



Centre of Excellence for Youth Development

Supported By Bharat Forge

Annual Report- Year-2025-26

Content			
S. No	Name of Activity	Date	Page No.
1.	Distinguished Delegation Visit Bharat Forge-Supported Centre of Excellence for Youth Development	20 th June 2025	04
2.	Visit of ATAL FDP Participants to Bharat Forge Ltd, Baramati under CoE initiative	27 th June 2025	06
3.	Submission of Letter for Registration of CoE as Section 8 Company	28 th June 2025	08
4.	Request for Quotations for Upgrading the AI, Machine & Deep Learning Lab, and IoT Lab	May-June-2025	09
5.	Call for Project Based Learning proposal for AY-2025-2026	04 th July 2025	10
6.	One day workshop on "Arduino Programming and Simulation	26 th July 2025	13
7.	Project Proposal Presentation	29 th -30 th July 2025	18
8.	Guest Visit – Tata IIS, Mumbai	31 st July 2025	20
9.	Visit of Students and Faculty Members from VP's Vasantao Pawar Law College, Baramati.	13 st August 2025	22
10.	Visit of IIT Bombay E-Yantra Team to CoE	16 th August 2025	25
11.	Celebration of World Entrepreneurs Day	21 st August 2025	29
12.	One-Day Workshop for Electrical Engineering Students- Arduino Programming and Simulation	23 rd August 2025	33
13.	One-Day Workshop for Electrical Engineering Students	26 th August 2025	36
14.	Workshop- Innovation in Research Projects	03 rd Sept. 2025	42
15.	Visit of Bharat Forge Officials to Centre of Excellence (CoE)	10 th Sept. 2025	45
16.	MoU Collaboration with Fire Bird VR Pvt. Ltd., Pune	11 th October 2025	48
17.	Expert Session on “Emerging Technologies and Future Prospects”	30 th October 2025	50
18.	Teacher Training Program for Cyrus Poonawala on AI	01 st – 30 th November 2025	52

S. No	Name of Activity	Date	Page No.
19.	AR/VR Bootcamp	03 rd - 08 th November	60
20.	Six Months Internship Program on “Embedded System” from Vector India	January-June 2026	65
21.	Skill Development workshop on “Workflow automation and AI Agents” using n8n	10 th January 2026 (Batch-01) and 24 th January 2026 (Batch-02)	67
22.	CoE Outreach Activities (VP’s Supe Arts Science and Commerce College, Supe)	19 th January 2026	79
23.	CoE Outreach Activities (VP’s New English Medium School, Baramati)	03 rd February 2026	85
24.	Expert session on “AI Tools – Hands-on Techniques for Educators	14 th March 2026	92
25.	Major Outcomes		96
26.	Direct Beneficiaries and Indirect Beneficiaries		156-157

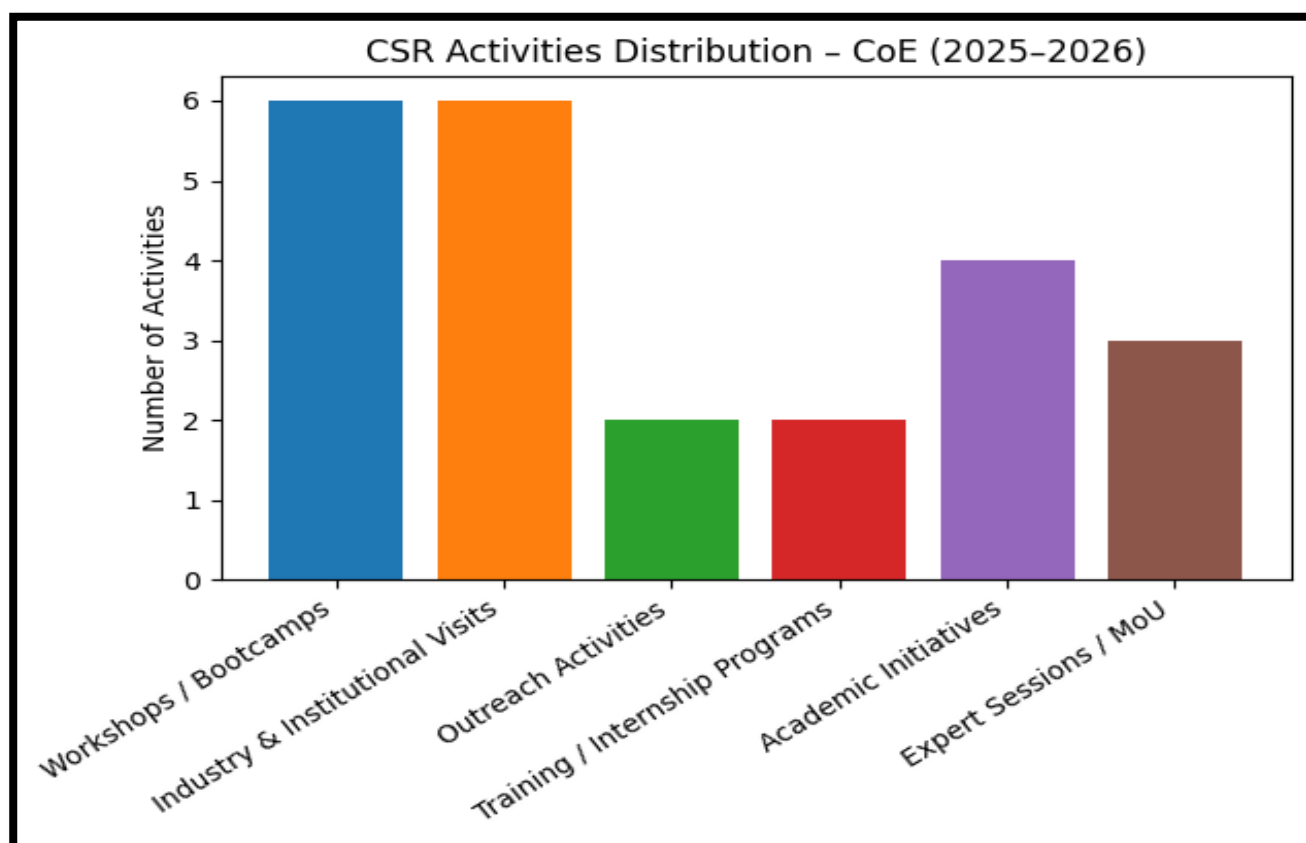


Figure-1: Activity-wise distribution of programs conducted under the Bharat Forge supported Centre of Excellence (2025–2026).

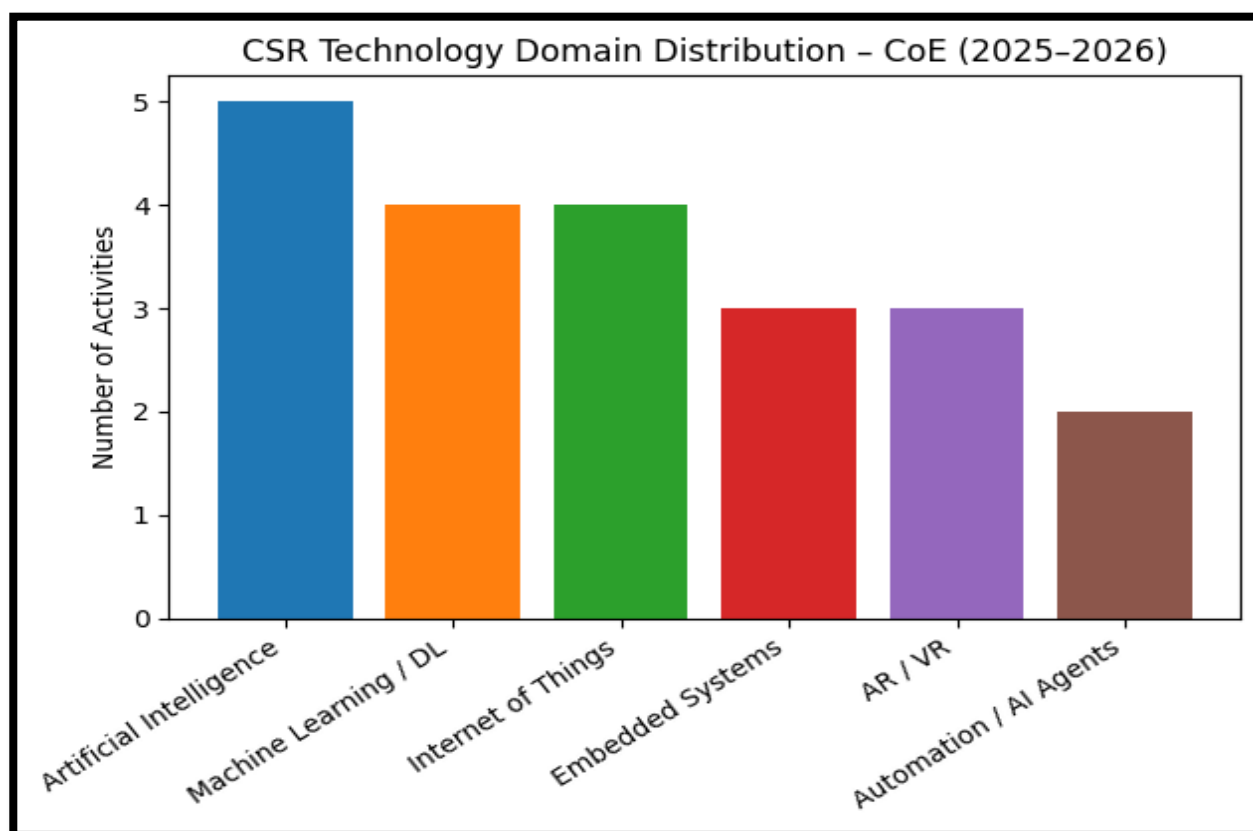


Figure-2: Technology domain-wise distribution of training and innovation activities conducted under the CoE initiative.

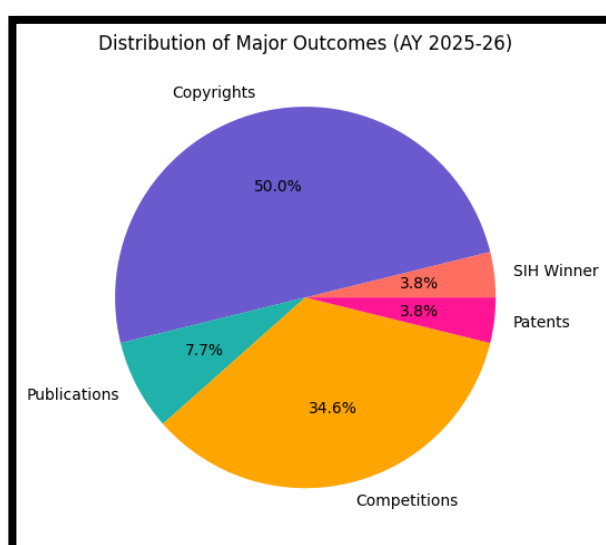


Figure-3: Outcomes from project executed during AY-2025-26

Activity-01	Distinguished Delegation Visit Bharat Forge-Supported Centre of Excellence for Youth Development
Date:	20/06/2025

On June 20th, 2025, a distinguished delegation comprising leading researchers and scientists visited the Bharat Forge-supported Centre of Excellence (CoE) for Youth Development. The delegation included Dr. Lav Khot and Dr. Ananth Kalyanaraman from Washington State University (USA), Dr. Narendra Shah, Secretary of the Rajiv Gandhi Science and Technology Commission (Government of Maharashtra), experts from the Centre for Technology Alternatives for Rural Areas (CTARA), the Technology Innovation Hub (TIH) at IIT Bombay, and scientists from ICAR.

Dr. Jyoti Rangole, Head of the CoE, along with Ms. Komal Gaikwad, Coordinator, welcomed the guests and presented a comprehensive overview of the Centre's journey and achievements over the past two years. The session featured a video presentation highlighting key student-driven projects and their measurable impacts. The presentation encompassed:

1. **Vision, Mission, and Objectives** of the Centre
2. **State-of-the-Art Lab Infrastructure and Resources**
3. **Key Activities**, including Project-Based Learning, Innovation Workshops, Training Programs, and IPR & Start-up Awareness
4. **Outcomes**, emphasizing research output, innovation nurturing, and youth engagement
5. **Future Roadmap** outlining collaborative initiatives and expansion strategies

The visiting experts appreciated the efforts and outcomes showcased. Dr. Narendra Shah commended the Centre's impactful work and praised the dedication of the CoE team. Experts from TIH-IIT Bombay and Dr. Shah noted that the facilities and the quality of innovation work at the Centre are comparable to those found in premier institutes like IITs and NITs.

During the interactive session, Dr. Ananth Kalyanaraman emphasized the integration of an **Ethics in Research** module, especially for student projects in areas like Animal Husbandry. Dr. Narendra Shah suggested that the CoE could adopt **problem statements from innovation challenges conducted by IITs**, fostering real-world problem-solving skills among students.

Dr. Jyoti Rangole effectively addressed the queries from the delegation, offering insights into the Centre's operational framework and future directions. She also encouraged collaborative ventures with the visiting experts to further enhance research and innovation.

The visit concluded on a highly positive note, with strong encouragement and a shared vision for future collaboration in research, innovation, and youth-centric development.



Activity-02	Visit of ATAL FDP Participants to Bharat Forge Ltd, Baramati under CoE initiative
Date:	27/06/2025

As part of the AICTE Training and Learning (ATAL) Faculty Development Program (FDP) titled “*Bridging Academia and Industry: Future Skills in Digital Manufacturing & Automation*,” a visit to Bharat Forge Limited, located in the Maharashtra Industrial Development Corporation (MIDC) area, Baramati, was organized by the **Center of Excellence (CoE) at Vidya Pratishthan’s Kamalnayan Bajaj Institute of Engineering and Technology (VPKBIET), Baramati**, with the support of Bharat Forge. The visit aimed to provide FDP participants with valuable exposure to real-world applications of digital manufacturing and automation technologies. During the visit, participants explored Bharat Forge’s state-of-the-art smart manufacturing line and gained firsthand insights into the highly automated and data-driven processes involved in the production of crankshafts for various automotive and industrial applications.





The plant showcased advanced technologies such as IoT-enabled monitoring systems, robotics, automated material handling units, and predictive maintenance frameworks. This visit served as a significant step in bridging the gap between academic learning and industrial practices, equipping educators with knowledge and experiences that can be translated into enhanced teaching methodologies aligned with Industry 4.0 standards.

Activity-03	Submission of Letter for Registration of CoE as Section-8 Company
Date:	28/06/2025

A formal letter has been submitted to the Secretary, Vidya Pratishthan, Baramati, requesting approval for registering the existing Centre of Excellence (CoE) at VPKBIET as a **Section 8 Company**.

This registration is crucial for enabling the CoE to:

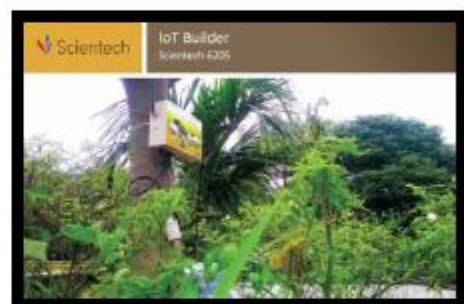
- **Access major national and state-level government funding**, including schemes like Atal Incubation Centres (AIC), NIDHI-TBI (DST), and the Startup India Seed Fund Scheme (SISFS).
- **Operate independently and professionally** as a non-profit entity focused on research, innovation, and entrepreneurship.
- **Build strong partnerships** with government bodies, industries, and academia.
- **Promote innovation-driven entrepreneurship**, especially among students and startups in rural and semi-urban regions.
- **Ensure long-term sustainability and scalability** of the CoE through diversified funding and collaborative projects.

Registering the CoE as a Section 8 Company will significantly strengthen its future growth, impact, and contribution to youth-led innovation and development.

Activity-04	Request for Quotations for Upgrading the AI, Machine & Deep Learning Lab and IoT Lab
Date:	May-June-2025

We have invited sealed quotations from reputed vendors for the supply, installation, and commissioning of equipment and software required for upgrading the following laboratories:

- 1.Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning Lab**
- 2.Internet of Things (IoT) and Raspberry pi Lab**



Activity-05	Call for Project Based Learning proposal for AY-2025-2026
Date:	04/07/2025

S. No.	Project Title	Students and Branch
1.	Vidhisar: Insights of Legal Document – A Multilingual Resource	Nikita Bhapkar (BE IT); Mrudula Amrutrao (BE IT); Archita Dabholkar (BE IT); Vaishnavi Kumbhar (BE IT)
2.	Building a Digital Bridge Between Socially Conscious Citizens and NGOs via Volunteer Engagement and Task Management	Subhashita Jagtap (TE Comp); Arpita Harihar (TE Comp); Samruddhi Kadam (TE Comp); Shravani Dhamane (TE Comp); Harshada Kaldate (TE Comp)
3.	Lakshya: Detecting Target from Hate Speech for Indian Language	Bhaghawan Laukik (BE IT); Rushikesh Wakade (BE IT); Swamiraj Chavan (BE IT)
4.	JalRakshak: A Smart Flood Disaster Management and Community Alert System	Rania Sanadi (TE Comp); Samarth Mantri (TE Comp); Onkar Patil (TE Comp); Mandar Wagh (SE Comp); Mangesh Igave (SE Comp)
5.	AI-Powered Real-Time Stampede Detection and Alert Drone System	Aniket Saste (ENTC); Pratik Mhasawade (ENTC); Dhamal Niraj Arun (ENTC); Sairaj Kageru (AIDS); Vedika Kulthe (AIDS); Gauri Kulkarni (AIDS)
6.	Event Ticket Scalping Prevention System Using Blockchain and AI	Tejas Patil (IT); Sarthak Kulkarni (IT); Rohan Jadhav (IT); Pooja Shinde (IT)
7.	Secure Vault: An App for Smart Notes, Passwords and Task Management	Sneha Patil (Comp); Pratik Jadhav (Comp); Aditya Pawar (Comp); Kunal Shinde (Comp)
8.	Orion – AI Powered Research Agent	Akshay More (AIDS); Omkar Chavan (AIDS); Sagar Shinde (AIDS); Pranav Kulkarni (AIDS)
9.	BLACKHOLE.AI	Siddharth Patil (IT); Tanmay Deshmukh (IT); Harsh Jagtap (IT); Riya Pawar (IT)
10.	AI-Powered Signal Encryption and Decryption over SDR	Rohit Patil (ENTC); Sanket Chavan (ENTC); Pritam Jadhav (ENTC); Shubham Kulkarni (ENTC)

11.	SehatGuru – Your Smart Health Companion	Aishwarya Shinde (IT); Vaishnavi Patil (IT); Pooja Kulkarni (IT); Komal Jadhav (IT)
12.	SPAMURAI: Quantum Secure Application	Pratiksha Patil (Comp); Rutuja Shinde (Comp); Shruti Chavan (Comp); Anuja Kulkarni (Comp)
13.	Smart Surveillance System for Kumbh Mela Using YOLOv8 for Crowd Monitoring	Aniket Patil (AIDS); Sanket More (AIDS); Omkar Jadhav (AIDS); Sagar Patil (AIDS)
14.	Home Seva	Vaibhav Shinde (IT); Rohit Pawar (IT); Aditya Chavan (IT); Mayur Jadhav (IT)
15.	Microclimate Pocket Manager	Pooja Patil (ENTC); Rutuja Kulkarni (ENTC); Snehal Shinde (ENTC); Shraddha Jadhav (ENTC)
16.	ICU Patients Health Monitoring and Real-Time Alert System	Abhinav Dhakpade (TE AIDS); Sankalp Khatake (TE AIDS); Siddhi Jadhav (TE AIDS); Shreya Bhoite (TE AIDS); Vaishnavi Kirve (TE AIDS)
17.	VR Bharata: Immersive Indian Heritage in Virtual Reality	Amit Jadhav (TE ENTC); Abhishek Tiwari (TE ENTC)
18.	AI-Based Sugarcane Maturity Detection Using Image Processing on Raspberry Pi	Amisha Dhanawade (BE IT); Yash Gaikwad (BE IT); Pravin Rathod (BE IT); Megharaj Bhosale (BE IT); Pratik Mhasawade (TE ENTC)
19.	ECOCAP: A Cost-Effective Regenerable Sorbent Plate for CO₂ Capture in Inverter AC Outdoor Units	Rounak Thorat (SE ENTC); Poornima Yuvraj (TE ENTC); Shivendra Jagdale (TE ENTC); Sanjyot Dake (BE ENTC); Sakshi Taru (BE ENTC); Vaishnavi Ahiwale (BE ENTC)
20.	Smart Vision Assistance for the Visually Impaired Using YOLO-Based Object Detection and Scene Summarization	Sanika Sawale (BE IT); Pranali Karale (BE IT); Shruti Pawar (BE IT); Srushti Salunkhe (BE IT)
21.	Biomedical Signal Processing – Phonocardiogram	Tejal Raut (BE ENTC); Aditya Tanpure (BE ENTC); Shivani Sarade (BE ENTC)

22.	Audio Deepfake Detection	Sanjot Dake (BE ENTC); Aniket Bale (BE ENTC); Tejas Chaudhar (BE ENTC)
23.	Bidirectional Sign Language Translator Using Deep Learning	Gawade Onkar (BE IT); Todkar Om (BE IT); Kaithwas Shubham (BE IT); Ladkat Saurabh (BE IT)
24.	Intelligent In-Cabin Monitoring and Life-Support Intervention System	Gargi Wani (BE ENTC); Farida Sayyad (BE ENTC); Ugalkar (BE ENTC)
25.	VidyaSetu: The Bridge Between Learning and Liftoff	Janhavi Ghorpade (TE COMP); Sanika Gholap (TE COMP); Mansi Chotaliya (TE COMP); Aakanksha Patil (TE COMP); Shrushti Bhambare (TE COMP)
26.	IoT Based Announcement System	Aditya Mitkar (TE ENTC); Pranita Kalgaonakar (TE ENTC); Sanket Kumbhar (TE ENTC)
27.	Skin Cancer Detection Using FPGA Accelerator	Sakshi Khaire (BE ENTC); Sneha Patil (BE ENTC); Mahesh Akolkar (BE ENTC)
28.	AI-Powered Rural Electrical Fault Detection Drone	Mayur Karwa (TE ENTC); Aditya Bodake (TE ENTC); Yash Bhoite (TE ENTC); Sakshi Choudhar (TE ENTC); Sayali Jadhav (TE ENTC)
29.	Hostlight: AI Powered Hostel Automation System	Aditya Gaurav (BE AIDS); Parth Ambe (BE AIDS); Varad Bavdekar (BE AIDS); Ajay Parbhane (BE AIDS)

Activity-06	One day workshop on "Arduino Programming and Simulation"
Date:	26/07/2025

Organized by: BFL Center of Excellence (CoE)

Workshop Title: Arduino Programming and Simulation

Date of Workshop: 26/07/2025

Target Audience: Second Year Students – Department of Electronics and Telecommunication (E&TC)

Number of Participants: 28 Students

Duration: One Day (6 hours)

Venue: BFL Center of Excellence – Embedded Systems Lab

Fee Per Participant: 100 Rs. [Total = 28 * 100 = Rs. 2800]

Resource Persons: Dr. Jyoti Rangole and Prof. Komal Gaikwad

Introduction

In alignment with its vision to bridge the gap between academic knowledge and industry skill requirements, the **BFL Center of Excellence (CoE)** organized a one-day workshop titled “**Arduino Programming and Simulation**” for Second Year E&TC students. The purpose of the session was to introduce microcontroller programming fundamentals and train students in real-time simulation tools widely used in embedded system design.

Arduino, an open-source electronics platform, is an ideal tool for students and beginners to develop real-time applications in automation, IoT, and smart systems. This workshop focused on a hands-on approach where students could write code, simulate circuits, and understand how embedded systems function.

Objectives of the Workshop

The specific objectives of the workshop were:

- To understand the basic architecture of Arduino UNO and its working.
- To explore the Arduino Integrated Development Environment (IDE) for coding.
- To develop and simulate basic circuits using Arduino components.
- To encourage students to innovate and apply their learning in project development.

Workshop Content and Schedule

Time	Session	Content
10:00 AM	Inaugural & Introduction	Welcome note, overview of workshop objectives
10:30 AM – 12 PM	Session 1: Introduction to Arduino & IDE	Board layout, digital/analog pins, Arduino IDE installation & interface
12:00 PM – 1:30 PM	Session 2: Basic Programming and Interfacing	Writing code for LED blink, buzzer, sensors, serial monitor
1:30 PM – 2:15 PM	Lunch Break	
2:15 PM – 3:30 PM	Session 3: Circuit Simulation using Tinkercad	Creating virtual circuits, uploading code, real-time testing
3:30 PM – 4:30 PM		
4:30 PM – 5:00 PM	Feedback and Conclusion	Student feedback, distribution of participation certificates

Learning Outcomes

After successful completion of the workshop, students were able to:

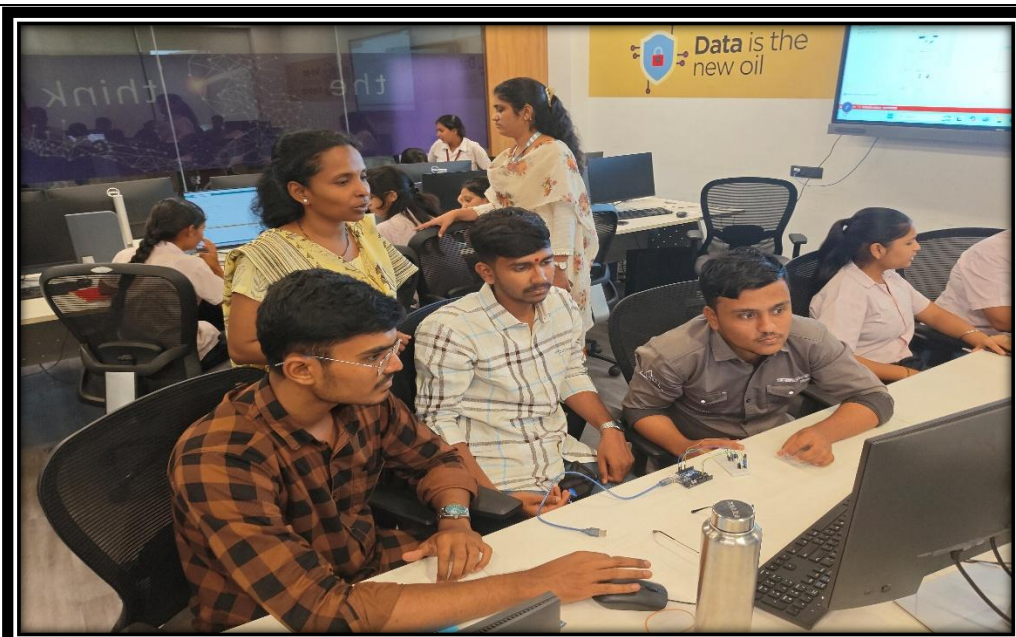
- Understand Arduino hardware and software fundamentals.
- Write and upload code for basic digital and analog operations.
- Create, simulate, and troubleshoot circuits virtually.
- Apply knowledge in mini-projects and coursework.

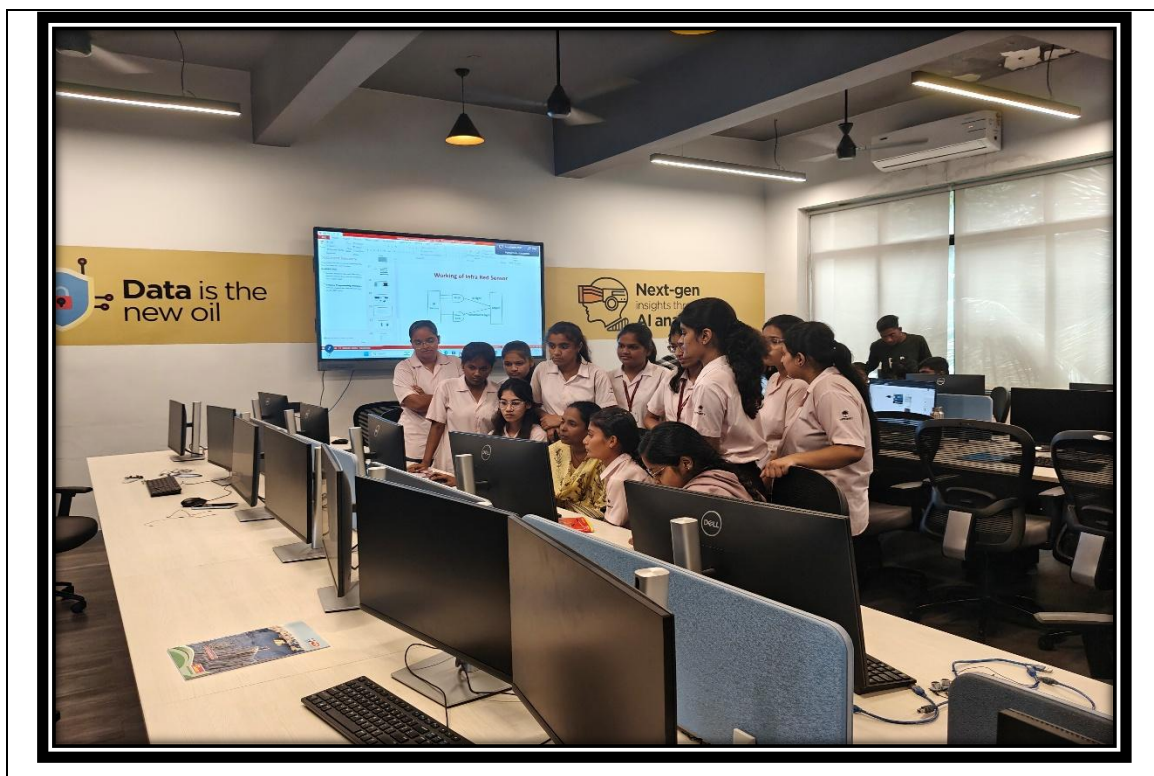
Feedback Summary

- **Engagement:** 95% students reported high engagement due to hands-on focus.
- **Relevance:** 90% felt that the workshop directly supports their academic and project work.
- **Satisfaction:** Overall workshop experience rated 4.6 out of 5.
- **Suggestions:** Students suggested conducting follow-up sessions on advanced sensors, wireless modules (like Bluetooth, Wi-Fi), and IoT-based projects.

Conclusion

- The one-day workshop on “Arduino Programming and Simulation” was a significant success, providing a foundational understanding of embedded systems and microcontroller programming to second-year E&TC students. The interactive and practical approach helped students gain confidence in developing their own circuits and understanding embedded logic.
- The BFL CoE is committed to providing such practical exposure to empower students with industry-relevant skills. More such sessions will be planned focusing on IoT, wireless communication, and project development in the upcoming semesters.





One Day Workshop on Arduino Programming and Simulation				
Organized by BFL CoE and E&TC Dept.				
SY ENTIC Student Transaction ID				
S. No	Name of the Student	Roll No	Mobile Number	Transaction ID
1	Kharat Prerana Bira	EN24102025	8080132932	108602210089
2	Nanaware kshitij Anil	EN24102036	9420442011	T2507251258492765846101
3	Adamile Shital Pandurang	EN24102001	7822947936	T2507251718191868517633
4	Khadake Sanket Laxman	EN24102024	7276149816	T2507251755124194217339
5	Pandkar Shravan Suresh	EN24102040	7020742296	T2507251945365478826888
6	Bobade rajendra karan	EN24102006	7385311052	T2507252033433969920278
7	Nikhil Kishor Barge	EN24102003	9359431831	T2507252107520873482969
8	Jambhale Saloni Ashok	EN241020202	9284635423	T2507252112438336780292
9	Mulla Arsiya Akbar	EN24102033	9730454419	T2507252150369366692875
10	Mongal Kayyum Munna	EN24102032	8855060043	T2507252213385339145773
11	Khartode Mansi sambhaji	EN24102026	8830218236	T2507260824510069677276
12	Dhamal Suhani Suresh	EN24102022	8390049112	T2507260908178099150928
13	Gade Sayali Dhiraj	EN24102012	9370241016	520757713150
14	Kachare Shubhangi somnath	EN24102021	8767428835	T2507260908207150927051
15	Avsare Shravni Bapu	EN24102002	8600155433	520720704638
16	INAMDAR TANMAY TUSHAR	EN24102018	9981995009	520780214319
17	Bhapkar Aanushk Laxman	EN24102004	9699603677	T2507260929550219723895
18	Mithare Shrenik Sachin	EN24102030	8767315934	T2507260933570078567391
19	Bhosale Rushikesh Laxman	EN24102005	9579552075	557390830463
20	Gaware Prathamesh Prakash	EN24102013	9822730780	108715420982
21	Doni Pratik Baburao	EN24102010	8956621862	520729819678
22	Hosing Swaraj Amarendra	EN24102017	7822823565	FMP1B2915853992
23	Malwade Shraddha Rhadaynath	EN24102029	7385066407	T2507261054137785568844
24	Gomsale Tanuja Kishorkumar	EN24102016	7972271272	T2507261052440894981178
25	Godse Vaishnavi Sunil	EN24102015	8793918728	T2507261053173573881914
26	Dixit Mandar Umesh	EN24102009	8468876603	T2507261058447335568122
27	Chavan Swaranjali Deepak	EN24102007	7218175232	T2507261547219986535218
28	Kathar sheetal Rajendra	EN24102023	9359981455	520715615590

One Day Workshop on Arduino Programming and Simulation

Organized by BFL CoE and E&TC Dept.

SY ENTC Student Attendance

Sr.No.	Name of the Student	Roll No	Signature
1	Kharat Prerana Bira	24102025	<u>Kharat</u>
2	Nanaware kshitij Anil	24102036	<u>Kshitij</u>
3	Adamile Shital Pandurang	24102001	<u>Shital</u>
4	Khadake Sanket Laxman	EN24102024	<u>Sanket</u>
5	Pandkar Shravan Suresh	EN24102040	<u>Shravan</u>
6	Bobade rajendra karan	EN24102006	<u>Rajendra</u>
7	Nikhil Kishor Barge	EN24102003	<u>Nikhil</u>
8	Jambhale Saloni Ashok	EN24102020	<u>Jambhale</u>
9	Mulla Arsiya Akbar	EN24102033	<u>Arsiya</u>
10	Mongal Kayyum Munna	EN24102032	<u>Kayyum</u>
11	Khartode Mansi sambhaji	EN24102026	<u>Mansi</u>
12	Dhamal Suhani Suresh	EN24102022	<u>Suhani</u>
13	Gade Sayali Dhiraj	EN24102012	<u>Sayali</u>
14	Kachare Shubhangi somnath	EN24102021	<u>Shubhangi</u>
15	Avsare Shravni Bapu	EN24102002	<u>Shravni</u>
16	INAMDAR TANMAY TUSHAR	EN24102018	<u>Tanmay</u>
17	Kathar Sheetal Rajendra	EN24102023	<u>Sheetal</u>
18	Godse Vaishnavi Sunil	24102015	<u>Godse</u>
19	Kulkarni Ajay Dhananjay	24102027	<u>Ajay</u>
20	Doni Pratik Baburao	24102010	<u>Pratik</u>
21	Mithare Shrenik Sachin	24102030	<u>Shrenik</u>
22	Chavan Swaranjali Deepak	24102007	<u>Swarnjali</u>
23	Gomsale Tanuja kishorkumar	24102016	<u>Tanuja</u>
24	Mahwade Shradha Rhadegadh	24102029	<u>S.R.Mahwade</u>
25	Dixit Mandar Umesh	EN24102009	<u>Mandar</u>
26	Rhosale Rushikesh Laxman	EN24102005	<u>Rushikesh</u>
27	Sharma Sandip Anand	EN24102017	<u>Sandip</u>
28	Baramati	EN24102004	<u>Acet</u>
29			



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Activity-07	Project Proposal Presentation
Date:	29th -30th /07/2025

Organized by: BFL Center of Excellence (CoE)

Date of Workshop: 29th -30th /07/2025

Number of Participants: 44 Groups (4-5 students in each group)

Duration: One Day (6 hours)

Venue: Conference Hall, BFL Center of Excellence

Resource Persons: Dr. Vipin B. Gawande, Dr. Parshuram Arotale

The *Centre of Excellence for Youth Development* at VPKBIET, Baramati successfully organized a **Project Proposal Presentation** session on **29-30th July 2025**. The primary objective of this session was to evaluate and guide innovative student project ideas across various emerging domains, thereby fostering a culture of applied research and problem-solving among youth.

A total of **around 45 student groups** actively participated in the presentation. These groups showcased their project proposals in technologically advanced and socially relevant domains such as:

- **Artificial Intelligence (AI)**
- **Internet of Things (IoT)**
- **Deep Learning**
- **Computer Vision**
- **Embedded Systems**
- **Automation and Control**

Each group presented their ideas in the form of a structured proposal that included a brief overview, problem statement, objectives, methodology, technology stack, and expected outcomes such as patents, research papers, or product development. Emphasis was also placed on **societal impact and industry relevance**.

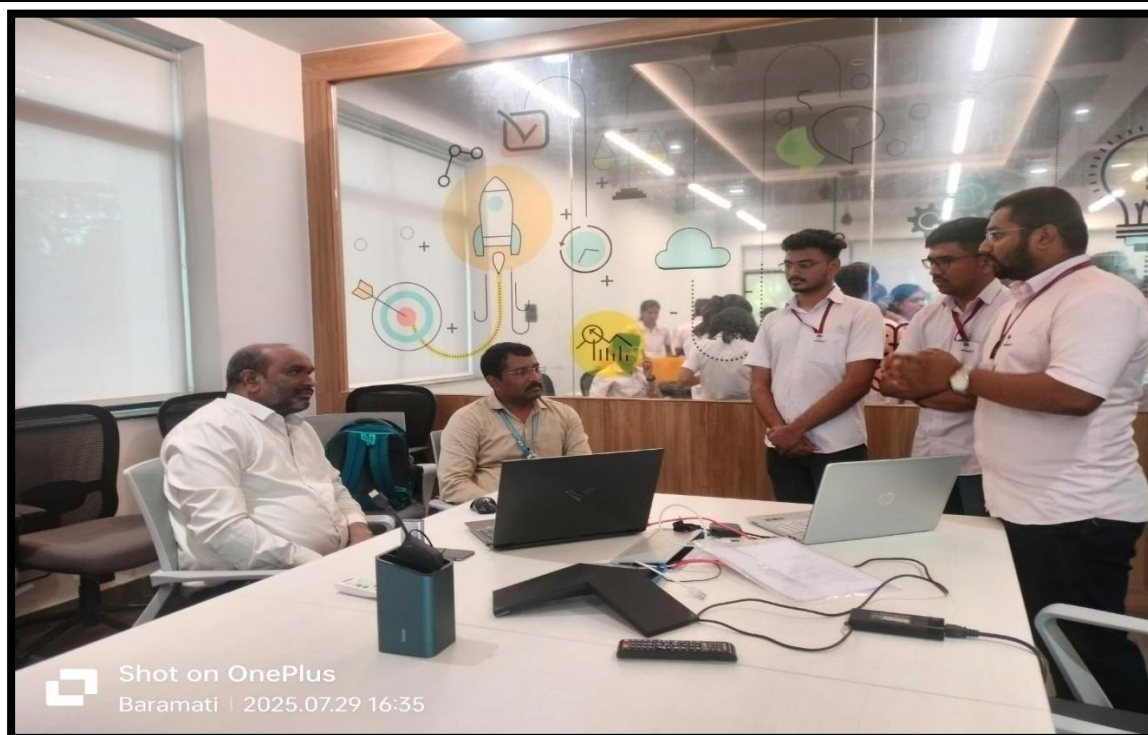
The evaluation panel for the event included:

- **Dr. Vipin B. Gawande**, Professor and Coordinator, CoE
- **Dr. Parshuram Arotale**, Research Expert and Faculty Mentor

Both examiners critically evaluated each proposal based on technical feasibility, originality, relevance, and clarity of thought. Constructive feedback and suggestions were provided to help teams refine and strengthen their project execution plans.

The event not only served as a platform for knowledge sharing and technical expression but also laid the groundwork for selecting proposals eligible for support under the “*Project Funded Scheme*” and future incubation through the Centre of Excellence.

Outcome: The session concluded with motivation to students for further improvements and final shortlisting of projects for funding, technical mentorship, and resource allocation under the Bharat Forge-supported CoE.



Activity-08	Guest Visit – Tata IIS, Mumbai
Date:	31/07/2025

Date: Thursday, 31st July 2025

Venue: Centre of Excellence for Youth Development

Supported by: Bharat Forge

On **31st July 2025 (Thursday)**, a distinguished team from **Tata Indian Institute of Skills (IIS), Mumbai** visited the **Centre of Excellence for Youth Development**, established under the support of **Bharat Forge**, at our institute.

Objective of the Visit:

The primary objective of the visit was to understand the functioning, training activities, and student engagement model of the Centre of Excellence, with a focus on skill-based learning and innovation-driven youth programs. The visit also aimed at exploring potential collaboration opportunities for skill development and project-based learning in line with national skill development goals.

Visiting Delegates:

The visiting team from Tata IIS, Mumbai included:

- Senior officials from the academic and outreach departments
- Industry liaison officers
- Technical experts involved in skill training and vocational program development

Key Highlights of the Visit:

- **Welcome and Introduction:** The team was formally welcomed by the CoE coordinator and faculty representatives. A brief presentation was made showcasing the vision, mission, and outcomes of the Centre of Excellence for Youth Development.
- **Lab Tour and Demonstrations:** Delegates were given a guided tour of the CoE facilities including labs related to **AI, IoT, Automation, 3D Printing, AR/VR, and Drone Technologies**.

- **CoE Presentation:** Head CoE, Dr. Vipin B. Gawande and Dr. Jyoti Rangole has given presentation to the delegates regarding functioning of CoE.
- **Feedback and Discussion:** The visiting team appreciated the infrastructure, student enthusiasm, and hands-on learning ecosystem developed at the centre. They also provided valuable suggestions for strengthening industry-linked programs and integrating Tata IIS training modules.

Outcome and Way Forward:

- The visit opened avenues for **collaborative programs**, such as joint certifications, training modules, and student internships.
- Possibility of faculty training sessions by Tata IIS experts was also discussed.

Conclusion:

The visit by Tata IIS, Mumbai was highly successful and encouraging. It highlighted the alignment of our Centre of Excellence's objectives with national-level skill enhancement missions. The insights shared by the visiting delegates will further help in enriching the centre's offerings and scaling the impact on student development.

Activity-09	Visit of Students and Faculty Members from VP's Vasantao Pawar Law College, Baramati
Date:	13/08/2025

Date: Wednesday, 13th August 2025

Venue: Centre of Excellence for Youth Development

Supported by: Bharat Forge

On 13th August 2025, a group of 25 students and faculty members from VP's Vasantao Pawar Law College, Baramati visited our institute to participate in an interactive academic session on the applications of Artificial Intelligence in the field of law.

The session commenced with an insightful talk by Dr. Chaitanya Kulkarni, Head of the Artificial Intelligence and Data Science Department. Dr. Kulkarni delivered a comprehensive lecture on "AI in Law", highlighting the growing role of artificial intelligence in legal research, document analysis, and case prediction. He discussed real-life examples and future prospects of AI-based legal systems.

Following this, Dr. Vipin B. Gawande, Head of the Centre of Excellence (CoE), conducted a detailed presentation about the activities, facilities, and objectives of the CoE. Dr. Gawande also delivered a hands-on session on an AI tool designed for legal applications, demonstrating its practical use for legal document analysis, drafting, and case law research. The session included discussions on various aspects of integrating AI into the legal domain, addressing both opportunities and challenges.

The event proved to be highly informative and interactive, with active participation from the visiting faculty members and students. It served as an excellent platform for interdisciplinary learning and collaboration between law and technology. The event was coordinated by Mrs. Komal Gaikwad Madam, Assistant Professor, Department of Artificial Intelligence and Data Science.





Activity-10	Visit of IIT Bombay E-Yantra Team to CoE
Date:	16/08/2025

Report on Visit of IIT Team to Bharat Forge CoE

Date of Visit: 16th August 2025

On 16th August 2025, the **Bharat Forge Centre of Excellence (CoE)** had the privilege of hosting a distinguished team from the **Indian Institute of Technology (IIT)**, led by **Dr. Kavi Arya** and **Dr. Shivaram Kalyanakrishnan**, both renowned academicians in the field of computer science and artificial intelligence. The visit was aimed at strengthening academic collaboration, sharing knowledge on emerging technologies, and motivating students to actively engage in innovative research activities.

The program commenced with a warm welcome to the guests and participants. **Dr. Rangole** delivered an opening presentation in which he outlined the vision, objectives, and ongoing activities of the CoE. He highlighted the various projects, student innovations, and industry-academic collaborations being carried out under the CoE, emphasizing its role in nurturing technical skills and innovation among students.

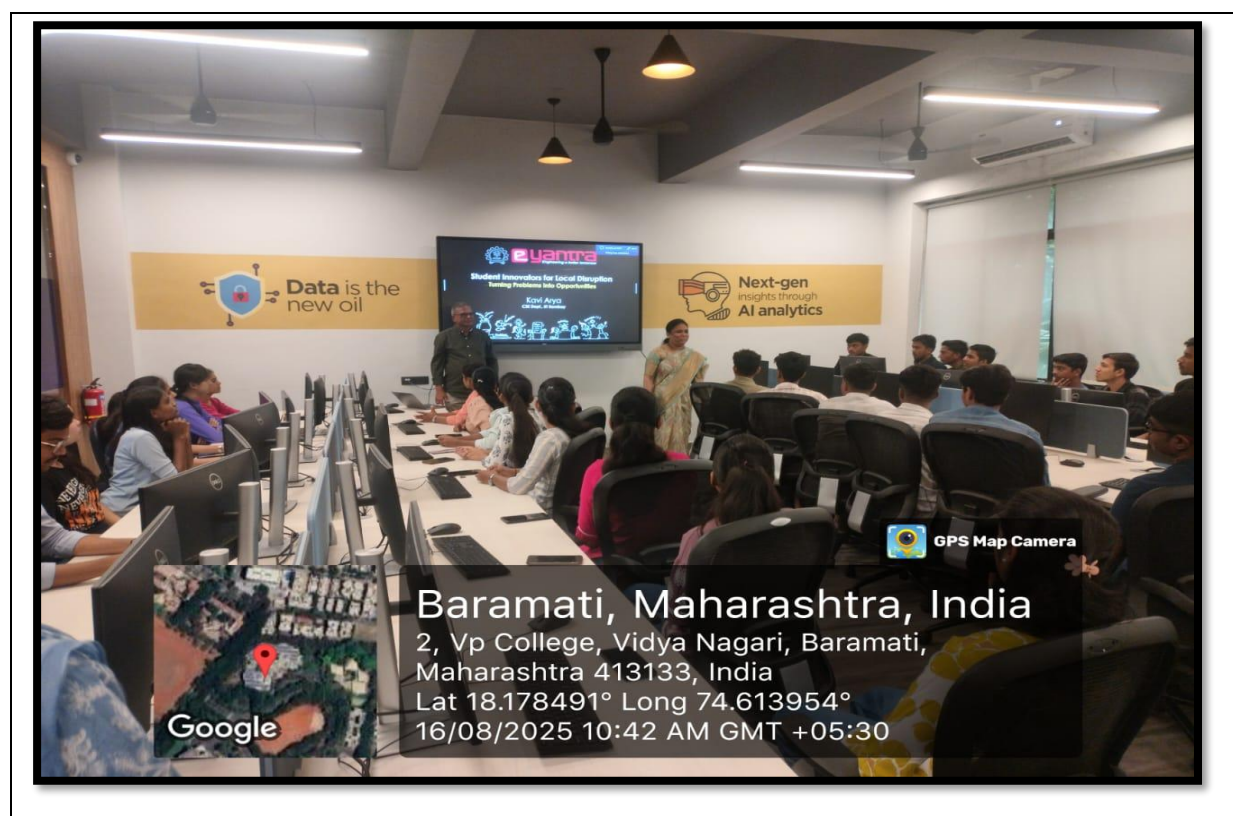
Following this, **Dr. Kavi Arya** addressed the gathering with an informative session on the **E-Yantra initiative**, a flagship program of IIT Bombay supported by the Ministry of Education. He elaborated on how the initiative provides a platform for students to learn embedded systems and robotics through project-based learning. He also announced details of the forthcoming **E-Yantra Robotics Competition**, which will be hosted by IIT. Dr. Arya motivated 50 students to participate actively in the competition, highlighting how such opportunities not only develop technical competencies but also teamwork, innovation, and problem-solving skills.

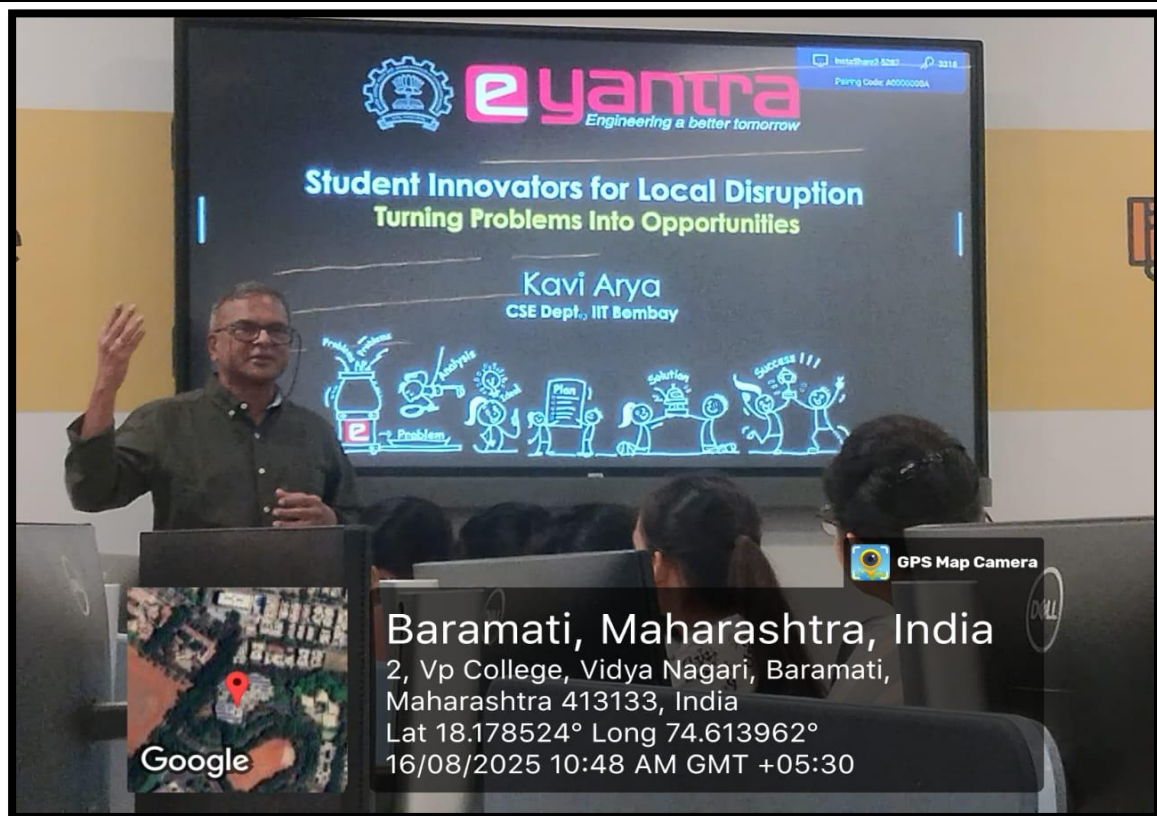
The session was further enriched by **Dr. Shivaram Kalyanakrishnan**, who delivered an expert lecture on **Reinforcement Learning**. In his lecture, he introduced students to the fundamental principles of reinforcement learning, its applications in robotics, decision-making systems, and AI-driven automation. He also provided insights into recent research advancements in the area, encouraging students to explore and contribute to this rapidly growing field. His talk bridged theoretical foundations with real-world applications, making it both engaging and informative for the participants.

The event witnessed the enthusiastic participation of **around 50 students from multiple disciplines**, including Artificial Intelligence, Computer Science, Electronics, and Mechanical Engineering. The interactive discussions during and after the sessions reflected the keen interest of the students in the topics presented by the IIT experts.

The program concluded with a **vote of thanks delivered by Mrs. Komal Gaikwad**, who expressed deep gratitude to Dr. Arya, Dr. Shivaram, and their team for sharing their expertise and inspiring the students. She also appreciated the efforts of faculty members and the CoE team in organizing the visit successfully.

The visit of the IIT team proved to be a highly **enriching and motivating experience** for the students. It not only exposed them to cutting-edge technologies such as robotics and reinforcement learning but also encouraged them to actively participate in national-level initiatives like E-Yantra. The event further strengthened the collaborative spirit between the CoE and IIT, paving the way for future engagements in research, innovation, and knowledge exchange.







Activity-11	Celebration of World Entrepreneurs Day
Date:	21/08/2025

The **Entrepreneurship Development Cell** of Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology (VPKBIET), Baramati, in association with the **Centre of Excellence for Youth Development supported by Bharat Forge Ltd.**, organized a special program on the occasion of **World Entrepreneurs Day**. The event was held on **21st August 2025**, at the **BFL Centre of Excellence (CoE), Main Building, VPKBIET, Baramati**, between **3:45 PM to 4:45 PM**.

Objective of the Program

The prime objective of this celebration was to ignite the spirit of **innovation and entrepreneurship** among students and faculty members, to create awareness about the importance of startups in the current global scenario, and to motivate the academic community to actively participate in entrepreneurial activities. The theme of the event was: **“Igniting Innovation & Start-up Spirit in Academia.”**

Speakers of the Session

The session featured two distinguished faculty members of VPKBIET:

1. **Dr. Jyoti Rangole**, Associate Professor and Head of the E&TC Department, VPKBIET, Baramati.
 - Dr. Rangole spoke about the **role of technology in entrepreneurship** and how engineering students can leverage their technical knowledge to create innovative solutions.
 - She highlighted success stories of student-led startups and emphasized the need for perseverance, creativity, and teamwork.
 - Dr. Rangole also underlined the significance of platforms like **Entrepreneurship Development Cells** and **Innovation Councils** in nurturing young talent.
2. **Dr. Vipin Gawande**, Assistant Professor, Department of Mechanical Engineering, and Head, BFL CoE, VPKBIET, Baramati.

- Dr. Gawande shared his insights on **innovation ecosystems in academia** and the critical role of incubation centres like the **BFL CoE** in transforming ideas into viable business ventures.
- He encouraged students to focus on solving **real-world problems through startups** and explained how collaboration with industries such as Bharat Forge Ltd. can provide valuable support.
- His talk motivated students to embrace entrepreneurship as a career option and become job creators rather than job seekers.

Key Highlights of the Event

- The program marked a **celebration of World Entrepreneurs Day**, aligning with the global movement of recognizing entrepreneurship as a driving force for economic and social development.
- The session fostered discussions on **innovation, startup challenges, funding opportunities, and the importance of research-driven entrepreneurship**.
- Both speakers stressed on the fact that academia must evolve as a hub for entrepreneurial culture, where students are empowered to convert their ideas into sustainable ventures.
- Students actively interacted with the speakers, asking questions on entrepreneurship pathways, funding mechanisms, and mentorship opportunities.

Outcome of the Program

The program proved to be highly beneficial for the students and faculty members. It:

- Sparked awareness about **entrepreneurial thinking** in academia.
- Motivated students to develop a **startup mindset** and take initiatives for innovation-driven projects.
- Strengthened the role of the **BFL Centre of Excellence** as a nurturing platform for young innovators.
- Reinforced the collaboration between **academia and industry** for promoting entrepreneurship.

The celebration of **World Entrepreneurs Day** at VPKBIET, Baramati, was a grand success. Around 30 students attended the program. It achieved its aim of inspiring students to embrace innovation and entrepreneurship. The event also demonstrated the institution's commitment towards fostering a robust **innovation and startup ecosystem** in line with the vision of the **Institution's Innovation Council (Ministry of Education Initiative)**.



Vidya Pratishthan's
Kamalnayan Bajaj Institute of Engineering and Technology, Baramati



Entrepreneurship Development Cell
in association with
Centre of Excellence for Youth Development supported by Bharat Forge Ltd.

Celebrates World Entrepreneurs Day
Igniting Innovation & Start-up Spirit in Academia



Dr. Jyoti Rangole
Associate Professor, Head E&TC Department
VPKBIET, Baramati



Dr. Vipin Gawande
Assistant Professor, Dept. of Mechanical Engineering
Head, BFL COE ,VPKBIET, Baramati

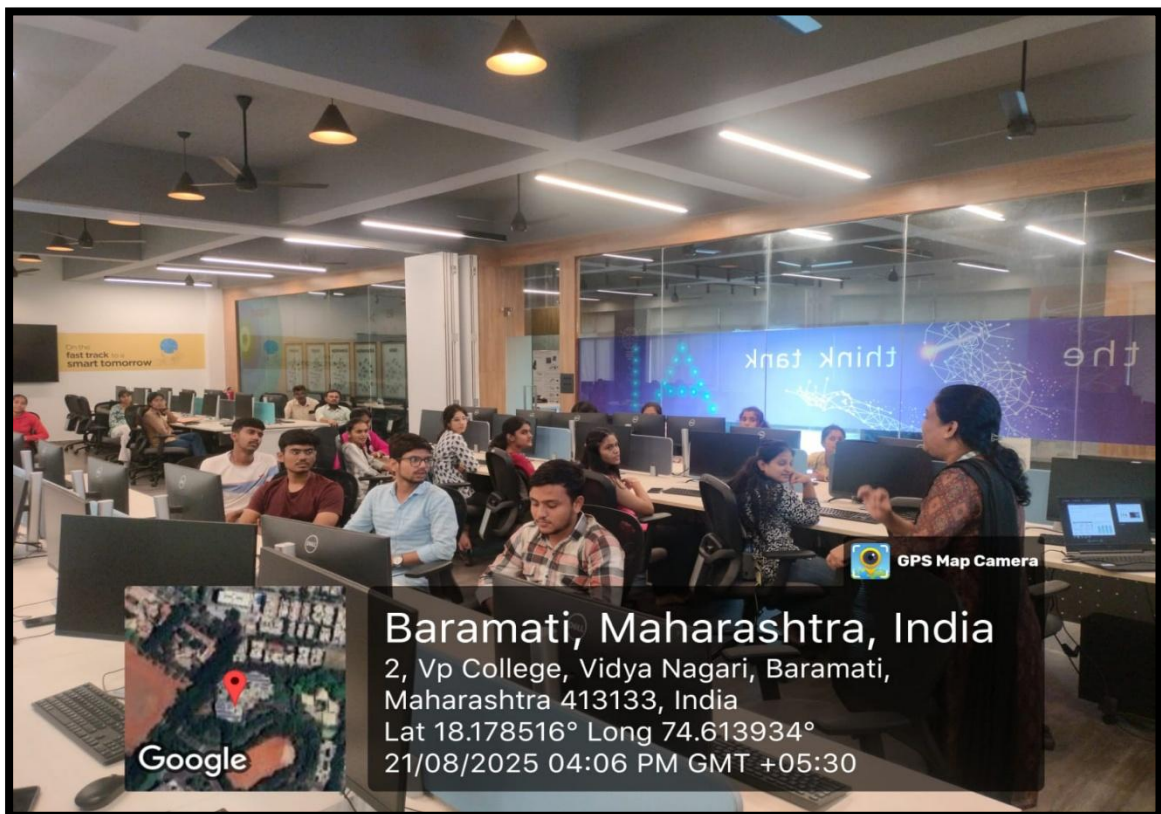
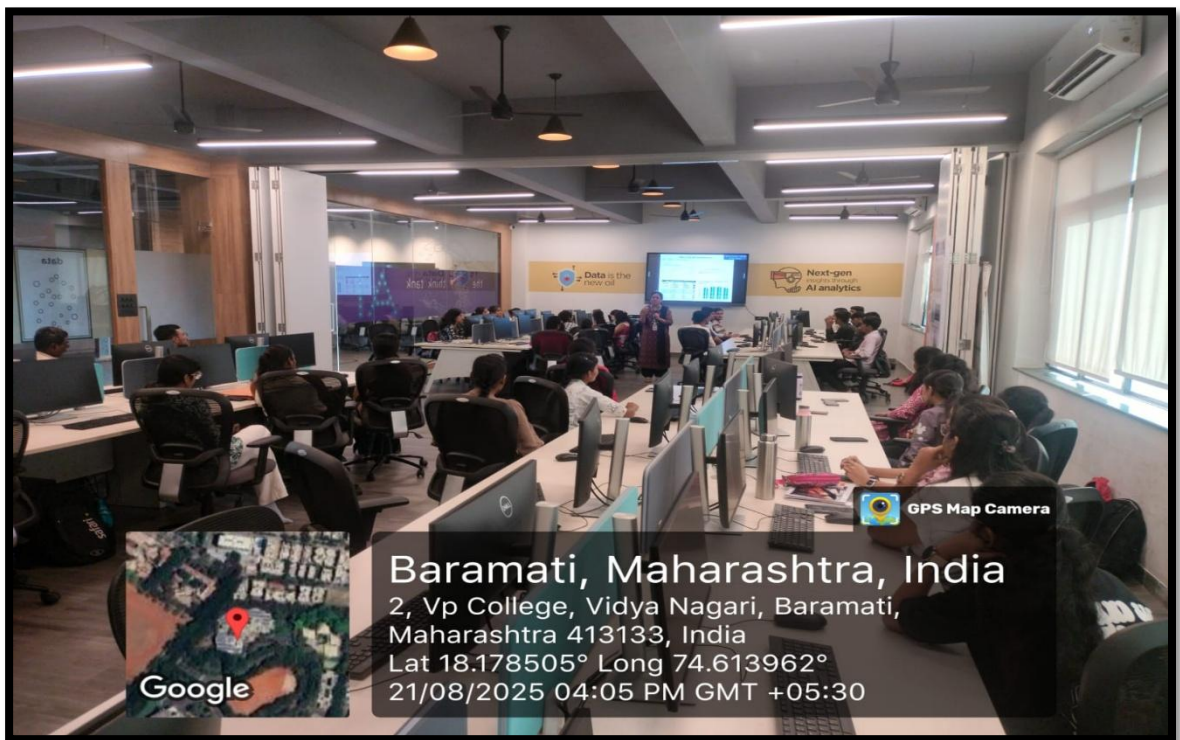
Date: 21st Aug 2025 Time: 3.45 PM – 4.45 PM
Venue: BFL CoE, Main Building, VPKBIET, Baramati



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Maharashtra 413133, India
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21/08/2025 04:16 PM GMT +05:30



Baramati, Maharashtra, India
2, Vp College, Vidya Nagari, Baramati,
Maharashtra 413133, India
Lat 18.178519° Long 74.613923°
21/08/2025 04:06 PM GMT +05:30



Activity-12	Arduino Programming and Simulation Workshop
Date:	23/08/2025

Date: 23rd August 2025

Time: 9:30 a.m. – 3:30 p.m.

Venue: VP's Centre of Excellence, supported by Bharat Forge Ltd.

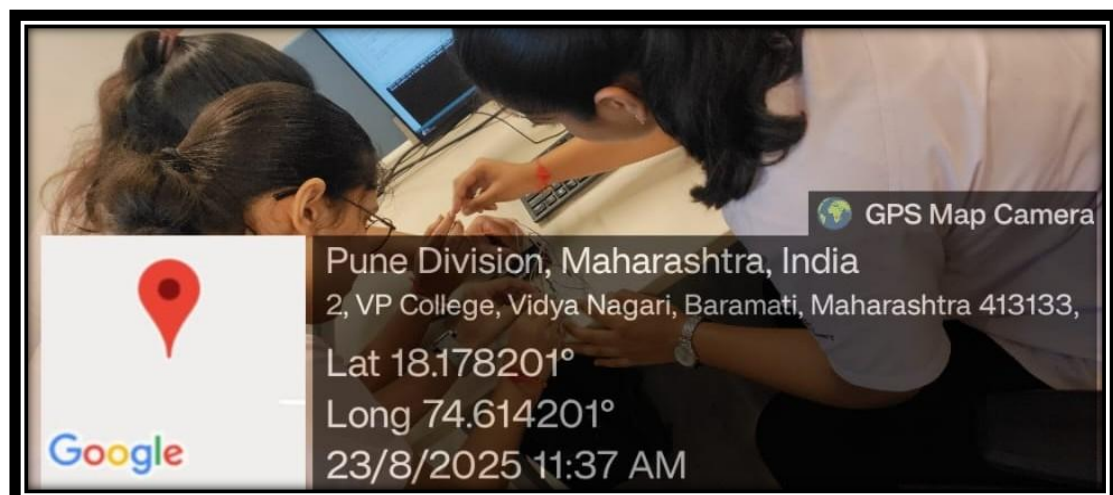
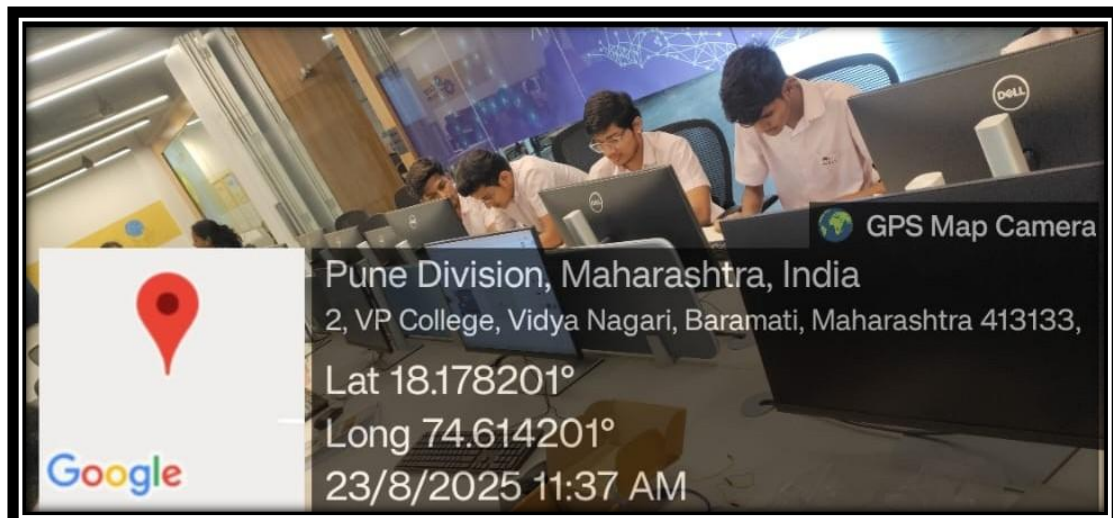
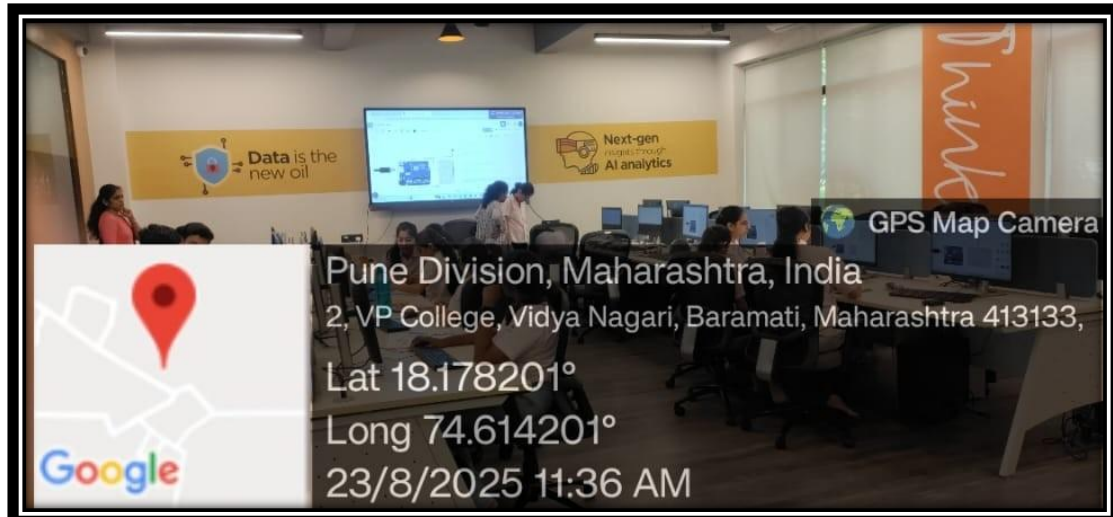
Participants: 28 students (Second Year ENTC)

The “**Arduino Programming and Simulation**” workshop was organized on **23rd August 2025** from **9:30 a.m. to 3:30 p.m.** at **VP's Centre of Excellence, supported by Bharat Forge Ltd.** A total of **28 second-year ENTC students** actively participated in the workshop. The primary aim of the program was to introduce students to Arduino hardware and software, enhance their programming skills, and provide practical exposure to simulation tools used for embedded system design.

The workshop began with an inaugural session where the faculty coordinators highlighted the objectives and significance of learning microcontrollers in modern electronics. The first technical session focused on the basics of Arduino, including an introduction to different Arduino boards, their architecture, and installation of the Arduino IDE. Students wrote and uploaded simple programs such as LED blinking and digital input/output, which helped them build confidence in programming.

After the lunch break, the third session was dedicated to **mini-project development**, where students worked in groups on practical applications like automatic streetlight systems, temperature monitoring with sensors, and traffic light controllers. Each group presented their project simulation and discussed possible real-world applications.

The workshop was coordinated and expertly conducted by **Mrs. Komal Gaiwad madam**, who guided the students throughout the sessions with her expertise in embedded systems and programming. The workshop concluded with a valedictory session in which students shared their feedback and expressed enthusiasm about the hands-on learning experience. Certificates of participation were distributed to all 28 participants. The workshop successfully helped students gain practical knowledge of Arduino programming, improved their understanding of simulation tools, and encouraged teamwork, creativity, and problem-solving. Overall, the initiative not only strengthened the technical foundation of the students but also prepared them for future projects and innovation opportunities. The support of **Bharat Forge Ltd.** played a crucial role in the successful execution of this workshop.





Vidya Pratishthan's
Kamalnayan Bajaj Institute of Engineering &
Technology, Baramati
Department of Electronics and
Telecommunication Engineering

Arduino Programming and Simulation

Day & Date: Saturday, 23 Aug 2025

Time: 09.30 AM to 03.30 PM

Sr. No.	Roll No.	Name of Student	Sign
1	24102034	Pallavi Maitu Nagalhar E.	Pallavi
2	24102069	Waghmare Samiksha Uddhav	Samiksha
3	24102055	Potghar Sanskruti Balasaheb	Sanskruti
4	24102053	Sao Saloni Bansilal	Saloni
5	24102039	Nipane Arpita Ankush	Arpita
6	24102061	Solanke Pranali Uropinath	Pranali
7	24102050	Ramteke Ragini Sanjay	Ragini
8	24102051	Rathode Vrushali Vyankat	Vrushali
9	24102041	Patil Rohini Rameshwar	Rohini
10	24102047	Phadtare Shreyash Shankar	Shreyash
11	24102048	Bhosale Pranav Rahul	Pranav
12	24102049	Rakshe Vedant Santosh	Vedant
13	24102056	Saste Yash appaso	Yash
14	24102044	Pawar chaitanya vijay	Chaitanya
15	24102060	khilare shivam sanjay	Shivam
16	24102058	Shaikh Ayan Tamir	Ayan
17	24102066	Thorat Pankaraj Balaso	Pankaraj
18	24102014	Ghadage kunal kalyan	Kunal
19	24102045	Pawar Siddharth Sanjay	Siddharth
20	24102067	Thorat Yogeshwari Bhagwan	Yogeshwari
21	24102052	Rayate Vaishanvi Vishunath	Vaishanvi
22	24102046	Pawar Vaishanvi Dnyande	Vaishanvi
23	24102011	Dudhal Karishma Harumant	Karishma
24	24102054	Salunke Vaibhavi Ravindra	Vaibhavi
25	24102037	Prayujja Shabaji Naftake	Prayujja
26	24102063	Shrivani Gunil Gurunase	Shrivani
27	24102043	Patil Vaishnavi abaso	Vaishnavi
28	24102035	Nalawade Shrutika Sandip	Shrutika

Activity-13	One-Day Workshop for Electrical Engineering Students
Date:	26/08/2025

Topic: *Arduino Programming and Simulation*

Date: 20th September 2025

Expert: Mrs. Komal Gaikwad

Participants: 19 Electrical Engineering Students

Venue: Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology,
Baramati

The Department of Electrical Engineering organized a **one-day workshop** on “*Arduino Programming and Simulation*” on **26th August 2025**. The session was conducted by **Mrs. Komal Gaikwad Madam**, who shared her expertise in microcontroller programming and simulation-based applications. A total of **19 students** from the Electrical Engineering department actively participated in the workshop.

Objectives of the Workshop

- To provide hands-on experience in **Arduino programming**.
- To enable students to design and simulate basic circuits using Arduino.
- To enhance practical understanding of embedded systems and their real-world applications.
- To motivate students to integrate Arduino-based solutions in academic and innovative projects.

Highlights of the Workshop

1. Introduction to Arduino

- Basics of Arduino board, pin configuration, and IDE setup were explained.
- Overview of open-source platforms and resources for beginners.

2. Programming Fundamentals

- Students were guided through simple Arduino programs such as LED blinking, sensor interfacing, and serial communication.
- Emphasis was placed on coding practices and debugging techniques.
-

3. Simulation Tools

- Demonstration of simulation environments for testing Arduino-based circuits.
- Students practiced running programs in virtual mode before hardware implementation.

4. Interactive Learning

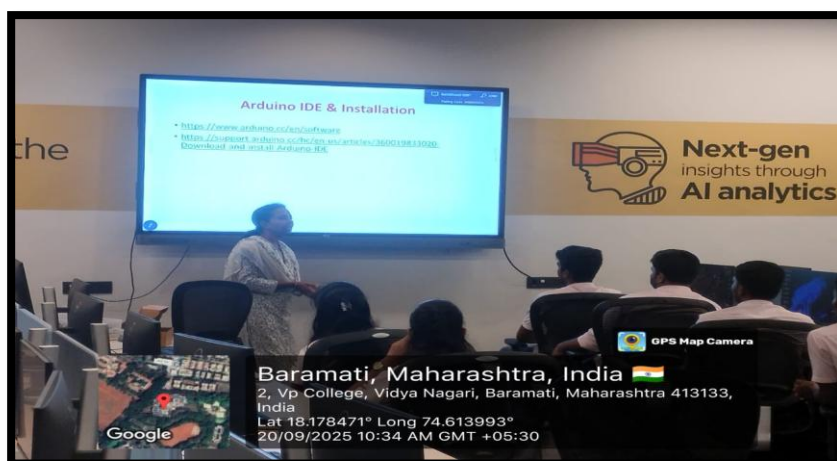
- Students worked in small groups to complete tasks and mini-projects.
- Queries were addressed through live demonstrations and examples.

Outcomes

- Students gained **practical exposure** to Arduino programming and simulation.
- The workshop enhanced their ability to design simple embedded system projects.
- Participants expressed enthusiasm to apply these skills in **Avishkar projects, final-year projects, and IoT applications.**

Conclusion

The one-day workshop on “*Arduino Programming and Simulation*” conducted by **Mrs. Komal Gaikwad** was highly beneficial for Electrical Engineering students. It not only strengthened their programming skills but also motivated them to explore innovative applications in embedded systems. The active participation of 19 students made the session successful and impactful.





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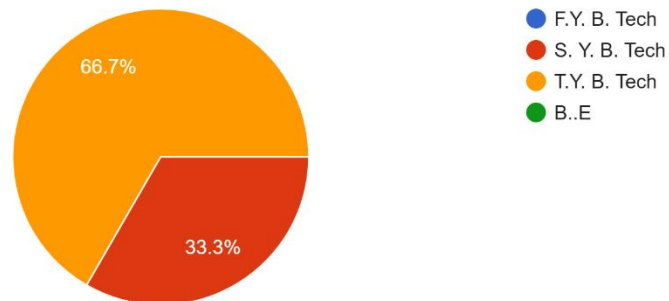
List of Students:

S. NO	Name of Student	Branch	Contact No
1.	Shinde Yashodeep Siddheshwar	Electrical Engg.	7447746218
2.	Dhole Digvijay Shahaji	Electrical Engg.	8767989861
3.	Mali Pranit Balasaheb	Electrical Engg.	7796978579
4.	Mehta Tanish Ninad	Electrical Engg.	8847755656
5.	Aditya niraj pathak	Electrical Engg.	9579960513
6.	Anisha Siddhanth Karande	Electrical Engg.	9767015623
7.	Dhaware Vishakha Milind.	Electrical Engg.	8983488060
8.	Gawande Suprit kailas	Electrical Engg.	8177893110
9.	Supekar Sakshi Rajendra	Electrical Engg.	9284197677
10.	Shinde Ratnadeep Sunil	Electrical Engg.	8262942350
11.	Mudame Ajay Hanamant	Electrical Engg.	7249178616
12.	Kokare Kalyan Dhansing	Electrical Engg.	8669191667
13.	Pawar Aniket Arvind	Electrical Engg.	9552512902
14.	Shinde Shreyash Dnyaneshwar	Electrical Engg.	8468959976
15.	Katkar Tejas Satish	Electrical Engg.	8857889497
16.	Tadavi Aman Rashid	Electrical Engg.	9765752142
17.	Sonune Rushikesh Shrikrushna	Electrical Engg.	9139173433
18.	Patil Darshan Rajendra	Electrical Engg.	7588667733
19.	Shruti Sawant	Electrical Engg.	7775994250

Feedback:

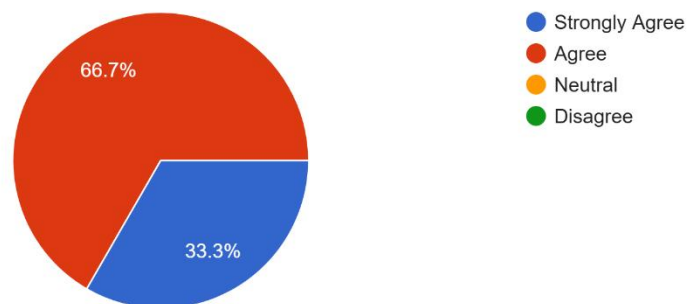
Year of Study

6 responses



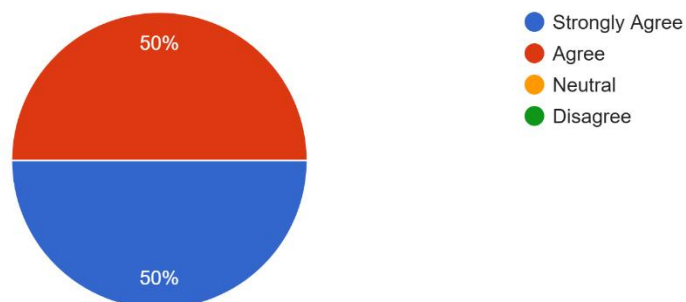
The objectives of the workshop were clearly defined.

6 responses



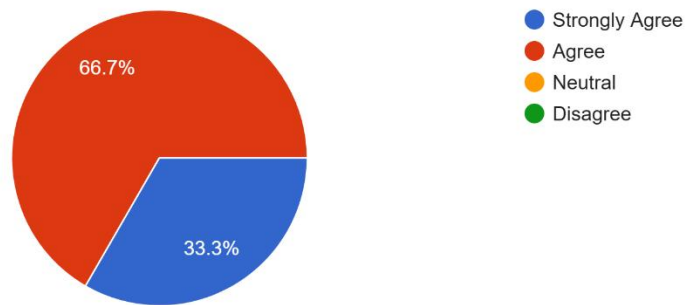
The topics covered were relevant and useful.

6 responses



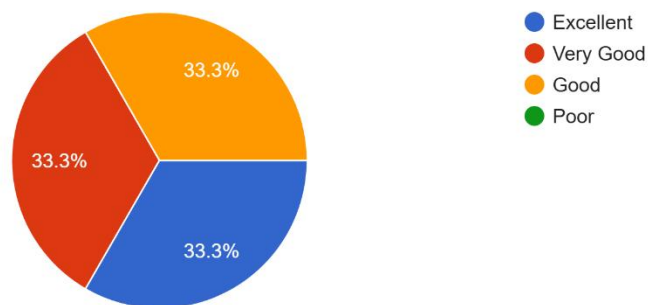
The practical/technical sessions enhanced my understanding.

6 responses



My overall experience of the workshop was:

6 responses



What did you like the most about the workshop?

- performing practicals with different components
- Teaching was very good and we had performed all practical that is the most useful for us.
- Practical Performing using hardware

Which subjects/domains you suggest for future workshops?

- Raspberry Pi
- EV Hardware sessions
- EV/ EV Batteries mainly focusing on industrial applications

Activity-14	Expert Session on <i>Innovation in Research Projects</i>
Date:	03/09/2025

Organized Under: SPPU Sponsored *Avishkar Competition*

Supported By: Bharat Forge – Centre of Excellence

Date: 03rd September 2025

Venue: Conference Hall, Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology, Baramati

An expert session on “*Innovation in Research Projects*” was successfully conducted on **03rd September 2025** under the banner of the **Savitribai Phule Pune University (SPPU)** sponsored **Avishkar Competition**. The program was organized through the **Bharat Forge supported Centre of Excellence (CoE)** at Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology (VPKBIET), Baramati.

The session was graced by **Dr. Vipin B. Gawande**, who served as the expert speaker. His vast academic expertise and research experience provided valuable guidance to the participating students and faculty members.

Objective of the Session

The main objectives of the session were:

- To inspire students to think innovatively while developing research projects.
- To provide insights into transforming ideas into practical solutions.
- To highlight the importance of originality, methodology, and research ethics in project work.
- To prepare students for participation in **Avishkar Competition**, a prestigious platform to showcase innovation at the university level.

Highlights of the Expert Talk

1. Innovation and Creativity in Research

- Dr. Gawande emphasized the role of creativity and out-of-the-box thinking in research projects.
- He explained how innovative approaches can solve real-world industrial and societal challenges.

2. Problem Identification & Ideation

- He guided students on identifying relevant research problems from their surroundings, industries, and academic disciplines.
- He shared techniques for ideation and concept development to refine project topics.

3. Research Methodology

- The session focused on the importance of structured methodology, experimentation, data analysis, and validation.
- Students were encouraged to adopt systematic approaches to ensure reliability and reproducibility in their research.

4. Innovation for Avishkar Competition

- Dr. Gawande highlighted the **Avishkar Competition framework**, its evaluation criteria, and benefits.
- He motivated students to showcase their ideas with clarity, technical depth, and practical applicability.

5. Industry and Academia Linkages

- The role of **Bharat Forge supported CoE** was emphasized as a bridge between academic research and industry applications.
- He encouraged students to use advanced facilities and mentorship opportunities available at the CoE.

The expert session by **Dr. Vipin B. Gawande** on “*Innovation in Research Projects*” proved to be a significant learning experience for budding researchers. It not only enhanced their knowledge but also inspired them to pursue innovation-driven projects aligned with societal and industrial needs.

The program also strengthened the vision of SPPU’s **Avishkar Competition** and showcased the commitment of **VPKBIET and Bharat Forge supported CoE** towards fostering research, innovation, and entrepreneurship.



Activity-15	Visit of Bharat Forge Officials to Centre of Excellence (CoE)
Date:	10/09/2025

On **10th September 2025**, a team of **officials from Bharat Forge Ltd.** visited the **Centre of Excellence (CoE)** established at Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology, Baramati. The visit was aimed at reviewing the progress of the CoE activities, exploring ongoing student projects, and strengthening collaboration between industry and academia.

Purpose of the Visit

The main objectives of the visit were:

- To assess the utilization of CoE facilities by students and faculty.
- To interact with project teams working on innovative research and development.
- To explore potential industry-oriented projects for future collaboration.
- To provide expert feedback and guidance for enhancing research culture in the institute.

Key Highlights of the Visit

1. Review of CoE Infrastructure

- Bharat Forge officials inspected the laboratory facilities, research equipment, and resources provided under the CoE initiative.
- They appreciated the systematic setup and emphasized the importance of optimum utilization for impactful outcomes.

2. Interaction with Students and Faculty

- Project teams showcased their **innovative research projects** aligned with industry requirements and the Avishkar Competition.
- Officials interacted with students, offering constructive suggestions for refining their prototypes and methodologies.

3. Encouragement for Industry-Relevant Projects

- The officials highlighted areas where students could contribute to **automation, smart manufacturing, renewable energy applications, and AI/ML integration.**
- They encouraged students to focus on problem-solving for real-world industrial challenges.

4. Future Collaboration

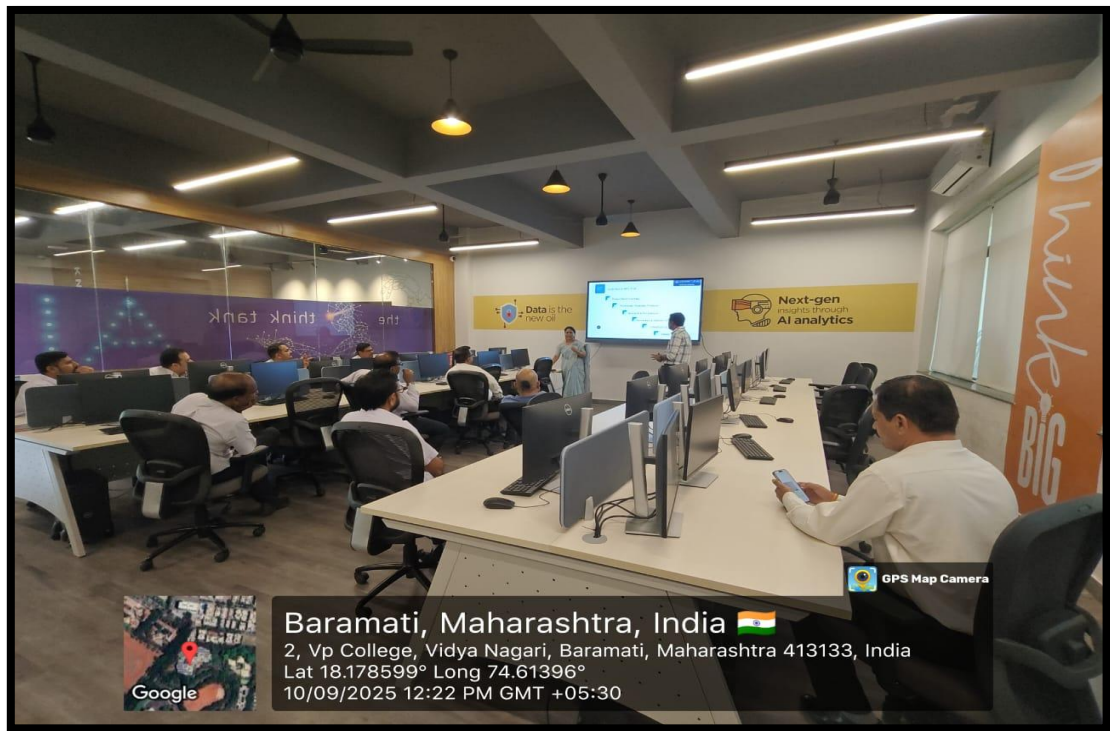
- Discussions were held on the scope of internships, live projects, and mentorship opportunities with Bharat Forge.
- The officials assured continuous support in terms of guidance, technical know-how, and collaborative initiatives through the CoE.

Outcomes of the Visit

- Students gained **valuable industry feedback** for improving their projects.
- The visit strengthened the partnership between **Bharat Forge and VPKBIET**.
- The officials expressed satisfaction with the functioning of the CoE and its role in nurturing innovation.
- New possibilities for **joint research, industrial projects, and skill development programs** were identified.

Conclusion

The visit of Bharat Forge officials to the CoE on **10th September 2025** was highly fruitful and encouraging. Their insights and feedback provided strong motivation to students and faculty to align their research with industry needs. The collaboration will undoubtedly play a pivotal role in fostering **innovation, employability, and entrepreneurship** among budding engineers at VPKBIET.



Activity-16	MoU Collaboration with Fire Bird VR Pvt. Ltd., Pune
Date:	11/10/2025

An official **Memorandum of Understanding (MoU)** was signed between **Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology (VPKBIET), Baramati** and **Fire Bird VR Pvt. Ltd., Pune** on **11th October 2025**. The collaboration aims to provide more than **1,000 paid internship opportunities** to students of VPKBIET across various emerging technology domains. This initiative marks a significant step towards strengthening the institute's industry–academia relationship and enhancing the employability skills of students through real-world industrial exposure.

Under this MoU, Fire Bird VR Pvt. Ltd. will offer internships in cutting-edge fields such as **Virtual Reality (VR), Augmented Reality (AR), 3D Modelling, Game Development, UI/UX Design, Artificial Intelligence, and Data Analytics**. Each internship will be a **paid opportunity**, ensuring that students gain both valuable professional experience and financial support during their training. The company will also provide mentorship, project-based learning, and exposure to live industry projects, thereby bridging the gap between classroom learning and industrial practices.

VPKBIET, through its Training and Placement Cell, will facilitate student selection, orientation, and coordination throughout the internship process. The institute will also support pre-internship training programs to prepare students with essential technical and soft skills. Both parties have agreed to jointly monitor the progress of the internships through a structured evaluation process involving industry mentors and faculty coordinators.

The MoU further opens doors for future collaborations in **research, curriculum design, workshops, and knowledge-sharing sessions**, allowing Fire Bird VR experts to contribute to academic enrichment and innovation at VPKBIET. This partnership is expected to greatly benefit students by providing them with practical exposure, improving their technical competencies, and increasing their chances of employability in the growing technology sector.

The MoU signed on **11/10/2025** thus represents a mutual commitment between **VPKBIET, Baramati** and **Fire Bird VR Pvt. Ltd., Pune** to work together in nurturing skilled, industry-ready professionals capable of contributing to the evolving landscape of immersive and digital technologies.



Activity-17	Expert Session on “Emerging Technologies and Future Prospects
Date:	30/10/2025

Venue: Ladkat Academy, Baramati

Resource Person: Dr. Vipin B. Gawande, Head, Centre of Excellence (CoE), VPKBIET, Baramati

Introduction

An expert session on “**Emerging Technologies and Future Prospects**” was conducted at **Ladkat Academy, Baramati** on **30th October 2025**. The session was delivered by **Dr. Vipin B. Gawande**, Head of the **Centre of Excellence (CoE)** at VPKBIET, Baramati. The objective of the session was to create awareness among students about the rapidly evolving technological landscape and the opportunities it presents for their future education and career paths.

Session Highlights

Dr. Gawande began the session by introducing the concept of **Emerging Technologies**, emphasizing their growing influence in every sector of the economy. Key areas discussed included:

- **Artificial Intelligence (AI)** and **Machine Learning (ML)** applications in daily life
- **Internet of Things (IoT)** and smart automation
- **Augmented Reality (AR)** and **Virtual Reality (VR)** in education and industry
- **Data Science** and its importance in informed decision-making
- **3D Printing, Robotics**, and **Blockchain** as technologies shaping the next decade

He also explained how these technologies are creating **new career opportunities** and encouraged students to develop **21st-century skills** such as problem-solving, critical thinking, and creativity. Practical examples and live demonstrations from CoE activities were shared to help students relate concepts with real-world applications.

Outcome

The session received an enthusiastic response from the students. They interacted actively and asked insightful questions about future career paths in AI, robotics, and data science. The talk inspired many to explore technology-driven careers and to pursue higher education in engineering, computer science, and related domains.

Conclusion

The expert session by **Dr. Vipin B. Gawande** proved to be highly informative and motivational. It helped the students of **Ladkat Academy** gain a clear understanding of the importance of emerging technologies and their impact on future job trends. The academy expressed gratitude to Dr. Gawande for sharing his expertise and insights, and for guiding the students toward becoming future-ready professionals.



Activity-18	Teacher Training Program for Cyrus Poonawala on AI
Date:	01/11/2025 to 30/11/2025

Artificial Intelligence, IoT, and Robotics

Conducted for Dr. Cyrus Poonawalla School (CBSE), Baramati

Organized by: Centre of Excellence (CoE), VPKBIET, Baramati

Supported by: Bharat Forge Ltd.

1. Introduction

Dr. Cyrus Poonawalla School (CBSE), Baramati formally requested academic and technical support from VPKBIET for teacher training in the emerging areas of Artificial Intelligence (AI) and Robotics. The request, dated **27th September 2025**, highlighted the school's plan to introduce an **AI Integrated with Robotics Course** for students of **Classes VI to IX** starting from **1st October 2025**. The course syllabus was collaboratively developed by VPKBIET and the school, with one dedicated period per week assigned for AI and Robotics education.

In response, the **Centre of Excellence (CoE), supported by Bharat Forge**, accepted the proposal and prepared a structured teacher training plan to build teacher capacity and support the school's initiative aligned with the **National Education Policy (NEP) 2020**, which encourages experiential learning, digital literacy, and early exposure to future technologies.

2. Objectives of the Training Program

The main objectives of the teacher training initiative were:

- To develop the competency of school teachers in fundamental concepts of **Artificial Intelligence, IoT, and Robotics**.
- To provide theoretical understanding along with practical exposure to AI models and educational robotics.
- To enable teachers to effectively teach AI-related topics to school students using hands-on activities and project-based learning.
- To align school-level AI education with NEP 2020's focus on **skill development, innovation, and computational thinking**.

3. Training Schedule and Mode

- **Training Mode:** Offline, hands-on
- **Venue:** VPKBIET, Baramati
- **Coordinated by:** Centre of Excellence (CoE)
- **Supported by:** Bharat Forge
- **Faculty Contributors:** Dr. Vipin B. Gawande and Mrs. Komal Gaikwad
- **Commencement:** First week of November 2025
- **Batch Strength:** 10 faculty members from Dr. Cyrus Poonawalla School

4. Training Content Delivered

4.1 Theoretical Components

The following topics were covered:

1. **Introduction to Artificial Intelligence**
 - Definition, applications, real-world use cases
 - Understanding data, patterns, and predictions
2. **Machine Learning Fundamentals**
 - Types of ML: Supervised, Unsupervised
 - Simple model workflows suitable for school-level teaching
3. **Robotics Concepts**
 - Structure of robots, actuators, sensors
 - Basics of automation and control
4. **IoT Fundamentals**
 - Sensor–device communication
 - Real-life IoT systems relevant for student projects
5. **Algorithmic and Logical Thinking**
 - Flowcharts, pseudocode, problem-solving strategies
6. **Ethics in AI**
 - Responsible use of AI
 - Bias, fairness, and safety for young learners

4.2 Practical / Hands-on Components

- Working with basic AI tools and open-source platforms
- Implementing simple classification and recognition models
- IoT demonstrations
 - Data collection
 - Sensor interfacing
 - Real-time monitoring setups

5. Participation Details

- Total participants: **10 teachers**
- Departments/Subjects represented: Science, Computer Science, Mathematics, General Curriculum
- Participation Level: All teachers actively engaged in theory and hands-on sessions
- Learning Outcomes:
 - Improved confidence in teaching AI concepts
 - Ability to demonstrate robotics activities in the classroom
 - Understanding of AI pedagogy suitable for Class VI–IX students

6. Key Outcomes

The training program successfully achieved the following outcomes:

- Teachers acquired foundational knowledge of AI, ML, IoT, and Robotics.
- Participants gained hands-on experience with educational kits and AI tools.
- The school is now prepared to introduce the AI & Robotics curriculum from the 2025–26 academic cycle.
- Strengthened academic collaboration between **VPKBIET** and **Dr. Cyrus Poonawalla School**.
- Enhanced alignment with NEP 2020 for future-ready skills in students.

8. Conclusion

The teacher training program conducted by the **Centre of Excellence, VPKBIET**, with support from **Bharat Forge**, marks a significant step towards empowering school teachers

with the knowledge and skills required to introduce Artificial Intelligence and Robotics at the school level. The successful completion of training for the first batch of 10 teachers ensures that Dr. Cyrus Poonawalla School is well-prepared to launch its AI-Robotics education initiative for Classes VI to IX beginning October 2025.

VPKBIET looks forward to continued collaboration and providing ongoing academic and technical guidance to support the school's vision of fostering innovation, creativity, and technological literacy among young learners.

	VIDYA PRATISHTHAN'S DR. CYRUS POONAWALLA SCHOOL (CBSE) Vidyanagari, Bhigwan Road, Baramati, Dist. Pune (Maharashtra) - 413 133. Phone No.(O) : 91-2112-239270, Mobile No. : 9112319330 Website: www.vpdcpa.com E-mail : vpdcps@vidyapratishthan.com & principal.vpdcpa@vidyapratishthan.com
Affiliated to CBSE Board, New Delhi. Affiliation No.: 1130823, School Code: 30886	
Ms. Y.T. NIGADE PRINCIPAL	Ref. No. :VPDCPS/O/618/2025-26 Date :27.09.2025

To,
✓ The Principal
VPKBIET,
Baramati.

Sub. : Request for Training Schedule and Implementation Details for AI Integrated with Robotics Course

Respected Sir,

As discussed earlier, we are introducing the AI Integrated with Robotics Course for Classes 6 to 9 in our school. We have already shared the syllabus for Classes 6, 7, and 8 with your teaching faculty. The course is scheduled as follows:

For Class VI to VIII - Start Date: 01.10.2025, End Date: 28.02.2026
For Class IX - Start Date: 01.10.2025, End Date: 15.01.2026

The course will be conducted with one period allotted per week for each class. Since your esteemed college faculty will be training us for the successful implementation of this program, we kindly request you to share the following details:

1. Step-by-step guidance on how the course will be rolled out for each class.
2. Dates, duration, and mode (online/offline) of training sessions for our teachers.
3. The number of trainers to be deputed.
4. Any fees or charges involved for the training sessions, materials, or resources.
5. Whether your faculty will provide periodic mentoring/monitoring once the course is underway.

..2

To,
Dr. Gavande
Mrs. Komal
29/9/25

[Signature]
29/9/25

Conti.. 2

Ref. No. :VPDCPS/O/618/2025-26
Date : 27.09.2025

We are eager to collaborate closely with your team so that our students can gain maximum benefit from this program.

Kindly share the above details at your earliest convenience so that we may begin preparations.

Looking forward to your positive response.

Thank you,

Yours sincerely,



(Ms. Y.T. Nigade)

PRINCIPAL
Vidya Pratishthan's
Dr. Cyrus Poonawalla School (CBSE)
Rui, Vidyanagari, Baramati-413133
CBSE Affiliation No. 1130823
U DISE No. 27250210407



VPKBIET BARAMATI INWARD SECTION	
Inward No.	704
Received Date	27/09/2025
Received Through	By Hand
Receiver's Sign.	
Principal	

Cc: The Secretary, Vidya Pratishthan
The Registrar, Vidya Pratishthan

Vidya Pratishthan's

Center of Excellence for Youth Development, Supported by Bharat Forge

Syllabus for Class VI:

S. No	Unit	Sub Unit	Duration	Theory	Practical
1.	What is AI-How Does AI Work	What is AI? Everyday examples (Google Assistant, YouTube recommendations, games, self-driving cars).	2 hrs	1 hr	1 hr
2.	History & Types of AI	- Short history of AI (from calculators to ChatGPT). - Types of AI (Reactive, Limited Memory, Generative AI).	2 hrs	1 hr	1 hr
3.	Data – The Fuel of AI	- What is data? Types: text, numbers, images, sounds. - How AI learns from data.	2 hrs	1 hr	1 hr
4.	Basic Coding	Basic Scratch/Python code	2 hrs	1 hr	1 hr
5.	Machine Learning Basics	- Concept of training AI with examples. - Supervised vs Unsupervised learning	2 hrs	1 hr	1 hr
6.	Image Recognition	- How AI sees pictures. - Fun demo (Google Teachable Machine).	2 hrs	1 hr	1 hr
7.	Natural Language Processing	How AI understands and talks (chatbots, translation).	2 hrs	1 hr	1 hr

S. No	Unit	Sub Unit	Duration	Theory	Practical
8.	Ethics in AI	Good vs Bad use of AI (deepfakes, cheating, bias).	2 hrs	1 hr	1 hr
9.	AI for Social Good	- AI in healthcare, farming, environment, education. - Case studies: AI predicting weather, AI helping farmers.	2 hrs	1 hr	1 hr
10.	Project & Showcase	- Students work in small groups: - Create an AI idea (poster or simple demo using Teachable Machine/online tools). - Present it to the class.	2hrs	--	2hrs
		Total	20 hrs	09 Hrs	11Hrs

.....

Syllabus for Class VII:

S. No	Unit	Sub Unit	Duration	Theory	Practical
1.	Advanced AI Concepts	- Narrow AI vs General AI vs Super AI - How AI models are trained - Pre-trained models	2 hrs	1 hr	1 hr
2.	Data Handling in AI	- Collecting & cleaning data - Data bias & fairness - Sample datasets (Iris/MNIST/text)	2 hrs	1 hr	1 hr
3.	Deeper into Machine Learning	- Classification vs Regression - Clustering - Accuracy, training vs testing data	2 hrs	1 hr	1 hr
4.	Computer Vision – Beyond Basics	- Face detection - Object detection - Image filters & transformations	2 hrs	1 hr	1 hr
5.	Natural Language Processing (NLP) – Extended	- Sentiment analysis - Text summarization / translation - Smarter chatbots	2 hrs	1 hr	1 hr
6.	AI with Coding	- Python libraries (scikit-learn, TensorFlow Lite) - Training a small ML model in Colab - Scratch + AI extensions	2 hrs	1 hr	1 hr

S. No	Unit	Sub Unit	Duration	Theory	Practical
7.	AI in Robotics & IoT	- Robots using AI (line follower, obstacle avoidance) - AI with sensors - Smart home/IoT AI applications	2 hrs	1 hr	1 hr
8.	Responsible & Future AI	- AI safety, privacy, security - AI & jobs of the future - Global challenges AI can solve	2 hrs	1 hr	1 hr
9.	AI for Social Good – Advanced	- AI in climate change, healthcare, disaster management - Real-world case studies	2 hrs	1 hr	1 hr
10.	Capstone Project & Showcase	- Define a real-world problem - Choose AI tool (Scratch, Teachable Machine, Hugging Face, Colab) - Build demo or poster - Present	2hrs	--	2hrs
		Total	20 hrs	09 Hrs	11Hrs

Syllabus for Class VIII:

S. No	Unit	Sub Unit	Duration	Theory	Practical
1.	Deep Dive into AI & ML	- Recap AI & ML concepts - Neural networks basics (nodes, layers, weights) - Role of training vs inference	2 hrs	1 hr	1 hr
2.	Data Science for AI	- Data collection methods - Data visualization - Feature selection & preprocessing	2 hrs	1 hr	1 hr
3.	Machine Learning Advanced	- Regression, classification, clustering - Overfitting & underfitting - Evaluation metrics (accuracy, precision, recall)	2 hrs	1 hr	1 hr
4.	Computer Vision Applications	- Object detection vs recognition - Pre-trained models (YOLO, MobileNet) - AI in face recognition & healthcare	2 hrs	1 hr	1 hr
5.	Natural Language Processing Advanced	- Tokenization & embeddings (basic idea) - Chatbots with intents - Sentiment analysis project	2 hrs	1 hr	1 hr
6.	AI with Python – Hands-on	- Using libraries: scikit-learn, TensorFlow Lite, OpenCV, • Training a small ML model - Testing with student-created data	2 hrs	1 hr	1 hr

S. No	Unit	Sub Unit	Duration	Theory	Practical
7.	AI + Robotics & IoT	- AI in self-driving cars & drones - IoT with AI (smart homes, smart farming) - Edge AI devices	2 hrs	1 hr	1 hr
8.	Ethical AI & Future Careers	- AI bias & transparency - AI in jobs of the future - Safety, privacy, regulations	2 hrs	1 hr	1 hr
9.	AI for Society & Environment	- AI in climate change, disaster prediction, agriculture, healthcare - Case studies of AI for Good (UN, WHO projects)	2 hrs	1 hr	1 hr
10.	Capstone Project & Showcase	- Identify a real-world problem - Build solution using AI tools (Colab, Scratch, Teachable Machine, Hugging Face) - Present	2hrs	--	2hrs
		Total	20 hrs	09 Hrs	11Hrs

Syllabus for Class IX:

S. No	Unit	Sub Unit	Duration	Theory	Practical
1.	AI & Neural Networks in Depth	- Recap ML & NN basics - Layers, activation functions (ReLU, Sigmoid) - Training vs testing - Overfitting solutions (regularization, dropout)	2 hrs	1 hr	1 hr
2.	Data Handling & Preprocessing	- Large datasets & cleaning - Normalization & scaling - Splitting datasets (train/validation/test)	2 hrs	1 hr	1 hr
3.	Supervised & Unsupervised Learning	- Algorithms: k-NN, Decision Trees, Clustering - Real-life examples (spam detection, grouping students)	2 hrs	1 hr	1 hr
4.	Deep Learning Applications	- CNNs (image recognition) - RNNs (sequences, speech) - Transformers (intro to LLMs like ChatGPT)	2 hrs	1 hr	1 hr
5.	Computer Vision – Advanced	- Object detection (YOLO, MobileNet) - Facial recognition concepts - AI in medical imaging & security	2 hrs	1 hr	1 hr
6.	Natural Language Processing – Advanced	- Sentiment analysis, • Chatbots with intents + API - Text summarization & translation	2 hrs	1 hr	1 hr

S. No	Unit	Sub Unit	Duration	Theory	Practical
7.	AI + Robotics & IoT	- Self-driving car logic - Smart farming drones - AI at the Edge (TinyML on Arduino/RPi)	2 hrs	1 hr	1 hr
8.	Ethics, Privacy & Future of AI	- AI bias & fairness - AI and jobs automation - Privacy, copyright & misuse (deepfakes, plagiarism)	2 hrs	1 hr	1 hr
9.	AI for Real-World Impact	- AI in climate change, disaster prediction, healthcare, security - Case studies (Google DeepMind, AI in Indian agriculture, ChatGPT in education)	2 hrs	1 hr	1 hr
10.	Capstone AI Project	- Students select a problem - Design dataset or use open datasets - Train + Test model - Showcase results	2hrs	--	2hrs
		Total	20 hrs	09 Hrs	11Hrs

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Activity-19	AR/VR Bootcamp
Date:	03/11/2025 to 08/11/2025

Venue: Centre of Excellence (BFL CoE), VPKBIET, Baramati

Organized by: Centre of Excellence, VPKBIET

Expert Team:

- **Ms. Madhuri Nimbalkar**, AR/VR Specialist, CDAC Pune
- **Mr. Mayur Thakare**, AR/VR Expert, CDAC Pune
- **Total Participants:** Around 130 students

Introduction

The **Centre of Excellence (BFL CoE)** at **Vidya Pratishthan's Kamalnayan Bajaj Institute of Engineering and Technology (VPKBIET), Baramati**, organized a **six-day Bootcamp on Augmented Reality (AR) and Virtual Reality (VR)** from **3rd to 8th November 2025**.

The bootcamp aimed to provide students with **hands-on experience** and an in-depth understanding of **immersive technologies**, focusing on how AR and VR are transforming industries such as education, manufacturing, healthcare, entertainment, and design.

Objectives of the Bootcamp

- To introduce students to the fundamentals of **AR and VR technologies**.
- To provide **practical training** in AR/VR development platforms such as **Unity 3D, Blender**, and **Meta Quest**.
- To develop **interactive applications and simulations** as part of experiential learning.
- To encourage innovation and **project-based learning** in the domain of immersive technology.

Session Details

The bootcamp was conducted by an expert team from **CDAC Pune**, comprising **Ms. Madhuri Nimbalkar** and **Mr. Mayur Thakare**, who brought extensive industrial and research experience in AR/VR systems.

Over the six days, the participants were guided through the following modules:

1. **Day 1 – Introduction to AR/VR:**

Overview of immersive technologies, types of AR/VR devices, applications, and current trends.

2. **Day 2 – Setting Up the Development Environment:**

Installation and configuration of **Unity 3D**, AR SDKs, and integration with **Meta Quest** headsets.

3. **Day 3 – Designing 3D Environments:**

Basics of **3D modeling using Blender**, object placement, and lighting techniques.

4. **Day 4 – Interaction and Animation:**

Creating user interaction, using hand-tracking, and adding animations within the AR/VR environment.

5. **Day 5 – Project Work:**

Students formed small teams and developed mini-AR/VR applications such as **virtual campus tours**, **3D object visualization**, and **interactive learning modules**.

6. **Day 6 – Demonstration and Feedback:**

Student projects were showcased to the experts and faculty members. The experts provided valuable feedback and suggestions for improvement.

Participation and Engagement

A total of **130 students** from various departments actively participated in the bootcamp. Participants demonstrated high enthusiasm and curiosity throughout the sessions. The hands-on sessions enabled them to **understand AR/VR concepts practically** and apply them in creative ways.

The sessions were highly interactive, with students engaging in **real-time demonstrations, coding practice, and device testing** using AR/VR headsets.

Outcomes of the Bootcamp

- Students gained **conceptual clarity** and **technical skills** in developing AR/VR content.
- Participants successfully built **prototype AR/VR applications** by the end of the training.
- The bootcamp fostered **teamwork, innovation, and design thinking** among students.
- Several students expressed interest in pursuing **internships and projects** in AR/VR under CoE initiatives.

Conclusion

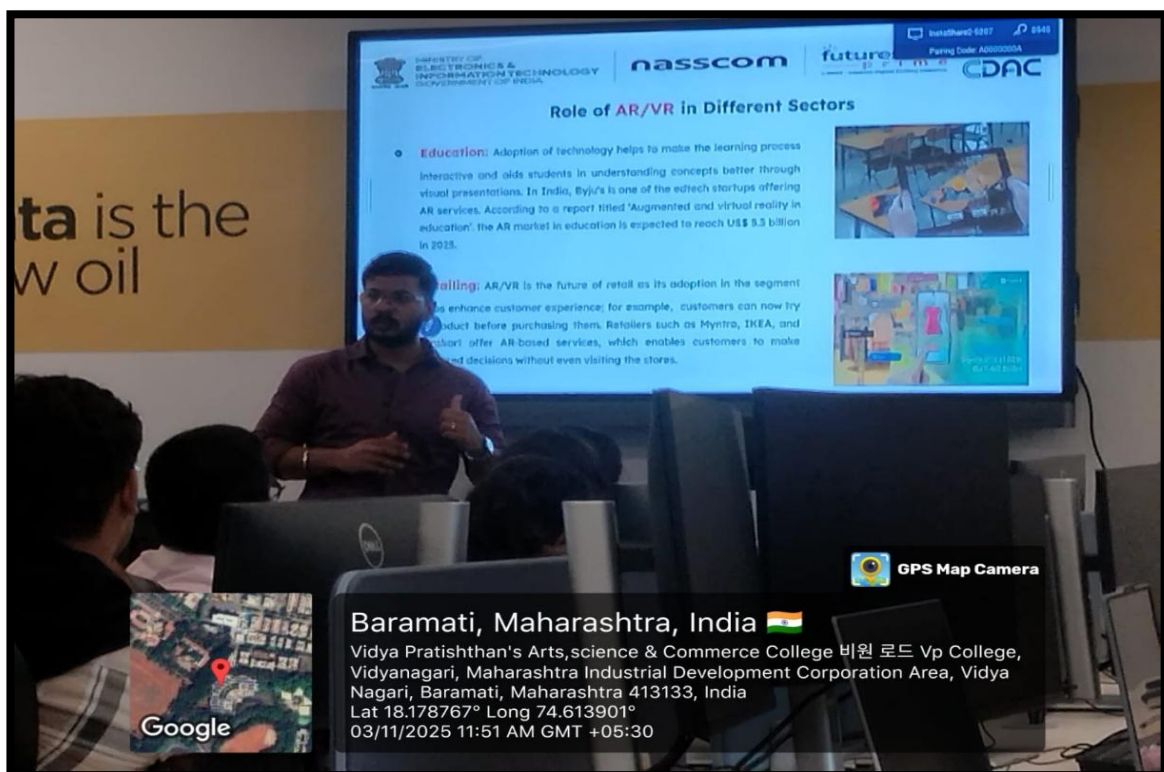
The **AR/VR Bootcamp (3rd–8th November 2025)** organized at **CoE BFL, VPKBIET** proved to be an **excellent platform** for students to explore emerging immersive technologies under the expert guidance of **Ms. Madhuri Nimbalkar** and **Mr. Mayur Thakare** from **CDAC Pune**.

The program was highly successful in igniting curiosity, creativity, and technical understanding among the participants. It also strengthened the collaboration between **VPKBIET CoE** and **CDAC Pune** for future knowledge-sharing and advanced training programs.

Acknowledgment

The Centre of Excellence extends sincere gratitude to **CDAC Pune** for their valuable contribution and expert guidance. Special thanks to the management and faculty of **VPKBIET** for their continuous support in promoting innovative and skill-based learning initiatives for students.







Activity-20	Six Months Internship Program on “Embedded System” from Vector India
Date:	01/01/2026 to 08/11/2025

The students of the Electronics and Telecommunication Engineering (ENTC) department (total 34) participated in a **six-month internship program on “Embedded System” conducted by Vector India**. The internship was carried out during the period **01 January 2025 to 08 November 2025**. The main objective of this internship program was to provide students with practical knowledge and hands-on experience in the field of embedded systems and related technologies.

During the internship, students were introduced to the fundamentals and advanced concepts of **embedded systems, microcontrollers, and embedded programming**. The training included practical sessions on **C programming, data structures, embedded C, microcontroller architecture, and interfacing techniques**. Students also gained exposure to real-time applications and development environments used in the embedded systems industry. The sessions were conducted by experienced trainers from Vector India who guided the students through various programming exercises and mini-projects.

Through this internship, the students enhanced their **technical skills, problem-solving ability, and understanding of embedded hardware and software integration**. The program helped them gain industry-oriented knowledge and practical experience that will be beneficial for their future careers in embedded systems, IoT, and electronics-based industries.

Overall, the internship program provided valuable industry exposure and strengthened the technical competence of the participating ENTC students. Such initiatives play an important role in bridging the gap between **academic learning and industry requirements**.

Activity-21	Skill Development workshop on “Workflow automation and AI Agents” using n8n
Date:	10/01/2026 and 24/01/2026

Date of Conduction:

- 10th January 2026 (Batch-01-30 Students)
- 24th January 2026 (Batch-02-30 Students)

Location: CoE Bharat Forge

1. Introduction

A skill development workshop on “**Workflow Automation and AI Agents using n8n**” was organized at **CoE Bharat Forge** to provide hands-on training in modern automation tools and AI-driven workflows. The workshop focused on empowering students with practical skills in low-code automation and intelligent agent design.

2. Objectives of the Workshop

- To introduce the concept of **workflow automation** using low-code platforms.
- To explain the role of **AI agents** in automating decision-making processes.
- To provide hands-on experience with **n8n** for building real-world automation workflows.
- To enhance students’ employability and industry-relevant technical skills.

3. Workshop Details

The workshop was conducted in **two batches**, accommodating a total of **around 60 students**.

Key topics covered:

- Introduction to workflow automation and use cases
- Overview of **n8n platform** and its architecture
- Creating automated workflows using triggers and nodes

- Integration of APIs, databases, and external services
- Concept and implementation of **AI agents** in automation
- Real-time demonstrations and hands-on exercises

Students actively participated in building sample workflows and automations under expert guidance.

4. Participation

Approximately **60 students** participated across the two batches. The sessions were interactive, with active involvement in hands-on activities, problem-solving, and discussions on real-world automation scenarios.

5. Outcomes of the Workshop

- Students gained **practical exposure to n8n workflow automation**.
- Improved understanding of **AI agents and intelligent automation**.
- Enhanced confidence in designing and deploying automated solutions.
- Increased awareness of **industry applications** in IT, AI, and digital transformation.

6. Conclusion

The Skill Development Workshop on “**Workflow Automation and AI Agents using n8n**” was successfully conducted at CoE Bharat Forge. The program effectively strengthened students’ technical competencies and provided valuable exposure to emerging automation and AI technologies, aligning with current industry needs.



VP's Centre of Excellence for Youth Development Supported by Bharat Forge

One Day Skill Development Training on **Build Your** **“Workflow Automations and AI Agents”**

Date : 10/01/2026

Day : Saturday

Venue : BFL CoE, 2nd Floor Main Building

Time : 10 a.m to 5.00 p.m

- Content:**
- Design end-to-end workflows using no-code / low-code platforms
 - Integrate AI agents for decision-making and intelligent actions

*** **Entry is limited to 30 Students Only (Batch-01)*****

**E- Certificates
to all Participants**

Register Here



Session By
Dr. Vipin B. Gawande

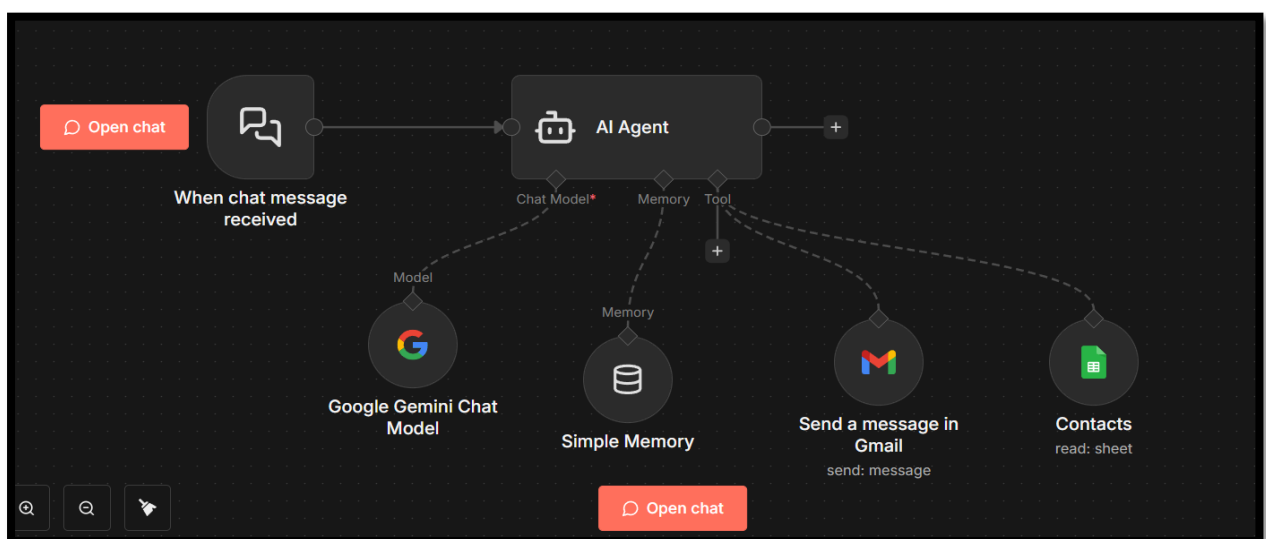
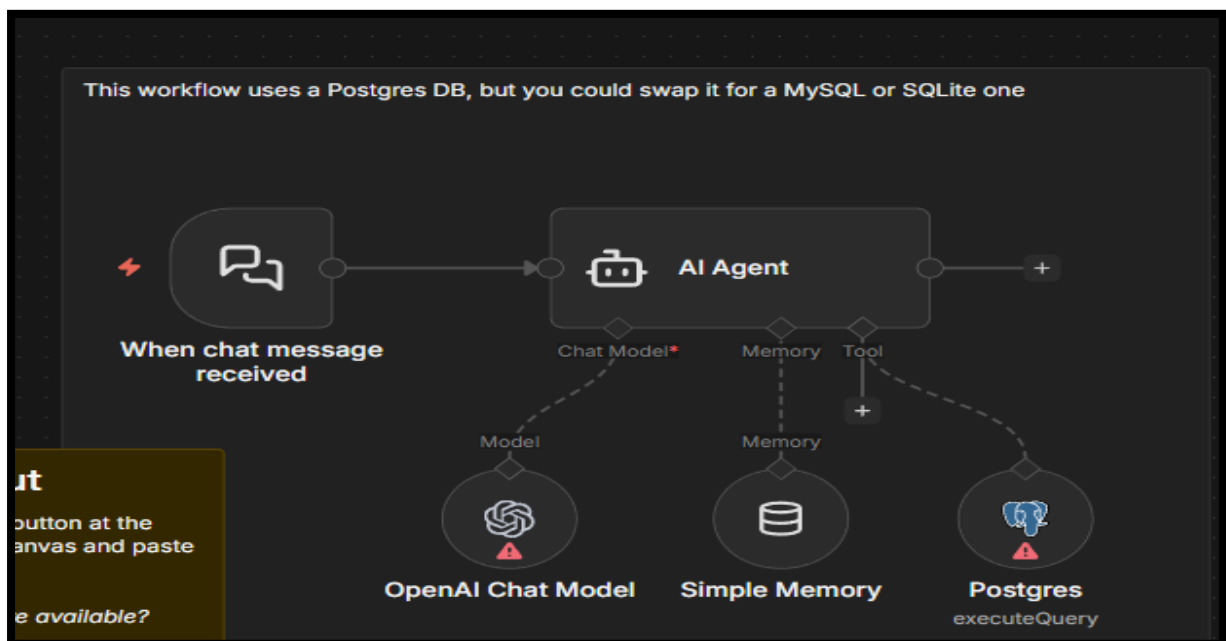
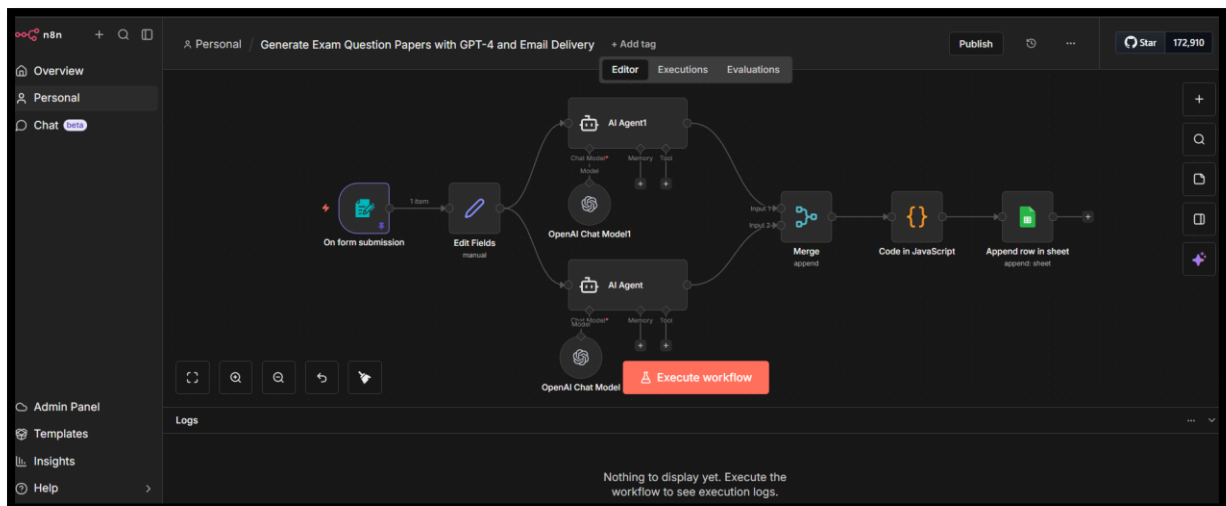
Assistant Professor
Department of Mechanical Engineering

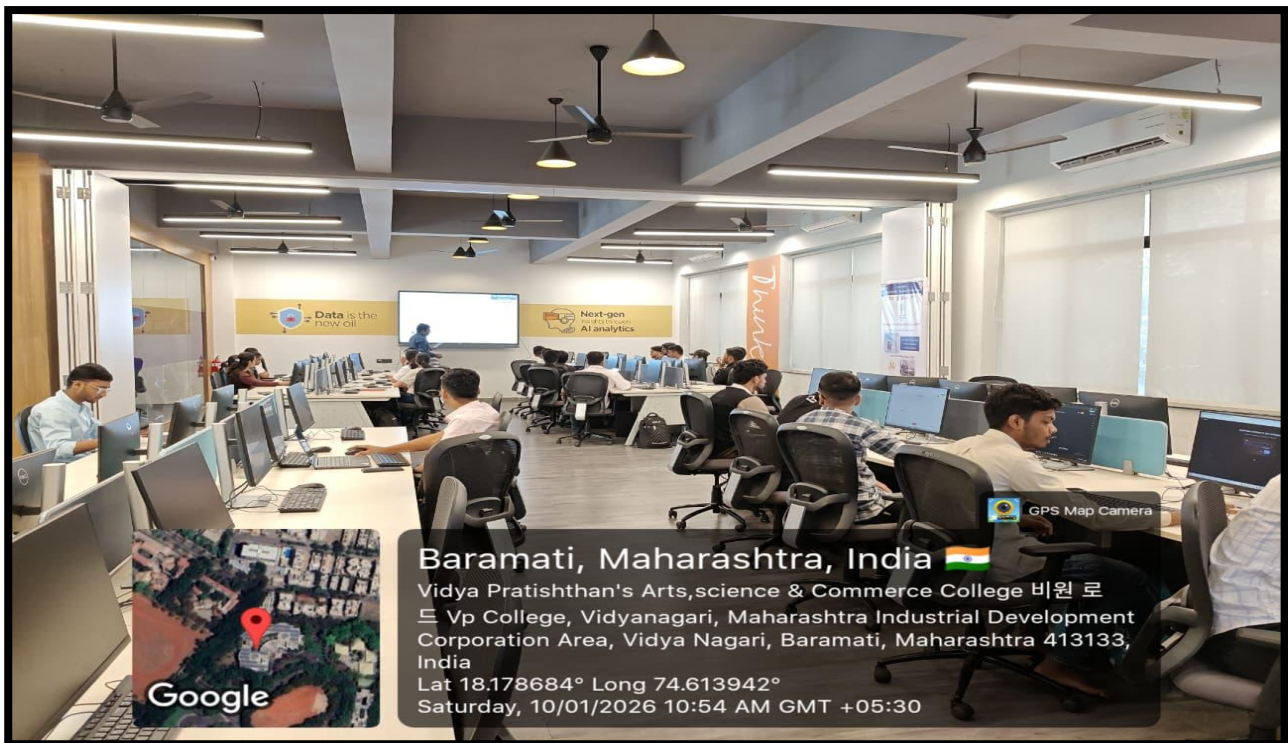


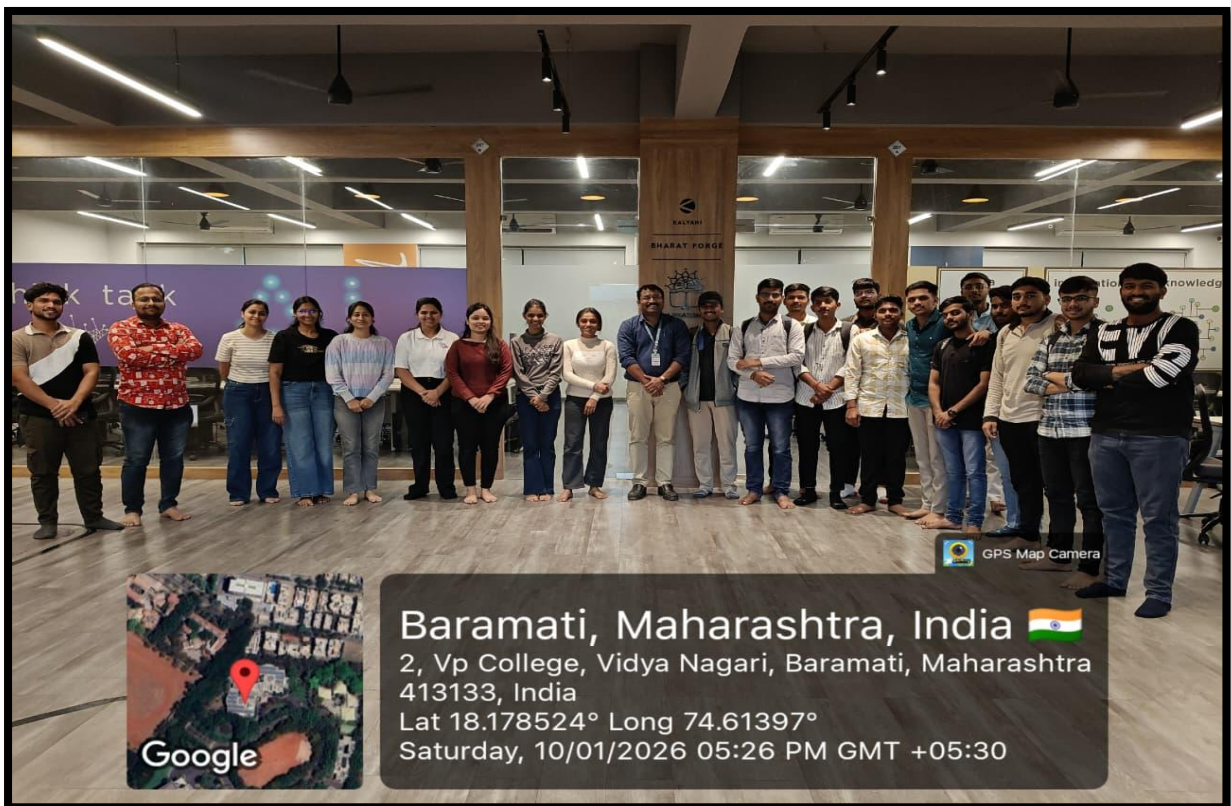
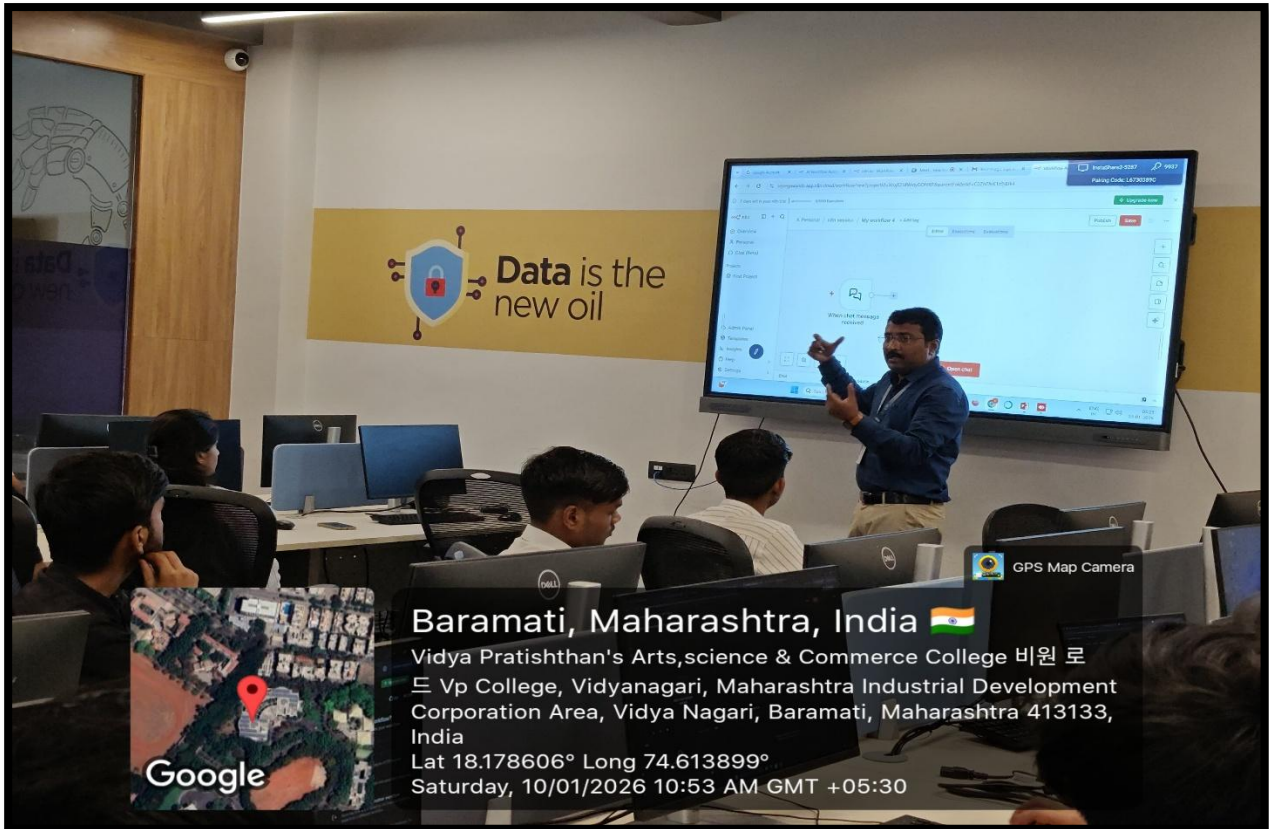
Email: vipin.gawande@vpkbiet.org



Mobile : 9890659696

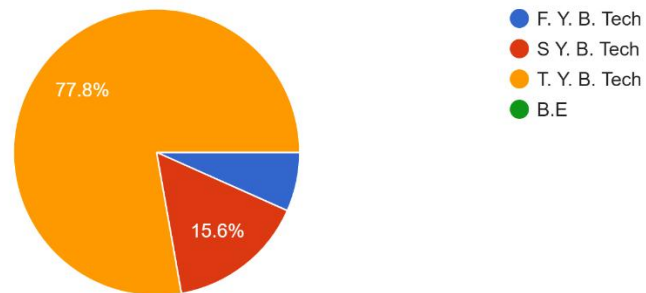






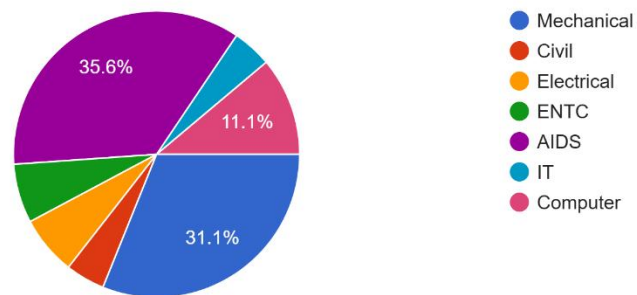
Year of Study

45 responses



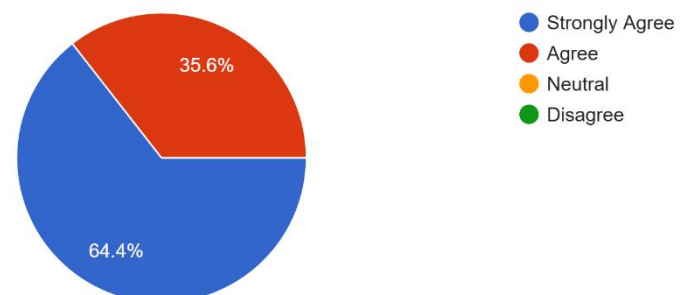
Department

45 responses



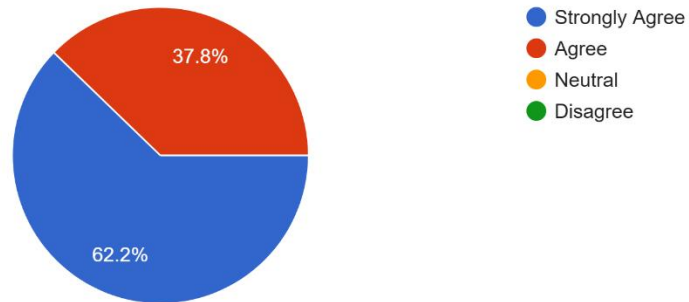
The objectives of the expert session were clearly defined.

45 responses



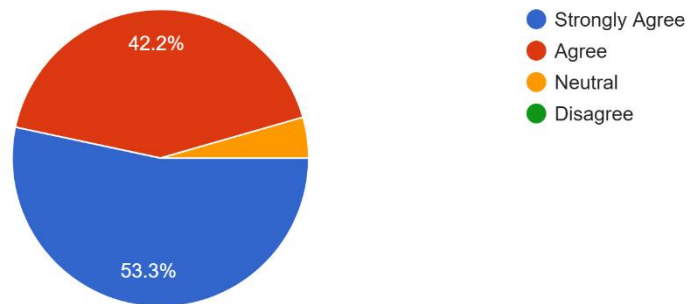
The topic was relevant and useful to my academic/professional growth.

45 responses



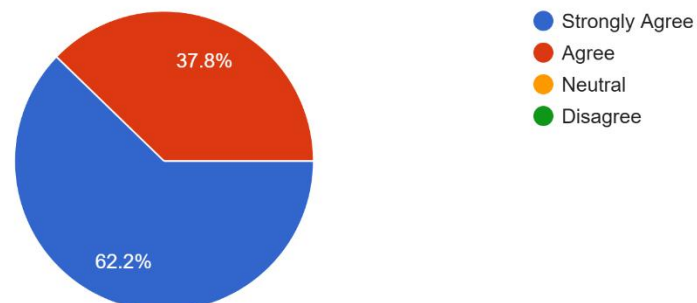
The depth of the content was appropriate.

45 responses



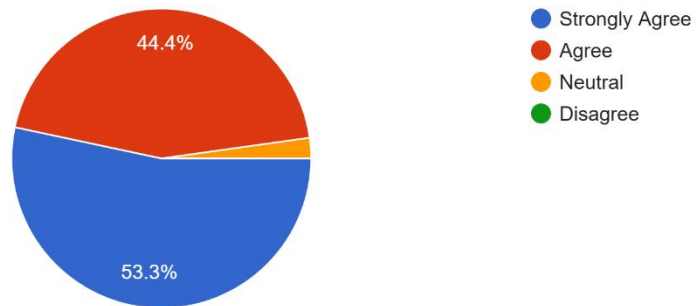
The session enhanced my knowledge and understanding of the subject.

45 responses



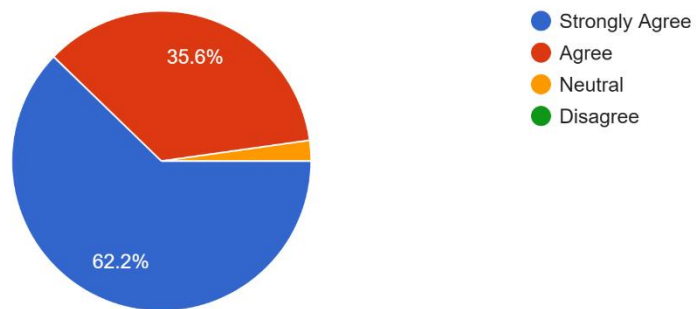
The resource person demonstrated expertise in the subject area.

45 responses



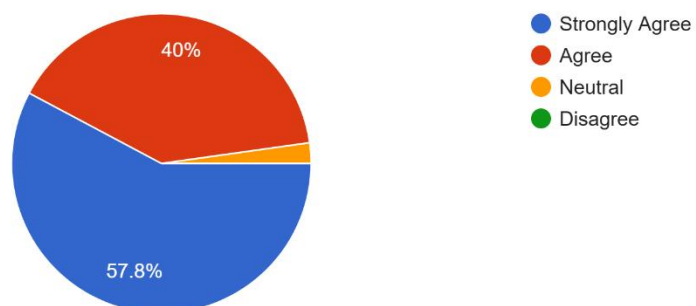
The presentation/delivery was clear and engaging.

45 responses



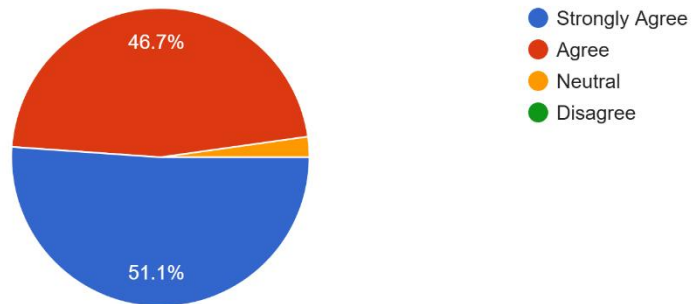
The interaction and responses to queries were satisfactory.

45 responses



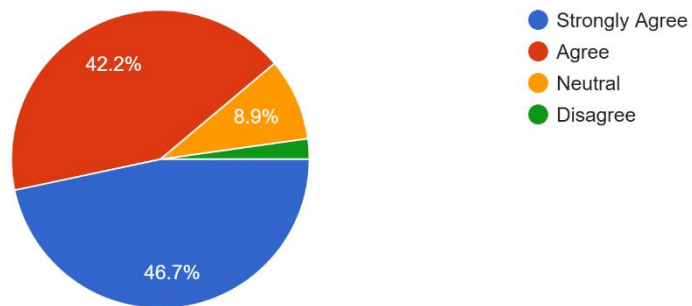
The session was well organized and managed

45 responses



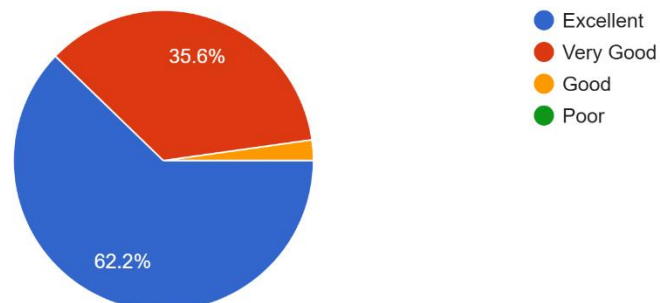
The duration and timing of the session were appropriate.

45 responses



My overall experience of the expert session was:

45 responses



What did you find most valuable in this session?

- **Practical Workflow Automation and n8n Platform:** The most valuable aspects were the practical demonstrations of workflow automation, particularly using the n8n platform, which showed how to connect different apps and automate tasks without code, thereby helping to save time and improve productivity.
- **AI Agents and Technology:** A key takeaway was the introduction and understanding of AI agents, AI building (no-code), and how to create and deploy AI workflows to handle workloads and minimize time through single inputs.
- **Expert Insights and Demonstration:** Attendees valued the practical insights shared by the expert, the real-life examples, and the clear, dedicated explanation of concepts, which made the information understandable and easy to apply.
- **Skill Development and Integration Knowledge:** The session was valued for providing updates on current technology, helping develop new skills, and offering knowledge on integration—specifically how to connect various services and APIs using n8n's nodes to automate complex tasks.

What topics would you like to see covered in future expert sessions?

- **Advanced AI & Automation:** Future sessions should cover AI agents, LLM/RAG systems development using n8n, generative AI, deep learning, AIML, and advanced n8n topics, including depth in the tool and advanced use cases like real-time data integration and connecting AI tools.
- **Practical Application & Projects:** Respondents requested real-world automation use cases (especially small, impactful daily tasks), project-based guidance, project generation, and deployment of n8n on the cloud.
- **Career Development:** Topics related to industry-relevant skills, career roadmaps, interview preparation, placement preparation, internships, entrepreneurship, and guidance on emerging technologies were suggested.
- **Specific Technical Areas:** Other requested topics include backend development, data analytics, data analyst roles, error handling/debugging in n8n, and cybersecurity/ethical hacking applications.

Any additional comments/suggestions:

- Request for Future Sessions: Multiple respondents requested more future workshops, advanced technical lectures, and additional sessions, specifically focusing on automation, hands-on experiences, and sessions relevant to mechanical students' placement perspectives.
- Positive Feedback: The session was frequently described as informative, engaging, excellent, very good, useful, helpful, and knowledge-enhancing. Specific appreciation was given to Vipin Gawande for making learning effective and interesting through practical demonstrations.
- Suggestions for Improvement: Respondents suggested including more interactive discussions, additional Q&A time, and hands-on practice, including assigning tasks to students for practical use of n8n.

Activity-22	CoE Outreach Activity “3D Printing (Additive Manufacturing) and Internet of Things (IoT)”
Date:	19/01/2026

Venue: VP’s Supe Arts, Science and Commerce College, Supe

Taluka: Baramati

District: Pune

1. Introduction

The Centre of Excellence (CoE) organized an outreach activity on **“3D Printing (Additive Manufacturing) and Internet of Things (IoT)”** on **19th January 2026** at VP’s Supe Arts, Science and Commerce College, Supe. The program aimed to create awareness among students about emerging Industry 4.0 technologies and their applications in engineering, science, and daily life.

2. Objectives of the Program

- To introduce the fundamentals of **3D Printing (Additive Manufacturing)**.
- To familiarize students with the concept and applications of the **Internet of Things (IoT)**.
- To provide hands-on exposure and live demonstrations of modern technologies.
- To motivate students towards innovation, research, and skill-based learning.

3. Program Details

The outreach activity was conducted through interactive lectures and live demonstrations.

Session on 3D Printing (Additive Manufacturing):

- Overview of additive manufacturing and its comparison with traditional manufacturing methods.
- Explanation of the **3D printing workflow**: CAD design, slicing, and printing.
- Demonstration of a desktop 3D printer and printed sample models.

- Discussion on applications in education, healthcare, automotive, and product development.

Session on Internet of Things (IoT):

- Introduction to IoT architecture, sensors, actuators, and microcontrollers.
- Explanation of data collection, connectivity, and real-time monitoring.
- Demonstration of simple IoT-based applications such as sensor-based monitoring.
- Discussion on IoT use cases in smart homes, smart agriculture, healthcare, and industry.

4. Participation

Students and faculty members from science and commerce streams actively participated in the program. The sessions were highly interactive, with students asking questions and engaging in discussions about future career opportunities in these domains.

5. Outcomes of the Outreach Activity

- Students gained a **basic understanding of 3D printing and IoT technologies**.
- Improved awareness about **Industry 4.0 trends** and interdisciplinary applications.
- Enhanced interest among students in **hands-on learning, innovation, and startups**.
- Strengthened academic and technical collaboration between CoE and the host institution.

6. Conclusion

The CoE outreach activity on “**3D Printing (Additive Manufacturing) and Internet of Things (IoT)**” was successfully conducted and achieved its intended objectives. The program effectively bridged the gap between theoretical knowledge and practical exposure, inspiring students to explore emerging technologies and future-ready skills.



Savitribai Phule Pune University, Pune
Vidya Pratishthan's
Supe Arts, Science and Commerce College, Supe
 Tal. Baramati, Dist. Pune 412204



Internal Quality Assurance Cell, Innovation & Start-Up Cell
&
Department of Science
Organized One-Day Skill Development Session On
“3D-Printing (Additive Manufacturing & Internet of Things(IoT))”



Chief Guest
Dr. Vipin B. Gawande
 (Head Centre of Excellence for Youth
 Development Supported by Bharat Forge,
 Asst.Prof. Dept. of Mechanical Engineering)

President
Dr. Sanjay R. Kale
 Principal

19th January 2026

at 10.00 am

Place - Hall No. 15

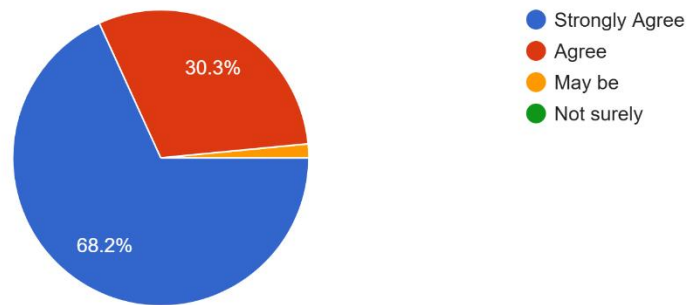






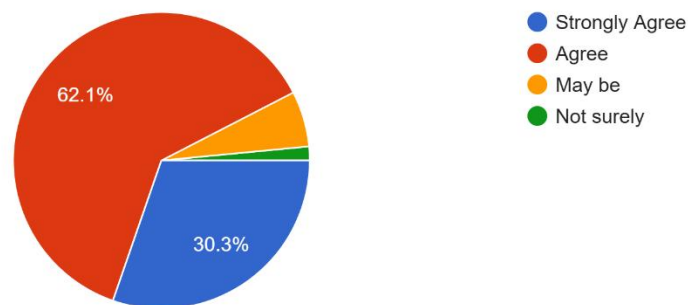
Do you find this training useful for your resent/future knowledge & skills?

66 responses



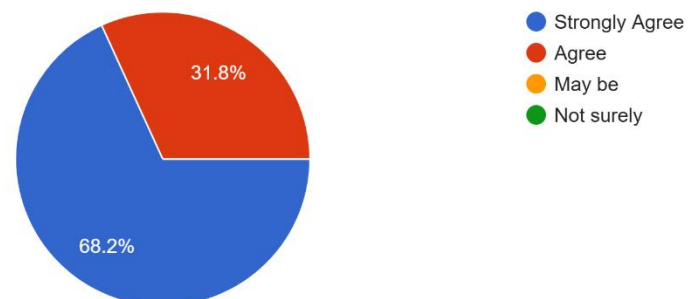
Does the training has provided a sufficient time for hands on session?

66 responses



The content (both theory and practical) was delivered clearly by the expert trainer?

66 responses

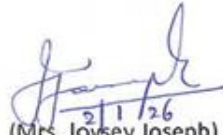


Activity-23	CoE Outreach Activity “3D Printing (Additive Manufacturing) and Internet of Things (IoT)”
Date:	03/02/2026

Venue: VP's New English medium School, Baramati

Taluka: Baramati

District: Pune

 VPNEMS Mrs. Joysey Joseph Principal	VIDYA PRATISHTHAN'S NEW ENGLISH MEDIUM SCHOOL <i>ISO 9001:2015 Certified</i> Vidyanagari, Bhigwan Road, Baramati, Dist Pune-413133. Phone No. (O): (02112)-239274, 239275 EmailID - vpnems@vidyapratishthan.com , principal.vpnems@vidyapratishthan.com	 
Recog No.VSL/ 1004(260/2004) Pri Edn- 3 dated 22/06/2004		
		Outward No:VPNEMS/251/2026 Date : 02/ 01 / 2026
To Dr. Vipin B. Gawande Head Centre of Excellence for Youth Development Supported by Bharat Forge Assistant Professor, Department of Mechanical Engineering (NBA-Accredited) VP Karmalayan Bajaj College of Engineering Vidyanagari, Baramati		
Subject: One-Day Skill Development Session on 3D Printing/Internet of Things (IOT) for Students.		
Respected Sir With reference to your mail dated 31 st December 2025, we would like to arrange one-day Skill Development Session on “3D Printing (Additive Manufacturing)” and “Internet of Things (IoT)” for our students on 28 th January 2026 at 10.30 a.m. in our School Robotic Lab. This is for your kind information.		
Thanking you. Yours Sincerely  (Mrs. Joysey Joseph) PRINCIPAL Vidya Pratishthan's New English Medium School Vidyanagari, Baramati - 413 133		

The Centre of Excellence (CoE) organized an outreach activity on “**3D Printing (Additive Manufacturing) and Internet of Things (IoT)**” on **03 February 2026** at **VP’s New English Medium School, Baramati, Taluka Baramati, District Pune**. The objective of this activity was to create awareness among school students about emerging technologies such as **3D Printing and IoT**, and to motivate them to explore innovations in science and engineering.

During the session, the resource persons introduced students to the **concept of Additive Manufacturing (3D Printing)** and explained how objects can be designed digitally and manufactured layer-by-layer using a 3D printer. The students were shown different **3D printed models and prototypes**, which helped them understand the practical applications of this technology in fields such as **medical, manufacturing, product design, and education**.

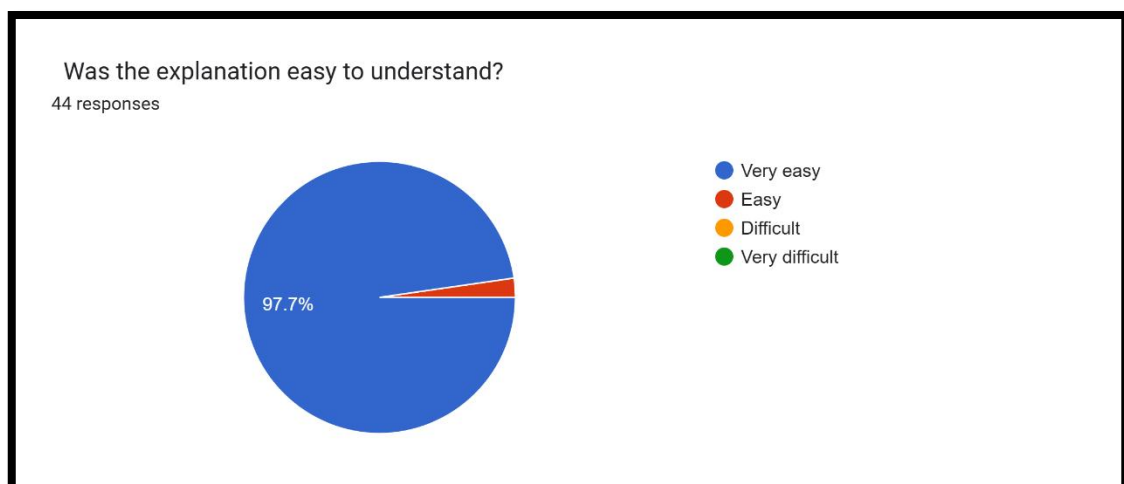
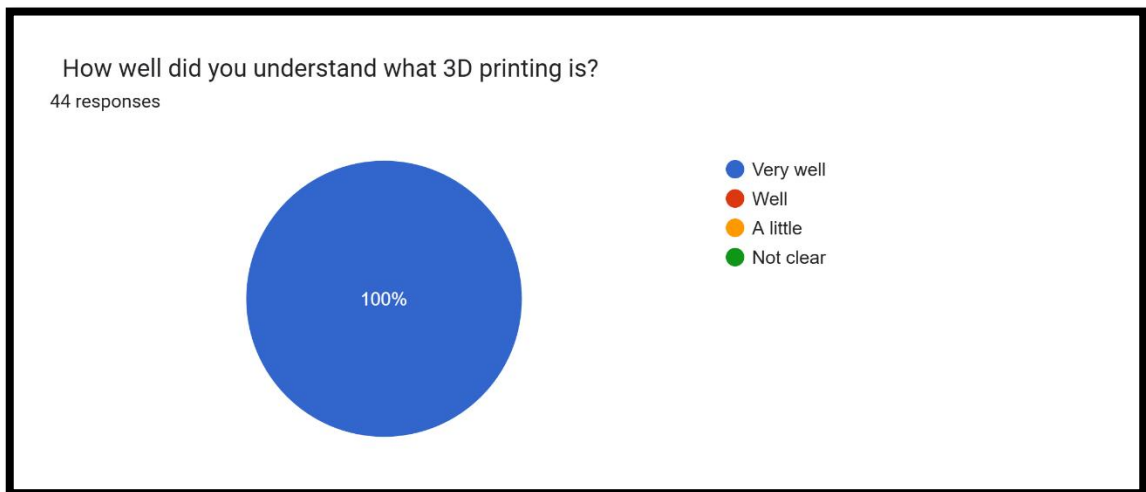
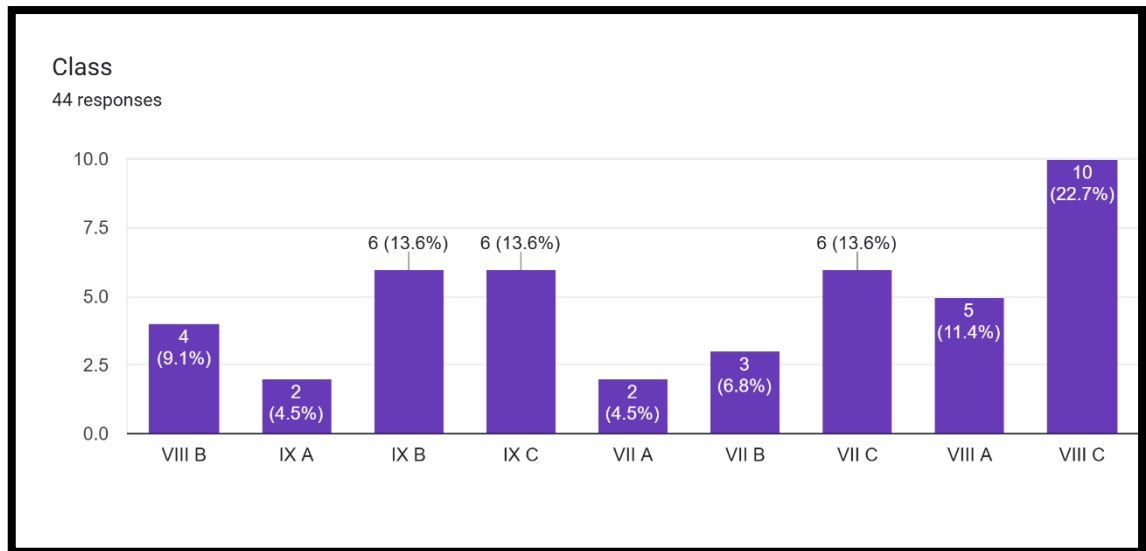
The session also included an introduction to the **Internet of Things (IoT)**, where students learned how everyday devices can be connected to the internet to collect and exchange data. Practical examples such as **smart home systems, smart agriculture, and automated monitoring systems** were discussed to demonstrate the importance of IoT in modern life.

A live demonstration of **3D printing and simple IoT-based systems** was conducted to make the session interactive and engaging. Students actively participated by asking questions and showing curiosity about how these technologies work and how they can be used to solve real-world problems.

The outreach activity successfully enhanced students’ awareness of **emerging technologies and innovation**, encouraging them to develop interest in **science, engineering, and technology-based learning**. The program concluded with an interactive discussion and appreciation from the school authorities for conducting such an informative and inspiring session for the students.

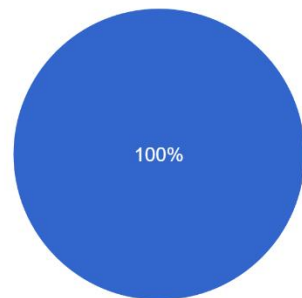






How interesting was the 3D printer demonstration?

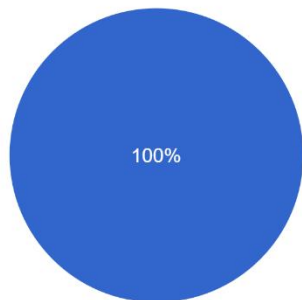
44 responses



- Very interesting
- Interesting
- Okay
- Not interesting

Did this session increase your interest in technology?

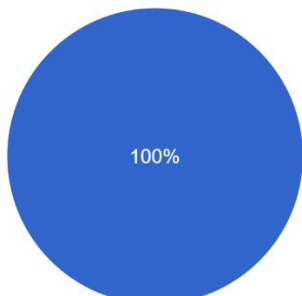
44 responses



- Yes, very much
- Yes
- A little
- No

Would you like to design your own 3D model?

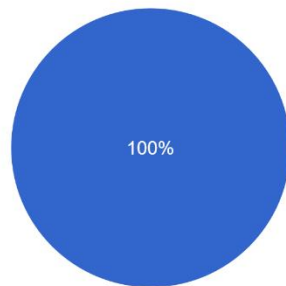
44 responses



- Yes, definitely
- Yes, maybe
- Not sure
- No

How would you rate today's 3D printing session?

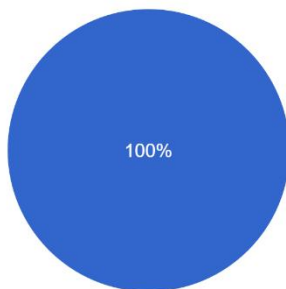
44 responses



- Excellent
- Good
- Average
- Poor

How was the instructor's explanation?

44 responses



- Very clear
- Clear
- Somewhat clear
- Not clear

Activity-24	Expert Session by Dr. Vipin B. Gawande: AI Tools Hands-on Session
Date:	14/03/2026

Introduction

An expert session on “AI Tools – Hands-on Techniques for Educators” was successfully conducted on 14th March 2026 as part of the Faculty Development Programme titled “AI for Educators – Artificial Intelligence Tools and Hands-on Techniques,” organized by Vidya Pratishthan’s College of Agricultural Biotechnology, Baramati. The session aimed to provide faculty members with practical exposure to modern Artificial Intelligence tools that can enhance teaching methodologies, research capabilities, and overall academic productivity.

Expert Details

The session was delivered by Dr. Vipin B. Gawande, Head of the Centre of Excellence (CoE), Bharat Forge, who brought valuable expertise in the domain of Artificial Intelligence and its real-world applications. His session focused on bridging the gap between theoretical understanding and practical implementation of AI in education.



Objectives of the Session

The primary objective of the session was to familiarize educators with emerging AI tools and demonstrate their effective use in academic environments. It also aimed to enhance the ability of faculty members to integrate AI into teaching-learning processes, develop innovative instructional strategies, and improve efficiency in content creation and research activities.

Session Description

The session was highly interactive and focused on hands-on learning. Dr. Gawande introduced participants to user-friendly AI tools and demonstrated how they can be effectively used in academic settings. The emphasis was on practical implementation, enabling faculty members to directly engage with the tools and understand their real-time applications in teaching and research.

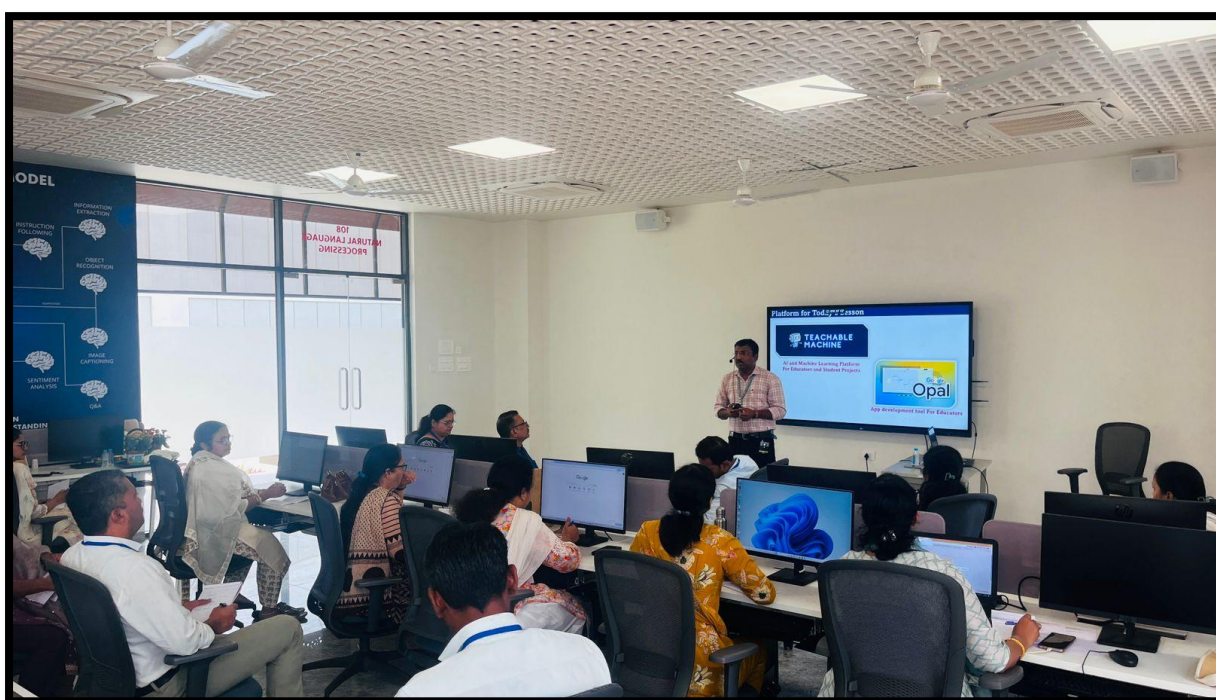
Session on Teachable Machine

A key component of the session was the hands-on training on Teachable Machine, a tool that enables users to create machine learning models without requiring programming knowledge. Participants learned how to train models using images, audio, and pose data, and how to test these models in real time. The session highlighted the potential of Teachable Machine in developing interactive classroom applications, object recognition systems, and student-driven AI projects, thereby making learning more engaging and experiential.



Session on Google Opal

Another important segment of the session focused on Google Opal, an AI-powered productivity tool designed to support educators in academic tasks. The participants were introduced to its applications in generating teaching content, preparing lesson plans, and automating routine academic work. The session demonstrated how such tools can significantly reduce manual effort while improving the quality and efficiency of teaching and documentation processes.



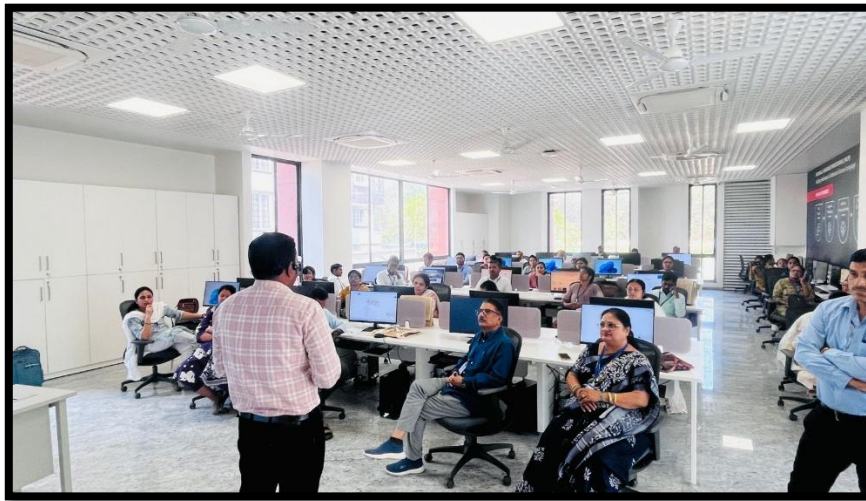
Hands-on Activities

The session included several practical activities where participants actively engaged in creating AI models using Teachable Machine and generating academic content using AI tools. Faculty members experimented with designing lecture materials, creating assessments, and exploring innovative teaching strategies supported by AI. This experiential approach helped them gain confidence in using AI tools in their respective domains.

Participation and Engagement

The session witnessed enthusiastic participation from faculty members across different departments. The interactive format encouraged discussions, queries, and collaborative

learning. Participants showed keen interest in exploring the applications of AI in their teaching practices and research work.



Outcomes of the Session

The session resulted in enhanced awareness and understanding of AI tools among faculty members. Participants developed practical skills in using AI for content creation, teaching support, and research assistance. The session also motivated educators to adopt AI-driven approaches in their teaching methodologies and to explore further advancements in this field.

Feedback Summary

The feedback received from participants was overwhelmingly positive. Faculty members appreciated the hands-on approach and found the session highly relevant to modern educational needs. Many participants expressed interest in attending advanced sessions on AI tools and their applications in specific domains.

Conclusion

The expert session conducted by Dr. Vipin B. Gawande proved to be highly informative, practical, and impactful. The inclusion of tools such as Teachable Machine and Google Opal made the session relevant and accessible for educators. The programme successfully achieved its objective of empowering faculty with essential AI skills and promoting the integration of advanced technologies into education. It is recommended that similar sessions be organized in the future to further strengthen AI adoption in academia.

Major Outcomes for AY-2025-26

S. No	Achievement	Remark	No. of students
1.	National Level Smart India Hackathon	First Prize winner	5
2.	Copyright	13	65
3.	Publications	2	10
4.	Competitions	9	45

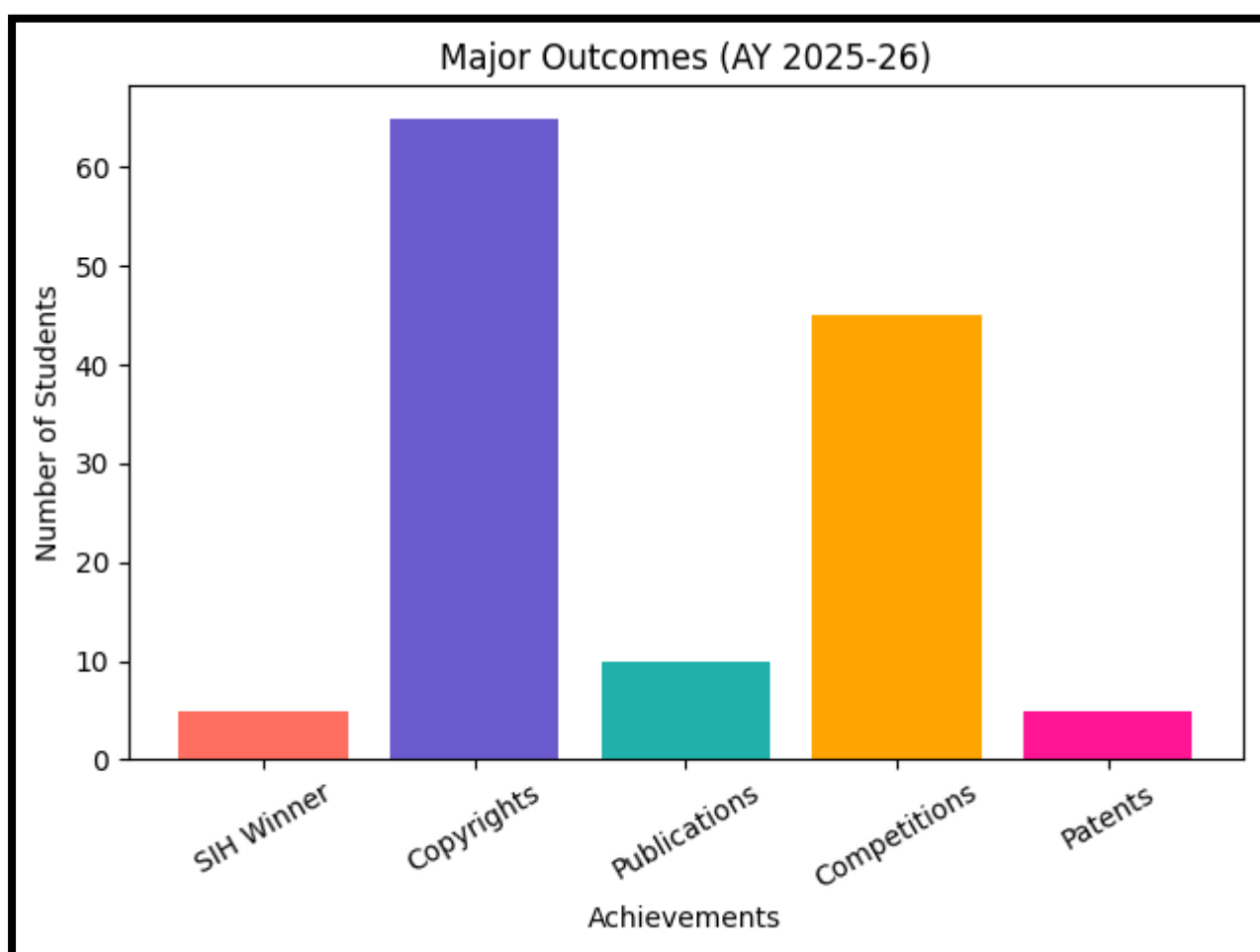


Figure: Major Outcomes for AY-2025-26

Project-01	Biz Connect AI: Digital Assistant for Local Vendor Empowerment
Team Members	1. Sneha Sachin Pawar - AI&DS - TY 2. Kishor Macchindra Jawale - AI&DS - TY 3. Omkar Rajendra Ghodake - AI&DS - TY 4. Soham Sachin Ghadge- AI&DS - TY 5. Vaishnavi Prashant Alsundekar- AI&DS - TY

The student has successfully designed and implemented BizConnect AI, an intelligent digital platform developed to support small-scale vendors in modernizing their business operations. The project addresses real-world challenges faced by vendors in rural and semi-urban areas, where business activities are often managed manually, leading to inefficiencies and limited growth opportunities.

BizConnect AI provides an integrated solution that includes vendor and customer management, product catalogue handling, order processing, and secure digital payment tracking with UPI support. The platform is built with a focus on simplicity and usability, ensuring that even users with minimal technical knowledge can effectively operate the system.

A key highlight of the project is the integration of artificial intelligence, which analyzes sales and transaction data to generate meaningful insights. These include demand prediction, inventory management suggestions, and performance recommendations that help vendors make informed decisions and optimize their business strategies. Additionally, real-time dashboards enable users to monitor sales, stock levels, and financial records efficiently.

Overall, the project demonstrates a practical application of AI and digital technologies to enhance business efficiency, promote financial inclusion, and support the digital transformation of local vendors. It reflects strong technical understanding, problem-solving ability, and a focus on creating impactful, user-centric solutions.

[illegible]

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4	VAISHNAVI PRASHANT ALSUNDEKAR	KAMALNAYAN BAJAJ INSTITUTE OF ENGINEERING AND TECHNOLOGY, DIST. PUNE, MH, INDIA-413133	

[illegible]

Project-02	Lakshya : Detecting the Target in Hate Speech for Indian Languages
Team Members	1.Laukik Bhagawan Bhogale - IT – B.E, 2.Samarth Mahendrakumar Toradmal - IT - B.E, 3.Rushikesh Madhukar Wakade - IT - B.E, 4.Swamiraj Uttam Chavan - IT - B.E,

The student has successfully developed “Lakshya: Detecting the Target in Hate Speech for Indian Languages”, a Natural Language Processing (NLP) based project sponsored by Bharat Forge Lab (BFL) at VPKBIET, Baramati. The project addresses the growing issue of targeted hate speech in India’s multilingual digital environment, particularly in Devanagari-script languages such as Hindi and Marathi.

Unlike conventional systems that perform only binary classification (hate vs. non-hate), Lakshya introduces a two-stage framework focused on identifying the specific target of hate speech, categorizing it into Individual, Organization, or Community. This added granularity is crucial for effective content moderation, legal interpretation, and social analysis.

The system is built using the XLM-RoBERTa model, enhanced with Parameter-Efficient Fine-Tuning (PEFT) using Low-Rank Adaptation. This approach significantly reduces computational requirements while maintaining strong performance, achieving an accuracy of 75.3%. The model is trained using cross-entropy loss for multi-class classification and is optimized to handle linguistic challenges such as code-mixing (Hinglish) and regional variations.

Overall, the project demonstrates an effective and scalable AI solution for detecting targeted hate speech in Indian languages. It highlights the student’s strong understanding of advanced NLP techniques and their application in solving socially relevant cybersecurity problems. Future enhancements include expanding to more regional languages, detecting adversarial or masked hate speech, and integrating Named Entity Recognition (NER) for improved target identification.



Project-03	Event Ticket Scalping Prevention System Using Blockchain and AI
Team Members	1. Ismail Ashfaq Sayyed -IT-4th year 2. Kalyani Adesh Pachangane-IT-4th year 3. Asim Raju Sayyad -IT-4th year 4. Anagha Sachin Bhosale-IT-4th year

The student has successfully developed an “Event Ticket Scalping Prevention System using Blockchain and AI”, aimed at addressing the growing issue of ticket black-marketing and unfair resale practices. Ticket scalping often leads to inflated prices and limited access for genuine customers, especially during high-demand events. This project presents a secure and intelligent solution to ensure fairness and transparency in ticket distribution.

The system utilizes blockchain technology to create a decentralized and tamper-proof ticketing mechanism, where each ticket is uniquely recorded and cannot be duplicated or

altered. This ensures authenticity and prevents unauthorized resale. In addition, Artificial Intelligence (AI) is integrated to monitor user behavior and detect suspicious activities such as bulk purchases or automated bot-based bookings, which are commonly used in scalping.

The platform also incorporates controlled resale features, allowing tickets to be transferred only under predefined conditions, thereby maintaining price fairness. Real-time tracking and verification further enhance system reliability and user trust.

Overall, the project demonstrates an effective combination of Blockchain and AI to solve a real-world problem. It reflects the student's strong understanding of emerging technologies and their ability to design a secure, scalable, and practical solution for modern digital ticketing systems.



Project-04	EHR Analysis and Smart EHC Generation using LLM
Team Members	1.Lokhande Nikita Pravin 2.Salke Rohit Vilas 3.Shinde Ajayraje Dilipkumar 4.Wavhal Prathmesh Navnath 5.Vedpathak Pranav Shashkant

The student has successfully developed the project “EHR Analysis and Smart EHC Generation using LLM”, which aims to improve the management of healthcare records through advanced digital technologies. The project addresses key challenges in the healthcare system, particularly the scattered and paper-based storage of medical data, which often leads to inefficiencies, data loss, and delays in diagnosis and treatment.

The proposed system converts physical medical documents into digital format using OCR and then applies Large Language Models (LLMs) to extract, analyze, and summarize critical patient information. Based on this processed data, a Smart Electronic Health Card (EHC) is generated, providing a concise and accessible representation of a patient’s medical history. The system also incorporates AI-driven features such as medication reminders, follow-up alerts, and preventive healthcare recommendations.

To ensure data security and integrity, blockchain technology is integrated, enabling secure, tamper-proof storage and controlled access to sensitive medical records. This enhances trust and reliability in handling patient data. The solution supports centralized record management, easy accessibility, and improved clinical decision-making.

Overall, the project demonstrates an effective integration of AI, OCR, and blockchain to build a secure and intelligent healthcare system. It highlights the student’s ability to develop a practical, scalable solution that promotes a shift toward data-driven and preventive healthcare.





Project-05	Drone-Based Intelligent ET Sensing & Smart Irrigation System.
Team Members	1. Sankalp Laxman Khatake (T.Y-Aids) 2. Abhinav Ram Dhakpade (T.Y-Aids) 3. Vaishnavi Ganesh Kirve (T.Y-Aids) 4. Siddhi Anil Jadhav (T.Y-Aids) 5. Shreya Sanjay Bhoite (T.Y-Aids)

The student has successfully developed “AgriAura: Drone-Based Intelligent ET Sensing & Smart Irrigation System”, an AI-driven solution aimed at improving water management and crop monitoring in agriculture. The project addresses critical challenges such as water wastage, manual irrigation practices, and lack of real-time field insights, especially in large-scale farming.

The system integrates drone technology, IoT sensors, and AI to enable precision irrigation. Drones equipped with NDVI and infrared sensors capture field images to assess crop health and detect dry zones. Using the concept of evapotranspiration (ET), the system intelligently estimates crop water requirements and identifies specific areas that need irrigation. This ensures targeted, zone-wise watering rather than irrigating the entire field.

In addition, the smart irrigation system uses soil moisture sensors, weather data, and AI algorithms to automate irrigation decisions. It determines when and how much water to supply, activates pumps accordingly, and avoids irrigation if rainfall is predicted. Features such as rain-aware control, flood prevention, solar-powered operation, and crop-specific scheduling enhance system efficiency and sustainability.

Overall, the project demonstrates an effective integration of AI, IoT, and drone technology for precision agriculture. It highlights the student’s ability to design an innovative and practical solution that conserves water, improves crop yield, and supports sustainable farming practices.

AgriAura: AI-Powered Smart Irrigation Ecosystem with Weather Intelligence, Drone Monitoring & Voice-Enabled Crop Control

Contents

1 Title of Project	2
2 Objective	2
3 Methodology Used	2
3.1 Problem Analysis & Requirement Identification	2
3.2 System Design & Architecture Planning	2
3.3 Sensor & Hardware Implementation	2
3.4 AI-Based Predictive Model Development	3
3.5 Weather Forecast Integration	3
3.6 Drone-Assisted Field Monitoring	3
3.7 Solar Optimization & Power Scheduling	3
3.8 Mobile Application Development	3
3.9 Voice Assistant Integration	3
3.10 Testing, Validation & Iteration	4
3.11 Final Deployment & Scalability Planning	4
4 Diagram	4
5 Uniqueness of Project Idea	5
6 Application	6
7 Future Scope	6

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अग्रिऑर
अन्नम मित्रं

Project-06	Shipping Cost Estimation using machine learning
Team Members	1. Shubham Anil Khalate Aids Third Year 2. Shreyas Bapusaheb Babar Aids Third Year 3. Pranav Prakash Khade Aids Third Year 4. Dipak Sachin Khade Aids Third Year 5. Mayur Pawar Aids Third Year

The student has successfully developed “Cargo-AI: ML-Powered Shipping Cost Estimation”, an intelligent platform designed to enhance efficiency and transparency in the logistics sector. The project addresses key challenges associated with traditional shipping cost estimation methods, which are often manual, time-consuming, and unable to adapt to dynamic factors such as fuel price fluctuations and seasonal demand.

The system leverages Machine Learning techniques to provide real-time and accurate shipping cost predictions. It processes user inputs such as cargo type, weight, container size, and destination, and combines them with historical data and external variables. Advanced ML models including Linear Regression, Random Forest, and XGBoost are trained and optimized using evaluation metrics like R^2 and RMSE to ensure reliable performance.

In addition to prediction, the platform features an interactive dashboard that offers insights into cost drivers, route optimization, and real-time alerts for market changes. This enables users to make informed financial decisions and optimize logistics planning. The system is built using Python and integrates data processing and visualization tools to deliver a scalable and user-friendly solution.

Overall, the project demonstrates effective application of AI and ML in solving real-world logistics problems. It highlights the student’s ability to design a data-driven, practical, and scalable system that supports better decision-making and improves operational efficiency in supply chain management.



N.A.

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6 PRANAV KHADE		BIOTECHNOLOGY GATE VPKBIET BARAMATI-413133	
7 SATYAJIT NIMBALKAR		BIOTECHNOLOGY GATE VPKBIET BARAMATI-413133	

Project-07	VisionGuard – Obstacle Awareness Navigation System for the Blind
Team Members	1.Siddhi Anil Jadhav (T.Y AIDS) 2. Sankalp Laxman Khatake (T.Y AIDS) 3. Vaishnavi Ganesh Kirve (T.Y AIDS) 4. Abhinav Dhakpade (T.Y AIDS) 5. Shreya Sanjay Bhoite (T.Y AIDS)

The student has successfully developed “VisionGuard – Obstacle Awareness Navigation System for the Blind”, a wearable assistive technology designed to enhance mobility and safety for visually impaired individuals. The project addresses the critical challenge of safe navigation in both indoor and outdoor environments by providing real-time obstacle detection and intuitive user feedback.

The system utilizes a combination of camera and depth sensors to capture the surroundings and identify obstacles along with their distance and direction. A processing unit, such as Raspberry Pi, analyzes this data to detect potential hazards, determine safe paths, and generate alerts. The user is guided through a combination of voice instructions and vibration feedback, enabling quick and effective responses to environmental changes.

VisionGuard includes advanced features such as detection of moving objects, terrain awareness (including stairs and potholes), and functionality in low-light or crowded conditions. It also supports mobile and cloud integration, allowing users to customize settings and enabling system updates and remote monitoring.

Overall, the project demonstrates a practical and impactful application of embedded systems and intelligent sensing technologies. It highlights the student’s ability to develop an innovative, user-centric solution that improves independence, confidence, and quality of life for visually impaired users.



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Project-08	Smart Health Monitoring System
Team Members	1. Abhinav Ram Dhakpade 2. Sankalp Laxman Khatake 3. Vaishnavi Ganesh Kirve 4. Siddhi Anil Jadhav 5. Shreya Sanjay Bhoite

The student has successfully developed a “Smart Health Monitoring System”, designed to enable continuous and real-time monitoring of patient vital signs using wearable technology. The project addresses a critical challenge in healthcare, where limited medical staff makes it difficult to monitor patients continuously, potentially leading to delayed detection of critical conditions.

The system uses a wearable sensor belt equipped with sensors to measure parameters such as heart rate, SpO₂, ECG, and body temperature. A microcontroller processes the collected data and identifies abnormal conditions. In case of any irregularities, the system immediately sends alerts to healthcare providers. The data is also transmitted to a cloud platform, allowing remote monitoring and easy access to patient information.

Key features of the system include real-time monitoring, wireless operation, instant alert mechanisms, and cloud-based accessibility. This not only improves patient safety but also reduces the workload on medical staff and enables faster response in emergency situations.

Overall, the project demonstrates an effective integration of IoT, embedded systems, and cloud computing to build a reliable healthcare solution. It highlights the student’s ability to develop a practical, scalable system that supports modern healthcare needs such as remote monitoring and telemedicine.





Project-09	Intelligent In-Cabin Monitoring and Life Support Intervention System
Team Members	1.Gargi Vishnu Wani -ENTC-BE 2.Farida Jamil Sayyad-ENTC-BE 3.Rachit Sanjay Uglakar -ENTC-BE

The student has successfully developed an “Intelligent In-Cabin Monitoring and Life Support Intervention System”, aimed at preventing life-threatening situations inside parked vehicles caused by extreme heat and lack of ventilation. The project addresses a critical safety issue where children, pets, or individuals may become trapped inside vehicles, leading to heatstroke or suffocation.

The system uses an embedded approach with sensors to continuously monitor in-cabin conditions such as temperature and human presence. An ESP32 microcontroller processes this data and detects hazardous situations when both high temperature and occupancy are identified. Upon detection, the system automatically initiates safety measures, including partial window opening using a servo motor and activation of a blower or fan system to improve ventilation. This ensures timely intervention even without human involvement.

The solution is designed to be energy-efficient, cost-effective, and scalable, making it suitable for integration into passenger vehicles. It demonstrates real-time monitoring, automated decision-making, and actuator control. Future enhancements such as mobile alerts, GPS integration, and AI-based detection can further improve system effectiveness.

Overall, the project reflects a practical application of embedded systems and sensor technology to enhance vehicle safety and prevent fatalities, showcasing the student’s ability to develop impactful and real-world engineering solutions.



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Intelligent In-Cabin Monitoring System

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Abstract—Accidental suffocation and heatstroke within stationary vehicles has become a critical safety issue particularly concerning children, the elderly and pets. Rising temperatures and deteriorating air quality within the confines of the passenger compartment rapidly result in a life-threatening situation. In response, numerous recent research works suggest vision-based monitoring systems, utilizing deep learning and camera sensors, capable of detecting any occupants left in the vehicle and averting heat stroke related fatalities.

The scope of this research paper is the design of a cost-effective, fully-automated in-cabin monitoring and life support intervention system, utilizing ESP32 and ESP32-CAM, to detect and negate the critical risks in a vehicle. An in-cabin human monitoring system with the inclusion of environmental and life support intervention is developed in this paper. The developed system monitors for the presence of humans, in addition to cabin environmental data while the car is parked and locked. In order to detect a trapped occupant, vision-based detection, via the ESP32-CAM module, is performed in conjunction with presence and motion detection via a mmWave radar sensor. Cabin temperature, humidity, and air quality are monitored utilizing a DHT11 and MQ-135 sensor respectively.

Index Terms—In-cabin monitoring, ESP32, ESP32-CAM, mmWave sensor, MQ-135, DHT11, vehicle safety, embedded systems

I. INTRODUCTION

Unattended children, elderly passengers, and pets suffering from heat stroke and suffocation inside parked cars is a significant and rapidly growing global issue. The rapid increase in temperature and decrease in cabin air quality within parked cars, even when external temperature appears to be moderate [1], [2] leads to potentially deadly situations within minutes. Recently, many incidents of hyperthermia and suffocation have been reported in cars throughout the world while passengers have been left inside unattended parked cars [3]. Intelligent systems that can detect human presence and hazardous conditions within the cabin are thus crucial.

However, these systems offer no safety protection when a car is parked and the door locked. Once a car is parked and the door locked, it has no feature to monitor the conditions in

the cabin and detect if a person is still present [4], [5]. Modern automobiles have begun to feature in-cabin monitoring systems where computer vision and artificial intelligence are utilized to supervise the activities of the driver and other occupants within the car [6]. These systems can use cameras and machine learning algorithms to analyze visual data and detect unsafe circumstances such as driver distraction, body movement and occupants.

Recent advances in embedded systems, computer vision and the Internet of Things has led to an increased popularity in intelligent safety monitoring for real time applications [7], [8]. With systems ranging from vision-based human detection, to mmWave-based motion and presence sensing to environmental sensing, a reliable form of continuous cabin surveillance is possible [9]–[11]. Detecting a very slight movement and detecting the presence of human beings in the car using vision is achievable. However, the proposed solutions often require a very expensive hardware setup and complex processing units that make their integration into low-cost vehicles impossible [12], [13].

The intelligent cabin monitoring and life support intervention system proposed in this paper integrates ESP32 and ESP32-CAM for a vision-based, motion and presence based as well as environmental based real-time unsafe cabin monitoring [14]–[16]. The proposed system will respond to hazardous conditions by triggering the appropriate ventilation and window controls to achieve safe cabin conditions [17], [18]. This creates a cheap, portable and fully automated safety system that may be integrated into vehicles to safeguard lives [19]–[21].

II. SYSTEM OVERVIEW

The purpose of this system is to continuously monitor the interior of the car after the car has been locked, to prevent cases of suffocating or dying in the hot car. A 5-minute delay timer is started when the car has been locked, so that the monitoring of the interior does not start immediately, but only

Project-10	Smart Crowd Surveillance System for Kumbhmela using YOLOV8 and DeepSort
Team Members	1.Alisha Shikandar Shaikh BE-IT 2. Rutuja Ramesh Jadhav BE-IT 3. Anushka Suresh Kharat BE-IT 4. Priyanka Ramesh Bade BE-IT

The student has successfully developed a “Smart Crowd Surveillance System using YOLOv8 and DeepSORT integrated with RFID”, aimed at improving safety and management in large-scale public gatherings such as Kumbh Mela and festivals. The project addresses key challenges of traditional crowd monitoring systems, including manual observation, lack of real-time insights, and delayed response to overcrowding situations.

The system integrates AI-based video analytics with IoT-enabled RFID tracking to provide a comprehensive monitoring solution. CCTV footage is processed using YOLOv8 for real-time human detection, while DeepSORT is used for tracking individuals across frames with unique IDs. Simultaneously, RFID technology enables identification and registration of individuals, with data stored on cloud platforms like Firebase.

A major feature of the system is zone-wise crowd analysis, where areas are classified as safe, normal, or overcrowded based on crowd density. When high-risk conditions are detected, alerts are generated to notify authorities, enabling timely intervention. The system also includes a user-friendly dashboard for real-time visualization of crowd data, alerts, and tracking information.

Overall, the project demonstrates an effective integration of AI, IoT, and cloud technologies to build a scalable and intelligent crowd management system. It highlights the student’s ability to develop a practical solution that enhances public safety, operational efficiency, and real-time decision-making in large event environments.



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Project-11	Ai powered Animatronic Eye
Team Members	1.Shivendra Ranjit Jagdale (ENTC-2 nd Year) 2. Rounak Satish Thorat, (ENTC-2 nd Year) 3. Sankalp Laxman Khatake, (ENTC-2 nd Year) 4. Sakshi Vinayak Taru (ENTC-2 nd Year)

The student has successfully developed an “AI-Powered Animatronic Eye System”, an innovative robotics project that simulates realistic human eye movements and emotional expressions using artificial intelligence. The project focuses on enhancing human-machine interaction by enabling robotic systems to display expressive and dynamic behaviors.

The system is built using an ESP32 microcontroller and multiple servo motors that control eyelid and eyeball movements. Based on input commands, the AI module interprets emotions such as happy, sad, or angry and translates them into corresponding eye movements like blinking, widening, or narrowing. This creates a lifelike and responsive animatronic behavior. The system also supports wireless control, making it flexible and scalable for future enhancements.

Key features include realistic motion simulation, emotion-based control, low power consumption, and adaptability for advanced applications. The project has potential use cases in robotics, animation, medical simulation, and AI-based human interaction systems.

Overall, the project demonstrates a creative integration of AI and embedded systems to develop expressive robotic components. It highlights the student’s innovation, technical skills, and ability to design interactive systems with real-world applications in emerging fields like humanoid robotics and emotional AI.





Project-12	Real Time Stampede Detection using an Autonomous Drone with Onboard Edge Computing
Team Members	1. Aniket Appaso Saste (E&TC TY) 2. Pratik Uttam Mhasawade (E&TC TY) 3. Niraj Anil Dhamal (E&TC TY) 4. Vedika Atul Kulthe (AIDS TY) 5. Gauri Pramod Kulkarni (AIDS TY) 6. Sairaj Maroti Kageru (AIDS TY)

The student has successfully developed a “Real-Time Stampede Detection System using an Autonomous Drone with Edge-AI Computing”, aimed at enhancing public safety during large-scale gatherings such as festivals, rallies, and stadium events. The project addresses the limitations of traditional surveillance systems like CCTV and manually operated drones, which often suffer from fixed coverage, delayed response, and dependence on human monitoring.

The proposed system utilizes an autonomous drone equipped with an onboard computing unit to perform real-time crowd analysis. A dual-model AI architecture is implemented, combining YOLOv8 for crowd detection and density estimation with Dense Optical Flow for analyzing crowd movement patterns. This enables the system to identify abnormal behaviors, such as sudden crowd surges, which may lead to stampedes. All processing is performed on-device, ensuring low latency and independence from cloud connectivity.

To ensure reliable communication, the system uses LoRa technology to transmit alerts with location details to authorities, even in areas with limited network coverage. The system demonstrated strong performance in simulations, achieving high accuracy and balanced precision-recall metrics, validating its effectiveness in early risk detection.

Overall, the project presents a scalable, cost-effective, and proactive solution for crowd safety. It highlights the student’s strong technical capabilities in AI, embedded systems, and real-time processing, and showcases an innovative approach to preventing disasters and improving public safety infrastructure.

National Level Smart India Hackathon-First Prize Winner Team

Smart India Hackathon 2025 is a flagship national initiative aimed at fostering innovation, problem-solving, and industry-ready skills among students. The **Grand Finale** represents the highest level of competition, where shortlisted teams from across the country present their solutions before expert juries from industry, academia, and government bodies.

Category: Students Innovation Theme

Achievement: The student team **FALCON** secured the **Winner position at the Smart India Hackathon (SIH) 2025 – Grand Finale** under the *Students Innovation Theme*. This achievement highlights the team's excellence in ideation, technical implementation, teamwork, and innovation aligned with national development priorities.

Team Details – **Team FALCON**

Sr. No.	Name	Department
1.	Pratik Uttam Mhasawade	Electronics & Telecommunication (E&TC)
2.	Niraj Anil Dhamal	Electronics & Telecommunication (E&TC)
3.	Aniket Appaso Saste	Electronics & Telecommunication (E&TC)
4.	Vedika Atul Kulthe	Artificial Intelligence & Data Science (AI&DS)
5.	Gauri Pramod Kulkarni	Artificial Intelligence & Data Science (AI&DS)
6.	Sairaj Maroti Kageru	Artificial Intelligence & Data Science (AI&DS)

Significance of the Achievement

- Demonstrates strong **interdisciplinary collaboration** between E&TC and AI&DS students
- Reflects the institution's focus on **innovation-driven learning and problem-based education**
- Enhances the institution's **national-level visibility and reputation**
- Contributes to **Atmanirbhar Bharat** and **Digital India** objectives through student-led innovation

Outcome and Impact

The success of Team FALCON at SIH 2025 reinforces the effectiveness of institutional mentoring, project-based learning, and innovation ecosystems. The achievement serves as motivation for future student cohorts to actively participate in national innovation platforms.







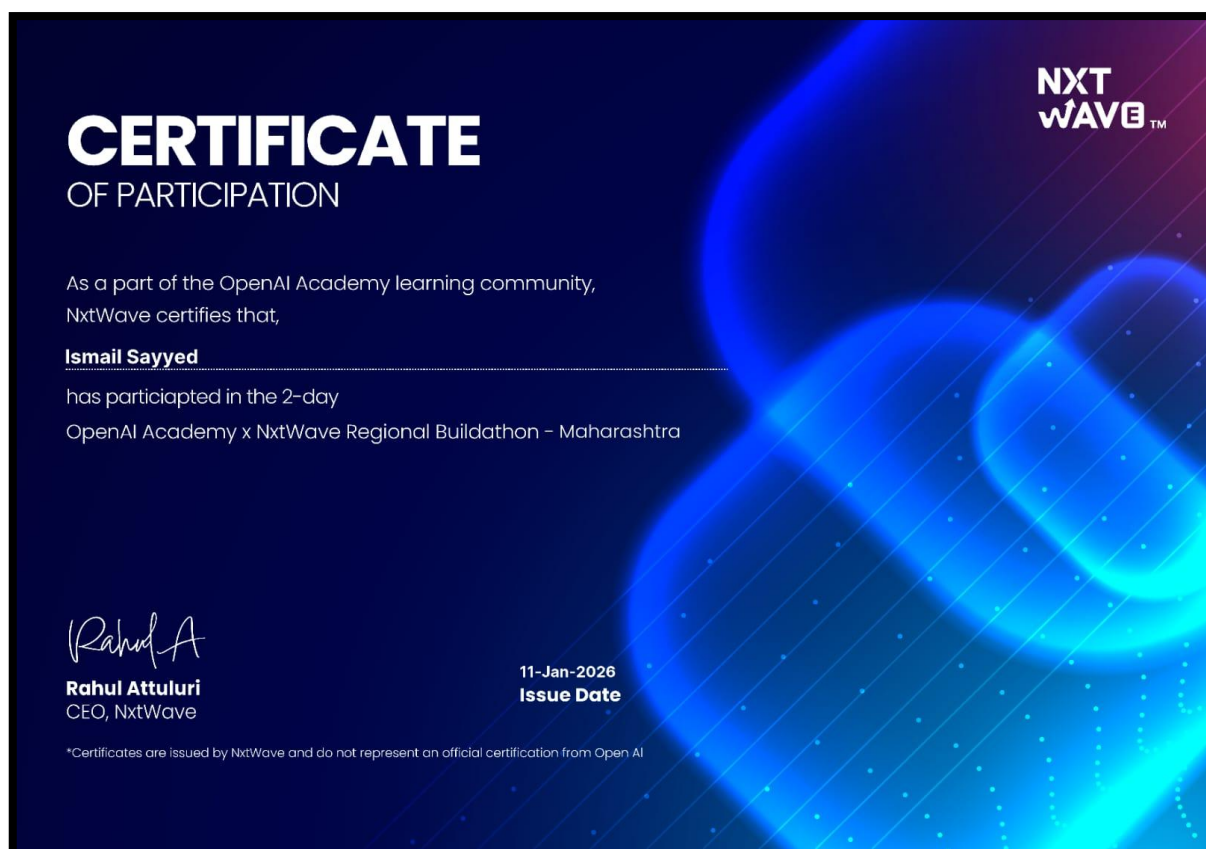
Project-13	BhashaLens : AI-Powered Offline-First Translation
Team Members	Ismail Ashfaque Sayyed BE-IT

The student has successfully developed “BhashaLens: AI-Powered Offline-First Translation and Understanding System”, an innovative solution aimed at addressing language barriers in India’s linguistically diverse environment. The project focuses on enabling effective communication for users such as migrant workers, students, and rural citizens who often struggle with unfamiliar languages in real-life situations.

Unlike conventional translation tools that provide direct word-to-word conversion, BhashaLens introduces a context-aware approach that interprets meaning, tone, and usage. The system supports multiple interaction modes, including text, voice, and camera-based inputs, making it highly accessible and user-friendly. A key feature is the explanation layer, which helps users understand the context behind translations, along with an assistant mode for practicing conversations.

The platform is designed as an offline-first application, ensuring usability even in low or no internet connectivity scenarios. It integrates on-device AI models with optional cloud support for enhanced processing. Technologies such as OCR, speech recognition, and mobile app frameworks are effectively utilized to build a scalable and efficient system.

Overall, the project demonstrates a practical and impactful application of AI in solving real-world communication challenges. It highlights the student’s ability to design a user-centric, accessible, and technologically advanced solution that promotes inclusive and confident communication across language barriers.



Project-14	Spamurai:- A quantum secure application
Team Members	1. Shreya Hemant Songare-IT-BE 2.Aarya Subhas Nimbalkar-IT-BE 3.Shrutika Ravindra Mahindrakar-IT-BE

The student has successfully developed “Spamurai: Quantum Secure Application”, a secure web-based system designed for intelligent SMS spam detection combined with advanced data protection mechanisms. The project addresses the dual challenge of identifying spam messages and ensuring strong security for sensitive user data.

The system incorporates a machine learning model based on the Random Forest algorithm to classify SMS messages as spam or safe using inputs such as sender ID and message content. To enhance security, the application implements a robust authentication mechanism, including email verification, password hashing, and OTP-based login, ensuring secure user access.

A key innovation of the project is the integration of post-quantum cryptography, utilizing CRYSTALS-Kyber for encryption and CRYSTALS-Dilithium for digital signatures. This ensures that the system remains secure even against future quantum computing threats. All classified data is securely stored in an encrypted format within a database, maintaining confidentiality and preventing unauthorized access.

The application features a user-friendly interface developed using modern web technologies, allowing users to easily input messages, view results, and manage categorized data through an interactive dashboard.

Overall, the project demonstrates an effective integration of machine learning and advanced cryptographic techniques to build a secure, intelligent, and future-ready communication system. It highlights the student's strong understanding of cybersecurity, AI, and full-stack development in solving real-world problems.

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Project-15	BI-Directional Indian Sign Language Translator Using Deep Learning
Team Members	Onkar Navnath Gawade - Information Technology -- Fourth Year

The student has successfully developed a “Bi-Directional Indian Sign Language Translator using Deep Learning”, aimed at bridging the communication gap between hearing/speech-impaired individuals and the general population. The project addresses the limitations of existing systems by enabling real-time, two-way translation between Indian Sign Language (ISL) and text/speech.

The system uses a camera to capture hand gestures and applies MediaPipe to extract keypoints of hand and body movements. These features are processed using a deep learning model based on LSTM (Long Short-Term Memory) to recognize gesture sequences. The recognized gestures are converted into text and speech, while text or voice input can also be translated into corresponding sign language outputs. Additionally, language models are used to form grammatically correct sentences from predicted words.

The solution integrates technologies such as Python, OpenCV, TensorFlow/Keras, and AI-based APIs to build a functional and scalable system. It supports real-time interaction, making it practical for everyday communication scenarios.

Overall, the project demonstrates an effective application of deep learning and computer vision to enhance accessibility. It highlights the student’s ability to develop an inclusive, AI-driven solution that promotes seamless communication and social integration for individuals with hearing and speech impairments.

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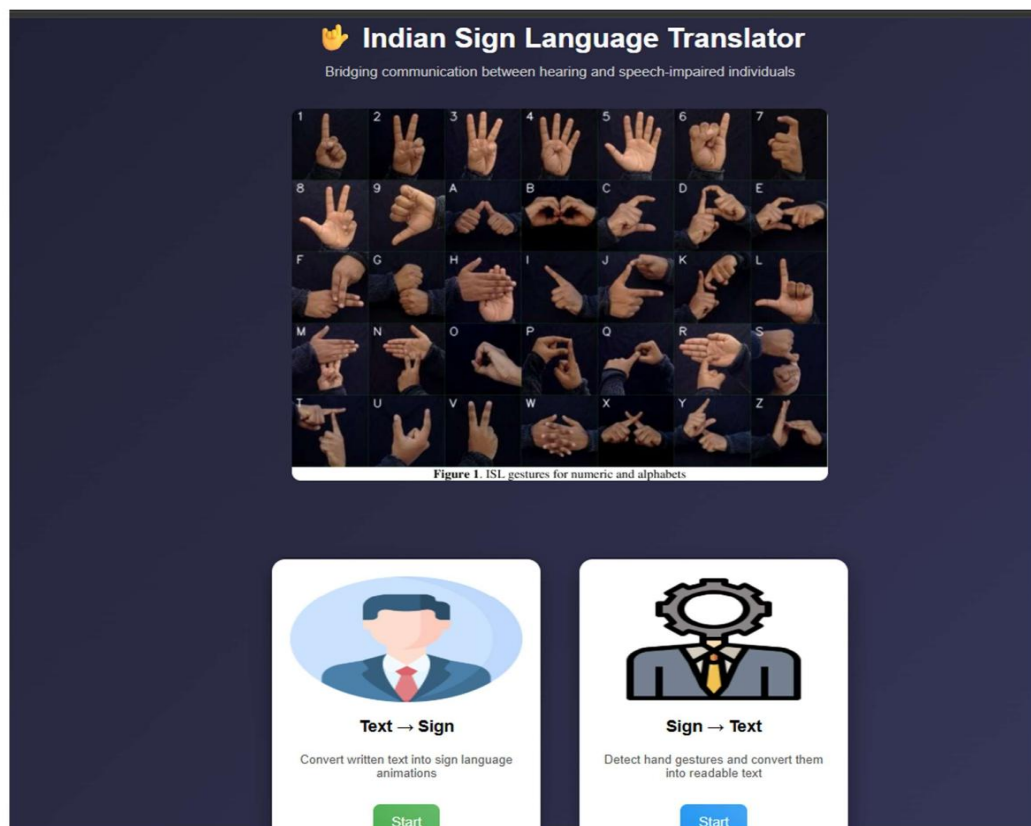


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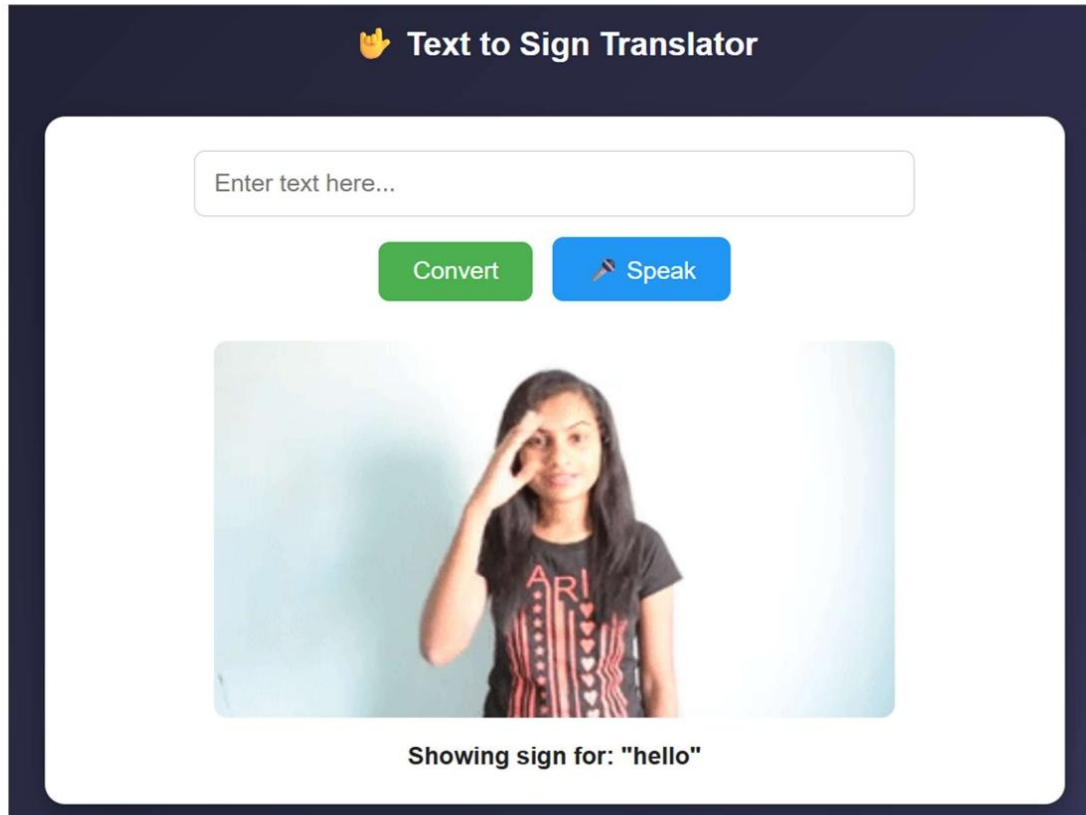
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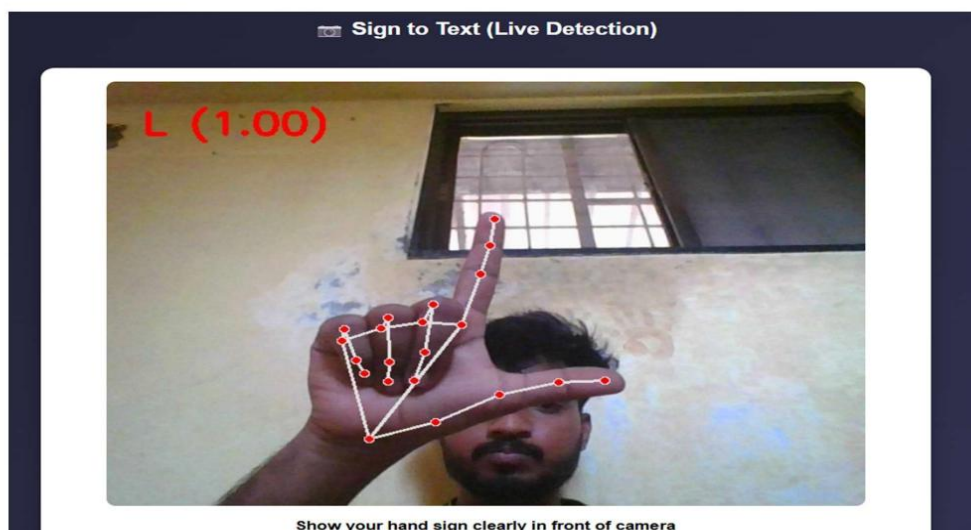
1)interface of website:



2) 1st model -> Text To Sign Conversion



3) 2nd Model → Sign To Text Conversion (Alphabet Level Prediction)



Project-16	SecureVault: A Post-Quantum Cryptography-Based Secure Notes, Password, and Task Management System
Team Members	1.Aditya Girish Dugad (BE-IT) 2.Yash Sunil Jamdar, (BE-IT) 3.Pranav Jagdish Divekar, (BE-IT) 4.Omkar Ramdas Bhosale (BE-IT)

The student has successfully developed “SecureVault: A Post-Quantum Secure Storage and Productivity Platform”, designed to protect sensitive user data against both current cybersecurity threats and future quantum computing attacks. The project addresses the limitations of traditional cryptographic systems such as RSA and ECC, which are expected to become vulnerable with the advancement of quantum technologies.

The system implements a hybrid post-quantum encryption architecture, combining ML-KEM (based on CRYSTALS-Kyber) for secure key encapsulation with AES-256-GCM for data encryption. This ensures that all stored information, including notes, passwords, and task data, remains encrypted and secure at all times, with no plaintext stored in the database. Additional security layers include Argon2-based password hashing, OTP-based authentication, and JWT-based session management.

SecureVault also incorporates advanced security features such as risk-based monitoring, anomaly detection, and automated response mechanisms to handle suspicious activities. A machine learning-based password strength evaluation module further enhances security by guiding users to create stronger passwords. The platform includes interactive dashboards for monitoring system security and comparing post-quantum cryptographic performance with traditional methods.

Overall, the project demonstrates a strong integration of cybersecurity, cryptography, and machine learning to build a secure and future-ready data protection system. It highlights the student’s ability to design a scalable, practical solution that addresses emerging challenges in digital security and privacy.



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Project-17	Vidhisar : Insights of legal document a multilingual resource.
Team Members	1. Nikita Manohar Bhapkar (BE-IT) 2. Vaishnavi Anil Kumbhar (BE-IT) 3. Archita Dashrath Dabholkar (BE-IT) 4. Mrudula Annasaheb Amrutrao (BE-IT)

The student has successfully developed a “Multilingual Legal Document Processing and Summarization System”, aimed at simplifying the understanding of complex legal documents available in multiple languages such as Hindi and English. The project addresses the challenge of lengthy and difficult-to-interpret legal texts by providing concise summaries while preserving the original meaning and critical information.

The system processes documents in various formats, including PDF, TXT, and CSV, and applies Natural Language Processing (NLP) techniques for text extraction, language detection, and preprocessing. It uses an extractive summarization approach, selecting key sentences directly from the original document to maintain accuracy and avoid distortion of legal content. The generated summary is produced in the same language as the input, ensuring usability for diverse users.

Key features include multilingual support, format flexibility, and preservation of important legal details such as case numbers and dates. The system is particularly useful for students, researchers, and legal professionals by reducing the time required to analyze large documents.

Overall, the project demonstrates an effective application of NLP techniques to solve a practical problem in the legal domain. It highlights the student’s ability to develop a reliable, efficient, and scalable solution for multilingual document processing and summarization.

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PAGE No : 1

To,

Nikita-Bhaskar

Karkhel Tal-Baramati, Dist- Pune-413102

(M)-9172612063 : E-mail- niktabhaskar3105@gmail.com

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FILING DATE : 13/11/2025

BRANCH : Delhi

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S.No	Form	Diary No.	Request No	Title	Amount (Rupees)
1	Form-XIV	SW-46979/2025-CO	237084	Vidhisar: Insights of Legal document a multilingual resources	500
Amount in Words		Rupees Five Hundreds			500

PAYMENT MODE	Transaction Id	CIN
Online	C-0000266129	1311250065459

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Project-18	Audio Deepfake Detection System
Team Members	1.Sanjyot Laxman Dake-ENTC-BE, 2.Aniket Suhas Bale-ENTC-BE, 3.Tejas Tukaram Chaudar-ENTC-BE

The student has successfully developed an “Audio Deepfake Detection Framework” using advanced deep learning techniques to address security challenges posed by synthetic and manipulated speech. With the rise of AI-generated audio, the project focuses on detecting spoofing attacks that can compromise voice-based authentication systems.

The proposed system uses a dual-branch architecture to handle two types of attacks: Logical Access (synthetic or AI-generated speech) and Physical Access (replayed audio). For Logical Access, Log-Mel spectrogram features are extracted and processed using a Lightweight CNN (LCNN), while for Physical Access, LFCC features are used with LCNN or ResNet-based models. This specialized approach improves detection accuracy by targeting the unique characteristics of each attack type.

The system follows a structured pipeline including preprocessing, feature extraction, and classification. It is trained on the ASVspoof 2019 dataset and evaluated using metrics such as accuracy and Equal Error Rate (EER). The model achieves high performance, with accuracy exceeding 95% and low error rates, demonstrating strong robustness against deepfake audio attacks.

Overall, the project presents an efficient and practical solution for detecting audio deepfakes. It highlights the student’s strong understanding of deep learning, signal processing, and cybersecurity, and showcases the ability to develop scalable systems for real-world security applications.



Acknowledgement Slip
(Date: 18/11/2025)

Diary Number: LD-47814/2025-CO	Form Received: Online
Copyright Reg. of: Literary/Dramatic	Titled: Audio Deepfake Detection - Deep Learning Based Approach

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INSTRUCTIONS	
For the purpose of processing the application, following documents are mandatory to send by post along with the acknowledgement slip(Office Copy).	
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3.	Authorization from author/publisher
4.	If the work is being used on goods or capable of being used on the goods
5.	If the application is being filed through attorney, a specific power of attorney in original duly signed by the applicant and accepted by the attorney
6.	Search Certificate from Trade Mark Office(TM-60) (<i>Only in case of Artistic work</i>).
7.	Applicant must take a print out of the application, sign it and send along with the other documents.
Kindly send the above documents within 30 Days from the date of online submission on the following address given by herewith: .	
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Project-19	Smart System for Visually Impaired People
Team Members	1.Pranali Vinod Karale (BE -IT), 2. Sanika Dnyandev Sawale (BE -IT), 3.Srushti Dhanaji Salunkhe (BE -IT), 4. Shruti Vaman Pawar (BE -IT)

The student has successfully developed a “Smart System Assistant for Visually Impaired People”, a mobile-based assistive solution designed to enhance independent navigation and environmental awareness. The project addresses the challenges faced by visually impaired individuals in understanding their surroundings without external assistance.

The system leverages real-time computer vision using YOLOv8 for object detection, enabling identification of various objects such as people, vehicles, obstacles, and everyday items. The application captures live video through the smartphone camera, processes it on-device using TensorFlow Lite, and provides intelligent audio feedback describing object type and direction (e.g., “person ahead”, “car on left”). A voice-activated control system allows hands-free operation, improving accessibility and usability.

Developed using Flutter and Dart, the application transforms a standard smartphone into a smart assistive tool without requiring specialized hardware. Additional features such as continuous monitoring and real-time speech output ensure seamless navigation support in both indoor and outdoor environments.

Overall, the project demonstrates an effective integration of computer vision, mobile development, and assistive technology. It highlights the student’s ability to create a practical, user-centric solution that enhances safety, independence, and quality of life for visually impaired users.



Project-20	Fruit Maturity Detection using Deep Learning and IoT
Team Members	1.Amisha Dattatray Dhanawade -BE(IT) 2.Yash Avinash Gaikwad- BE(IT) 3.Megharaj Chandrakant Bhosale - BE(IT) 4.Pravin Jagannath Rathod- BE(IT)

The student has successfully developed a “Fruit Maturity Detection System using Deep Learning for Smart Agriculture Applications”, aimed at automating the process of identifying fruit ripeness to improve harvesting efficiency and crop quality. The project addresses the limitations of traditional manual inspection methods, which are often time-consuming and inconsistent.

The system uses advanced deep learning models to classify fruits into different maturity stages based on image inputs. Multiple architectures, including MicroViT-S1, EfficientNetV2-B0, MobileNetV2, and ConvNeXt-Tiny, were implemented and compared to evaluate performance. Among these, the MicroViT-S1 model demonstrated the highest accuracy, achieving approximately 99% performance.

The solution includes preprocessing techniques such as image resizing, normalization, and data augmentation, followed by model training using standard evaluation metrics like accuracy, precision, recall, and F1-score. The models were optimized and deployed on an edge device (Jetson Nano) using TensorRT, enabling real-time inference with high speed and low latency.

Overall, the project demonstrates an effective application of deep learning and edge AI in smart agriculture. It highlights the student’s ability to design, compare, and deploy high-performance models for real-world applications, contributing to improved productivity, automation, and decision-making in agricultural practices.

Copyright Application Status (Under Process)

The project titled “**Fruit Maturity Detection using Deep Learning**” has been submitted for copyright registration under the category of computer software.

The application has been successfully filed with the Copyright Office of India and is currently under **Re-Scrutiny**, which indicates that the application is under review and processing.

The details of the application, including the diary number and applicant information, are shown in the screenshot below as proof of submission.

Status of Copyright Application:

Enter Diary No.*

SW-47845/2025-CO

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Search Results:

Diary Number	Class of Work	Title of Work	Applicant Name	Communication Address	Status
SW-47845/2025-CO	Computer Software	Crop Maturity Detection using Deep Learning	AMISHA DATTATRAY DHANAWADE	MIDC AREA, BARAMATI-413102	Re-Scrutiny
SW-47845/2025-CO	Computer Software	Crop Maturity Detection using Deep Learning	MEGHARAJ CHANDRAKANT BHOSALE	MIDC AREA, BARAMATI-413102	Re-Scrutiny
SW-47845/2025-CO	Computer Software	Crop Maturity Detection using Deep Learning	PRAVIN JAGANNATH RATHOD	MIDC AREA, BARAMATI-413102	Re-Scrutiny
SW-47845/2025-CO	Computer Software	Crop Maturity Detection using Deep Learning	PROF. SHEETAL TAKALE	MIDC AREA, BARAMATI-413102	Re-Scrutiny
SW-47845/2025-CO	Computer Software	Crop Maturity Detection using Deep Learning	YASH AVINASH GAIKWAD	MIDC AREA, BARAMATI-413102	Re-Scrutiny

*Work Awaited: Work yet to be received.

*Waiting: Payment Accepted.Application in mandatory waiting period of one month(Copyright Act, 1957)

*Documents not received, formality check failed: Documents/works not received only after making payment.

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*Scrutiny: Application is under process.

*Re-Scrutiny: Application is under process.

*Pending for Hearing: Pending for Hearing process.

*Hearing: Hearing process.

*Sub-Judice: Pending decision of the competent court of law.

*Registered: ROC is Generated.

Project-21	Orion : Sovereign AI Agent with LLM using RAG
Team Members	1. Harshad Shrikant Ghutukade - IT- BE , 2. Ashish Yuvraj Kamble -IT-BE, 3. Om Raju Magar - IT-BE , 4. Manthan Tushar Mane - IT -BE

The student has successfully developed “Orion: An Agentic AI Platform for Autonomous Tasks and Personal Workflow Orchestration”, a next-generation AI system designed to transform traditional assistants into proactive, task-executing agents. The project addresses the limitation of existing AI systems that operate only as reactive tools and are unable to handle multi-step workflows independently.

Orion introduces a two-phase agentic execution model (planning and execution), where a language model decomposes user instructions into sub-tasks and autonomously performs them using integrated tools such as web search, email, calendar, and document management systems. The platform incorporates a robust information retrieval pipeline using multiple search engines combined with RAG (Retrieval-Augmented Generation) to ensure accurate and reliable outputs while reducing hallucinations.

The system features a modular architecture with dynamic tool selection, asynchronous task execution, and real-time notifications. It integrates secure authentication mechanisms, including AES-128 encryption and OAuth 2.0, ensuring safe handling of user data. Technologies such as Python (Flask), Flutter, Redis, PostgreSQL, and cloud platforms are effectively used to build a scalable and production-ready solution.

Overall, the project demonstrates an advanced application of agentic AI for automating complex workflows across digital ecosystems. It highlights the student’s strong expertise in AI system design, backend architecture, and real-world deployment, presenting a powerful solution for enhancing productivity and intelligent automation.



Project-22	HomeSeva – The Digital Platform for Organizing the Informal Domestic Labour Sector
Team Members	1. Aman Vyas-Computer-TY (COMP), 2. Kishor Pandit Barule-Computer-TY(COMP), 3. Unnati Dada Bhagwat-Computer-TY(COMP), 4. Chirag Jitendra Bhole-Computer-TY(COMP), 5. Pranjal Hemant Chavan-Computer-TY(COMP)

The student has successfully developed “HomeSeva – A Digital Platform for Organizing the Informal Domestic Labour Sector”, a mobile-based solution designed to connect households with verified local service providers such as maids, plumbers, carpenters, and electricians. The project addresses the lack of a reliable and structured system for hiring domestic help, which often leads to uncertainty for both customers and workers.

The platform offers a trusted digital marketplace with features such as OTP-based authentication, Aadhaar verification, real-time location tracking, and bilingual support. It

enables users to search and hire workers based on skills, experience, and proximity, while workers benefit from improved job opportunities, fair wages, and increased visibility. The system also includes real-time notifications and an admin dashboard for efficient service management.

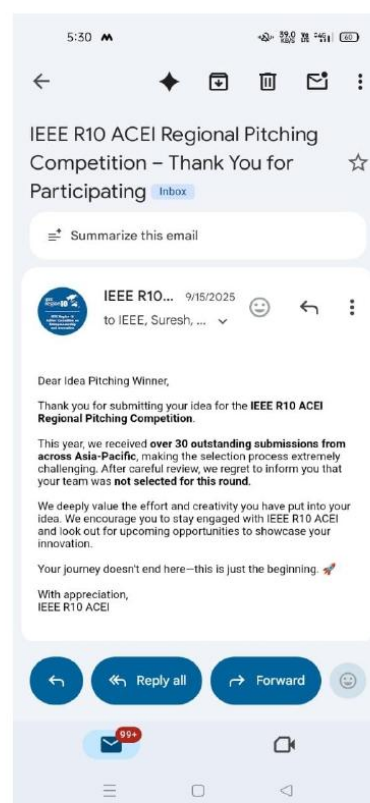
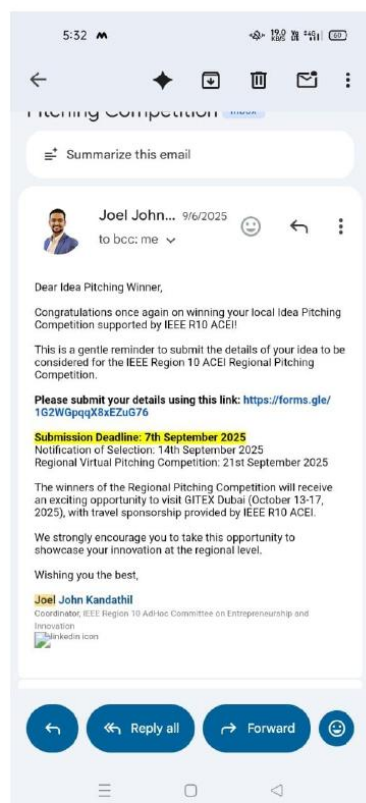
Developed using Flutter and Firebase, the application ensures scalability, security, and ease of use. Integration with cloud services and APIs supports seamless communication, payment processing, and location-based services. The platform has demonstrated promising outcomes, including reduced service response time, improved user trust, and increased income opportunities for workers.

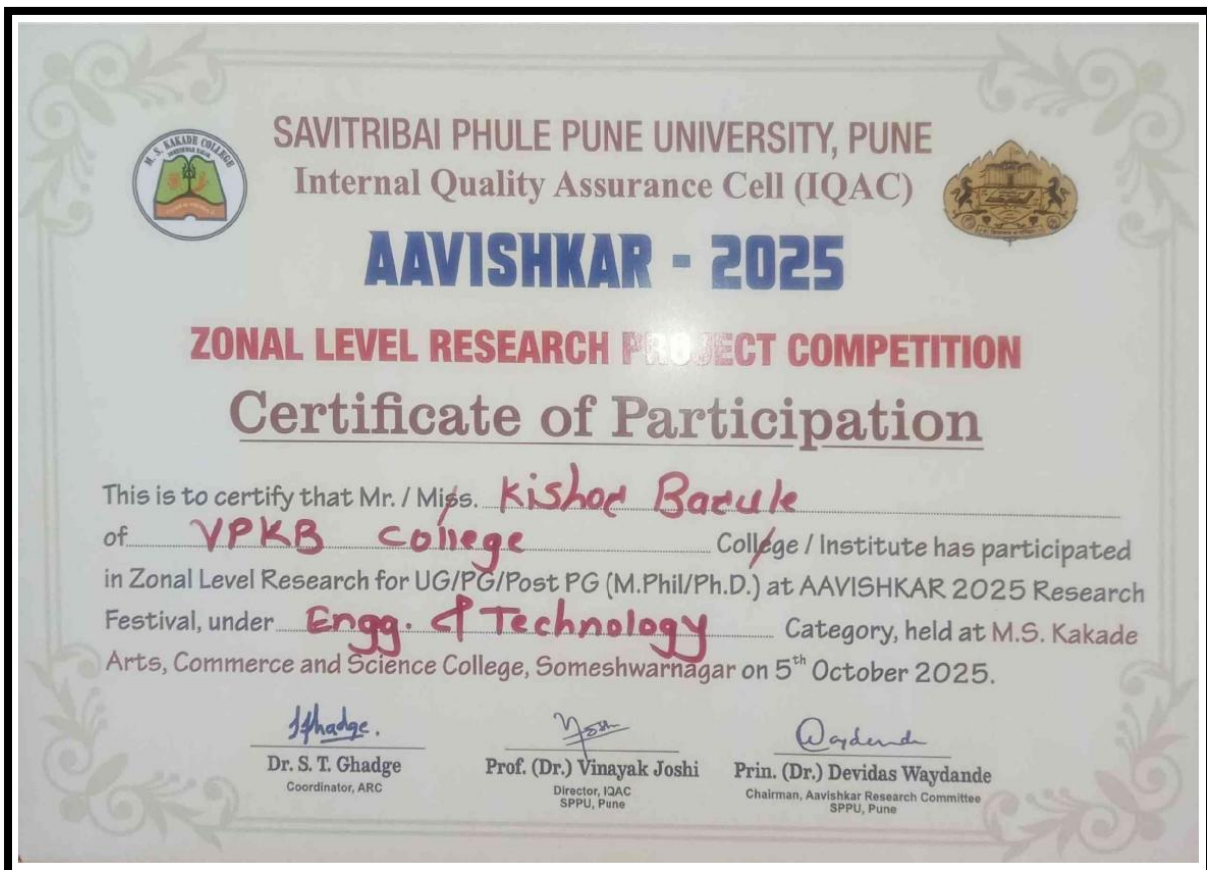
Overall, the project presents a practical and socially impactful solution that organizes the unstructured domestic labor sector. It highlights the student's ability to design a user-centric, scalable, and technology-driven platform that enhances convenience, transparency, and economic empowerment.

1. IEEE ACEI Bombay Section- Project Presentation(Regional Grand Finale Winners):



We're also selected among the first 30 projects across the Asia-Pacific:





Project-23	VidyaSetu
Team Members	1.Janhavi Vijay Ghorpade -3rd Year (COMP) 2.Sanika Sandip Gholap 3.Mansi Kiran Chotaliya 4.Shrushti Pravin Bhambhare 5.Aakanksha Ajay Patil

The student has successfully developed “Vidyasetu”, a web-based platform designed to bridge the gap between students and career opportunities such as internships, scholarships, and hackathons. The project addresses the common issue of scattered information and lack of awareness, which often leads students to miss valuable opportunities.

The platform provides a centralized and user-friendly system where students can search, filter, and track various opportunities based on criteria such as domain, eligibility, and deadlines. It includes essential features like user registration, personalized dashboards, notifications for new and upcoming opportunities, and an admin panel for managing and updating listings. This ensures that users stay informed and do not miss important deadlines.

Developed using modern web technologies such as React, Node.js, and database systems like MySQL or MongoDB, the system is designed to be scalable, responsive, and efficient. It simplifies the process of discovering and applying for opportunities, thereby saving time and effort for students.

Overall, the project demonstrates a practical and impactful solution for enhancing student engagement and career development. It highlights the student’s ability to design a well-structured, user-centric platform that improves accessibility to opportunities and supports academic and professional growth.



Direct Beneficiaries (Primary Impact Group)

Direct beneficiaries include individuals who **actively participated in structured technical activities conducted under the Centre of Excellence (CoE)** and received **hands-on training, technical exposure, and skill development**.

Primary Direct Beneficiaries:

- Undergraduate students from **ENTC, Computer Engineering, IT, AI & DS, and Electrical Engineering** departments.
- Students who participated in:
 - **Arduino Programming and Simulation Workshops**
 - **AR/VR Bootcamp**
 - **Embedded Systems Internship (Vector India)**
 - **AI and Workflow Automation Workshop using n8n**
 - **Project-Based Learning (PBL) Proposal and Project Presentations**
 - **Innovation in Research Projects Workshop**
- Students directly involved in **AI, IoT, Embedded Systems, Machine Learning, and AR/VR lab activities**.
- Faculty members participating in **Faculty Development Programs, expert sessions, and teacher training programs**.

Estimated Direct Beneficiaries:

~350–400 students and faculty members

Nature of Impact:

- Hands-on technical training
- Skill development in emerging technologies
- Industry exposure and project-based learning
- Innovation and research capability development

Indirect Beneficiaries (Secondary Impact Group)

Indirect beneficiaries include individuals who **benefited through knowledge dissemination, outreach activities, institutional collaboration, and academic ecosystem development**, but were not directly enrolled in training programs.

Secondary Indirect Beneficiaries:

- Students from **VP's New English Medium School, Baramati** and **VP's Supe Arts, Science and Commerce College** through CoE outreach activities.
- Students and faculty from **VP's Vasantrao Pawar Law College, Baramati** through exposure visits.
- Participants attending **public lectures, expert talks, and entrepreneurship events**.
- Educational institutions connected through **industry–academia collaboration initiatives** such as visits from **IIT Bombay E-Yantra team** and **industry experts**.
- Local academic community gaining exposure to **emerging technologies and innovation ecosystem**.

Estimated Indirect Beneficiaries:

~700–800 students, teachers, and members of the academic community

Nature of Impact:

- Awareness of emerging technologies
- Exposure to innovation and entrepreneurship ecosystem
- Institutional capacity building
- Strengthening of industry–academia collaboration

Category	Description	Estimated Count
Direct Beneficiaries	Students and faculty directly trained through workshops, internships, bootcamps, and project-based learning	350–400
Indirect Beneficiaries	Students, teachers, and academic community reached through outreach, visits, and knowledge dissemination	700–800
Total CSR Outreach Impact	Overall individuals impacted by CoE initiatives	~1000+

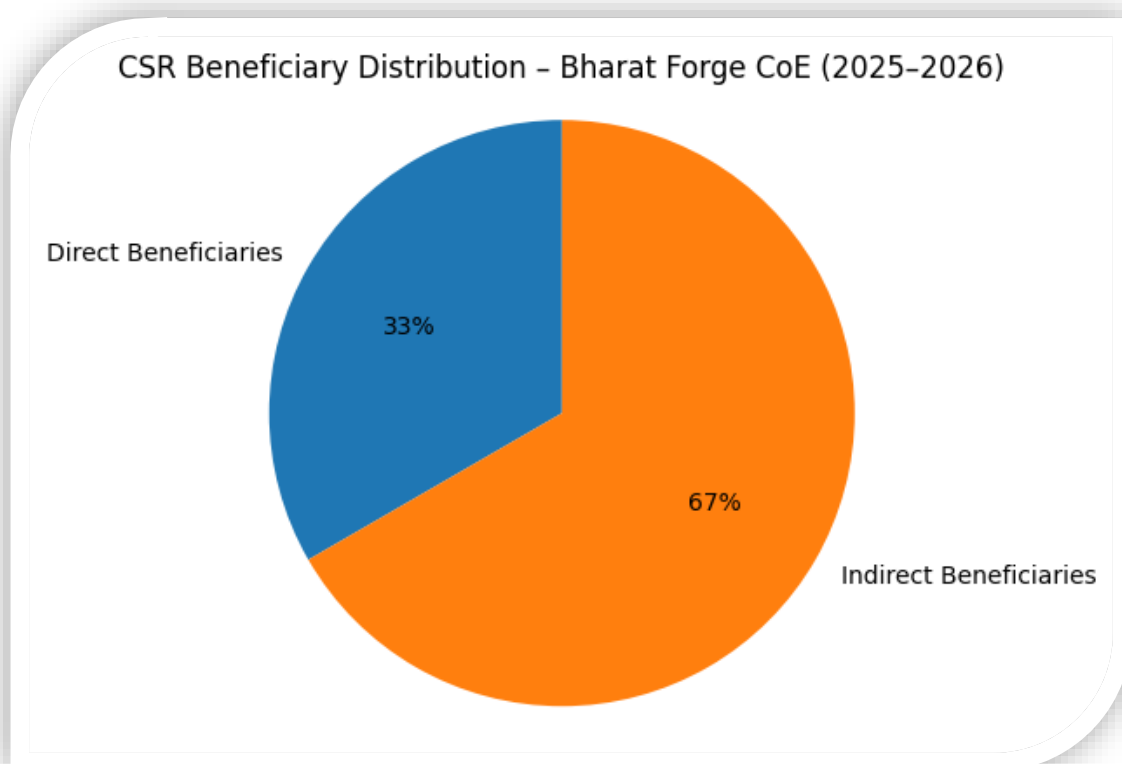


Figure: Distribution of direct and indirect beneficiaries under the Bharat Forge supported Centre of Excellence initiatives (2025–2026).