.
   - Handle with lever arrangement and braking is designed for easy angular motion control

11) C. V. R. College of Engineering, District: Ranga Reddy

Unit-20: EForge NexGen Innovations

1. **Name of the Company/Start-up**: EForge NexGen Innovations
2. **Highlights of the Company/Start-up**:

Product/Service	: Digital precision farming system and pump controller
Investment	: Rs. 3,00,000
Employment generated	: 5
Commercialized or not	: Yes, Commercialized

3. **Impact it willc reate (including social impact,if any)**
   Precision farming can help farmers to be more efficient and cost-effective in their operations, as well as to improve the environmental sustainability of their farming practices. It can also help farmers to produce higher-quality crops by optimizing the growing conditions for specific types of crops. The proposed work will create awareness to the farmers about the limited usage of required resources that will impact in precision farming.
4. **Current Status of the Company/Start-up:**
   The start-up is in the initial stages of targeting the customers and creating awareness among the customers regarding the product through various promotional strategies.
5. **Student team Details**
   1. Gaddam Vivek
   2. Sahithi Vangala
   3. Gopu Saikiran

4. Dudekula Anwar Baasha
5. Pulijala Bharath Chandra
6. Kurukuti Yasash

6. **Establishment date of the Company/Start-up/Commercialization:** 9.1.2023
7. **One paragraph on the Company/Start-Up covering all the points.** EForge NexGen INNOVATIONS was established on 9/01/2023. It is a private limited company. CEO of the company is Gaddam Vivek. There are 5 directors. The vision of the company is to “Precision farming for farmers” and pump controller. The products being developed is Digital precision farming system. Target customers are farmers. It was started with an initial investment of Rs 3 lakhs.

   Future plans are
   - to add more products
   - to penetrate deep into the market
   - to attract more investments from investors
   - to break even in a span of 4 years
   - to make it a 10 crore business in a span of 5 years.

Unit-21: Becoba Energy Systems INDIA Private Limited

1. **Name of the Company/Start-up**: Becoba Energy Systems India Private Limited
2. **Highlights of the Company/Start-up**:

   Product/Service : Power banks, Market Yard Lamps
   Investment : Rs. 75,00,000
   Employment generated : 10
   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any)**
   - It will reduce the batterie cost and increases its usability & adds sustainability.
4. **Current Status of the Company/Start-up**
   - Registered
   - MOU Signed
   - Grants Received.
   - Funding Round finished.
5. **Student team Details**

   1. K. Vigneshwar

2. D. Venkata Sarath Sai
3. B. Preethika

6. **Establishment date of the Company/Start-up/Commercialization**: 11-04-2023
7. **One paragraph on the Company/Start-Up covering all the points.** Becoba Energy Systems INDIA Private Limited was established on 11-04-2023. It is a private limited company. CEO of the company is K. Vigneshwar. There are 5 directors. The vision of the company is to "Cost effective energy conservation for better environment". The company has got seed funding of Rs 4 lakhs from Incubation Center, ICFAI and also in the process of getting 50 lakhs from HDFC Bank. The products being developed are Power banks and Market Yard Lamps. Target customers for Market Yard Lamps are vendors and shop keepers. The target customers for Power Banks are frequent travelers and students staying in remote areas. Future plans are to add more products and to penetrate deep into the market to make it a 50 crore business in a span of 5 years.

Unit-22: Exitodigitech Private Limited

1. **Name of the Company/Start-up**: Exitodigitech Private Limited
2. **Highlights of the Company/Start-up**:

Product/Service	: E-ink Display boards
Prototype Grant	: Rs 2,00,000
Employment generated	: 5
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact,if any)**

Displaying of information is vital and critical task, in various places such as like railway stations, bus stations, airports and colleges in the form of notice boards. These displaying of relative information to the field has been happening by using paper or old fashion display technologies such as like p10,p3 matrices and by using paper displays. These display techs come with their own disadvantages such as like over brightness which can harm eyes, bulky setups, continuous power consumption. So, we propose a display using the latest e-paper display technology which is light weighted and has less power consumption.

4. **Current Status of the Company/Start-up**: The start-up is in the initial stages of targeting the customers and creating awareness among the customers regarding the product through various promotional strategies.
5. **Student team Details**

   1. Kunti Aruna
   2. Ajith Reddy
6. **Establishment date of the Company/Start-up/Commercialization**:6/07/2023
7. **One paragraph on the Company/Start-Up covering all the points**.: Exitodigitechis a private limited company, our company name and documents approved on 06/07/2023. Kunti Arunais CEO of our company. There are 3 directors and 2 interns. The vision of the company is to introduce and commercialize the E-ink display technology. The products being developed are for advertisings, Shelf displays and watches. The USP is that there is low power energy consumption and reduces eye strain. Target customers are Malls and Advertising agencies. It was started with an initial prototype fund given by NewGen IEDC.

   Future plans are

   - to add more products.
   - to penetrate deep into the market.
   - to attract more investments from investors.
   - to break even in a span of 4 years.
   - to make it a 10-crore business in a span of 5 years.

Unit-23: Farmex Innovations Private Limited

1. **Name of the Company**: Farmex Innovations Private Limited
2. **Highlights of the company/start-up**:

   Product/Service : IoT based storage of fruits and vegetables

   Prototype Grant : Rs 2,00,000

   Employment generated : 5

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact, if any)**: It will increase the shelf life of fruits and vegetables. This will help the farmers to reduce their losses incurred from decaying of fruits and vegetables.

4. **Current Status of the Company/Start-up**: The start-up is in the initial stages of targeting the farmers and creating awareness among the farmers regarding the product through various promotional strategies.
5. Students team details:
   1. Sri Sai Nandini
   2. Nukala Rikitha
   3. Unmesh Peri
   4. Nandipati Jyothsna Santhoshi
   5. Sana Amreen
6. **Establishment date of the Company/Start-up/Commercialization**:
   14 July 2023
7. **One paragraph on the Company/Start-Up covering all the points**: Farmex Innovations Private Limited is a private limited company. Company name and documents approved on 14/07/2023..Sri Sai Nandiniis CEO of our company. There are 4 directors. The vision of the company is to introduce and commercialize the IoT based storage technology to increase shelf life of fruits and vegetables. The USP is that there is low power energy consumption and less maintenance is required. Target customers are farmers. It was started with an initial prototype fund given by NewGen IEDC.
   Future plans are
   - to add more products.
   - to penetrate deep into the market.
   - to attract more investments from investors.
   - to break even in a span of 5 years.
   - to make it a 5-crore business in a span of 5 years.

Unit-24: TYCHE Digital Solutions Pvt Ltd.

1. **Name of the Company/Start-up**: TYCHE Digital Solutions Pvt Ltd.
2. **Highlights of the Company/Start-up**:

Product/Service	: E-ink Display boards
Prototype Grant	: Rs 2,00,000
Employment generated	: 5
Commercialized or not	: Yes, Commercialized

3. **Impact it will create (including social impact,if any)** Displaying of information is vital and critical task, in various places such as like railway stations, bus stations, airports and colleges in the form of notice boards. These displaying of relative information to the field has been happening by using paper or old fashion display technologies such as like p10,p3 matrices and by using paper displays. These display techs come with their own disadvantages such as like over brightness which can harm eyes, bulky setups, continuous power consumption. So, we propose a display using the latest e-paper display technology which is light weighted and has less power consumption.
4. **Current Status of the Company/Start-up:** The start-up is in the initial stages of targeting the customers and creating awareness among the customers regarding the product through various promotional strategies.
5. **Student team Details/Faculty Mentor:**
   1. A. Ajith Reddy
   2. Sri Chandana
   3. Adithya Srinivas
   4. K. Aruna
6. **Establishment date of the Company/Start-up/Commercialization:** 6/07/2023
7. **One paragraph on the Company/Start-Up covering all the points: Exito digitech** is a private limited company, our company name and documents approved on 06/07/2023. **Kunti Aruna** is CEO of our company. There are 3 directors and 2 interns. The vision of the company is to introduce and commercialize the E-ink display technology. The products being developed are for advertisings, Shelf displays and watches. The USP is that there is low power energy consumption and reduces eye strain. Target customers are Malls and Advertising agencies. It was started with an initial prototype fund given by **NewGen IEDC.**

   Future plans are
   - To add more products.
   - To penetrate deep into the market.
   - To attract more investments from investors.
   - To break even in a span of 4 years.
   - To make it a 10-crore business in a span of 5 years.

Unit-25: Wattron Innovations Pvt. Ltd.

1. **Name of the Company/Start-up**: Wattron Innovations Pvt. Ltd.
2. **Highlights of the Company/Start-up**:

   Product/Service : BTMS in EV Batteries

   Investment : Rs 3,00,000

   Employment generated : 05 people

   Commercialized or not : Yes, Commercialized
3. **Impact it will create (including social impact,if any):**

   It will improve the charging and discharging efficiency of the EV batteries.
4. **Current Status of the Company/Start-up:** It is registered and in the process of getting financial support from bank also. It is in its early stages of commercialization process.
5. **Student team Details**

   1. M. Sai Vamshi Reddy
   2. Alapakam Nikil
   3. Sainath Beemanapally
6. **Establishment date of the Company/Start-up/Commercialization: 06/07/2023**
7. **One paragraph on the Company/Start-Up covering all the points.:** Wattron Innovations Pvt. Ltd is a private limited company established on 6/07/2023. CEO of the company is Sai Vamshi. There are 4 Directors of the company. The vision of the company is “Safety of Electric Vehicles”. The product being developed is Liquid-cooled battery thermal management system. USP is self-cooling technology when the battery is under load conditions. Target customers are Battery manufacturing companies of passenger and commercial vehicles. Future plan is to expand the business to a 10 crore valuation in a span of five years.

Unit-26: TRAINIFY Innovations Private Limited

1. **Name of the company**: TRAINIFY Innovations Private Limited
2. **Highlights of the company/start-up**:

   Product/Service : Software for exercise tracking

   Prototype Grant : Rs 2,00,000

   Employment generated : 6

   Commercialized or not : Yes, Commercialized

3. **Impact it will create (including social impact,if any**: It will help in tracking of exercise and yoga through software. This will help individuals to improve their postures while exercising.
4. **Currrent Status**: It is in early Stage.
5. **Students team details**

   1. T. Akhilender Reddy
6. **Establishment date of the Company/Start-up/Commercialization**:

   31 July 2023
7. **One paragraph on the Company/Start-Up covering all the points**: TRAINIFY Innovations Private Limited is a private limited company. Company name and documents approved on 31/07/2023.T. Akhilender Reddyis CEO of our company. The vision of the company is "improve exercise postures for fitness'.The USP is dynamic pose recognition. Target customers are those into fitness. It was started with an initial prototype fund given by NewGen IEDC.

   Future plans are:

   - to add more products.
   - to penetrate deep into the market.
   - to attract more investments from investors.
   - to break even in a span of 5 years.
   - to make it a 30-crore business in a span of 5 years.

12) I. T. S. Engineering College, Greater Noida

Unit-27: Verdant Motors Pvt Ltd

1. **Name of the Company/Startup:** Verdant Motors Pvt Ltd
2. **Highlights of the Company/Startup**:

   Product /Service : Electric motorcycle and Electric Cycle

   Investment : Rs. 20,00,000

   Employment : 5

   Commercialized or Not : Yes, Commercialized.
3. **Impact it will create (including social impact , if any)**

   - In the present scenario EVs are playing a major role in the economy of the people as the fuel prices and maintenance of the ICE vehicles has become arduous . Everyone is shifting towards EV. So, the target is to build an afford-

able yet reliable motorcycle, as India's EV Motorcycle segment is hardly touched and altered by any EV manufacturer to the actual needs and utility of the target buyers.

- **Demand for Longer Range:** For daily commute and leisure riding, consumers are actively looking for motorcycles with extended range possibilities.
- **Environmental regulations and sustainability:** To cut greenhouse gas emissions, governments all around the world are enforcing higher emissions rules and encouraging the use of electric vehicles. Increasing cost of IC engine vehicles.

4. **Current status of the company startup**
   - Electric cycles are commercialised, bookings are available at e-commerce platforms and company's website: www.alien-bikes.com , www.verdantmotors.com . Motorcycle development is in process. Prototype of electric motorcycle is ready and fully functional.
5. **Student team Details/Faculty Mentor:**
   1. Shivansh Seth
   2. Deepanjan
6. **Establishment date of the Company/Start-up/Commercialization:**
   24/06/2021
7. **One paragraph on the Company/Start-Up covering all the points.**
   - At **Verdant Motors Pvt Ltd**, The team is revolutionizing the motorcycle industry by introducing a whole new experience of riding. We believe in merging the thrill and exhilaration of biking with a clean and green future.

Unit-28: Bhramos Technologies Pvt Ltd

1. **Name of the Company/Startup:** Bhramos Technologies Pvt Ltd
2. **Highlights of Startup:**

Product	: Smart Solar Bench
Investment	: Rs. 2,50,000
Employment generated	: 7
Commercialized	: Yes, Commercialized

3. **Impact it will create (including social impact , if any)**
   - Sustainable Energy Generation

- Public Infrastructure Improvement
- Digital Out-of-Home (DOOh) Advertising
- Connectivity and Data Collection
- Green Initiatives and Smart Cities
- Challenges: Implementing such technology on a larger scale would require investment, infrastructure planning, and proper maintenance. Ensuring the security and privacy of data collected from these benches would also be crucial to gaining public trust and acceptance.

4. **Current Status**: Revenue stage
5. **Student team Details/Faculty Mentor:**
   1. Deepanjan
   2. Suraj Kumar
6. **Establishment of startup**: 18th Nov2021
7. **One paragraph on the Company/Start-Up covering all the points.**

   Bhramos Technologies developed tailor made IoT product and solutions as per the requirements raised by industries or individual. They combine dynamic knowledge across several domains. With global time- and cost- arbitrage advantages, and talent elasticity, they help clients optimize time-to-market and minimize software development risks for their IoT solutions. The company is engaged actively in providing end-to-end IoT solutions to cater to the demands of a diverse clientele across the nation.

13) Indian Institute of Information Technology, Allahabad

Unit-29: BookWithUVA

1. **Name of the Company/Start-up:** BookWithUVA
2. **Highlights of the Company/Start-up:**

   Product/Service : Books, stationery and other study materials

   Investment : INR 20,000/-

   Employment generated : 20 interns (non-paid)

   Commercialized or not : Yes, commercialized
3. **Impact it will create (including social impact, if any)**
   - Assisting the students in procuring their study material

- Lower than market price, so study material is accessible and affordable to the maximum number of students
- The encouragement of book renting and reselling is a sustainable approach that reduces the use of paper
- Students working at the startup are learning skills in entrepreneurship, business management and have a platform to experiment with their skills

4. **Current Status of the Company/Start-up :** Currently, started the sales and crossed the sales of 9 lacs, catering 5000+ students; built a team; started rental and reselling services.Also, developed a self-tailored inventory management system and a website for selling products online.
5. **Student team Details/Faculty Mentor:**
   1. Abhishek Kumar
   2. Uttam Srivastava
6. **Establishment date of the Company/Start-up/Commercialization:**
   29th August, 2022
7. **One paragraph on the Company/Start-Up covering all the points:** A student centric stationery based startup that delivers books, notebooks and other study material to the students' institution itself at very affordable prices.