ELLENKI COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous Institution - UGC, Govt. of India)
(Sponsored by Ellenki Educational Society)
Patelguda, Sangareddy Dist. Hyderabad.
Approved by AICTE & Affiliated to JNTUH, Accredited by NAAC, Recognition of 2(f), UGC, MSME-HI

Department of Training and placement

IOT Device Development Work Shop 1.0

Convenor and A Resource Person : Dr. Kesavan Gopal, HOD, AI & ML

Venue: Ellenki college of engineering and technology

Date: 06 March,2025

Time: 09:00 AM to 4:00 PM

Submitted

by

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Training and Placement Officer

Ellenki College of Engineering and Technology

Coordinator **Principal** **Academic Director**

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Introduction

The **IoT Device Development - Workshop Series 1.0** was organized at **Ellenki College of Engineering and Technology** to introduce first-year students from all branches to the fundamentals of **Internet of Things (IoT)**. The workshop was led by **Dr. Kesavan Gopal, HoD, AI & ML**, and provided hands-on experience in IoT device simulation and development.

Objectives

The primary objectives of this workshop were:

- Introduced students to the **basic concepts and applications of IoT**.
- Provided a **comprehensive understanding of IoT devices, components, and their real-world applications**.
- Offered **hands-on experience in IoT simulation** for practical learning.
- Prepared students for **advanced IoT training in future workshops**.

Workshop Schedule & Key Learnings

Session 1: IoT Basics (9:00 AM – 10:30 AM)

Topics Covered:

- Introduction to **IoT and its importance in modern technology**.
- Understanding **how IoT connects devices and collects data**.
- Overview of **IoT architecture, sensors, and communication protocols**.
- Real-life IoT applications in **smart homes, healthcare, and industries**.

Key Takeaways:

- Students gained clarity on **how IoT works and its growing impact**.
- Importance of **networking, cloud computing, and data analytics in IoT**.

Session 2: IoT Devices and Resources (10:45 AM – 12:30 PM)

Topics Covered:

- Introduction to **various IoT devices** (sensors, actuators, microcontrollers).
- Overview of **hardware components like Arduino, Raspberry Pi, ESP8266**.
- Understanding **IoT communication protocols (MQTT, HTTP, LoRa, Zigbee)**.
- Exploring **IoT development platforms** such as Blynk, Node-RED, and ThingSpeak.

Key Takeaways:

- Students learned about **essential IoT hardware and software tools**.
- Awareness of **open-source platforms and cloud-based IoT solutions**.

Session 3: Simulating IoT Devices (1:10 PM – 3:30 PM)

Topics Covered:

- Introduction to **IoT simulation tools like Cisco Packet Tracer and Tinkercad**.
- Hands-on **simulation of IoT devices** using software.
- Understanding **data flow and device communication** in IoT networks.
- Practical implementation of **sensor-based projects (e.g., temperature monitoring, smart lighting)**.

Key Takeaways:

- Hands-on **experience with IoT device simulation**.
- Students successfully created **virtual IoT projects**.
- Improved problem-solving skills in **IoT-based real-world challenges**.

Session 4: Conclusion & Future Workshop Insights (3:30 PM – 3:45 PM)

Topics Covered:

- Recap of **all key learnings from the workshop**.
- Q&A session with **students for clarifying doubts**.
- Introduction to **Workshop Series 2.0**, which will focus on **IoT security, real-time projects, and AI in IoT**.

Key Takeaways:

- Students gained clarity on **next steps in IoT learning**.
- Encouragement to participate in **upcoming advanced IoT workshops**.

Outcomes & Impact

- **Fundamental understanding of IoT concepts and applications.**
- **Hands-on experience with IoT device simulation.**
- **Introduction to key IoT development platforms and tools.**
- **Encouragement to explore IoT further through projects and advanced training.**

Participation:

- A total of **200 students** from Ellenki college participated virtually.

Workshop Highlights

1. Excellent Student Participation & Engagement

- Over **100+ first-year students** from various branches actively participated.
- Students were **highly interactive**, asking insightful questions about **IoT devices, sensors, and real-world applications**.
- Hands-on **IoT stimulation activities** kept the students **engaged and excited** throughout the workshop.

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2. Practical, Hands-on Learning Approach

Live demonstrations of IoT device simulations using **Cisco Packet Tracer and Tinker cad**. including:

- **Smart Home Automation (Light & Fan Control)**
- **Temperature & Humidity Monitoring System**
- **IoT-Based Smart Agriculture System**
  Use of **real IoT hardware components** (Arduino, Raspberry Pi, ESP8266) for demonstrations.

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3. Exposure to Industry-Relevant IoT Tools & Platforms

Introduction to modern IoT platforms such as:

- **ThingSpeak** (Cloud-based IoT data storage and analysis)
- **Blynk** (IoT mobile app integration)
- **Node-RED** (Flow-based development for IoT applications)
  Understanding of **IoT communication protocols** like MQTT, HTTP, Zigbee, and LoRa.

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4. Expert Guidance & Interactive Q&A Session

Dr. Kesavan Gopal (HoD, AI & ML) delivered an **engaging and informative session** on IoT basics and device development.

Interactive Q&A session where students clarified doubts about **IoT, AI integration, and real-world applications**.

Discussion on **future career opportunities in IoT and AI**.

Participant Feedback

- **Positive Response:** Students found the workshop **engaging, informative, and practical**.
- **Interest in Future Sessions:** Many students showed **enthusiasm for deeper IoT training** in upcoming workshops.
- **Practical Application:** Students appreciated the **simulation exercises** and **real-world IoT applications** discussed.

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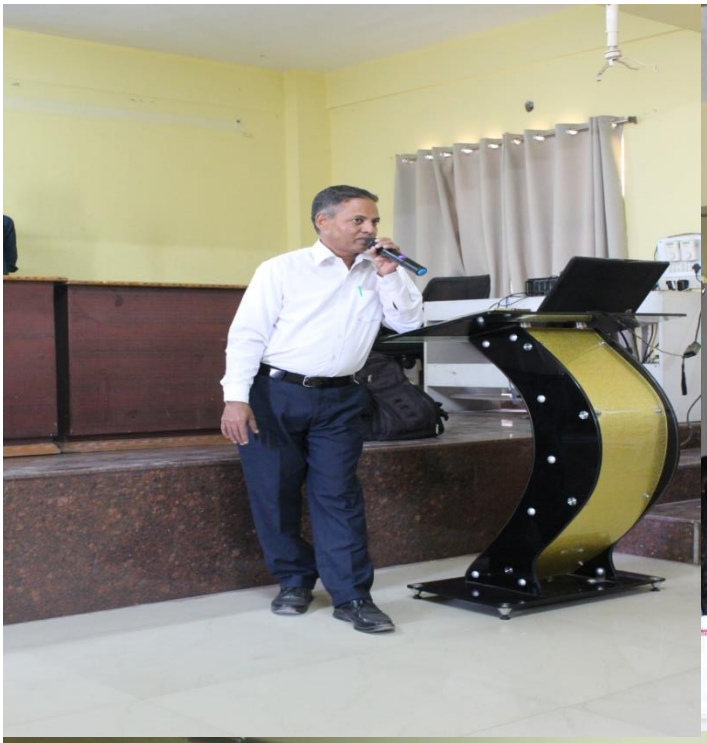

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