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Department of Automation and Robotics

INSIGHT *A Newsletter*

Volume 1, Issue 2 | Academic Year 2024-2025

Contents:

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Principal

Dr. G. S. Patel
HOD, Automation & Robotics

From Executive director's desk:

It gives me immense pleasure to know that Sharad Institute of Technology College of Engineering, Department of Automation and Robotics is releasing out Newsletter "**INSIGHT** " Vol. 1 Issue 2 for the AY 2024-2025. This newsletter features highlights of activities in the department such as technical events, student and faculty achievements, professional society events, expert talks etc. The newsletter also serves as an ideal platform for disseminating the accolades and achievements of the faculty and students. Bringing out a newsletter will definitely helps in building up teamwork and cooperation among students which is highly desirable in the today's corporate world. This also enhances the traceability of the events conducted in the institute. I hope that this tradition of publishing Newsletters continue forever and become an emulated model for all other colleges to follow.

From Principals' desk:

I am extremely delighted to know that faculty and students of Automation and Robotics, Department of Sharad Institute of Technology College of Engineering is bringing out their departmental Newsletter "INSIGHT" Vol. 1 Issue 2 for the AY 2024-2025. I am certain that awareness of the Department's activities and achievements will inspire all the students to excel higher in their chosen academic domain. It has been understood that students as well as the faculty have exhibited great zeal and enthusiasm to contribute significantly towards the conduct of various technical activities in this semester. The editorial team has indeed initiated a consummate task that will continue to inspire present and future students of the Department. Personally, I feel that the students of Sharad Institute of Technology College of Engineering should set standards and create an conducive environment such that all can excel in their areas of chosen domain and inspire many more SITCOE ians in future.

From Head of the department's desk:

I feel highly elated to introduce "INSIGHT" Vol. 1 Issue 1, 2024-2025 prepared by faculty and students of Automation and Robotics Department. Our department has been persistently working towards the objective to produce highly skilled and scientifically oriented manpower through flexible, adaptive and progressive training programs along with cohesive interaction with the research organizations, academicians and industries. In this direction, "INSIGHT" provides good platform for students to get themselves updated with the latest technical skills. I congratulate "INSIGHT" team for their efforts in launching this issue of AY 2024-2025. I wish you all a happy and fruitful learning.

Vision, Mission and PEO's of the department

VISION:

To be a centre of excellence in Automation and Robotics education to prepare professionally competent engineers with lifelong learning attitude for the accomplishment of ever-growing needs of society.

MISSION:

- To prepare technically and professionally competent engineers by imparting quality education through effective teaching learning methodologies and providing stimulating environment for research and innovation.
- To develop professional skills and right attitude in students that will help them to succeed and progress in their personal and professional career.
- To imbibe moral and ethical values in students with concern to society and environment.

Educational Objectives (PEO's)

Graduates of the programme will:

PEO I: Equip young minds to as proficient engineers with strong foundation fundamental in Automation and Robotics with application of mathematics, science and engineering fundamentals

PEO II: Develop ability to Design, Develop and programme a robot for variety of engineering and multidisciplinary application using state of art tools and technologies

PEO III: Make the graduates to understand the need to engage in life long learning ethically so as to appreciate to current issues and develop solutions for cognizant problem for betterment of society.

1. Industrial Interaction

A conducted industrial visit is a planned excursion to a particular company or industrial facility, typically organized for educational or professional purposes. Industrial Visit is vital part of the curriculum. The purpose of industrial visit for students is to keep abreast with the technological development in the industry and to understand the gap between the theoretical and practical knowledge that could be passed to the society. These visits are commonly organized by educational institutions, businesses, or industry associations to enhance knowledge, skills, and networking opportunities for students, professionals, or interested individuals. During such visits, participants are guided through the facility to gain firsthand insights into the company's operations, technology, processes, and products. The visit may include interactions with company personnel, presentations, and opportunities to ask questions. Conducted industrial visits offer valuable learning experiences, helping participants understand real-world industrial practices and fostering a deeper appreciation for various industries and their contributions to the economy. It helps to bridge the gap between classroom and real technological world. Industry interaction refers to the collaboration and engagement between businesses or organizations within a particular industry or across different industries. This interaction can take various forms and can be essential for the growth, development, and innovation within the industry.

Here are some key aspects of industry interaction:
1. Networking: Industry interaction often involves networking events, conferences, trade shows, and seminars where professionals from different companies and sectors come together to share knowledge, ideas, and experiences. These events provide opportunities for building relationships and partnerships.

2. Collaboration: Businesses within an industry may collaborate on projects, research, or initiatives to address common challenges or capitalize on new opportunities. Collaborative efforts can lead to innovation and the development of new products or services.

3. Information Sharing: Industry interaction facilitates the exchange of information, best practices, and market intelligence. This sharing of knowledge helps businesses stay informed about industry trends, regulatory changes, and emerging technologies.

4. Standards and Regulations: Industries often work together to establish industry standards and regulations. These standards ensure consistency, safety, and quality across products and services, benefiting both businesses and consumers. Effective industry interaction can lead to a more vibrant and competitive business environment, benefiting both individual companies and the industry as a whole. It fosters innovation, enhances efficiency, and helps businesses adapt to changing market conditions.

In conclusion, industrial visits are invaluable educational and professional experiences that bridge the gap between theoretical knowledge and practical application. These visits provide participants with real-world insights into various industries, fostering a deeper understanding of industry practices, technologies, and trends. They offer numerous advantages, including enhanced learning, exposure to industry professionals, networking opportunities, and career insights. Industrial visits empower students, professionals, and individuals with the knowledge and motivation to excel in their chosen fields. Overall, industrial visits play a vital role in education, skill development, and career growth, making them a valuable component of learning and professional development programs.

S. No.	Name of the Industry	Date of visit	Year
1	Innovista Automation, Shiroli MIDC	18th January 2025	S.Y
2	Techno Cube India Pvt. Ltd., Shiroli MIDC	18th January 2025	S.Y
3	Laxmi Pumps, Gokul Shirgav	5th February 2025	S.Y
4	Centre of Excellence, Kolhapur	5th February 2025	S.Y
5	Yadravkar Industries Jaggery Plant, Chipri	7th February 2025	T.Y
6	WIPRO PARI, Shirval, Pune	22nd March 2025	S.Y & T.Y
7	Samrthan System Pvt. Ltd. Shirval, Pune	22nd March 2025	S.Y & T.Y
8	A.G. Enterpizes Shirval, Pune	22nd March 2025	S.Y & T.Y
9	Nexus Technocrafts Automation & Solution, Narhe, Pune	22nd March 2025	S.Y & T.Y
10	Wibro Feedtech Automation, Chinchwad, Pune	23rd March 2025	S.Y & T.Y

Glimpses of industrial visits

1. Innovista Automation

Innovista Automation was established in 2008 in the MIDC (Maharashtra Industrial Development Corporation) area of Kolhapur to cater to the automation needs of local industries. The company has expertise in setting up of robotic systems and cells like CNC/ VMC auto loading cell, gantry robots, welding cell, core handling robots, washing robot cell, deburring cell, etc. Industrial washing machines are specifically designed, developed, and manufactured for use in industrial settings. These industrial washing machines are used in a wide range of industries, including hospitality, healthcare, food processing, and manufacturing. Industrial washing machines of the types such as ultrasonic washing machines, high pressure washing machines, robotic washing system and standard rotary basket washer are designed and manufactured. These machines are built to handle heavy loads, frequent use, and tough cleaning requirements that are often found in industrial environments.

2. Techno cube India

Techno cube India is located in Kolhapur, Maharashtra. The firm manufacture engineering components and the items they manufacture and supply include precision components, hydraulic and oil & gas parts, hydraulic spool, hydraulic sector parts, hard part turning & grooving, earth moving equipment parts, aluminum alloy, multi operation part, crank pulley, cam tone wheel, CI & SG iron pulley, water pump pulley for tractors, rope pulley for elevators, rope pulleys for tower crane, poly groove pulley for automotive applications etc.

3. Laxmi Lada Pump

Laxmi Pumps established in 1978 manufactures and markets a range of water pumps under the brand LADA. The product range includes submersible pumps, monoblock pumps, sewage pumps, tractor pumps, AC solar pumps etc. The company has ISO 9001:2015 certification and focuses on delivering energy efficient pumps. The implementation of modern technologies like CAD and flow simulation for the design and ERP for streamlining manufacturing processes have enabled them to manufacture superior quality products. Modern management techniques like 5'S', Kanban, Kaizen etc. augments the production quality and helps to deliver quality products which are customer-centric.

4. Centre of Excellence

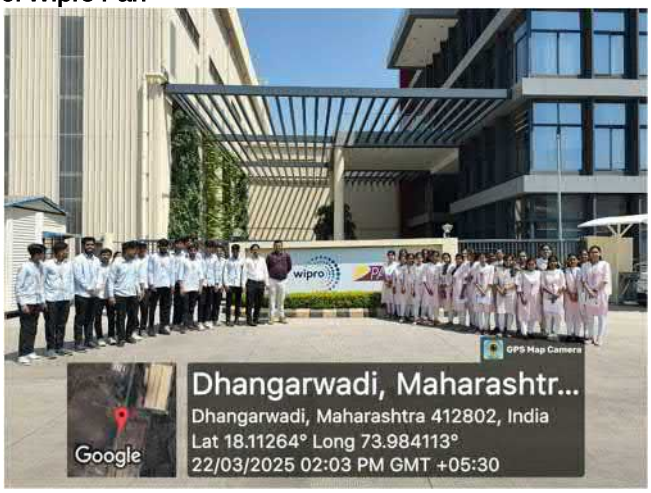
Centre of Excellence is a Common Facility Centre established at Gokul-Shirgaon, Kolhapur which commenced its operations from January 2022. The primary focus of the Centre is to provide a wide range of services aimed at enhancing industrial productivity and fostering academic progress. The Centre has been strategically established to serve as a hub for innovation, skill development, and industrial growth, catering to the evolving needs of the industries and academic institutions.

Also serves as a collaborative platform for industry and academia. Through its state-of-the-art facilities, the Centre is dedicated to creating a skilled workforce tailored to meet the specific needs of various industries.This is achieved by offering specialized training programs designed to equip individuals with the necessary skills to excel in their respective fields. The centre also serves as a collaborative platform for industry and academia. It facilitates partnerships between educational institutions and businesses, encouraging innovation and knowledge exchange. Furthermore, the Centre of Excellence is equipped with state-of-the-art facilities and resources that support a wide range of activities, from advanced manufacturing techniques to research and development projects. In addition to training new talent, the Centre is committed to up skilling existing employees, ensuring they stay updated with the latest industry trends and technologies. Furthermore, the Centre's efforts extend beyond industrial and organizational growth. It also plays a vital role in community development by offering programs and initiatives that benefit the local population.

5. Yadravkar industries

Yadravkar industries private limited is involved in activities such as manufacture of sugar, wholesale dealer of edible oils, fats, sugar and processed/manufactured spices etc.

6. Wipro Pari



Precision Automation & Robotics India Private Limited (PARI) is one of the largest global automation companies with strength of 1300+ employees and multiple facilities worldwide, with its headquarters in Pune, India.

Wipro Infrastructure Engineering (WIN), a business of Wipro Enterprises (P) Limited, set up its automation business in 2018 as a solutions provider for Industrial Automation. It acquired PARI in 2021 to become Wipro PARI. Wipro PARI is committed to utilize its expertise and resources to bring the best solutions in automation and robotics to its customers. The industry through its global reach and technical prowess, offer a comprehensive slew of industrial automation solutions, including turnkey physical automation projects and digital factory initiatives. Wipro PARI has demonstrated expertise in complex, multi-axis high-speed motion and precision positioning technologies with various robotic configurations. These include gantries, robotic systems, floor automation solutions, and motion modules.

7. Samarthan Systems Pvt. Ltd.

Samarthan Systems Pvt. Ltd. established in 1997, deals with Robotics integration, special purpose machine, conveyors, mineral water plants, compressor utility systems, Turnkey projects and control panels. The company exhibits technical competence to be a complete “Solution Provider” from conceptualizing, Designing, Manufacturing and Implementation. The company strives to support advanced factory automation solutions which enhances productivity and save time. The manufacturing process at Samarthan system leverages on the best engineering practices endowed with vast industrial experience and team of qualified engineers.

8. A. G. Enterprises

A.G. Enterprises is a professionally managed business group geared ourselves to meet the modern-day challenges with a zeal to work. The company is one of the leading high precision machine shops in Pune with facilities to machine small, medium and large precision components. Their customer profile includes large infrastructure providers such as heavy duty turbocharged diesel and gas engines, wind power turbines, valves manufacturers, leading auto OEM’s etc., both in the domestic and overseas markets.

9. Nexus Technocraft Automation and Solutions

Founded in 2010, Nexus Technocrafts Automation & Solutions Pvt. Ltd. (NTC) specializes in advanced automation and robotics, delivering customized solutions that optimize production, enhance efficiency, and improve productivity. NTC is a total solution provider with turnkey project execution. The company undertake assembly line automation, vision inspection system, robotics, hot plate welding machine, heat staking machines, heat insertion machines, special purpose machines, end of line testing machines, industry 4.0 & industrial IOT, traceability software installation etc. Trusted worldwide, NTC combines precision, reliability, and innovation to empower businesses to thrive in an evolving industrial landscape.

10. Wibro Feed Tech & Automation Centre Pvt. Ltd.

Wibro Feed Tech & Automation Centre provides automation solutions for industrial production, assembly, testing etc. The company deals with all kinds of SPM'S & feeders and assembly solutions to meet the production requirements in the industry. The company also supplies spares and support for part feeding, loading, handling etc. The company has invested heavily in in-house manufacturing facilities. In addition, the company is well equipped with experts from different domains. Manufacture of machines, development, design, fabrication, testing etc., all is done under one roof to ensure timely delivery. Special care have been taken for the machines to be aesthetically appealing as well as intelligent enough to carry out the production job automatically with little human intervention. Some of the products in their portfolio includes, vibratory bowl feeder, linear feeder, rotary feeder, aluminum machined bowl, stock feeder, voltage regulator, frequency controller, reo controller, silencer hoods, spares- electromagnet, spring plates & foot mount, singling units, pick & place units etc. Automation solutions provided by the company results in the improvement of industrial quality, productivity as well as cost and time savings.

2. Expert Talks

Expert talks provide valuable insights, latest trends, and practical knowledge from industry leaders. They help attendees stay updated, enhance their skills, and explore new career opportunities, fostering professional growth and informed decision-making in their respective fields. Overall, the events promise to be an enriching experience, offering valuable knowledge and practical insights into a wide range of topics from leading professionals in their respective fields.

Sl. No.	Topic for Expert Talk	Resource person	Date	Audience	No. of beneficiaries
1	Recent trends in Embedded Systems	Mr. B.S. Patil, Director, Black Star Products, Mumbai	14-12-2024	SY	54
2	IoT and It's industrial applications	Mrs. Megha Patil, Senior Application Engineer, VI Solutions Pvt Ltd. Bangalore	04-01-2025	TY	61
3	Introduction to Quality Standards ISO 9001 and IATF 16949	Mr. Bhikaji Jagannath Sutar, Maurya Industries Kolhapur	06-01-2025	SY	60
4	Career Opportunities & Higher Studies in Abroad	Mr. Prajyot Kamalakar, Senior Cloud Network Engineer, Teradata, Pune.	18-01-2025	TY	64
5	Reverse Engineering (One Day Workshop)	Mr. Shivaraj Mahajan & Team, Reverse Minds LLP Belagavi	23-01-2025	TY	60
6	UPSC and MPSC Preparation Strategies	Mr. Avinash Naik, Administrative Officer, Nagar Parishad, Shirol and Ms. Priyanka Naik, GST Officer, Mumbai	29-01-2025	SY & TY	110
7	Entrepreneurship & IPR (One Day Workshop)	Mr. Harshawardhan Pandit, IIC Member, Shivaji University, Kolhapur	30-01-2025	SY & TY	105
8	Green Building Movement in India	Mr. Bhavesh Mehta, Core Committee Member, IGBC Mumbai Chapter	31-01-2025	TY	58
9	Industrial Automation	Mr. Akash Dongale, Owner, DS Automation, Kolhapur.	24-03-2025	SY	45
10	Industrial Safety and Entrepreneurship	Mr. Mahesh Pujari, Ex - Safety Manager, FIAT Pune.	25-03-2025	TY	60

Glimpses of Expert Talks

3. Automation and Robotics Engineering Student Association, (ARESA) Activities

Events Organized:

Events	Name	Date	Competitions
1	INNOVATION 2K25	9th April 2025	1. Robo race 2. Robo soccer 3. E-cad mania
2	Sustainable development goals (SDG) and Awareness of Indian Knowledge System	17th April 2025	Poster presentation

INNOVATION 2K25

1. Robo Race:

Roborace events test the speed, agility, and decision-making of robotic systems. These races often take place on real-world or specially designed circuits. Teams compete by programming the best-performing AI to handle dynamic race conditions. The event bridges the gap between motorsport and advanced engineering. Roborace inspires students, engineers, and tech enthusiasts worldwide. It represents a bold step toward the future of autonomous transportation.

Winners:

1st : Amey Borgave
2nd : Pratik Jadhav
3rd : Kaushal Patil

2. Robo-Soccer

RoboSoccer is an exciting robotics competition where teams design and program autonomous or remotely controlled robots to play soccer against each other. The event combines elements of mechanical design, electronics, artificial intelligence, and teamwork. Each robot is typically equipped with sensors, cameras, and motors that allow it to detect the ball, navigate the field, and make strategic moves. Matches are played on a miniature soccer field, with rules similar to real soccer, including goals, defense, and timed play. The objective is to outscore the opponent by showcasing precision control and smart decision-making. This event encourages innovation and hands-on learning among students and tech enthusiasts. Participants must apply principles of robotics, control systems, and coding to build competitive machines. RoboSoccer not only enhances technical skills but also promotes collaboration, problem-solving, and strategic thinking. It serves as a fun and educational platform for exploring the real-world applications of robotics in sports and automation. The thrilling nature of the matches, combined with the challenge of engineering a winning robot, makes RoboSoccer a highlight in many tech fests and competitions.

Winners:

1st : Pranav Mathpathi
2nd : Shreyas Patil
3rd : Abhinandan Magdum

3. E- CADMANIA

E-CADMania is a technical event focused on showcasing skills in electrical computer aided design using EPLAN software. EPLAN is a powerful tool used in electrical engineering for designing circuit diagrams, control panels, and wiring layouts with high precision and efficiency. In this event, participants are tasked with completing challenges such as creating schematic diagrams, panel layouts, or PLC wiring using EPLAN. The competition emphasizes speed, accuracy, and technical knowledge of electrical systems, offering a practical platform for students to demonstrate their proficiency in using industry- standard design tools. E-CADMania not only tests technical skills but also promotes awareness of modern automation and control technologies. It encourages students to develop hands-on expertise that is highly valued in industries like manufacturing, automation, and electrical engineering. The event bridges the gap between academic learning and industrial requirements, preparing participants for real-world applications. Through E-CADMania, students gain confidence in using professional tools and learn to solve complex electrical design problems efficiently, making it a valuable and engaging part of any engineering fest.

Winners:
1 st : Nikita Killedar
2 nd : Shreyas Patil
3 rd : Amey Borgave

Sustainable development goals (SDG) and Awareness of Indian Knowledge System (IKS)

The Indian Knowledge Systems (IKS) comprise of Jnan, Vignan, and Jeevan Darshan that have evolved out of experience, observation, experimentation, and rigorous analysis. This tradition of validating and putting into practice has impacted our education, arts, administration, law, justice, health, manufacturing, and commerce. This has influenced classical and other languages of India that were transmitted through textual, oral, and artistic traditions. “Knowledge of India” in this sense includes knowledge from ancient India and, its successes and challenges, and a sense of India’s future aspirations specific to education, health, environment and indeed all aspects of life. It is important that we regain the comprehensive knowledge system of our heritage and demonstrate the ‘Indian way’ of doing things to the world. This requires training generations of scholars who will demonstrate and exemplify to the world a way of life so unique and peculiar to our great civilization.

With this objective of creating an awareness of IKS to imbibe and exemplify the rich cultural heritage, Automation and Robotics conducted a poster presentation on 17/04/2025. The event witnessed enthusiastic participation from students.

Objective of IKS programme:
• Cultivate a deep appreciation for India's heritage, encouraging students to actively engage with and live their traditions.
• Instill traditional values like empathy, integrity, and respect in everyday learning, shaping compassionate and wise leaders.
• Promote sustainable living practices rooted in indigenous knowledge for a lifestyle aligned with nature.
• Encourage creative problem-solving by blending ancient wisdom with modern ideas, fostering innovation rooted in cultural heritage.

INNOVATION 2K25-

Glimpses of the event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Sustainable development goals (SDG) and Awareness of Indian knowledge system-

Glimpses of the event


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4. Value added Programmes (VAPs):

Following is the summary of the programmes conducted:

Sl. No.	Expert details & Affiliation	Name of Topic	Class	Date of conduction	# of beneficiaries
1	Ravindra Thorat, Infinite Graphix Technologies Pvt. Ltd.	E Plan Software	48h	20-01-2025 to 25-01-2025	45
2	Mr. Yash Chavan, Mr. Nilesh Bavadhankar, LogiBit Technologies Pvt. Ltd. Kolhapur	Python Programming and Data Analysis	48h	27-01-2025 to 01-02-2025	49
3	Akash Dongale, D. S. Automation Pvt. Ltd. Kolhapur.	Industrial Automation using SCADA	48h	27-03-2025 to 04-04-2025	46

VAP-1: E Plan Software

The program was conducted by Infinite Graphix Technologies Private Limited, Kolhapur. The resources persons were Mr. Yash Chavan and Mr. Nilesh Bavadhankar. The program was organized under the auspices of IIC and organized by Department of Automation and Robotics. The total duration of the session was 48 hours.

EPLAN is a software package for CAE and CAD solutions for electrical, automation projects. The software package incorporate a CAE solution for the design, documentation and management of electrical automation projects, a CAD and CAE solution for the design and documentation of cable harnesses, a CAE solution for the automated design and documentation of circuits of fluid power plants in hydraulics, pneumatics, cooling and lubrication, and a CAE solution for 3D engineering of control cabinets and switchgear systems. EPLAN Data Portal allows online access to electronic product catalogues by numerous component manufacturers and the transfer of the components offered to the EPLAN documentation via drag & drop. The Value Addition Program on “E PLAN SOFTWARE” aims to improve the technical and practical knowledge of students.

The program was planned to provide the following skills:

1. To improve the team building ability necessary in the execution of major projects
2. To provide hands on experience on E Plan Software
3. Ability for coding in Python for automation
4. Programming and development of small robots like line following robot, autonomous robot, Human counter robot etc.


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VAP-2: Python Programming and Data Analysis

The program was conducted by LogiBit Technologies Pvt. Ltd. Kolhapur. The resource persons were Mr. Yash Chavan and Mr. Nilesh Bavadhankar. The program was conducted under the auspices of IIC and organized by Department of Automation and Robotics. The program aims to equip the students updated with industrial technical knowhow and practice by employing experts from industry as resource persons. The total duration of the session was 48 hours.

Python has emerged as a preferred tool for data analysis due to its simplicity, versatility, and many open-source libraries. With its intuitive syntax and large online community, Python enables both beginners and experts to perform complex data analysis tasks efficiently. Libraries such as pandas, NumPy, and Matplotlib make this possible by providing essential functionalities for all aspects of the data analysis process. The pandas library simplifies the process of working with structured data (e.g. tabular data, time series). NumPy, which is used for scientific computing in Python, provides powerful array objects and functions for numerical operations. It is essential for the mathematical computations involved in data analysis. It's particularly useful for working with Big Data, as it is very efficient. Matplotlib is a comprehensive library for creating visualizations in Python; it facilitates the exploration and communication of data insights. In addition to the sessions on coding in Python, the programme elaborately covered the steps in data processing with illustrative examples such as:

Data cleaning:
This involves cleaning the data to remove errors and correct inaccuracies that may affect the results.
Preprocessing:
Here you must convert the data into formats appropriate for performing data analytic tasks with Python.
Manipulation:
This involves implementing ML models to gain the desired results.
Data visualization:
Here you'll convert your valuable insights into understandable charts, graphics, maps, and more.

VAP-3 Industrial Automation using SCADA

The program was organized by Dept. of Automation and Robotics under the auspices of IIC and conducted by D. S. Automation Pvt. Ltd. Kolhapur. Mr. Yash Chavan and Mr. Nilesh Bavadhankar were the resource persons who handled the sessions. A total of 46 students registered and attended the course. The total duration of the session was 48 hours.

SCADA refers to the combination of telemetry and data acquisition. It encompasses collecting information, transferring it back to the central site, carrying out any necessary analysis and control, and then displaying that information on a number of operator screens or displays. The required control actions are then conveyed back to the process

A SCADA system consists of a number of remote terminal units (RTUs) collecting field data and sending that data back to a master station (HMI), via a communication system. The master station displays the acquired data and allows the operator to perform remote control tasks. In modern manufacturing and industrial processes, telemetry is often needed to connect equipment and systems separated by large distances. This can

range from a few meters to thousands of kilometers. Telemetry is used to send commands and programs, and receives monitoring information from these remote locations.

A SCADA application has two elements:
1. The process/system/machinery you want to monitor a control – this can be a power plant, a water system, a network, a system of traffic lights, or anything else.
2. A network of intelligent devices that interfaces with the machinery process and system through sensors and control outputs. This network, which is the SCADA system, gives you the ability to measure and control specific elements of machinery process and system.

A SCADA system performs the following four functions:

1. Data acquisition
2. Networked data communication
3. Data presentation
4. Control

These functions are performed by four kinds of SCADA components:
1. Sensors (either digital or analog) and control relays – These directly interface with the managed system.
2. Remote telemetry units (RTUs) – These are small computerized units deployed in the field at specific sites and locations. They serve as local collection points for gathering reports from sensors and delivering commands to control relays.
3. SCADA master units or HMI – These are larger computer consoles that serve as the central processor for the SCADA system. Master units provide a human interface to the system and automatically regulate the managed system in response to sensor inputs.
4. The communications network – It connects the SCADA master unit to the RTUs in the field.


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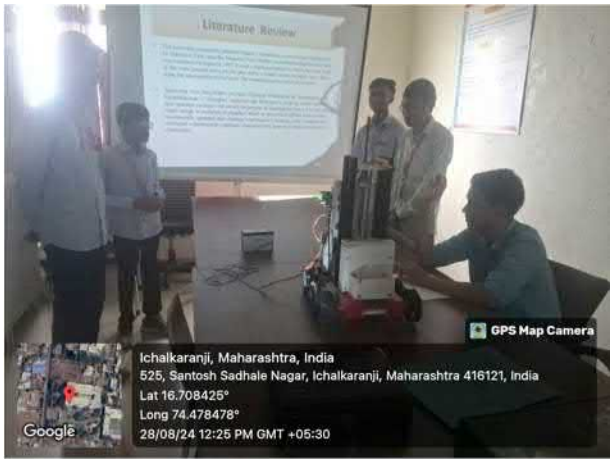
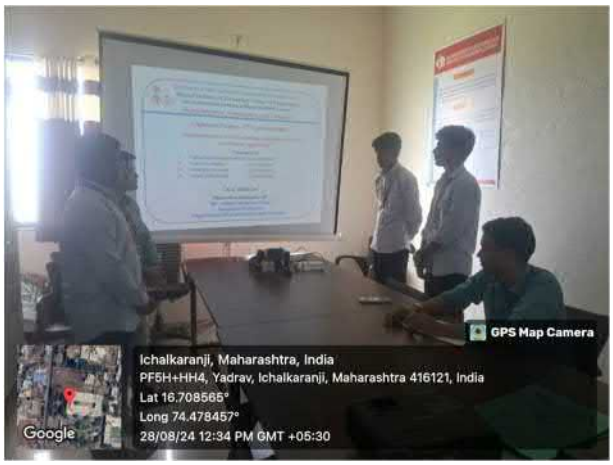
5. Project based learning

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Circuit Diagram
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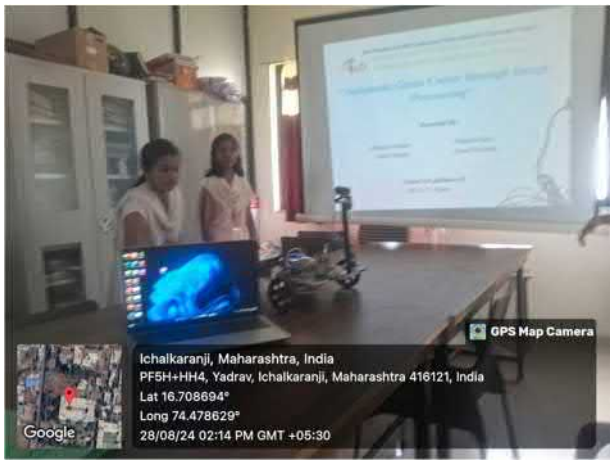
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GPS Map Camera
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Long 74.478456°
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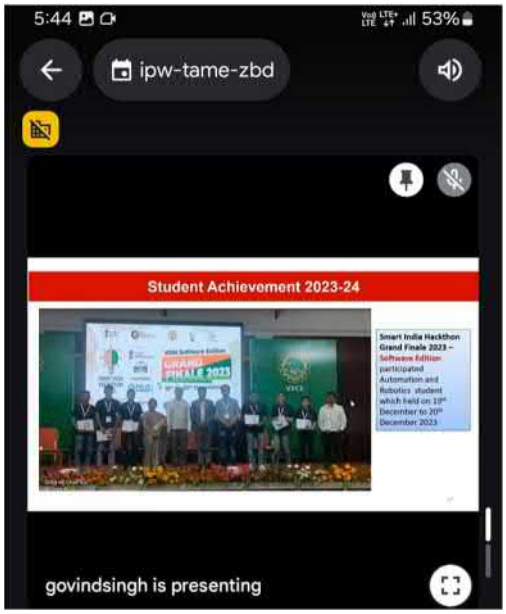
6. Students Achievements

S. No.	Name of the student	Name of event	Event type	Date of event	Institute	Level	Position
1	Sandhya Ganesh Kadam	Mind Spark 2K25	Paper presentation	29-03-2025	SITCOE, Ichalkaranji	College	First
2	Aniruddha A. Jarandikar	DIGIFEST 2025	Ideas in Motion	04-04-2025	NIT, Kolapur	National	First
3	Satej Ingale	Mind Spark 2K25	Reel Making	29-03-2025	SITCOE, Ichalkaranji	College	First
4	Aniruddha A. Jarandikar	Innovation 2K25	Paper presentation	09-04-2025	SITCOE, Ichalkaranji	National	Second
5	Aniruddha A. Jarandikar	Innovation 2K25	Paper presentation	09-04-2025	SITCOE, Ichalkaranji	National	Second
6	Shravani M. Kothale	Mind Spark 2K25	Paper presentation	29-03-2025	SITCOE, Ichalkaranji	College	Third
7	Samruddhi P. Awalekar	Mind Spark 2K25	Paper presentation	29-03-2025	SITCOE, Ichalkaranji	College	Third
8	Madhura Gurav	Tech Venure	Decode Play	28-03-2025	SITCOE, Ichalkaranji	College	First
9	Madhura Gurav	Innovation 2K25	Paper presentation	09-04-2025	SITCOE, Ichalkaranji	National	Third

7. DAAB, BOS Meeting

For improvement in quality of the curriculum as well as the quality of students, Department Accreditation Advisory Board (DAAB) and Board of Studies (BOS) is conducted in every semester. The Department Accreditation Advisory Board consists of expert from industry, experienced academician from different colleges and the faculty of the department.

Glimpses of DAAB Meeting:



8. Faculty Achievements:

Award of Ph.D. degree to Mr. Sujit V. Kumbhar

Mr. Sujit V. Kumbhar has successfully defended his thesis on "Experimental Investigations of Spark Ignition Engine uses Ethanol Blends with different operating conditions" on 21/03/2025. He has carried out his Ph.D. programme in Mechanical Engineering under the guidance of Dr. Sanjay A. Khot, Principal.

❍Research publications:

Sl. No.	Title of the paper	Authors	Journal	Date
1	The Role of composite material in Electric Vehicle: enhancements in performance safety and efficiency	Dr. Govind S Patel	Journal of polymer and Composites	Feb 2025
2	Advancements in polymer composites for Hybrid electric vehicles: market potential and future directions	Dr. Govind S Patel	Journal of polymer and Composites	Jan 2025
3	Web 3.0 Technologies in Education, Innovation and Research	Govind Singh Patel, Janmenjay Desai, Rushikesh Dandage, Ashish A Desai	Indian Journal of Technical Education, Vol. 47, Issue 1,	Aug 2024
4	Design and Development of Robotic Grippers for Safety Manipulating Medical Tools, with Enhancing Precision in Healthcare Procedures	Revati Madake, Alfija Tambat, Sanskruti Pujari, Govind S. Patel	Indian Journal of Technical Education, Vol. 47, Issue 1	Aug 2024
5	Innovations and Challenges in Laser Beam Machining of Hybrid Fiber Reinforcement Polymer Composites: A Critical Review	A.A. Desai, S.N. Khan	Indian Journal of Technical Education, Vol. 47, Issue 1	Aug 2024
6	A review on potential alternative fuels and blending with petrol for spark ignition engines	S.V. Kumbhar	Indian Journal of Technical Education, Vol. 47, Issue 1	Aug 2024
7	A systematic review on weighing, packaging, dispensing and sorting techniques using Machine learning algorithm in Automation Industry	S.V. Kumbhar	Indian Journal of Technical Education, Vol. 47, Issue 1	Aug 2024
8	Analysis of CSVCO with different low power technique for improved performance of PLL	Kalaka Annamma, Sobhit Saxena, G. S. Patel	Journal of technology	Sep 2024
9	Multi-objective optimization of laser machining parameters for carbon-glass reinforced hybrid composites: Integrating gray relational analysis, regression, and ANN	A. A. Desai , S.N. Khan, Pooja Bagane, Sagar Dnyandev Patil	MethodsX	Nov 2024
10	Optimizing Nd: YAG laser cutting of carbon fiber reinforcing polymer with newly developed resin using Taguchi-GRA approach and machine learning integration	A. A. Desai, Subim Khan	Multidiscipline Modeling in Materials and Structures, ISSN: 1573-6105	Sep 2024
11	Design and Development of Robotic	Revati Madake, Alfija	Indian Journal of Technical	Aug 2024

	Grippers for Safety Manipulating Medical Tools, with Enhancing Precision in Healthcare Procedures	Tambat, Sanskruti Pujari, Govind S. Patel	Education	
12	Multi-objective optimization of laser machining parameters for carbon-glass reinforced hybrid composites: Integrating gray relational analysis, regression, and ANN	A. A. Desai, S.N. Khan, Pooja Bagane, Sagar Dnyandev Patil	MethodsX	Nov 2024
13	The Role of Composite Materials in Electric Vehicles: Enhancements in Performance, Safety, and Efficiency	Sunil Kumar Gupta, Babita Jain, Govind Singh Patel, Atul Kumar, Ashish Raj	STM Journals- An imprint of Consortium E-learning network Pvt. Ltd.	Jan 20fs25

❍Book/ Book Chapters:

Sl. No.	Title of the Book/Book Chapter	Authors	Publisher	Date
1	Basic of time series and forecasting for healthcare (Ch.)- Analysis and forecasting experiment on health care time series (Book)	G. S. Patel	LPU	Aug 2024
2	ARMA and ARIMA process for forecasting (Ch.)- Analysis and forecasting experiment on health care time series (Book)	G. S. Patel	LPU	Aug 2024
3	Modeling and forecasting of healthcare expenditure using different time series analysis (Ch.)- Analysis and forecasting experiment on health care time series (Book)	G. S. Patel	LPU	Aug 2024
4	Sustainable Wind Energy: Optimizing Hybrid Fiber (Ch.)-Reinforced Polymer (FRP) Materials and Innovative Blade Design for Enhanced Efficiency-IoT Potential for Green Energy Solutions (Book)	G. S. Patel	LPU	Aug 2024
5	Analysis and forecasting experiment on health care time series (Book)	G. S. Patel	LPU	Aug 2024
6	Sustainable Wind Energy: Optimizing Hybrid Fiber (Ch.)-Reinforced Polymer (FRP) Materials and Innovative Blade Design for Enhanced Efficiency-IoT Potential for Green Energy Solutions (Book)	A. A. Desai, S. N. Khan	Apple Academic Press	Apr 2025
7	Commercial Fleet Sustainability: IoT Tracking Progress with Environmental Monitoring (Ch.)-IoT Potential for Green Energy Solutions (Book)	A. A. Desai, G. S. Patel, S. B. Herwade, G. V. Pujari, V. S. Hajare	Apple Academic Press	Apr 2025
8	The Role of Internet of Things (IoT) in Hybrid and Renewable Energy Systems (Ch.) - IoT Potential for Green Energy Solutions	S. V. Kumbhar, Sanjay Khot	Apple Academic Press	Apr 2025
9	IoT-Enabled Energy Monitoring and Management Systems (Ch.) -IoT Potential for Green Energy Solutions (Book)	S. V. Kumbhar, G. S. Patel, Pratap Singh Chougule, Yogesh Kamble	Apple Academic Press	Apr 2025

❍Intellectual property:

Sl. No.	Title	Authors	Type
1	Advanced thermal management system for enhanced battery performance and longevity in electric vehicles	Poornima University, Jaipur, Ashish Raj, Sunil Kumar Chaudhary, **Govind Singh Patel**, Atul Kumar, Sunil Kumar Gupta	Indian patent, App. No. 202511005450 07/02/2025

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