NEW HORIZON COLLEGE OF ENGINEERING

Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC

Accredited by NAAC with 'A' Grade, Accredited by NBA

Department of Electrical and Electronics Engineering

Odd Sem - Academic Year: 2026-27

IEEE DEIS & PES Student Chapter – Event Report

One-Day Workshop on "IoT-Based Special Sensors and Wireless Evaluation using ESP32 Microcontroller"

Venue: Computer Aided Power System Analysis Lab, Room No. B 210

Date: 6 October 2026

Time: 09:00 AM – 04:30 PM

Organized By: Department of Electrical and Electronics Engineering

In Association With: IEEE DEIS & PES Student Chapter, NHCE

Target Audience: II Year EEE Students of New Horizon College of Engineering

Resource Persons

- **Mr. Madhan Kumar M** – Founder and R&D Engineer, Power Integrated Solutions
- **Mr. Selvakumar R** – Electronics Engineer, Power Integrated Solutions

Organising Coordinators

- **Dr. Meenakshi Sundaram P** – Senior Assistant Professor
- **Ms. Ramya S** – Assistant Professor

Convener:

Dr. S. Sujitha – HoD, EEE

Description of the Event

The Department of Electrical and Electronics Engineering, New Horizon College of Engineering, organized a **One-Day Workshop on "IoT-Based Special Sensors and Wireless Evaluation using ESP32 Microcontroller"** on **6 October 2026** at the Power System Simulation Lab (Room No. B 210).

The workshop was organized to provide students with practical exposure to **Arduino programming, ESP32 microcontroller-based systems, sensor interfacing, software implementation, hardware implementation, and IoT applications**. The workshop focused on bridging the gap between theoretical concepts and practical implementation through hands-on learning.

The sessions were conducted by **Mr. Madhan Kumar M**, Founder and R&D Engineer, Power Integrated Solutions, and **Mr. Selvakumar R**, Electronics Engineer, Power Integrated Solutions.

Workshop Sessions and Highlights

Session 1 – Introduction to Arduino

The first session provided students with an introduction to **Arduino and microcontroller-based systems**. The resource persons explained the basic architecture and features of Arduino, its components, programming environment, input/output pins, and basic interfacing concepts. Students were introduced to the fundamentals required for developing microcontroller-based applications and were given an overview of how sensors and electronic devices can be integrated with a microcontroller.

Session 2 – Software Implementation

The second session focused on the **software implementation of microcontroller-based applications**. Students were introduced to the programming environment and the process of writing, compiling, uploading, and testing programs.

The session provided practical exposure to developing basic programs for sensor interfacing and understanding the interaction between the software and microcontroller hardware.

Session 3 – Hardware Implementation

The third session focused on **hardware implementation and practical interfacing**. Students gained hands-on experience in connecting sensors and electronic components with the microcontroller.

The resource persons demonstrated the practical aspects of circuit connections, sensor interfacing, signal acquisition, and testing. Students were encouraged to understand the relationship between the program developed and the corresponding hardware operation.

Session 4 – Implementation of IoT

The final session introduced students to the **implementation of Internet of Things (IoT) applications** using microcontrollers and sensors. The session explained how sensor data can be acquired, processed, transmitted, and monitored through IoT-based systems.

Students gained an understanding of wireless connectivity and the role of IoT in developing **smart monitoring and automation applications**. The session also highlighted the potential of ESP32-based systems for developing low-cost and connected engineering applications.

Workshop Highlights

The major highlights of the workshop included:

- Introduction to Arduino and microcontroller-based systems.
- Understanding of Arduino programming and development environment.
- Software implementation and program execution.
- Practical sensor interfacing and hardware implementation.
- Introduction to ESP32 microcontroller-based applications.
- Understanding wireless communication and IoT implementation.
- Hands-on exposure to sensor-based monitoring systems.
- Interaction with industry professionals and technical experts.
- Practical understanding of embedded systems and IoT applications.

Outcome of the Workshop

The workshop successfully enhanced students' understanding of **microcontrollers, sensors, embedded systems, wireless communication, and IoT technologies**. Through the practical sessions, students gained hands-on experience in software and hardware implementation and understood the process of developing sensor-based IoT applications.

The workshop also helped students connect classroom concepts with real-world applications and encouraged them to explore **IoT-based projects, embedded systems, automation, and innovative engineering solutions**.

Conclusion

The workshop concluded successfully with an interactive session and a vote of thanks to the **resource persons, organizers, faculty members, and students** for their valuable contributions and active participation.

The programme was **informative, practical, and engaging**, providing students with valuable exposure to Arduino, ESP32, sensor interfacing, hardware implementation, and IoT technologies. The hands-on nature of the workshop made it beneficial for students in understanding the practical development of modern embedded and IoT-based systems.



Resource person being felicitated at the "IoT-Based Special Sensors and Wireless Evaluation using ESP32 Microcontroller"













“A glimpse of our students engaged in hands-on project work during the workshop.”

Head of the Department
Department of Electrical and Electronics Engineering
New Horizon College of Engineering
Ring Road, Kadubisanahalli, Bellandur Post
Bangalore - 560103, Karnataka, India