

# PAAVAI ENGINEERING COLLEGE

(Autonomous) Annual Report 2022-2023



# A. About IIC Institute

# Vision / Mission of IIC established at the Institute

### Vision:

• To inculcate, develop and enhance the entrepreneurial potential of the budding professionals for producing ethical, innovative and successful entrepreneurs by creating an entrepreneurial ecosystem for individuals with creative minds and ideas for substantial business opportunities.

# Mission:

- To dispense opportunity and encourage innovative ideas for transforming them into start-up establishments.
- To become the centre of excellence, inspire, and enable the students to become entrepreneursby providing platforms for developing novel technologies catering to current market stipulations and developing their own enterprises.
- To produce socially responsible, economically viable, legally bound and ethically sound young entrepreneurs.

# Journey of IIC established at the Institute

IIC was established in 2018 at Paavai Engineering College. Right from its establishment till date we are regularly,

- Regular execution of IIC, MIC, Self-Driven and Celebration activities.
- For the academic year **2021-2022** we have received **4 star rating** and selected in the Consortium college and contributed as Mentor for other colleges.
- Acted as Nodal centre for Smart India Hackathon 2022.
- We have received appreciation certificate for NIPAM KAPILA.
- Has tied up MoUs with Startup Payanam and other organisations for carrying out regular activities for the promotion of Entrepreneurship skills among the students.
- Actively participating in the **Smart India Hackathons** and **Regional Meets** organised by AICTE.
- Our college team S.Nisha and N.Sandhiya received a fund of Rs.5,00,000/- under the National Innovation contest 2020.
- Organizing workshops every quarter to motivate the students to become **Entrepreneurs**.
- o Established Paavai PreIncubation and Incubation Centre to support IIC activities.
- Conducting regular online and offline activities in association with Entrepreneurship Development Cell promoting Entrepreneurship, IPR and

Innovation.

- Arranging interactive sessions with successful Entrepreneurs and Innovation Ambassadors periodically.
- Conducting **competitions** in every quarter to exhibit their Entrepreneurial talents, creativity and innovation.
- Organizing industrial visits, at least once a year.
- Arranging special lectures on topics like design thinking and creativity, innovation, IPR, start-ups, business planning, team building, generation of resources and other business-related concepts.

# Diversified representation in the IIC established at the institute from industry, Interdisciplinary & Departments/ Units etc.

We have representatives from industries, Colleges (Incubation Centre Head), the banking sector, and alumni from our Institute who participates in our Quarterly meetings and give suggestions for the growth and improvement of entrepreneurship, start-up and innovation activities throughout.

### B. Brief mention of key functionaries at the IIC Institute

**President** - Dr.M.Premkumar, President of IIC, Paavai Engineering College. His role involves motivating the faculty members and students to adopt innovative methods of teaching, and learning and encouraging them in doing innovative projects that may end in start-ups.

**Vice President** - Dr.K.SundaraMurthy, Vice-President of IIC, Paavai Engineering College. His role involves guiding both the Convenor and Coordinators in conducting various events and functions in IIC and motivating the students to start the new business in their areas.

**Convenor** - Dr.R.Mohana Priya, Convenor of IIC, Paavai Engineering College. Her role involves in guiding and giving key points to various departments to organize events and workshops related to IIC for developing the student's skills related to entrepreneurship. In addition, to monitor the execution of various calendar activities and reports to the President. **Coordinators** - The role of the coordinators is to organize various seminars, workshops and events regarding IIC. In addition, to guide the student's projects related to their innovative ideas.

# C. Portfolio/graphical/Tabular representation of Resource strength (human capital and Physical capital) of the IIC institution

Total No. of IIC Members	99
Total No. of IAs	27 (Basic and Advanced Level )
Total No. of faculty Mentors from Portal	10

Pre-Incubation Units, If any	Paavai Incubation Centre
Incubation Units, If any	Paavai MSME Incubation Centre
IP Facilitation Unit, If any	Nil

- D. Highlight Facilities, Infrastructure of Pre-Incubation & Incubation kind and Student bodies/clubs engaged in the promotion of Innovation and Entrepreneurship on the campus.
  - Paavai Pre-Incubation centre
  - Paavai Incubation centre
  - Paavai Soft Innovation Centre
  - Entrepreneur Development cell
  - o Software development and information management club
  - Microbytes innovative club
  - Resource club
  - TVS Harita centre
  - o Google Developer Students lub
  - o Bootcamps and activities through EDII & Start-up Payanam

# E. Highlight Achievements (Narrative/Graphical/tabular representation)

Number and Different types of I&E and IPR activities Conducted	65
No. of student's & faculty ideas generated	72
No. of students & faculty Innovation/prototypes developed	27
No. of IPs generated, published and granted (published alone)	68
No. of Student & Faculty Start-ups/Ventures established.	21
Amount spent on promotion and awareness generation on Innovation Entrepreneurship on the campus	Rs.2,50,000
Amount grant or fund supported to student & Faculty lead Innovations, start-ups and IPR	Rs.3,00,000
No. of Technology Transfer and Commercialization happened	02

# F. Highlight a few best IIC Faculty/Student members and their achievements/ Rewarded for the innovations at different forum [Profile of few faculties with 2-lines of their achievements]

S.No.	Name of the faculty/Student	Awards	Organised/Event
1	10 IIC faculty members	Certificate Basic and Advanced Level Completion - Innovation ambassador	Innovation Ambassador Training - Basic Level
2.	R.Surya, IV/Civil	Grant Rs.13.350 lakhs received from MSME 2.0	MSME Idea Hackathon 2.0
3.	R.Surya, IV/Civil	Scored State level Second Prize in the Gold Medal Contest 2022-2023. Received 2gm gold coin	Federation of All Civil Engineer Associations of Taminadu and Puducherry

4.	N.Anand, R.Priyadharshini, V.Vinya, A.Wasimakram IV year FT	Best Project – Nutritional product development by using <i>Muntingia calabura</i> Received Rs.7500/-	Tamil Nadu State Council For Science And Technology.
5.	Ms.V.Thabitha Zelin Rachel, Assistant Professor, Food Tech B.Kaviya, S.Nifa, C.Mukesh Kumar, J.S.Sowmiya	Design Innovation Award 2023	Cambridge Institute of Technology, Bangalore
6.	IV year FT   Mr.S.Gowtham Kumar,   Assistant Professor,   Food Tech   K.Bala Kumar,   Abin Joy Mathew   IV year FT	Design and Innovation Award 2023	Siddaganga Institute of Technology, Tumakuru
7.	Dr.M.Sudha, HoD/ECE	Acted as Expert Jury	Smart India Hackathon at Paavai Engineering college
8.	Dr.M.Sudha, HoD/ECE	Acted as Expert Jury	National Idea Presentation / Project Expo 2023 at Kongu Engineering College
9.	Dr.M.Sudha, HoD/ECE S.Sakthi, IV ECE R.Narmatha, IV ECE N.Nirmala, IV ECE	Student Guide Project of Year 2022	Institute of Researchers, Kerala
10.	S.Loganathan, AP/ECE Swathika.V, IV ECE Sheela jenifer.A, IV ECE Sobhana.M, IV ECE	Student Guide Project of Year 2022	Institute of Researchers, Kerala
11.	E.Sangeetha, ASP/ECE S.Vijayakumar, ASP/ECE P.Kesavarthini, IV ECE K.Kaviya, IV ECE M.Hemalatha, IV ECE	Student Guide Project of Year 2022	Institute of Researchers, Kerala
12	Dr.M.Sudha, HoD/ECE Pawan kumar, IV ECE Narobai charan sai, IV ECE Thambu Ganesh, IV ECE	Best Presentation Award	International Institute of Smart Engineering &Technology Award (IISET) under the title " Detection of Land mines using IoT "
13	Balamurugan Mani-IV/Agri	Grants Rs.12.800 lakhs received from MSME 2.0	MSME Idea Hackathon 2.0

14	Mr.R.Balasubramani, Head, Chemical N.Anand, Final Food Tech R.Priyadharshini, Final Food Tech V.Vinya , Final Food Tech A.Wasimakram, Final Food Tech	Best Project – Nutritional product development by using Muting Calabura (Jamaica Cherry). Received Rs.7500/-	Tamil Nadu State Council For Science and Technology.
15	M. Ponmanian Assistant Prof, Pharma	Best Project Formulation of Amp loaded hydrogel using <i>Moringa olifera</i> resin extract against multi-drug resistant Staphylococcus aureus Received Rs.7500/-	Tamil Nadu State Council For Science And Technology.
16	P.H. Arya Assistant Prof, Pharma	Best Project Extraction of bioactive component from <i>Cissus quandrangularis</i> and identification of antihelminthic property. Received Rs.7500/-	Tamil Nadu State Council For Science And Technology
17	Mr. C.Vibinstalin Assistant Prof,MCT	Best Project – Drowsiness Detection in Automotive Vehicles Received Rs.7500/-	Tamil Nadu State Council For Science And Technology.

# G. Highlight selected best Innovations & images with mention of inventor/innovation name

S.No.	Innovations	Inventors	Images
1.	Drowsiness Detection in Automotive Vehicles	Mr. C.Vibinstalin	
2.	Polyherbal formulation for Allergic Rhinitis	V. Thabitha Zelin Rachel AP/ FT	
3.	Smart Kit for amyloidosis	M.D.S. Rajaruban AP/ FT	

4.	Development of wound healing patches from <i>Tridax</i> procumbens	S.Pragathi AP/ PT	
5.	Characterization and isolation of bio- functional lipids from black sea urchin( <i>Stomopneustes</i> <i>variolaries</i> ) and its multifunctional in vitro activities	M.G. Karthih AP/ PT	
6.	Artificial Intelligence (AI) mouse using python	Dr P Muthusamy, HOD/CYS Mr U Saravana kumar & team, III - CYS	
7.	Solar Insect Trapper	Balamurugan Mani-IV/Agri	<image/>

8.	Design and Development of Multi pulley Bicycle for Maintaining speed	Dr.Suresh ASP/Mechanical Abinayasree.K / III Mech	
9.	Nerve Contraction Analysis With Pulse Electro Therapy	Mrs.S.Suganya Assistant Professor Miss.S.Nathiya Miss.N.Pooja	
10.	Iot Based Smart Energy Meter For Domestic/Commercial Applications	Mrs.G.Umamaheswari, Associate Professor ,EEE A.Priyadharshini S.Sowmiya	

11.	Motored Kafo Leg For Handicaps	Mrs.G.Umamaheswari, R.Gayathiri R.Janani	
12.	A New Era Of Iot Technology Based Garbage Monitoring And Alert System	Dr.Sudha,Professor&Head,ECE	
13.	Development Of Consumable Pack	Ms.V.Thabitha Zelin Rachel,AP, Food Tech B.Kaviya, S.Nifa, C.Mukesh Kumar, J.S.Sowmiya IV Year FT	
14.	Preparation Of Herbal Ice-Cream Using Aloe Barbadensis Miller With Mexican Mint Flavoring	Ms.V.Thabitha Zelin Rachel, Food Tech Joel.K Karthick Ajay.B Iv Year FT	

15.	Preparation Of Bioplastic From Organic Waste	Mr.S.Gowtham Kumar,AP, Food Tech Nandhini.A Naveena.D Logapriya.V A.Sacinthra IV Year FT	
16.	Design And Development Of Multipurpose Flask	Mr.S.Gowtham Kumar,Ap, Food Tech K.Balakumar Abin Joy Mathew IV Year FT	Control Switch Container Lid Container Steel (SS 304) Rechargeable connector
17.	Light Emitting Tiles	Mrs.K.Sharmiladevi, HoD-Civil	
18.	Industrial Waste Bricks	Mrs.K.Sharmiladevi, HoD-Civil	

H. Highlight selected start-ups established by students/faculties with mention of founder/cofounder name

**Founder and Co-founder :** N.Nisha and G.Sandhiya (Dept of ECE) **Startup Name:** Lucky Charms **Address :** 2/320-A,NatrajanIllam, Chokkalingapuram Kottampatti, Melur Madurai-625 103

Founder : K. Praveen (Dept of Agri) Startup Details: K.S. Tissue Culture Industry

# I. List of any breakthrough Innovations / Technology Developed at the institute (2-3 technology with 2-3 lines about technology and innovation).

**Solar Insect Trapper**: Insect traps are used to monitor or directly reduce populations of insects or other arthropods by trapping individuals and killing them. They typically use visual lures, chemical attractants and pheromones as bait and are installed so that they do not injure other animals or humans or results in residues. Visual lures use lights, bright colors and shapes to attract pests. SOLAR INSECT TRAPPER is a solar energy based insect trapper can trap many pests and helps farmers to cultivate more quality and quantity of crops. Farmer faces the problems of various types of pests that harm crops right from sowing till the crop harvested. This project uses UV LEDs were safer than using ordinary fluorescent lamps. Moreover India is a tropical country, solar power is readily available and also it requires less maintenance. The device seems promising to farmers since it has been capturing adults of many pests, bores, and flies thereby reducing the dependence on bio pesticide usage to the tune of 50%. Then simple design was created for easily to teach to farmers. LED bulbs with 12 volts were safer to use more than fluorescent bulbs with 220 volts. If the electrical short or leakage current were happened, the users were would not get seriously hurt. The trap should be improved for light scattering as 360 degrees from the trap. The ways into LED should be provide more for more insects and effectively trap.

**Light Emitting Tiles**: Light-emitting tiles are a green construction material designed to illuminate roads, and bicycle lanes without using electricity. Light-emitting tiles absorb solar energy during the day and radiate light at night. The light emitting pigments include a titanium powder, a Strontium Aluminate powder, resins, cement, sand, and water. The present trend in tile technology is towards increasing the durability and appearance of tiles into different shapes. This study mainly focuses on the experimental work of adding Strontium Aluminate to give the photo luminescent property. The experimental results are based on the test conducted such as CTM, Water absorption Test and duration of light emitting, to support all the weather conditions.

Smart Kit for amyloidosis : Amyloidosis is a group of rare diseases that occur when abnormal protein, called amyloid, builds up in organs and tissues. One type of amyloidosis is caused by the overproduction of free light chains (FLCs) of immunoglobulins. This type is called AL amyloidosis and it affects multiple organs, leading to organ dysfunction and eventually death. Therefore, early diagnosis and treatment are essential for improving the prognosis of this disease. In this, we propose a smart kit for the detection of FLC antibodies in urine samples using green synthesis of silver nanoparticles from Hydrocotyle verticillata, a medicinal plant that is abundant in many regions of the world. To demonstrate the effectiveness of the smart kit, we perform a series of experiments using urine samples from patients with AL amyloidosis and healthy controls. The results show that the smartkit can detect FLC antibodies in the urine samples of patients with AL amyloidosis with high specificity and sensitivity. The limit of detection of the kit is 0.01 mg/L, which is much lower than the clinical cutoff for the diagnosis of AL amyloidosis. In conclusion, our study presents a green and cost-effective approach for the synthesis of silver nanoparticles from Hydrocotyle verticillata and their use in the development of a smart kit for the detection of FLC antibodies in urine samples. This kit has the potential to improve the early diagnosis of AL amyloidosis and facilitate the timely initiation of treatment, thereby improving patient outcomes.

**Polyherbal formulation for Allergic Rhinitis :** The unique Drug-Drug combination has the less cytotoxicity as compared to the toxicity imposed by the Drug-Drug Interaction in the Western

Medicine. The potential interaction effect on the herbal product includes the mutual enhancement, mutual assistance, and the mutual antagonism.

**Preparation Of Bioplastic From Organic Waste** : Nowadays plastic waste has become one of the biggest problems due to their excessive use, its difficulty in decomposition, also its huge of mass cause a lot of negative impact to landfill and water pollution. Environmental sustainability has been a real challenge for a living being due to the rising of population, urbanization and standard of living. The most possible solution is to substitute synthetic polymeric material to biodegradable materials, which will be degraded by microorganisms and minimalize the adverse ecological impact. On the other side, Food waste is one of the major things that need to be concern. Food waste is generally of two types, Avoidable and Unavoidable. Avoidable food waste can be prevented by proper planning, Unavoidable waste cannot be prevented such as peels of fruits and vegetables, bones of meat, etc. The objective of our project is to develop bioplastic from food waste that has double benefits, namely reducing the plastic waste and food waste that include fibre as a residue at the same time, thereby promoting environmental sustainability.

# Participation of IIC-institute in various programs of Central and State Govt. Highlighting specially for the schemes or programs

- **AICTE Internshala Rank** Ranked Number 1 in Internshala ranking among all the colleges in India for 22-23.
- Participated in MSME 2.0 hackathon and two batches from Paavai Engineering College have received a grant of 13.350 lakhs and 12.800 lakhs for MSME 2.0 Hackathon.
- ARIIA Positioned in the band of 101-150 in the Innovation Category under National Institutional Ranking Framework 2023.
- CII Innovation award
- Paavai Engineering College received the "**Design and Innovation award**" on 17.07.2023 at Siddaganga TBI, SIT, Tumakuru.
- Two batches from Paavai Engineering College received **2023 Design Innovation** award on 11.02.2023 at Cambridge Institute of technology.
- Has applied for patents under KAPILA scheme.
- Smart India Hackathon 2022 Acted as a nodal centre for SIH2022 in Tamil Nadu.

# A. Detail of Social Media & Connections of IIC institute

Instagram: https://www.instagram.com/paavaipecprincipal/?hl=en

Twitter: https://twitter.com/paavaipecprinc1

Facebook: <u>https://www.facebook.com/pecprincipal.pecprincipal/</u> YouTube: <u>https://bit.ly/3BvEYA</u>

# **B.** Testimonials from IIC members and external about IIC institute and IIC of MoE's Innovation Cell.

Testimonial YouTube Link: President IIC- <u>https://www.youtube.com/watch?v=S6okGNHCi2o</u> Testimonial YouTube Link: Convener IIC- <u>https://www.youtube.com/watch?v=XvM1bl-quMY</u>

### **Testimonial by Vice President, IIC**

IIC plays a major role in Paavai Engineering College to nurture young minds to become entrepreneurs. IIC helps us to set up a strong innovation and entrepreneurial eco-system in our institution and provides a platform to organise various activities related to entrepreneurship, innovation and IPR. It helps the students to participate in many events like idea contests, project exhibitions, Smart India Hackathon etc. Our faculty members who have completed innovation ambassador training have gained awareness of IPR, innovation, entrepreneurship, startups, and design thinking, guiding and supporting aspiring young entrepreneurs. IIC is an excellent initiative by the Ministry of Education, Government of India to encourage the student community to come up with innovative ideas and promote them to create start-ups and entrepreneurial ventures.

Dr.K.Sundaramurthy, Vice President, IIC Paavai Engineering College Testimonial by Vice President, IIC

C. Images

NEP 2020 - Inaugural Address Session.



MIC - Leadership Talk







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SASTRA & **Indian Institute of Food Processing Technology** 

# Women's Day Celebration





World Innovation and Creativity Day Tips for Start-up -Seminar



Exposure visit to incubation centre at

# MSME Women Hackathon 3.0 Glimpses.



Commercialisation of Lab Technologies Workshop

### D. Contact

#### Dr.M.Premkumar,

President / Principal, Institution's Innovation Council, Paavai Engineering College Pachal, Namakkal – 637018. Email:<u>pecprincipal@paavai.edu.in</u> Mobile: 9965466888. **Project Presentation of Innovations**