



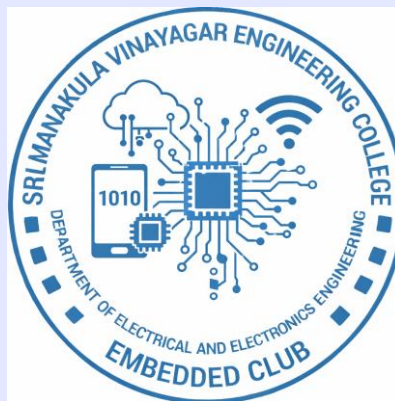
SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(AN AUTONOMOUS INSTITUTION)



DEPARTMENT OF
ELECTRICAL AND ELECTRONICS ENGINEERING

EMBEDDED CLUB

(Academic Year: 2024 to 2025)



Submitted by
Mr.G.Rajavel
Assistant Professor
Faculty Coordinator



Preface

The Embedded Club of the Department of Electrical and Electronics Engineering at Sri Manakula Vinayagar Engineering College functions as a vibrant technical forum established to cultivate innovation, design thinking, and application-oriented competence among students. The club provides a structured academic platform where theoretical foundations are strengthened through systematic technical engagement, collaborative learning, and experiential exposure. Guided by faculty coordinators and actively managed by student office bearers, the club promotes an integrated approach to understanding modern electronic systems from a holistic perspective, emphasizing conceptual clarity, logical reasoning, and structured problem-solving methodologies. It regularly organizes technical discussions, knowledge-sharing sessions, design-oriented activities, interactive workshops, simulation-based explorations, and innovation-driven mini projects to enhance practical insight and analytical capability. The club also encourages interdisciplinary collaboration, teamwork, leadership development, and professional ethics, enabling students to adapt to rapidly evolving technological environments. By fostering creativity, critical thinking, and real-time application perspectives, the Embedded Club plays a significant role in equipping students with industry-relevant competencies, strengthening their technical confidence, and preparing them to become future-ready engineers capable of addressing complex engineering challenges with precision, responsibility, and innovation.

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ABOUT THE INSTITUTION

Sri Manakula Vinayaga Educational Trust was founded to provide quality and affordable education to the weaker sections of society. The trust established Sri Manakula Vinayagar Engineering College (SMVEC) in 1999. SMVEC is an autonomous institution affiliated to Pondicherry University. It offers 13 undergraduate, 8 postgraduate and 11 Research programme in engineering. SMVEC has been accredited by NAAC with “A” grade and NBA. The institution is also accredited by TATA consultancy services. The college has a good placement record with students getting job offers from top companies in India and abroad. SMVEC students have won many awards and accolades for their academic achievements.

Vision

- To be globally recognized for excellence in quality education, innovation and research for the transformation of lives to serve the society.

Mission

M1: Quality Education : To provide comprehensive academic system that amalgamates the cutting edge technologies with best practices.

M2: Research and Innovation : To foster value-based research and innovation in collaboration with industries and institutions globally for creating intellectuals with new avenues.

M3: Employability and Entrepreneurship : To inculcate the employability and entrepreneurial skills through value and skill based training.

M4: Ethical Values : To instill deep sense of human values by blending societal righteousness with academic professionalism for the growth of society.



DEPARTMENT VISION AND MISSION

Vision

To promote proficiency in the field of Electrical and Electronics Engineering by creating a stimulating environment for research, innovation and entrepreneurship

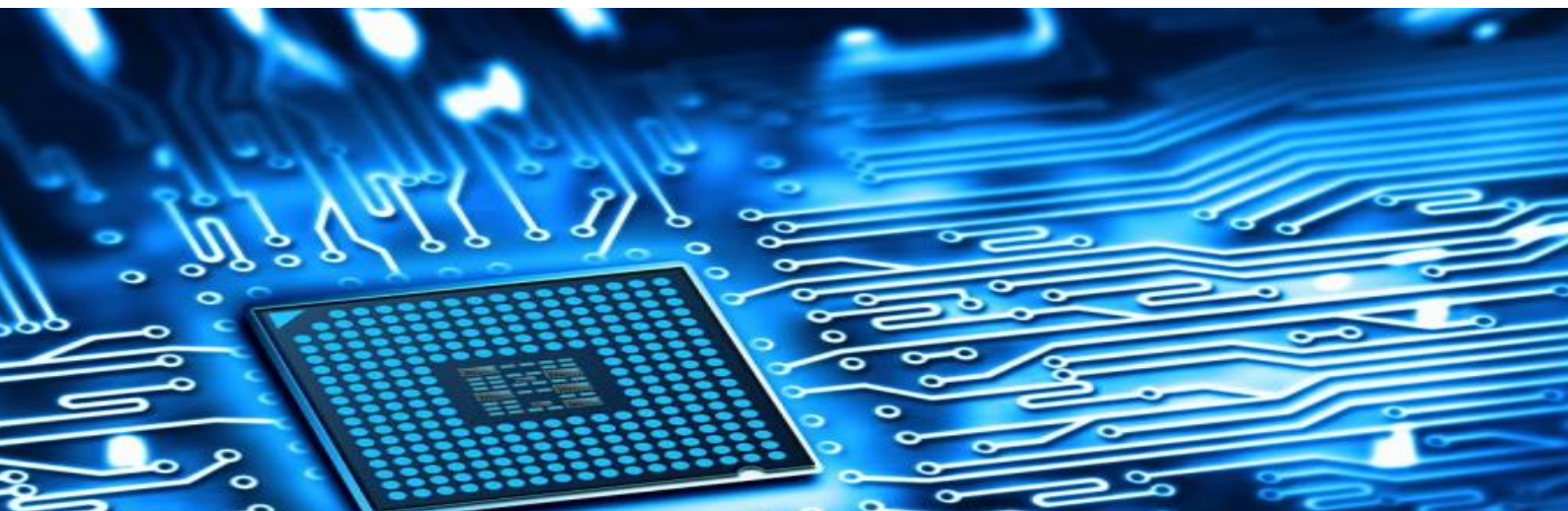
Mission

M1: Quality Education: To impart high quality technical education with problem solving capabilities by innovative pedagogy in emerging technologies.

M2: Industrial and Societal Needs: To cater the dynamic needs of the industry and society by strengthening industry-institute interaction.

M3: Research and Innovation: To nurture the spirit of research attitude by carrying out innovative technologies pragmatically.

M4: Placement and Entrepreneurship: To inculcate the professionalism in career by advancing synergetic skills to compete in the corporate world.



“Transforming energy into ideas, and ideas into impact.”

ABOUT EMBEDDED CLUB

Embedded systems are referred to as control systems tailored for specific applications. Embedded systems are used in many different fields such as automotive, robotics, IoT, AI, ML, biomedical equipment, and instrumentation etc. Looking at its diversity of applications and potential for production of highly innovative products, embedded system can be considered as the primary technology of the present and future.

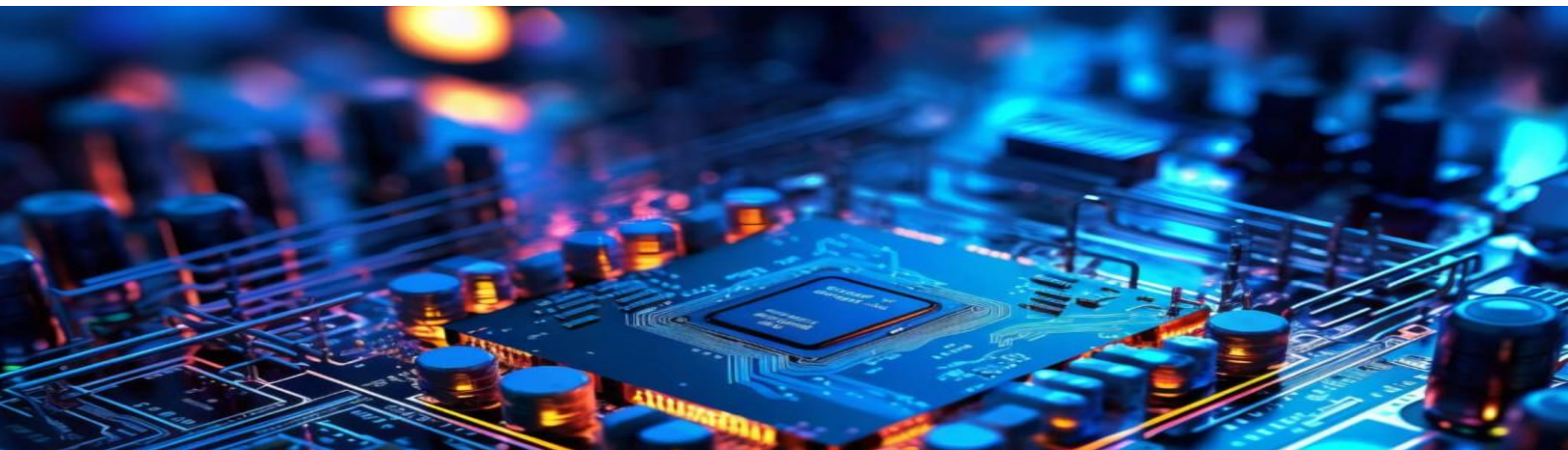
The function of the club is to deal from basics of electronics. This club aims to uncover those key topics that are not part of the curriculum. The club helps the students by integrating their skills in the various fields of engineering and technology to cope up with the highly competitive environment

Objectives of Embedded Club

- To make the students aware of the upcoming embedded system technologies.
- To understand hardware and software design requirements of embedded system.
- To analyze the embedded system specifications and develop software program.
- To create a platform for sharing innovative ideas and to develop mini projects.
- To make students to design real time applications.

Functions

- Organising Lecture session on embedded systems.
- Conducting frequent weekend contest.
- Weekly Hands-on training sessions.
- Designing of interfacing circuits.
- Conducting Hackathon for the benefit of students.



"Where circuits connect and innovation flows."

Office Bearers and portfolios

S.No	Name	Position
1.	Mr.G.Rajavel Assistant professor/EEE	Faculty Coordinators
2.	Mr. R. Vignesh Assistant professor/EEE	
3.	Mr. C. ADREIN PERIYANAYAGAM Assistant Professor / EEE	
4.	Mr. P. Mohan Raj	President
5.	Mr. K. Jothikrishnan	Vice president
6.	Mr.Srisanthosh B	Secretary
7.	Mr. E.K Abdullah	Joint Secretary
8.	Mr. Tom Tijo Edattukaran	
9.	Ms. M. Savitha	Executive Members
10.	Mr. Mohanlal	
11.	Ms. M.Swetha	Technical Members
12.	Mr. Jeeva sudhan	
13.	Ms. Susangati Samantaray	



Mr.G.Rajavel
Assistant professor/EEE
Faculty Coordinator



Mr. P. Mohan Raj
President



Mr. K. Jothikrishnan
Vice president



Mr.Srisanthosh B
Secretary



Mr. E.K Abdullah
Joint Secretary



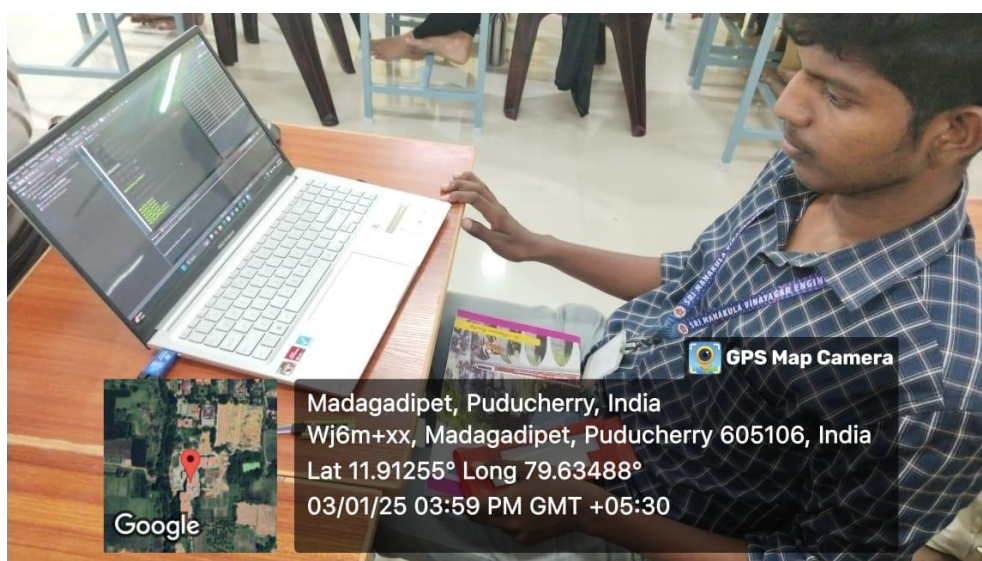
Mr. Mohanlal
Executive Members

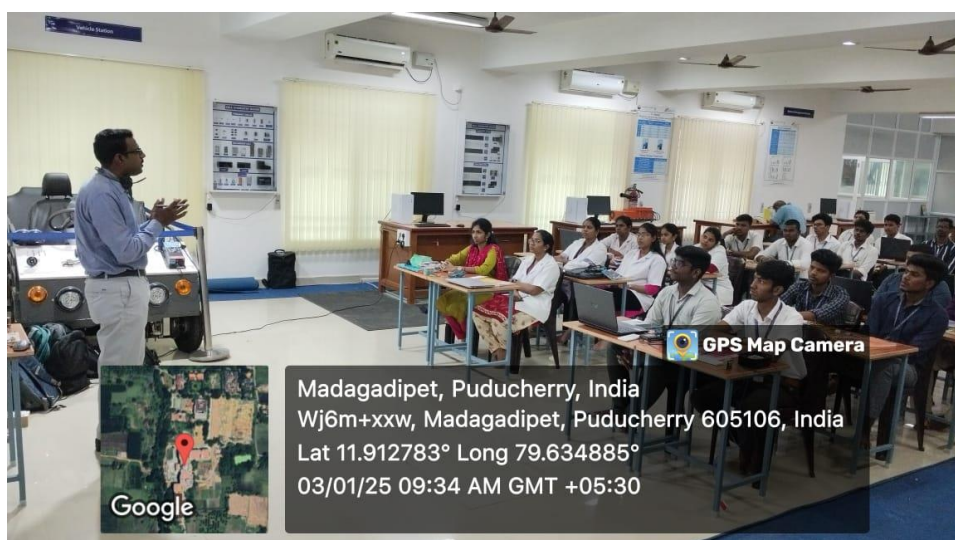
Embedded club – Activity Report-1

Name of the Students Club	: Embedded Club
Name of the Staff Coordinators	: Mr.Parthiban.B AP/EEE
Activities	: Deep Dive into Embedded Systems and Programming Techniques
Academic Year	: 2024-2025
Date/Day	: 03.01.2025 / Wednesday
Time and Duration	: Full day
No of Participants	: 30 (III/A and B)



Mr. Selva Kumar S, SoC Verification Engineer, Intel Technologies, Bengaluru





Mr.Selva Kumar S, SoC Verification Engineer, Intel Technologies, Bengaluru, conducted a Hands-on Training on “Deep Dive into Embedded Systems and Programming Techniques” to the students of 3rd year Electrical and Electronics Engineering.



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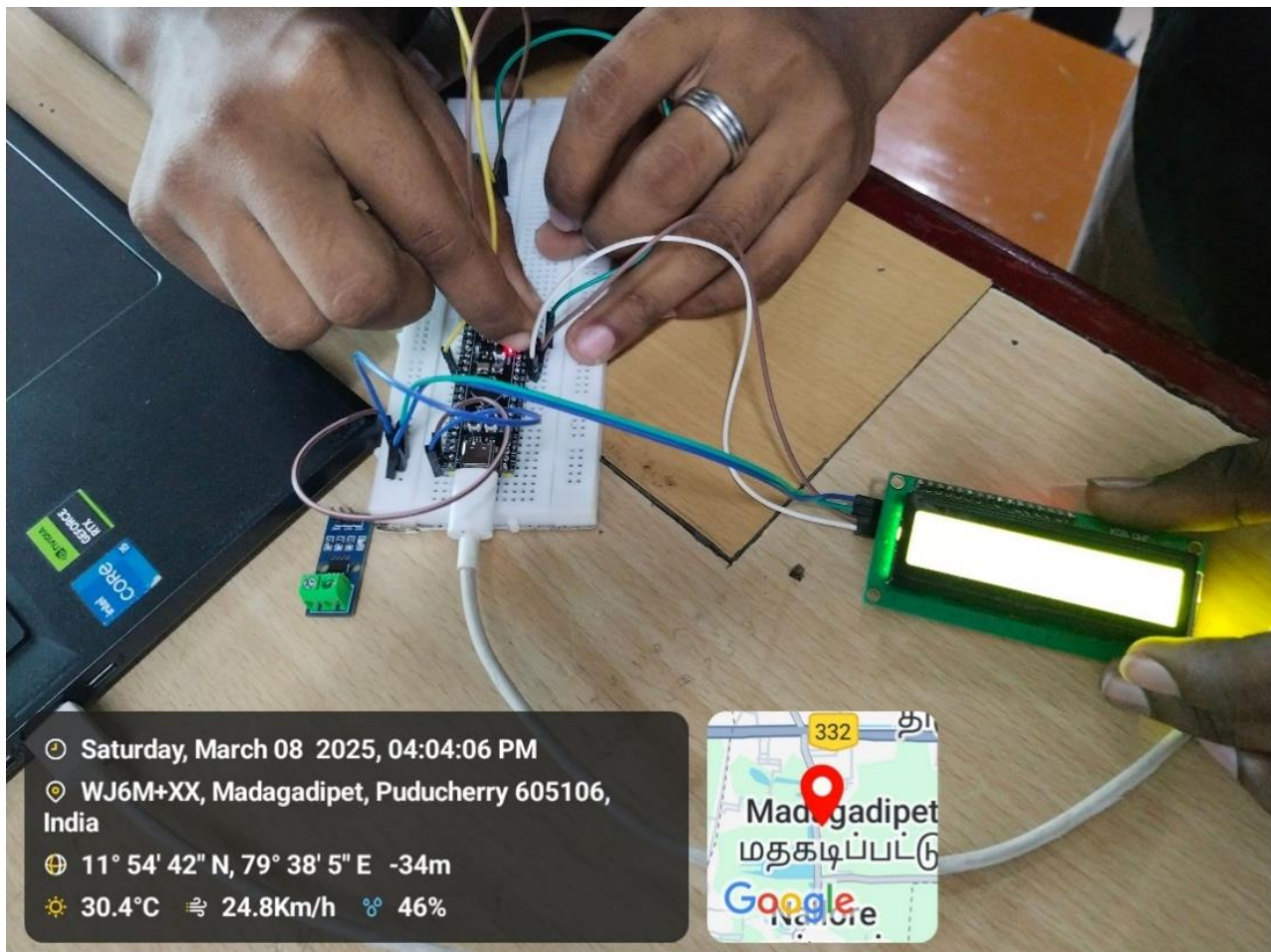
The Department of Electrical and Electronics Engineering organized a Hands-on Training titled "**Deep Dive into Embedded Systems and Programming Techniques**" to the 3rd year students delivered by Mr.Selva Kumar S, SoC Verification Engineer, Intel Technologies, Bengaluru on 3rd January, 2025.

This one-day workshop on Embedded Systems and Programming Techniques using STM32F411CE offers a hands-on introduction to modern embedded systems development. Participants will learn how to design, program, and deploy embedded applications using the STM32F411CE black pill microcontroller. The workshop combines theoretical sessions with practical exercises to ensure a comprehensive learning experience.

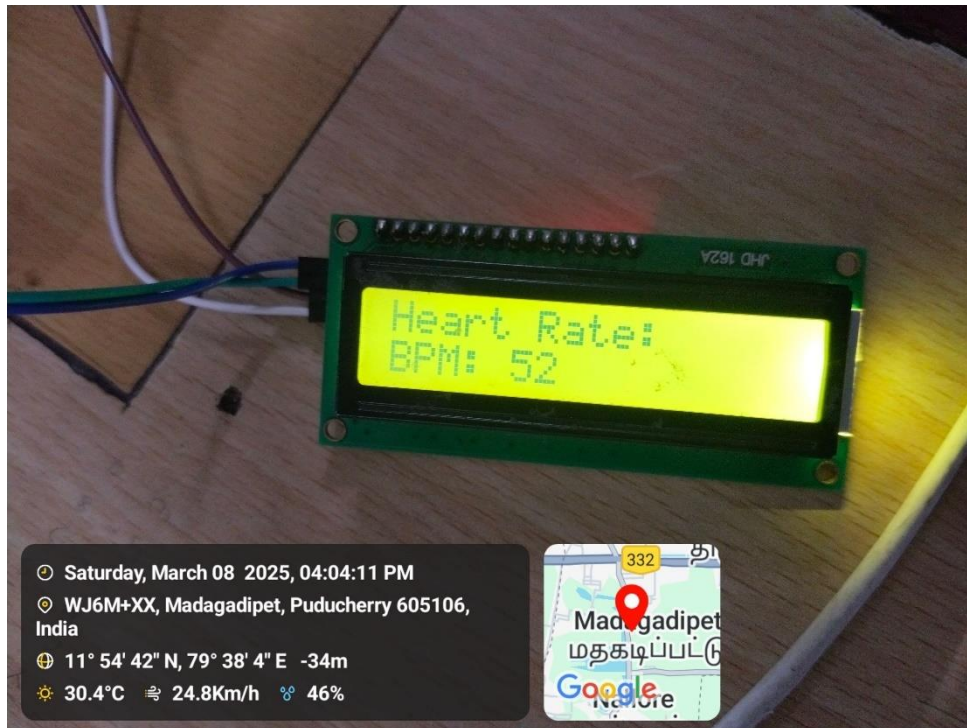
- **Introduction to Embedded Systems:** Overview of key concepts and architecture.
- **STM32F411 Microcontroller:** Features, specifications, and use cases.
- **Programming Techniques:** Effective coding practices and debugging strategies.
- **Hands-on Lab:**
 - Setting up the development environment (e.g., STM32CubeIDE).
 - Writing and running basic programs on STM32F411.
 - Peripheral interfacing (GPIO, UART, ADC, etc.).
 - Real-time applications and interrupt handling

Embedded club – Activity Report-2

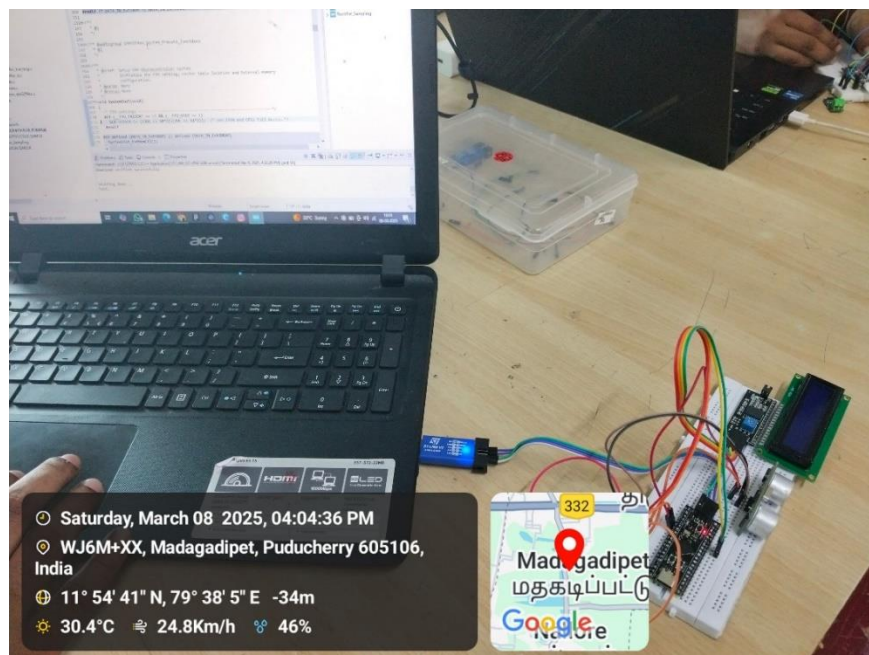
Academic Year	:	2024 – 2025
Date /Day	:	08.03.2025 (Saturday)
Name of Club:		Embedded club
Activities	:	Deep Dive into Embedded Systems and Programming Techniques- hardware implementation



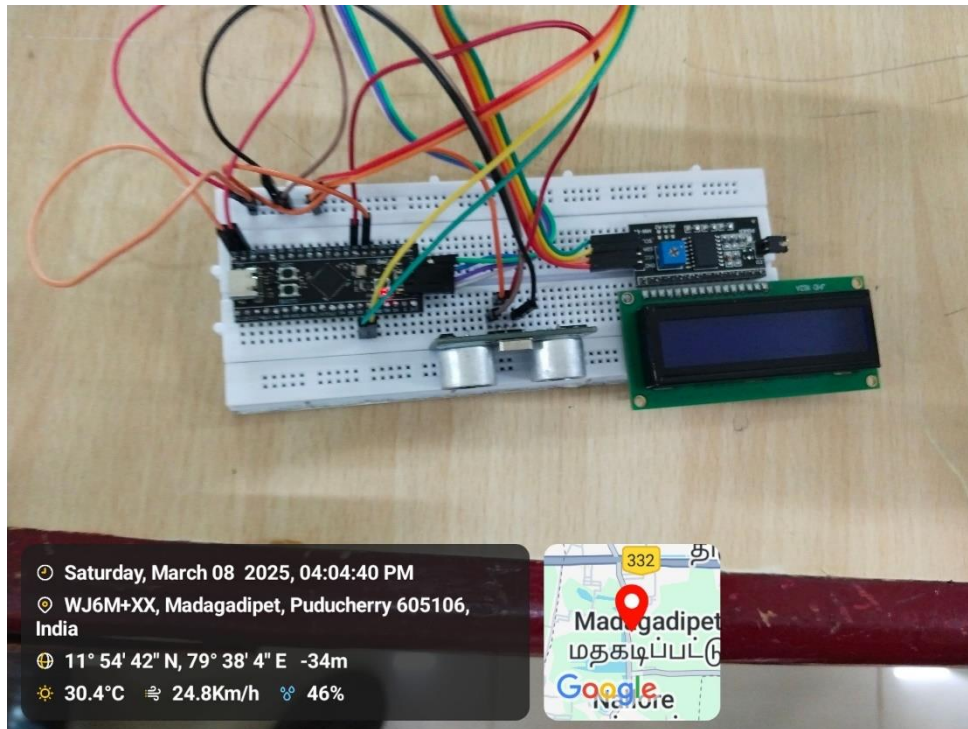
Students developed a hardware implementation to display the current sensor value using a 16x2 LCD, interfaced with an STM32F411 microcontroller and an ACS712 series current sensor



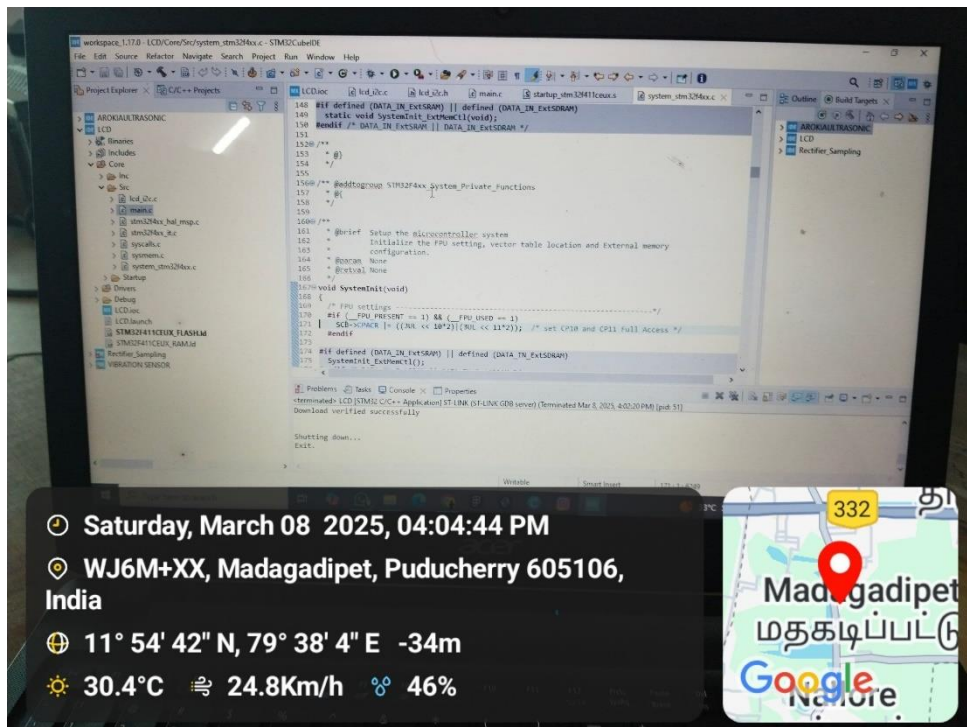
Students developed a hardware implementation to display heart rate values using a 16x2 LCD, interfaced with an STM32F411 microcontroller and a heartbeat sensor



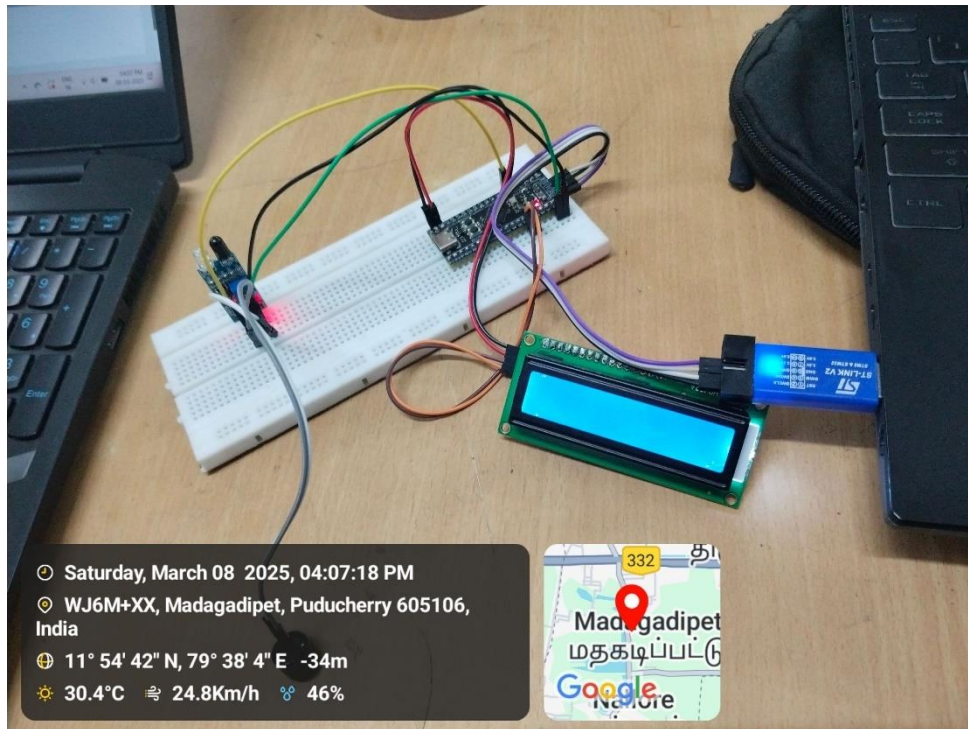
Students developed a hardware implementation to measure and display distance using the HC-SR04 ultrasonic sensor, interfaced with an STM32F411 microcontroller and a 16x2 LCD



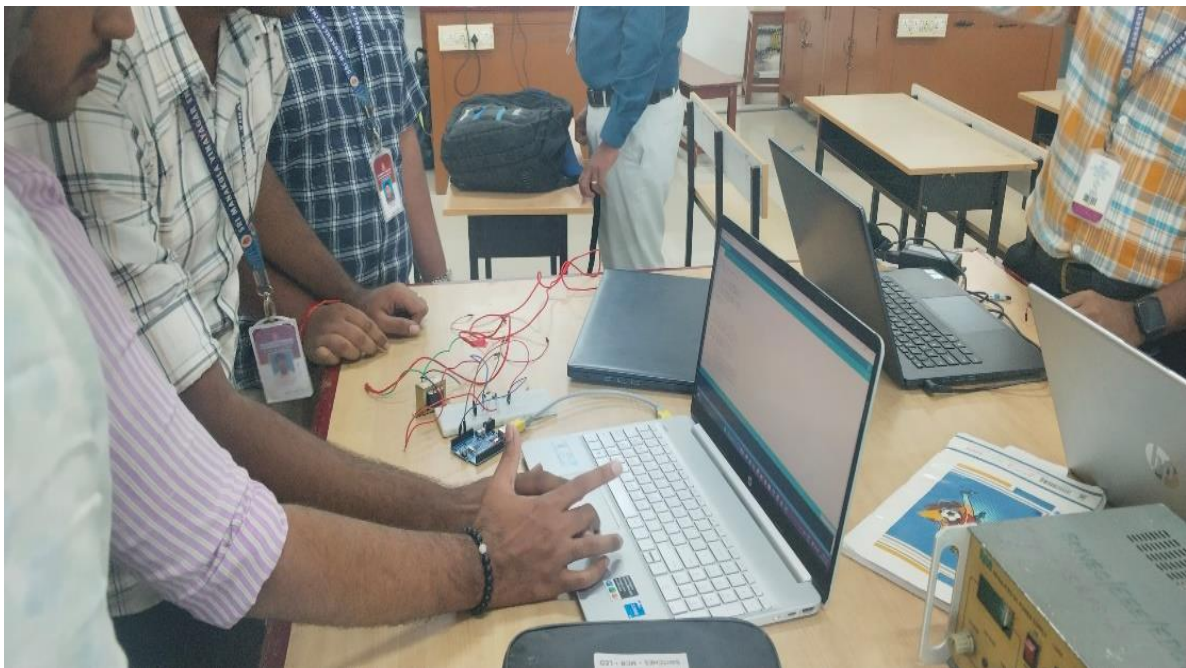
Students designed a hardware system for object detection using the HC-SR04 ultrasonic sensor, with output displayed on a 16x2 LCD via the STM32F411 microcontroller



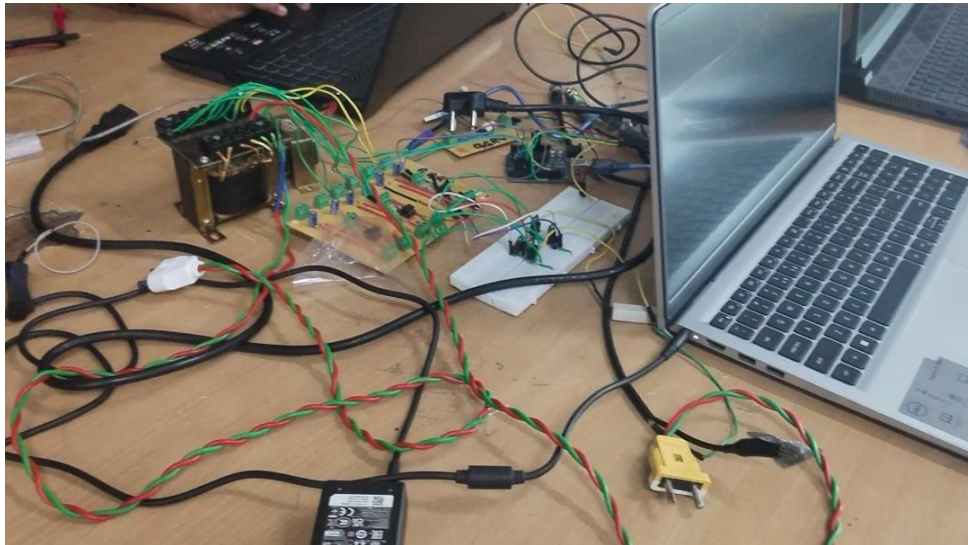
Students designed a hardware system for object detection using the HC-SR04 ultrasonic sensor, with output displayed on a 16x2 LCD via the STM32F411 microcontroller. The system was programmed and implemented using the STMicroelectronics IDE software, enabling real-time sensor data processing and display



Students developed a proximity detection system using an IR sensor, with detection results displayed on a 16x2 LCD via the STM32F411 microcontroller



Students developed a hardware system to display waveforms using sampling techniques, implemented via Python with Matplotlib in a Python IDE. The system interfaces with an STM32F411 microcontroller and captures the waveform from a rectifier circuit



The Department of Electrical and Electronics Engineering organized a Hands-on Training titled "Deep Dive into Embedded Systems and Programming Techniques- hardware implementation " to the 3rd year students delivered by Mr.Parthiban.B, Assistant professor, Department of Electrical and Electronics Engineering on 8th March, 2025.

This half-day workshop on Embedded Systems and Programming Techniques using STM32F411CE offers a hands-on introduction to modern embedded systems development. Participants will learn how to design, program, and deploy embedded applications using the STM32F411CE black pill microcontroller. The workshop combines theoretical sessions with practical exercises to ensure a comprehensive learning experience.

- Introduction to Embedded Systems: Overview of key concepts and architecture.
- STM32F411 Microcontroller: Features, specifications, and use cases.
- Programming Techniques: Effective coding practices and debugging strategies.
- Hardware implementation using different sensors

