

# Report on Advanced Embedded IoT Application Development

Organized by  
**JB Institute of Engineering & Technology**  
on  
**5<sup>th</sup> & 6<sup>th</sup> February 2026**

The Electronics and Communication Engineering Department at J.B. Institute of Engineering & Technology (JBIET) organized a workshop on Advanced Embedded IoT Application Development, which was held on 5<sup>th</sup> & 6<sup>th</sup> February 2026.



The poster features a dark background with a glowing blue and orange circuit board pattern. At the top, it lists the institute's name and accreditation logos. The main text is centered and reads: 'DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING', 'SKILL DEVELOPMENT WORKSHOP ON', 'Advanced Embedded IOT Application Development', '5th & 6th February 2026', 'RESOURCE PERSON :', 'Mr. Gopalakrishna Polimera', 'competency Head and Technical Manager', 'PHYTEC embedded pvt Ltd, In Association With [ IETE ]', and 'Bangalore'.

**JB INSTITUTE OF ENGINEERING & TECHNOLOGY**  
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**DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**

**SKILL DEVELOPMENT WORKSHOP ON**

**Advanced Embedded IOT Application Development**

**5th & 6th February 2026**

RESOURCE PERSON :

**Mr. Gopalakrishna Polimera**  
competency Head and Technical Manager

PHYTEC embedded pvt Ltd, In Association With [ IETE ]  
Bangalore

## Objective

The workshop on **Advanced Embedded IoT Application Development** was organized with the objective of providing students with practical knowledge of embedded systems and Internet of Things (IoT) concepts. The workshop aimed to introduce students to IoT system architecture, embedded hardware platforms, sensors, actuators, and commonly used communication protocols.

The objective of the workshop was to introduce participants to the architecture and applications of Industrial Grade Single Board Computers (SBCs) and to provide knowledge of hardware interfacing using communication protocols such as GPIO, UART, and I2C. The workshop aimed to enable participants to integrate IoT sensors with SBCs for environmental and motion monitoring, understand cloud connectivity and real-time data visualization using the Rhytec Cloud platform, and develop end-to-end IoT applications using rugged boards.

Resource person Gopalakrishna Polimera, competency Head and Technical Manager, PHYTEC embedded pvt Ltd Bangalore

**Profile:** The Competency Head is responsible for identifying industry-relevant skills, designing competency frameworks, and aligning training programs with current technological and professional requirements. The role involves curriculum planning, skill gap analysis, mentoring learners, and ensuring continuous upskilling through workshops, certifications, and hands-on training initiatives.

## Topics Covered:

Mr. Polimera delivered a comprehensive presentation covering several key areas of the embedded and IOT applications like Environment monitoring, Data Logger, Smart Home Automation, using Industrial Grade Single Board Computer (Rugged Board – SBC) introduction to RB-Peripherals – GPIO, UART, I2c Interfacing with External Hardware, IoT Sensor Integrating with SBC, I2c- Sensors like BMP280, LSM6dsl....Display Temperature, Humidity, etc



## Engagement and Activities:

The workshop was structured to promote active involvement from students by combining conceptual learning with practical experience. Throughout the program, participants stayed engaged by interacting with the resource persons, taking part in hands-on exercises, and exploring real-time IoT applications that demonstrated how theoretical concepts are applied in practice.

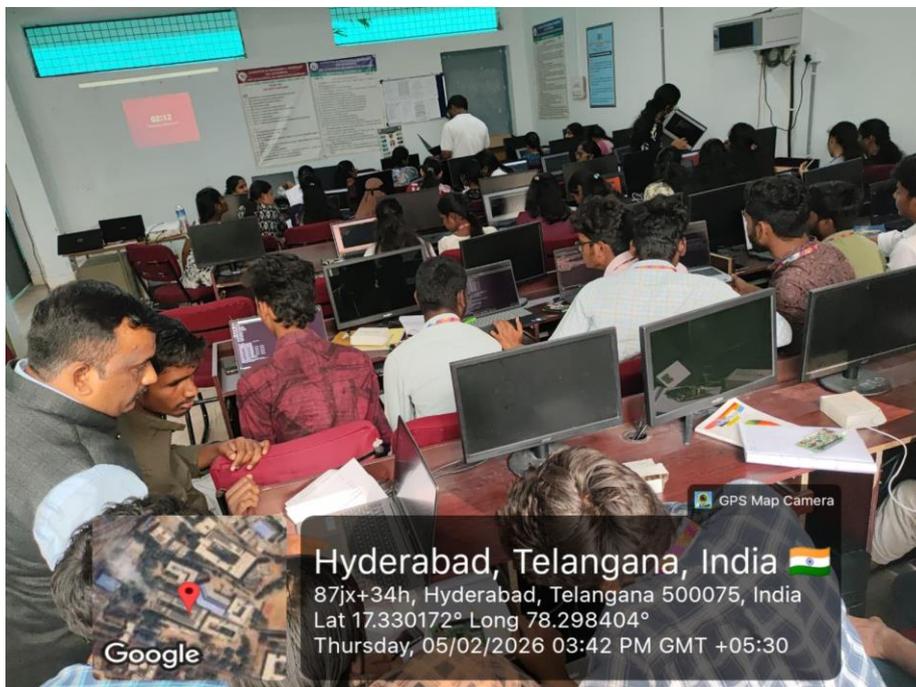
### Day 1 Activities

The workshop began with an introduction to Industrial Grade Single Board Computers (Rugged Boards – SBC). Participants learned about the architecture, features, and industrial applications of SBCs.

The session then focused on RB peripherals, where students explored hardware interfacing using GPIO, UART, and I2C communication protocols. Practical demonstrations showed how external hardware devices can be connected and controlled using these interfaces.

Later, participants worked on IoT sensor integration with SBCs. Sensors such as BMP280 and LSM6DSL were connected using the I2C protocol to measure environmental parameters.

Students successfully displayed sensor outputs like temperature, humidity, and motion data, gaining hands-on experience in sensor communication and data acquisition.



## Day 2 Activities

The second day focused on cloud integration with SBCs. Participants learned how to connect their devices to the Rhytec Cloud platform and visualize sensor data on a dashboard in real time. This helped them understand the role of cloud computing in IoT systems.

The workshop concluded with end-to-end IoT application development using rugged boards. Several practical applications were demonstrated, including environment monitoring, data logging, and smart home automation. These projects helped participants understand how hardware, sensors, connectivity, and cloud services work together to create complete IoT solutions.

Overall, the workshop provided valuable theoretical knowledge and practical exposure to SBC-based IoT development, enhancing participants' understanding of industrial IoT systems.



## Outcomes and Impact

- Understood the architecture and applications of Industrial Grade Single Board Computers (SBCs).
- Learned hardware interfacing using GPIO, UART, and I2C protocols.
- Gained hands-on experience in integrating sensors like BMP280 and LSM6DSL with SBCs.
- Learned to connect devices to cloud platforms and visualize real-time data.
- Developed basic end-to-end IoT applications such as environment monitoring and smart automation.

## Key Takeaways:

- Understanding of Industrial Grade Single Board Computers (SBCs) and their industrial applications.
- Hands-on experience with hardware interfacing using GPIO, UART, and I2C.
- Practical knowledge of IoT sensor integration and data acquisition.
- Exposure to cloud connectivity and real-time data visualization.
- Insight into end-to-end IoT system development using rugged boards.



## Conclusion

The session concluded with a heartfelt vote of thanks.

