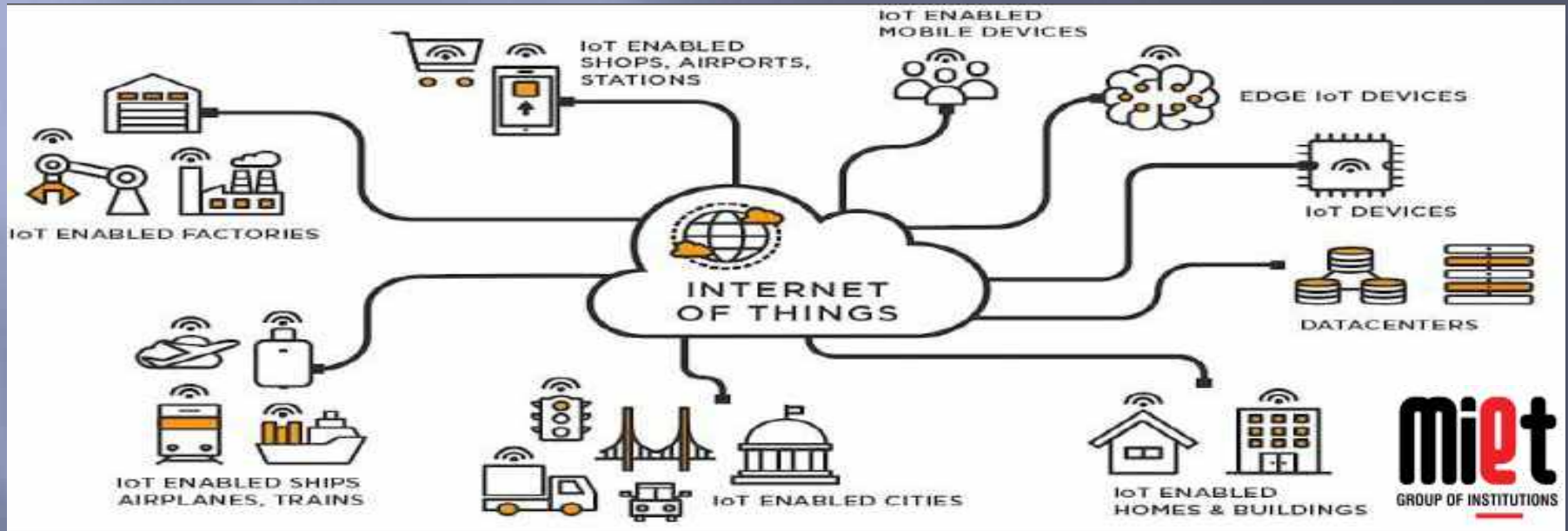


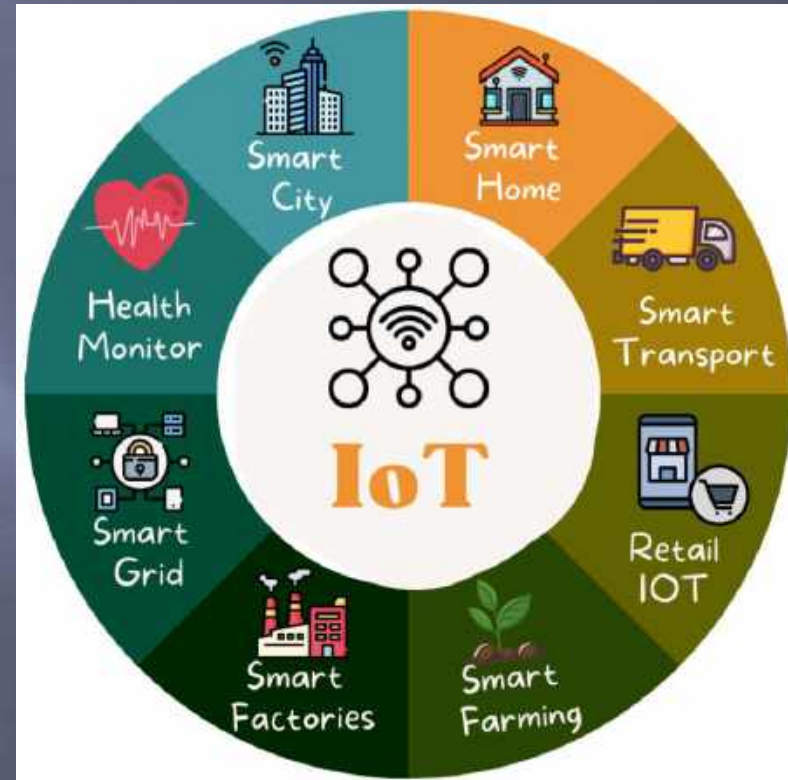
Center of Excellence Internet of Things (IoT)



- ❑ PUSHPARAJ, Assistant Professor & SPOC CoE - IOT
- ❑ DEPARTMENT of ELECTRONICS & COMMUNICATION ENGINEERING
- ❑ MEERUT INSTITUTE OF ENGINEERING & TECHNOLOGY, MEERUT,U.P.

Introduction

- ▣ IoT is a key enabler of Industry 4.0 revolution.
- ▣ The CoE will train students in IoT system design, integration, and analytics.
- ▣ Focus: Smart cities, healthcare, agriculture, manufacturing, sustainability.



Vision and Mission

- ▣ Vision:
- ▣ To establish a state-of-the-art innovation hub for IoT-based learning, research, and product development.

- ▣ Mission:
- ▣ • Enhance practical and research skills.
- ▣ • Foster industry–academia collaboration.
- ▣ • Promote innovation and entrepreneurship in IoT.

Objectives of the CoE-IoT

- ▣ 1. Build IoT infrastructure and training ecosystem.
- ▣ 2. Conduct skill development workshops and certification courses.
- ▣ 3. Develop real-time IoT projects addressing societal challenges.
- ▣ 4. Encourage publications, patents, and startups.
- ▣ 5. Collaborate with industries for mentorship.

Team Members

S. No.	Name	Designation	Department
1.	Mr. Pushparaj	Assistant Professor, SPOC Centre of Excellence-IoT	ECE
2.	Dr. A. K. Singh	Professor & Head ECE Dept.	ECE
3.	Mr. Praveen Kr. Mishra	Associate Professor & Head CSE-IoT Dept.	CSE-IoT
4.	Dr. Brijesh Kumar Gupta	Professor & MCA Dept.,SPOC Cyber security	MCA
5.	Mr. Mohd. Shibly	Assistant Professor	ECE
6.	Mr. Sachin Kumar	Assistant Professor	ECE
7.	Mr. Milan Kumar	Assistant Professor	ECE
8.	Mr. Anubhav Sharma	Assistant Professor	CSE-IoT

List of Equipments

Category	Tools / Equipment
Microcontrollers	Arduino, NodeMCU, Raspberry Pi
Sensors	DHT11, Gas, PIR, Ultrasonic, Soil Moisture
Communication Modules	Wi-Fi, ZigBee, LoRa, GSM
Cloud Platforms	ThingSpeak, AWS IoT, Azure IoT
Software	Arduino IDE, Python, Node-RED
Networking	Router, IoT Gateway
Add-ons	Edge AI boards, Cameras, LCDs

List of Student Members of CSE-IoT Department

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Roadmap

- ▣ Phase 1 (Weeks 1–2): Foundation & Launch
- ▣ Phase 2 (Weeks 3–6): Skill Development
- ▣ Phase 3 (Weeks 7–10): Application Integration
- ▣ Phase 4 (Weeks 11–14): Project Development
- ▣ Phase 5 (Weeks 15–16): Evaluation & Showcase

Phase 1: Foundation Setup (Weeks 1-2)

- ▣ Goals:
 - ▣ • Establish IoT Lab and CoE Committee
 - ▣ • Orientation Workshop: “IoT in Smart World”
 - ▣ • Student Team Formation and Registration
 - ▣ • MoU with Industry Partner

- ▣ Deliverables:
 - ▣ • Lab setup completed
 - ▣ • 100+ students enrolled

Phase 2: Skill Development (Weeks 3–6)

- ▣ Topics:
 - ▣ • IoT Architecture, Protocols (MQTT, CoAP)
 - ▣ • Microcontroller Programming (ESP32, Arduino)
 - ▣ • Sensor Interfacing and Data Acquisition
 - ▣ • Cloud Connectivity (ThingSpeak, Firebase)

- ▣ Deliverables:
 - ▣ • Mini IoT experiments
 - ▣ • Internal evaluation quiz

Phase 3: Application & Integration (Weeks 7-10)

- ▣ Focus:
 - ▣ • Cloud dashboards (Node-RED, MQTT brokers)
 - ▣ • Data analytics using Python/MATLAB
 - ▣ • Mobile app control and visualization
 - ▣ • IoT security and privacy

- ▣ Deliverables:
 - ▣ • Working IoT demo project
 - ▣ • Mid-term evaluation

Phase 4: Project Development (Weeks 11-14)

- ▣ Activities:
 - ▣ • Team-based real-world projects (Smart Campus, Pollution Monitoring)
 - ▣ • Weekly mentor guidance
 - ▣ • Prototype testing

- ▣ Deliverables:
 - ▣ • Working prototype
 - ▣ • Interim report

Phase 5: Evaluation & Showcase (Weeks 15-16)

- ▣ Activities:
 - ▣ • Final evaluation by experts
 - ▣ • IoT Project Expo / TechFest
 - ▣ • Certificates & Awards
 - ▣ • Publication and patent filing

- ▣ Deliverables:
 - ▣ • Technical report
 - ▣ • Demo day presentation

Academic Integration

- ▣ Module 1: IoT Fundamentals & Architecture (6 hrs)
- ▣ Module 2: Sensors & Microcontrollers (12 hrs)
- ▣ Module 3: Cloud Connectivity (12 hrs)
- ▣ Module 4: Data Analytics (10 hrs)
- ▣ Module 5: Project Development (20 hrs)

- ▣ Evaluation: 30% Theory + 40% Practical + 30% Project

Expected Outcomes

- ▣ • 10+ functional IoT prototypes
- ▣ • 2–3 publications or patents
- ▣ • 1–2 startup proposals
- ▣ • 100+ students trained
- ▣ • Industry collaborations and funding proposals

Budget Summary (Indicative)

- ▣ IoT Kits & Components: ₹1,50,000
- ▣ Raspberry Pi Units: ₹1,60,000
- ▣ Networking & Cloud: ₹50,000
- ▣ Workshops & FDP: ₹60,000
- ▣ Miscellaneous: ₹50,000
- ▣ Total: ₹4.7 – 5.0 Lakhs

Future Scope & Conclusion

- ▣ • Extend CoE to AIoT, Smart Grid, Healthcare IoT.
- ▣ • Annual IoT Hackathon and Innovation Challenge.
- ▣ • Industry internships and R&D.
- ▣ • AICTE/DST/DRDO funding proposals.

▣ Thanks

