

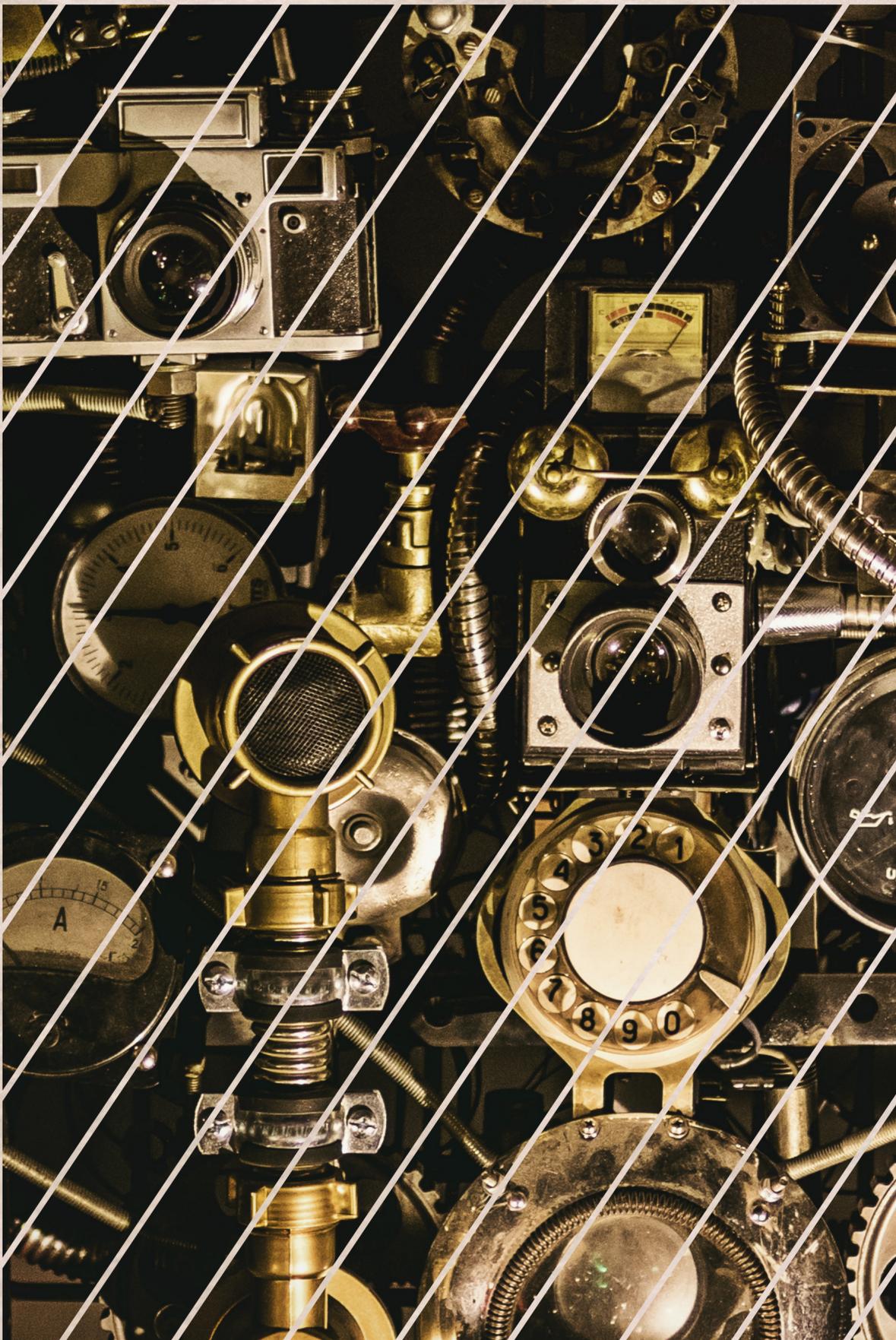
# YANTRADNYA

NEWSLETTER ●

JUNE 23

● ISSUE 14

## THE NEWSLETTER OF DEPARTMENT OF MECHANICAL ENGINEERING



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MECHANICAL DEPARTMENT



# ABOUT US...

MECHANICAL ENGINEERING IS ONE OF THE BASIC & MOST DIVERSE AND ENGINEERING BRANCHES THAT TOUCHES VIRTUALLY EVERY ASPECT OF MODERN LIFE, INCLUDING THE HUMAN BODY & HIGHLY COMPLEX MACHINES, THE ROLE OF A MECHANICAL ENGINEER IS TO TAKE A PRODUCT FROM AN IDEA TO THE MARKETPLACE. MECHANICAL ENGINEERS PLAY KEY ROLES IN A WIDE RANGE OF INDUSTRIES INCLUDING AUTOMOTIVE, AEROSPACE, BIOTECHNOLOGY, COMPUTERS, ELECTRONICS, ROBOTICS & AUTOMATION, MICROELECTROMECHANICAL SYSTEMS, ENERGY CONVERSION, AND MANUFACTURING. THE MECHANICAL ENGINEERING DEPARTMENT IS ONE OF THE FINEST AND BIGGEST DEPARTMENTS OF THE INSTITUTE ESTABLISHED IN 2006 WITH THE PRESENT INTAKE OF 120 STUDENTS FOR THE UG PROGRAMME. THE DEPARTMENT IS VERY WELL EQUIPPED WITH WORKSHOPS, LABORATORIES, DEPARTMENTAL LIBRARY, AND DIGITAL LIBRARY FACILITIES. THE CLASSROOMS ARE WELL-DESIGNED ROOMS THAT INCORPORATE EVERYTHING NEEDED FOR A PLEASANT LEARNING ATMOSPHERE. IT PERSISTENTLY SEEKS AND ADOPTS INNOVATIVE METHODS TO IMPROVE THE QUALITY OF EDUCATION CONSISTENTLY. QUALIFIED AND EXPERIENCED FACULTIES ARE STRONGLY ENCOURAGED TO NURTURE THE STUDENTS. REALIZING THE IMPORTANCE OF LEARNING BEYOND CLASSROOMS, THE DEPARTMENT ENCOURAGES STUDENTS TO INDULGE IN CO-CURRICULAR ACTIVITIES. THE DEPARTMENT HAS ESTABLISHED STUDENT CHAPTERS IN ASSOCIATION WITH INTERNATIONAL & NATIONAL PROFESSIONAL BODIES LIKE SAEINDIA, ISHRAE, ASHRAE, ISTE, QCFI, ETC.

## VISION

To aspire for the welfare of society through excellence in Science and Technology.

## MISSION

To develop professional skills through student centric activities and the industry interactions.

To prepare students for higher education, research and innovation.

To make globally competent and socially committed Mechanical Engineers with morals and ethical values.

# FROM HOD'S DESK



DR.v.r deulgaonker  
professor & head

Welcome to the Department of Mechanical Engineering of Marathwada Mitra Mandal's College of Engineering Karvenagar, Pune. We started our journey in the year of 2006. Over the last fifteen years, we have grown our expertise & competence in the core Mechanical Engineering curriculum.

The primary focus of our curriculum is to impart technical know-how to students, promote their problem-solving skills & innovate new technologies. The students are encouraged to undertake various research projects.

We have state-of-the-art research facilities in the constitution with industry to support our academic programs. Our department has a distinguished record in both teaching & research. Faculty members have excellent academic credentials & are highly regarded. Our department looks forward to contributing to solving the technological challenges of society with active participation from all sections of society.

The goal of this newsletter is to keep you updated with developments in the Mechanical Engineering Department of MMCOE. This department is continuously transforming. New initiatives have been launched related to academics, student affairs, research, and extra curricular activities.

The students & faculty members of the department are sincerely participating in various activities organized at the institute or other places. It is elevating to see the sound performance of students. I offer best wishes for future activities. At last, I thank the editors of YANTRADNYA for their sincere efforts & I offer my best wishes to the readers of this newsletter.



# EDITORIAL



Mrs. Mayuri P. Rode  
Chief Editor

It brings me immense joy & pleasure to introduce the thirteenth edition of the departmental newsletter 'YANTRADNYA'. All the creative energies that came into this

platform in the form of faculty experts & students is finally presenting a replica of their enthusiastic hard work through this extravaganza that has come out so organically.

Technical & Arts every section shines out differently in its true sense. All the events conducted throughout the year were perfectly planned & executed & the overwhelming response it received said it all! This piece of art would not have been complete without the sheer determination & perseverance of all the students who pushed their limits every time to bring out this artistic reality. Their efforts coupled with immense support from the faculties truly have done justice to carry on the legacy. I am grateful for all the support YANTRADNYA has received throughout the year in every possible way from the faculties & Students. I hope the readers of the newsletter have a wonderful reading experience & wish this year's edition to receive your love & support like it has always received to date.



There is no denying that one day my memory of words will turn vague but every page of this newsletter will open a box of memory so vivid! Filled with hard work, dedication & limitless time put in making this one book that I will always be grateful to "YANTRADNYA" will make you fall

in love with drawings again! It gives me immense pleasure to bring to you an extraordinary & masterly collection of the events, activities, achievements, and highlights at the college presented in the 11th Annual departmental newsletter "YANTRADNYA- 2024" Issue 15



chirag jain  
Content Editor

The newsletter reflects the identity of MMCOE as well as gives the students & teachers a platform to explore their creativity & imagination. This work is a result of the various phases from planning to data collection to segregation to organization to proofreading to designing. I take this opportunity to express my gratitude to our HOD Dr.V.R.Deulgaonker professor & head & Mrs. Mayuri P. Rode for their constant assistance & guidance. My sincerest thanks to all the captains, heads, mentors & teams without whom this newsletter would have just been a dream. Last but the most least, you, the readers, YANTRADNYA would not have been what it is today without you. So, as you turn through the pages, I hope you like the curation of emotions, fervor, faith, ideas & aspirations expressed in words.



# Program Educational Objectives

## PROGRAM EDUCATIONAL OBJECTIVES (PEO'S)

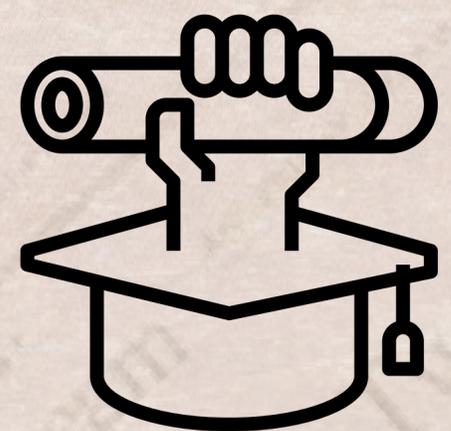
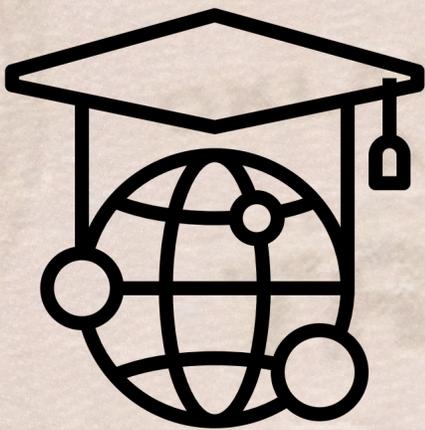
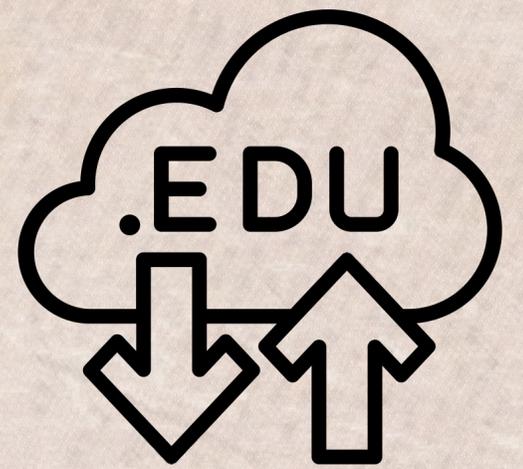
Graduates from our department will

- studies, research & industries.
- Become competent engineers for successful careers in higher
- Acquire knowledge-based skills to solve problems in mechanical engineering & related fields.
- Achieve professional ethics & managerial skills.
- Respond to the growing demands of society through lifelong learning and extension.

## ACTIVITIES FOR HIGHER STUDY

- Ketankumar Patil gave an expert session on “How to Prepare for Competitive Exams: UPSC and MPSC in association with UNIQUE ACADEMY Pune on November 2, 2023.
- Global Connect Cell Seminar on Abroad Applications on May 8, 2023, by Pranav Kulkarni for all branches along with BE Mechanical Students





## INDICATION PROGRAM

- The Mechanical Engineering Department organized an FE induction program for FE mechanical students on August 14, 2023.
- The Mechanical Engineering Department organized an SE welcome function for SE mechanical students on August 10, 2023.
- Per the Savitribai Phule Pune University, Pune notification dated 16/07/2023, we are celebrating the “National Education Policy Week” from 24/07/2023 to 29/07/2023. Given this, we need to disseminate information about NEP 2020 to our stakeholders.
- Admission Campaign at DSK School for Parents, Teachers, and Students on July 7, 2023

## FOR FACULTY

- Prof.S.S.Kirpekar Published an ordinary patent on “Innovative temperature control system inside vehicle” Application No- 202321039765. Dated –
- Dr.V.W.Bhatkar for Nomination as IEC zonal chair at ISHARE HQ Level
- Dr.V.W.Bhatka has been selected as a member of the ISHRAE EDUCATION COMMITTEE for the West Region.
- Dr. V.W.Bhatka's project proposal was sanctioned by ASHRAE USA for \$4800.Four students are working on this project.

## WORKSHOP ORGANISED BY THE DEPARTMENT

- One week FDP on “Recent trends in Heating Ventilation Air conditioning and Refrigeration” from 26-12-23 to 30-12-2023





## TECHNICAL EVENTS

Sr. No.	Name of Professional Societies / chapters	Title of Event Organized	Date
1	Mechanical Department (Dexterity)	Mech-Mind Cad WarShark Tank	27/10/2023
2	MESA	Alumni Interaction	14/10/2023



## ADD ON MODULES

- Skill Development Program on GD&T for TE Students by Mr.Suraj Kad, in association with Plastic Omnium Pune, from July 8, 2023 to August 26, 2023.
- Skill Development Program on Solid Works for TE students by Mr. Anand Bhise (Director, Mechatol Product Engineering Solutions Pvt. Ltd.) from 08/07/2023 to 26/08/2023
- Skill Development Program on Hands on Training on MD Solids 4.0
- Skill Development program on Python and machine learning in association with AI ventures, Pune from 10/09/2022 to 05/11/2022.

## FACULTY PUBLICATIONS

- Dr. Deulgaonkar V.R., Failure Analysis of Industrial Screw Conveyors, Journal of Failure Analysis and Prevention, 06/203.<https://doi.org/10.1007/s11668-023-01719-3>
- Dr. Swapnil Lahane, Evaluation, and ranking of solutions to overcome the barriers of Industry 4.0 enabled sustainable food supply chain adoption, Journal of Cleaner Logistics and Supply Chain, Volume 8, September 2023, 100116, July 2023, <https://doi.org/10.1016/j.clscn.2023.100116>

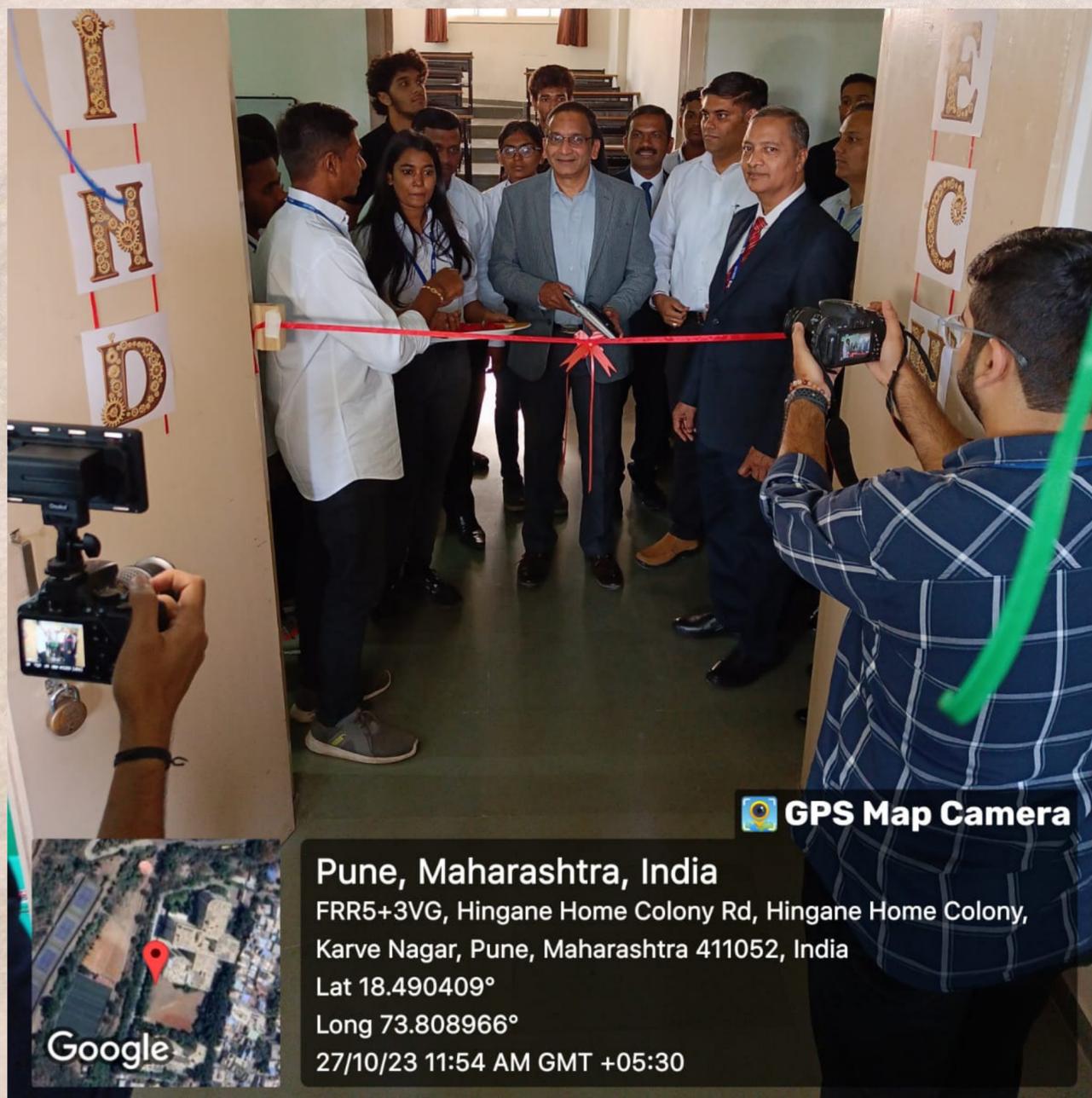
# DEXTERITY EVENT

Dexterity 2K23-24 is a national-level technical event that provides a platform for students to showcase their technical skills. This Year, the Mechanical Engineering department organized three events under “Dexterity 2K23-24” on 27th October 2023.

The events hosted by the Mechanical Engineering department are:

1. Mech Mind
2. CAD War
3. Shark Tank

In the Mech Mind event, students were given some raw metamaterials and assigned a task to create a hydraulic or Pneumatic-powered mechanism. In this event, 38 Students participated and made the working model. The event was coordinated by Prof. Amit Desale and Prof. Pradip Bhambure with 02 student coordinators.





In the CAD war event for the first round, a detailed 2D sketch was provided to the participants and the task was to prepare the Part drawing and Assembly of every element. In the second round, the sketch consisted of multiple parts, and the task was to prepare the part drawing as well as make the assembly of the available components. 31 students participated in this event. The event was coordinated by Prof. Martand Pandagale and Prof. Santosh Raut with 02 student coordinators. The judge for this event was Mr. Manoj Potdar (Owner of M CAD Solutions).



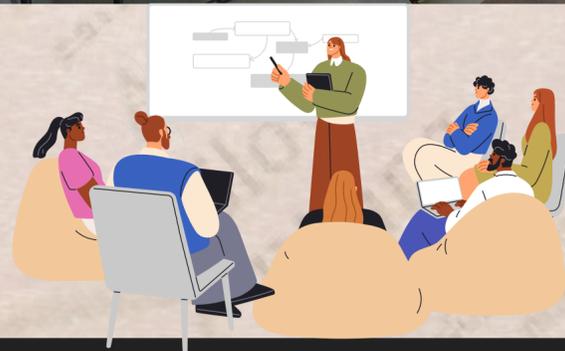
In the shark tank event, students had to give a presentation on any business idea. In this event, 24 students participated and presented their business idea including their design, manufacturing, customer requirements, sales, service after sales, etc. The event was coordinated by Prof. Swanand Kirpekar and Dr. Manoj Joshi with 02 student coordinators. For the presentation, the judge was Mr. Darshan Shaha (Zen Engineering Solution)





## GUEST LECTURES

- Mr. Kundan Kumar Danfoss, pvt., Ltd., Bangalore., given an expert Session on "CO2 as Refrigerant" on 11/08/2023 (Total students-87)
- Mr. Yogesh Nikam, Cloud Engineers ARs Computer and consulting Gmbh munich Germany, given an expert Session on "Application of Team enter software in Product Life Cycle Management" on 21/08/2023
- Mr. Atul Chavan (Technical Head, Onward Technologies Ltd, Pune given expert session on "Matlab, Simulink, Simulink Test Tool Box and Model Based Development Engineer's Use" on 20/10/2023
- Mr. Atul Chavan (Technical Head, Onward Technologies Ltd, Pune given expert session on "Recent Trends in Industrial Automation" on 20/10/2023
- Dr. S.H. Sarje Professor and Dean (Research and development) given expert session on "Vibration-Based condition Monitoring and Machine Maintenance" on 01/11/2023.
- Mr. Rohan Prabhu. New Product Development Engineers, Knorr-Bremse given expert session on "Application of Machine design in new Product development" on 02/11/2023
- Dr. Preetam Selmokar, given Expert session on course "Machining science and Technology" on 04/11/2023
- Mr. Nagesh Gohad, General Manger, CNC Times.com given expert session on "Opportunities for Mechanical engineering in Machine Tool, Packaging Materials and Metallurgy" on 06/11/2023
- Mr. Mukund Ranade, Ex R/D manager Thermax Ltd given expert session on " Fuels and Combustion" on 21/11/2023
- Mr. Vikas Chinchankar, Ex. Manager, Cummins India Ltd, Pune given expert session on Heat Transfer Augmentation in Hydrogen ICE on 01/11/2023



# STUDENTS ACHIEVEMENTS

Sr.No.	Name Of Student	Achievement Details
1	Atharva Agre, Piyush Gaike and Ujjwal Ahire	ISHRAE research funding
2	Mr. Omkar Nikam,	Secured second place in quiz competition organised by ASHRAE held at MKSSS's Cummins College of Engineering with cash price of 1500/-.
3	Mr. Mr. Amit Lad	Securing 10th rank in SE Mechanical Savitribai Phule Pune University Examination May 2022.
4	Mr. Devashish Chavan	Secured 10th rank in SE Mechanical Savitribai Phule Pune University Examination May 2022.
5	Mr. Abhishek Panaskar	Secured 8th rank in SE Mechanical Savitribai Phule Pune University Examination May 2022

# TECHNICAL REPORT

## Patent 1:

**Title: INNOVATIVE TEMPERATURE CONTROL SYSTEM INSIDE A VEHICLE.**

Thermal comfort is an essential factor for humans in enclosed environments such as passenger automobiles. India is a tropical country with summer temperatures ranging from 450 to 500 degrees Celsius. If a vehicle is parked in such a heated atmosphere for more than 30 minutes, the internal temperature can rise to 600 to 700 degrees Celsius. Temperature rise is affected by Sun locations such as solar azimuth angle and solar altitude angle. If the owner, passenger, or driver enters a hot vehicle, they will experience suffocation and will have no thermal comfort. It is impossible to bring the temperature down to a comfortable level in a short period. To manage the temperature, there are two options: turn on the air conditioner or open all windows. When we utilize the air conditioning system to adjust the temperature, it takes longer to achieve a comfortable level and puts a greater strain on the engine system. When the temperature is adjusted by opening all windows, it takes longer to reach a pleasant temperature. It is dependent on the outside temperature; if the outside temperature is more than, opening the window will not allow you to attain a comfortable temperature.

(12) PATENT APPLICATION PUBLICATION		(21) Application No.202321039765 A
(19) INDIA		
(22) Date of filing of Application :10/06/2023		(43) Publication Date : 11/08/2023
(54) Title of the invention : INNOVATIVE TEMPERATURE CONTROL SYSTEM INSIDE A VEHICLE.		
(51) International classification (86) International Application No Filing Date (87) International Publication No (61) Patent of Addition to Application Number Filing Date (62) Divisional to Application Number Filing Date	:A61B 060300, B60H 010000, C12M 013400, G06Q 300000, H04S 070000 :NA :NA : NA :NA :NA :NA	(71)Name of Applicant : 1)Swanand Sudhakar Kirpekar Address of Applicant :Marathwada Mitramandal's College of Engineering Sr.No. 18, Plot No. 5/3, CTS No.205, Vadar Vasti Rd, behind Vandevi Temple, Karve Nagar, Pune, Maharashtra 411052 ----- 2)Padmayya Shaniyara Naik 3)Vivekanand A Naikwadi Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Swanand Sudhakar Kirpekar Address of Applicant :Marathwada Mitramandal's College of Engineering Sr.No. 18, Plot No. 5/3, CTS No.205, Vadar Vasti Rd, behind Vandevi Temple, Karve Nagar, Pune, Maharashtra 411052 ----- 2)Padmayya Shaniyara Naik Address of Applicant :Anjuman Institute of Technology and Management Belalkanda, Bhatkal, Karnataka 581320 Bhatkal ----- -----

## Patent 2:

**Title: CYBER SECURITY RISK ASSESSMENT AND MANAGEMENT SYSTEM USING AI AND ML FOR ENTERPRISE NETWORK**

The financial sector, led by financial technology (fintech) companies, has been rapidly increasing the use of AI/ML systems. The recent adoption by the financial sector of technological advances, such as big data and cloud computing, coupled with the expansion of the digital economy, made the effective deployment of AI/ML systems possible. A recent survey of financial institutions (WEF 2020) shows that 77 percent of all respondents anticipate that AI will be of high or very high overall importance to their businesses within two years. This study explores the use of artificial intelligence (AI) and machine learning (ML) in the financial sector and the resultant policy implications.<sup>1</sup> It provides a nontechnical background on the evolution and capabilities of AI/ML systems, their deployment and use cases in the financial sector, and the new challenges they present to financial sector policymakers.

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202321058290 A

(19) INDIA

(22) Date of filing of Application :30/08/2023

(43) Publication Date : 29/09/2023

(54) Title of the invention : CYBER SECURITY RISK ASSESSMENT AND MANAGEMENT SYSTEM USING AI AND ML FOR ENTERPRISE NETWORK

(51) International classification :G06Q0030020000, G06N0020000000, G06Q0040060000, G06Q0040000000, G06Q0040040000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :  
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**2)Swanand Kirpekar**  
**3)Ms.Bhagyashree Dagadu Lambture**  
**4)Mrs.Sayali Aditya Belhe**  
**5)Radha Shirbhate**  
**6)Richa Agnihotri**  
**7)Vandana Vinayak Navale**  
**8)Varsha Rahul Dange**  
 Name of Applicant : NA  
 Address of Applicant : NA

(72)Name of Inventor :  
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**2)Swanand Kirpekar**  
 Address of Applicant :Marathwada Mitramandal's College of Engineering, Sr.No 18, Plot No 5/3, CTS 205, Vadar Vasti Road, behind Vandevi Temple, Karve Nagar, Pune, Maharashtra 411052. -----  
**3)Ms.Bhagyashree Dagadu Lambture**  
 Address of Applicant :AISSMS IOIT Kennedy Rd, Near RTO, Sangamvadi, Pune, Maharashtra 411001. -----  
**4)Mrs.Sayali Aditya Belhe**  
 Address of Applicant :AISSMS IOIT, Kennedy Rd, Near RTO, Sangamvadi, Pune, Maharashtra 411002. -----  
**5)Radha Shirbhate**  
 Address of Applicant :G H Raison College of Engineering and Management Wagholi Pune. --  
 -----  
**6)Richa Agnihotri**  
 Address of Applicant :G H Raison College of Engineering and Management, Wagholi, Pune. -  
 -----  
**7)Vandana Vinayak Navale**  
 Address of Applicant :AISSM's College of Engineering, No. 1, Kennedy Road, Near RTO Office Sangamvadi, Shivajinagar, Pune, Maharashtra 411001. -----  
**8)Varsha Rahul Dange**  
 Address of Applicant :Vishwakarma Institute of Technology, 666, Upper Indiranagar, Bibwewadi, Pune, Maharashtra, India - 411 037. -----

## Certificate of Registration for a UK Design

Design number: 6327951

Grant date: 29 November 2023

Registration date: 22 November 2023

**This is to certify that,**

in pursuance of and subject to the provision of Registered Designs Act 1949, the design of which a representation or specimen is attached, had been registered as of the date of registration shown above in the name of

Dr. Yuvaraj Kunnathur Periyasamy, Dr. Swapnil Sonajirao Lahane, Dr.

Anandakumar Subbaiyan , Dr. Kusuma Sreenivasa, Dr. Leena Bojaraj, Shobana

Alagarsamy, Haribabu Loganathan

in respect of the application of such design to:

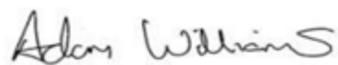
Smart Automobile Health Diagnostic Device

International Design Classification:

Version: 14-2023

Class: 10 CLOCKS AND WATCHES AND OTHER MEASURING  
INSTRUMENTS, CHECKING AND SIGNALLING INSTRUMENTS

Subclass: 05 INSTRUMENTS, APPARATUS AND DEVICES FOR CHECKING,  
SECURITY OR TESTING



**Adam Williams**

Comptroller-General of Patents, Designs and Trade Marks  
Intellectual Property Office

The attention of the Proprietor(s) is drawn to the important notes overleaf.



Intellectual Property Office is an operating name of the Patent Office

[www.gov.uk/ipo](http://www.gov.uk/ipo)

A Smart Automobile Health Diagnostic Device is an innovative piece of technology designed to monitor, analyze, and report the health and performance of a vehicle in real time. This device leverages advanced sensors, connectivity, and data analytics to provide drivers with valuable insights into the condition of their automobiles. The primary goal is to enhance safety, optimize performance, and facilitate proactive maintenance, ultimately contributing to a more efficient and reliable driving experience.



## Certificate of Registration for a UK Design

Design number: 6327952

Grant date: 29 November 2023

Registration date: 22 November 2023

**This is to certify that,**

in pursuance of and subject to the provision of Registered Designs Act 1949, the design of which a representation or specimen is attached, had been registered as of the date of registration shown above in the name of

Dr. Yuvaraj Kunnathur Periyasamy , Dr. Swapnil Sonajirao Lahane, Shobana

Alagarsamy, Komal Kumar Napa, Sampathkumar Karthikeyan, Dr. Anandkumar

Ramasamy , Gayathri Ulaganathan

in respect of the application of such design to:

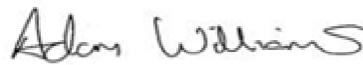
Smart Emotion Sensing Device

International Design Classification:

Version: 14-2023

Class: 10 CLOCKS AND WATCHES AND OTHER MEASURING  
INSTRUMENTS, CHECKING AND SIGNALLING INSTRUMENTS

Subclass: 05 INSTRUMENTS, APPARATUS AND DEVICES FOR CHECKING,  
SECURITY OR TESTING



**Adam Williams**

Comptroller-General of Patents, Designs and Trade Marks

Intellectual Property Office

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Intellectual Property Office is an operating name of the Patent Office

[www.gov.uk](http://www.gov.uk)



A "Smart Emotion Sensing Device" refers to a technological innovation designed to detect, interpret, and respond to human emotions through various sensors and advanced algorithms.

The primary goal of such a device is to enhance human-machine interaction by enabling technology to understand and adapt to users' emotional states.



## Certificate of Registration for a UK Design

Design number: 6327994

Grant date: 29 November 2023

Registration date: 23 November 2023

**This is to certify that,**

in pursuance of and subject to the provision of Registered Designs Act 1949, the design of which a representation or specimen is attached, had been registered as of the date of registration shown above in the name of

Dr. Yuvaraj Kunnathur Periyasamy, Dr. Swapnil Sonajirao Lahane, Dr. Manoj

Dattopant Joshi, Rajkumar Govindarajan, Sivaprakash Kandasamy, Dr. Ramesh

Babu Subramaniam, Shobana Alagarsamy

in respect of the application of such design to:

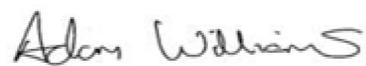
Intelligent Tea Leaves Disease Detecting Device

International Design Classification:

Version: 14-2023

Class: 10 CLOCKS AND WATCHES AND OTHER MEASURING  
INSTRUMENTS, CHECKING AND SIGNALLING INSTRUMENTS

Subclass: 05 INSTRUMENTS, APPARATUS AND DEVICES FOR CHECKING,  
SECURITY OR TESTING



**Adam Williams**

Comptroller-General of Patents, Designs and Trade Marks  
Intellectual Property Office

The attention of the Proprietor(s) is drawn to the important notes overleaf.



The concept of an "Intelligent Tea Leaves Disease Detecting Device" involves the integration of advanced technology to monitor and diagnose diseases affecting tea plants, This innovative device is designed to assist tea growers in the early detection of plant diseases, providing a proactive and precise approach to plant health management.



Intellectual  
Property  
Office

## Certificate of Registration for a UK Design

Design number: 6332714

Grant date: 19 December 2023

Registration date: 12 December 2023

### This is to certify that,

in pursuance of and subject to the provision of Registered Designs Act 1949, the design of which a representation or specimen is attached, had been registered as of the date of registration shown above in the name of

Dr. Yuvaraj Kunnathur Periyasamy, Saravana Prakash Dhanabal, Dr. Swapnil

Sonajirao Lahane, Shobana Alagarsamy

in respect of the application of such design to:

Smart Fish Health Monitoring Device in Aquaculture

International Design Classification:

Version: 14-2023

Class: 10 CLOCKS AND WATCHES AND OTHER MEASURING

INSTRUMENTS, CHECKING AND SIGNALLING INSTRUMENTS

Subclass: 05 INSTRUMENTS, APPARATUS AND DEVICES FOR CHECKING,

SECURITY OR TESTING

**Adam Williams**

Comptroller-General of Patents, Designs and Trade Marks

Intellectual Property Office

The attention of the Proprietor(s) is drawn to the important notes overleaf.



Intellectual Property Office is an operating name of the Patent Office

[www.gov.uk/ipo](http://www.gov.uk/ipo)

A smart fish health monitoring device in aquaculture is a technological solution designed to monitor and assess the health and well-being of fish in aquaculture settings. This type of device utilizes various sensors, data analytics, and communication technologies to provide real-time information about the conditions of the fish and the environment in which they are raised.



MECHANICAL DEPARTMENT





