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Department of CSE–IoT (Internet of Things)

Event: - Two-Day Workshop on AI-Enabled IoT Applications Workshop 2026

Dates: 12th, 13th March 2026

Time: 10:00 AM

Venue: Block A Room: 107 (IoT), RCEE College Campus

Resource Person*:* - Mr. V.Uma Manikanta, RevoIoT

Convenor: - Mr. Narendra Bavisetti, HOD – CSE (IoT, RACE)

Co coordinators:- Mr.V.N.S.R.Murthy and A.Ramadevi and J.praveen Kumar and R.jhansi

Introduction

A two-day workshop on **AI-Enabled IoT Applications** was organized to provide participants with in-depth knowledge of integrating Artificial Intelligence (AI) with Internet of Things (IoT) technologies. The workshop aimed to bridge the gap between theoretical concepts and practical implementation by focusing on real-time applications and hands-on learning.

The program covered fundamental concepts such as IoT architecture, communication protocols, and sensor technologies, along with AI techniques including machine learning and data analytics. Participants were introduced to popular hardware platforms like Arduino and Raspberry Pi, as well as software tools such as Python for data processing and model development.

The workshop also emphasized real-world applications of AI-enabled IoT systems in various domains, including smart homes, healthcare monitoring, agriculture, industrial automation, and smart cities. Through interactive sessions, demonstrations, and practical exercises, participants gained insights into how AI can enhance IoT systems by enabling predictive analysis, automation, and intelligent decision-making.

Objectives of the Workshop

The main objectives of the two-day workshop on **AI-Enabled IoT Applications** were:

- To provide a clear understanding of the fundamental concepts of **Artificial Intelligence (AI)** and the **Internet of Things (IoT)**.
- To explain how AI techniques can be integrated with IoT systems to create smart and intelligent applications.
- To familiarize participants with IoT hardware components such as sensors, actuators, Arduino, and Raspberry Pi.
- To introduce programming tools and technologies like Python used for developing AI-based IoT solutions.
- To offer hands-on experience in designing, building, and testing real-time IoT applications.
- To demonstrate real-world use cases such as smart homes, healthcare monitoring, smart agriculture, and industrial automation.

Workshop Details and Activities

The workshop was inaugurated on 12th March 2026 at 10:00 AM by **Mr. Narendra Bavisetti**, HOD–CSE (IoT, RACE) **, in the presence of faculty members and students. The resource person, **Mr.V.Uma Manikanta**, an Director of Anitha Technologies, was introduced and welcomed by the coordinators **Mr.V.N.S.R.Murthy and A.Ramadevi**

Day 1 – Introduction to IoT &Arduino Practical Sessions

The first day of the workshop focused on building a strong foundation in the **Internet of Things (IoT)** and providing hands-on experience with **Arduino**. The session began with an introduction to IoT, where participants learned about the concept of connecting physical devices to the internet for data collection and communication. The architecture of IoT, including sensors, actuators, microcontrollers, communication networks, and cloud platforms, was explained in detail

During the hands-on session, participants performed basic experiments such as:

- Blinking an LED using Arduino
- Interfacing sensors (temperature, LDR, etc.)
- Reading sensor data and displaying output
- Controlling devices using digital and analog signal

1. Temperature Sensor

The temperature sensor is used to measure the ambient temperature of the surrounding environment. It plays a vital role in applications such as weather monitoring, healthcare systems, and smart home automation. Commonly used temperature sensors include **LM35** and **DHT11**.

2. Humidity Sensor

The humidity sensor measures the moisture content present in the air. It is widely used in agriculture, climate control systems, and environmental monitoring applications. Examples of humidity sensors include **DHT11** and **DHT22**.

3. Light Sensor (LDR – Light Dependent Resistor)

The light sensor is used to detect the intensity of light. It works by changing its resistance based on the amount of light falling on it. LDRs are commonly used in automatic street lighting systems and smart lighting applications.

4. Motion Sensor (PIR Sensor)

The Passive Infrared (PIR) sensor detects motion by sensing infrared radiation emitted by objects, especially humans. It is widely used in security systems, automatic doors, and motion-based lighting systems.

5. Ultrasonic Sensor

The ultrasonic sensor is used to measure distance by emitting ultrasonic waves and calculating the time taken for the echo to return. It is commonly used in obstacle detection, robotics, and parking assistance systems. A popular example is the **HC-SR04** sensor.

6. Gas Sensor

Gas sensors are used to detect the presence of harmful gases such as LPG, carbon dioxide (CO_2), and smoke. These sensors are essential in safety systems, industrial monitoring, and environmental protection. The **MQ series sensors** are widely used for gas detection.

7. Soil Moisture Sensor

The soil moisture sensor measures the water content in the soil. It is mainly used in smart agriculture and automated irrigation systems to ensure efficient water usage and improve crop productivity.

Day 2 – Introduction to IoT &Arduino Practical Sessions

The second day focused on advanced IoT-based practical implementations using Arduino and sensors to build real-time smart applications.

- **IR Sensor (Infrared Sensor)** – used for object detection and line-following robots

- **Sound Sensor** – detects sound levels or noise intensity (used in smart monitoring systems)

- **Rain Sensor** – detects rainfall or water droplets (used in weather monitoring and smart irrigation)

- **Flame Sensor** – detects fire or flame presence (used in fire alarm systems)

- **Accelerometer Sensor** – measures acceleration and movement (used in smart phones and tracking devices)

The session covered basics of machine learning, data processing using Python, and how sensor data collected from IoT devices can be analyzed to generate meaningful insights. Hands-on sessions were conducted where participants worked on simple AI-enabled IoT projects, such as smart monitoring systems and automation models.

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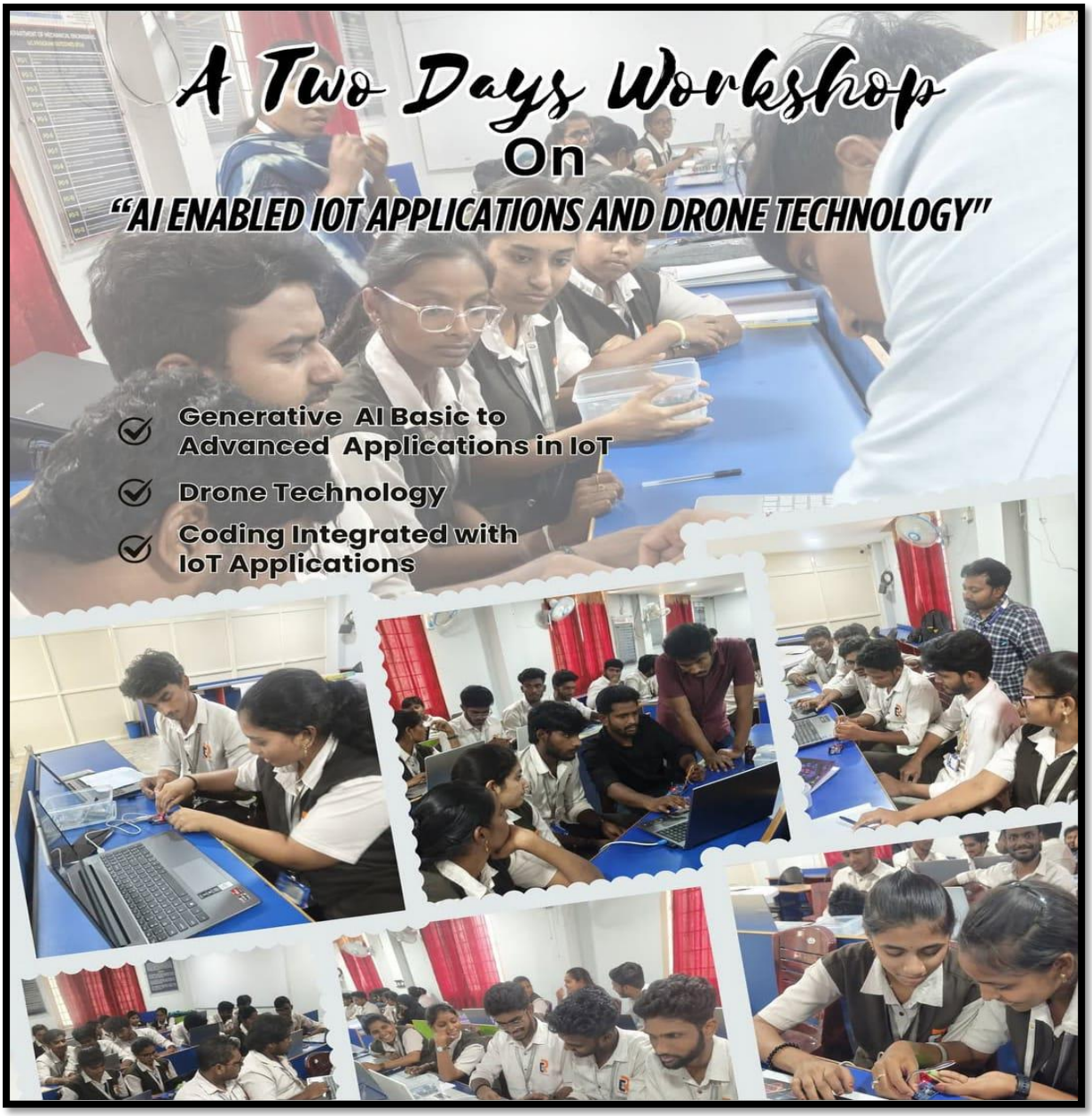

These activities helped participants understand how multiple sensors can be integrated into a single IoT system to develop smart applications such as home automation, environmental monitoring, and security systems

- These sensors were used to build advanced IoT applications
- Helped in understanding multi-sensor integration
- Enabled development of smart and automated systems

Outcomes and Learning

- Participants gained a clear understanding of the fundamentals of **Artificial Intelligence (AI)** and the **Internet of Things (IoT)**.

- Developed practical knowledge of working with **Arduino**, sensors, and IoT components.

- learned how to interface different sensors and collect real-time data from the environment.

- understood the integration of AI techniques with IoT systems for smart decision-making.

- Acquired basic programming skills using Python and Arduino IDE.

- Gained hands-on experience in building simple IoT-based and AI-enabled projects.

- Improved problem-solving, analytical thinking, and technical skills.

- Understood real-world applications such as smart homes, healthcare monitoring, and smart agriculture.

- Enhanced teamwork and collaboration through group activities and project work.

Feedback and Observations

The workshop received an overwhelmingly positive response from the participants. Students appreciated the well-structured sessions that combined theoretical explanations with hands-on practical implementation.
Participants found the real-time projects such as temperature-controlled fan, automatic streetlight, and cloud data uploading highly engaging and relevant to current industry trends. The interactive approach of the Resource Person, Mr. CH Raviteja, encouraged active participation, problem-solving, and teamwork.

Conclusion

The two-day workshop on AI-enabled IoT applications was highly successful. It provided participants with valuable insights into emerging technologies and encouraged them to innovate in the field of AI and IoT. The interactive sessions and practical exposure made the workshop effective and beneficial for all attendees Conducted at Ramachandra College of Engineering, the program effectively bridged the gap between theoretical concepts and real-time implementation.
Through hands-on sessions, live demonstrations, and cloud integration projects, students gained confidence in developing smart and automated systems for future academic projects, research, and industry-oriented careers in IoT and emerging technologies

Acknowledgement

The Department of CSE–IoT extends heartfelt gratitude to:
Dr. Muralidhar Rao, Principal, RCEE, for constant encouragement and support.
Mr. Narendra Bavisetti, HOD–CSE (IoT, RACE), for his guidance and motivation.
Mr. V.Uma Manikanta, Resource Person, for conducting an engaging and informative session.
All faculty coordinators and student volunteers for their teamwork and dedication.

HoD **Dean-Academic** **Principal**