



HOPE Foundation's
Finolex Academy of Management & Technology, Ratnagiri
Department of Electrical Engineering

Two-Day Workshop on Arduino: From Basics to Automation & Robotics

The Department of Electrical Engineering organised a two-day hands-on Workshop titled "Arduino: From Basics to Automation & Robotics" for second-year Electrical Engineering students on 25th July and 2nd August 2025.

A total of 27 students participated in the workshop, actively engaging in interactive sessions focused on embedded systems, sensor interfacing, and real-world automation applications. The workshop was structured into six comprehensive sessions, covering Arduino fundamentals, sensor integration, and automation-based projects.

On Day 1, students were introduced to the basics of microcontrollers, setting up the Arduino IDE, and writing simple programs. They also learned to interface digital and analogue components. Through hands-on exercises, they worked with a variety of sensors, including temperature, humidity, soil moisture, IR, ultrasonic, smoke, and LDR sensors, gaining practical experience in sensor integration and data acquisition.

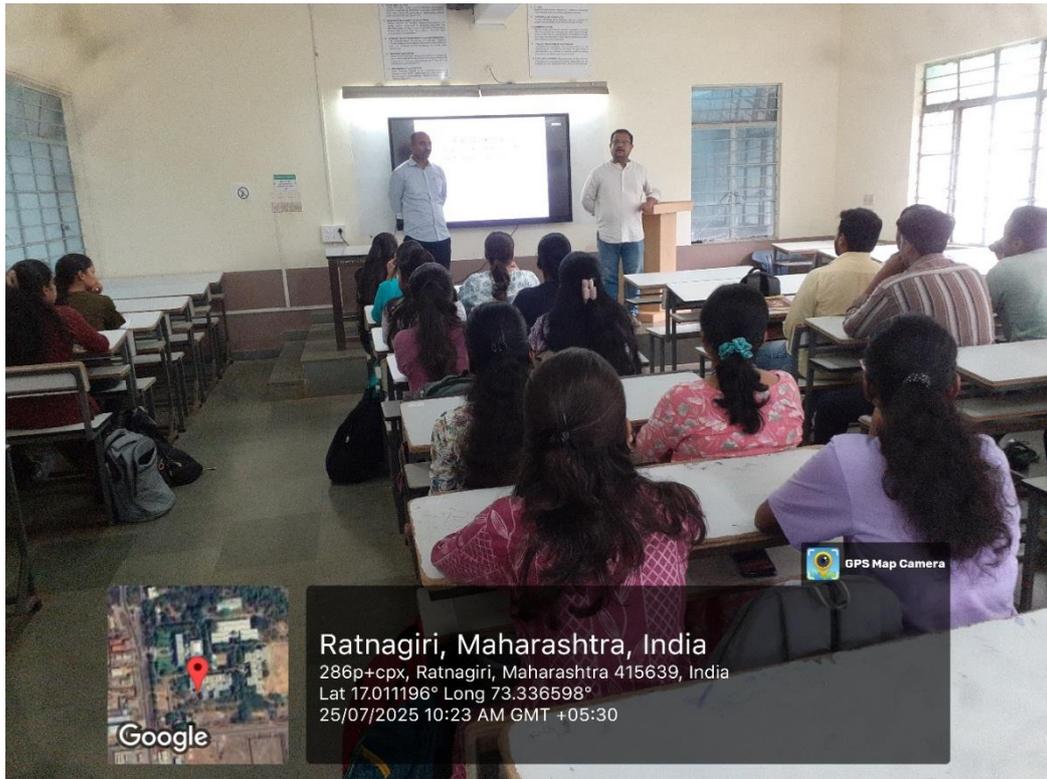
Most of the project development was carried out using Tinkercad simulations, allowing students to virtually design and test circuits before moving to real hardware. In addition to simulations, students were also shown practical electronic components and their implementation in working hardware projects, including basic sensor-based setups and a robotic car prototype, providing them with valuable insight into real-world prototyping and physical assembly.

On Day 2, participants progressed to implementing real-time automation projects such as home automation, smart irrigation systems, obstacle detection, and line-follower robots. The sessions focused on debugging, troubleshooting, and optimising Arduino-based systems for improved functionality and reliability. As part of the assessment, students were given three project problems and were required to complete at least two successfully to qualify for the workshop completion certificate.

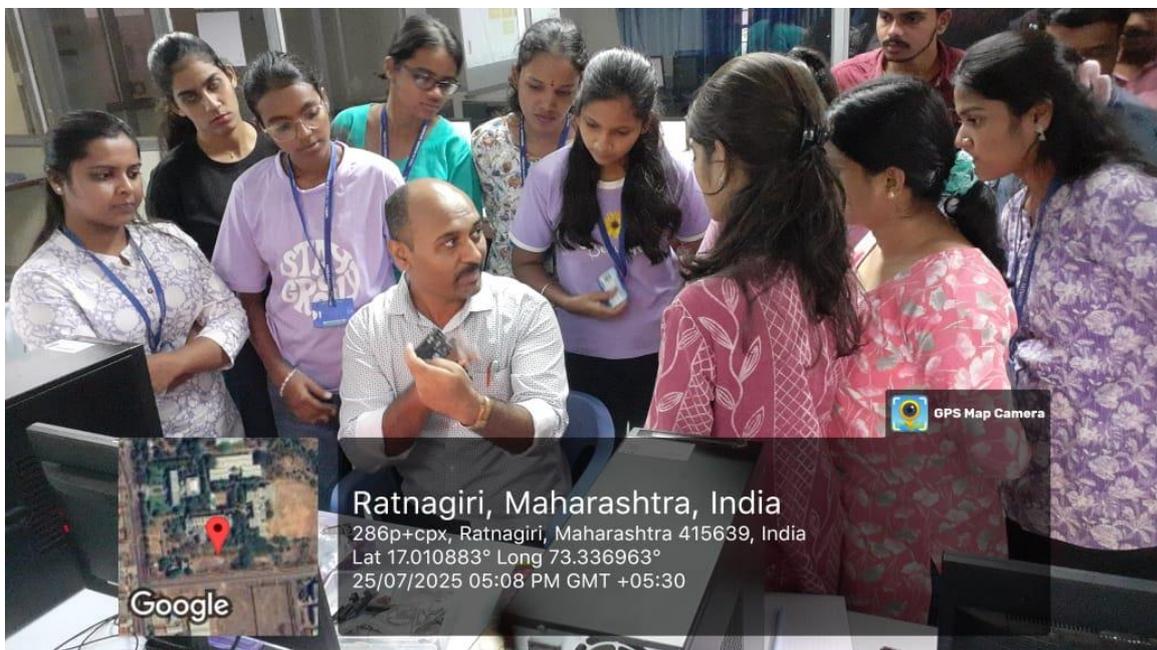
The workshop was conducted and coordinated by Prof. Rupesh B. Ingle, who served as the resource person, delivering in-depth sessions on Arduino Uno programming, sensor interfacing, automation, and robotics. The event was co-coordinated by Dr. Jayant J. Mane, who ensured smooth execution and encouraged active student participation.

Student feedback indicated a strong grasp of real-world automation concepts, especially in sensor integration, circuit debugging, and project implementation. Their enthusiasm and involvement throughout the workshop reflected a genuine interest in applying these skills beyond the classroom.

Overall, the workshop successfully bridged theoretical knowledge and practical application, empowering students to design and develop innovative Arduino-based projects using both virtual simulation tools and real hardware demonstrations.



Inauguration of the 2-Day Workshop by HOD Dr. J.J. Mane, with Prof. R.B. Ingle, Present.



Prof. R.B. Ingle demonstrating Arduino Uno, Sensors, Actuators, and other electronic components to students.



Prof. R.B. Ingle is conducting a session on Day 02 of the Workshop



Robo Cars used for training in the Arduino Workshop.