REPORT

on

Career Talk

:

"IoT and Its Applications in Civil Engineering"

Date **: 23rd August, 2025**

Centurion UNIVERSITY

Shaping Lives...
Empowering Communities...

Organized by

Buildx - SoCuTech Club

Department of Civil Engineering

School of Engineering and Technology, Bhubaneswar

Centurion University of Technology and Management, Odisha, India

Introduction :

The Department of **Civil Engineering**, School of Engineering and Technology (**SoET**), Centurion University of Technology and Management (**CUTM**), Bhubaneswar, through its student club **BuildX**, successfully organized an **Career Talk** on "**IoT and Its Applications in Civil Engineering**" on **23rd August 2025**. The session was conducted on **online mode** via **Google Meet**, beginning at **4:30 PM**.

The talk was delivered by **Dr. Rajendra Prasad Nayak**, Assistant Professor, Department of Computer Science, Government College of Kalahandi, Bhawanipatna, Odisha. The event aimed to expose students to the growing role of Internet of Things (**IoT**) in transforming the civil engineering sector through **digital innovations**, **smart infrastructure**, and **sustainable solutions**.

More than **60** Civil Engineering students from different semesters actively participated in the program, gaining insights into the intersection of emerging technologies and traditional engineering practices.

Objectives :

- **To introduce students to IoT concepts and its growing importance.**
- **To explore real-world IoT applications in civil engineering.**
- **To highlight smart infrastructure and construction monitoring practices.**
- **To create awareness about career prospects in IoT-enabled civil engineering.**
- **To motivate students to develop technical skills aligned with Industry 4.0.**

Key Activities :

The online session commenced with a warm welcome from the **BuildX team**, followed by the introduction of the distinguished resource person. **Dr. Rajendra Prasad Nayak** delivered an engaging lecture covering **IoT fundamentals**, **integration of sensors**, and **data-driven connectivity** in infrastructure.

He explained applications such as structural health monitoring, real-time construction management, IoT in smart cities, environmental monitoring, and safety solutions using wearable devices. He also discussed the importance of skill development in **programming, data analytics**, and tools like **AutoCAD**, **BIM**, and **GIS** integrated with **IoT**.

Students interacted actively through the platform, raising queries on research opportunities, implementation challenges, and career roles. The session concluded with an interactive Q&A, encouraging participants to think critically about IoT's role in modernizing civil engineering practices.

Key Highlights :

- **Expert-Led Session:** Conducted by Dr. Rajendra Prasad Nayak on IoT and smart infrastructure.
- **Online Platform:** Organized via Google Meet with participation from various semesters.
- **Application Focus:** Covered construction monitoring, structural health, smart cities, environmental monitoring, and predictive maintenance.
- **Career Guidance:** Insights into roles such as Smart Infrastructure Engineer, IoT Specialist, and Data Analyst in Construction.
- **Active Participation:** More than 60 Civil Engineering students engaged in the program.

Key Outcomes :

- **Improved Awareness:** Students gained knowledge of IoT fundamentals and its applications in civil engineering.
- **Career Insights:** Participants understood Industry 4.0-aligned opportunities and the skills required for IoT-driven roles.
- **Motivation to Explore:** The session inspired students to take interest in IoT-based projects and innovative applications.
- **Practical Understanding:** Learners realized how IoT ensures safety, sustainability, and efficiency in infrastructure development.
- **Innovation Drive:** Students were encouraged to contribute to IoT solutions in smart cities, predictive maintenance, and structural monitoring.

Future Scope :

The session set the **foundation** for advanced talks, workshops, and skill-based training in **IoT** for civil engineering students. Future initiatives may include certification courses on IoT tools, industry collaborations, and integration of IoT-focused modules in the Civil Engineering curriculum. **BuildX** plans to organize follow-up activities such as **hackathons**, **project demonstrations**, and **collaborative research** to strengthen students' exposure to IoT applications in construction and infrastructure.

Feedback from Participants:

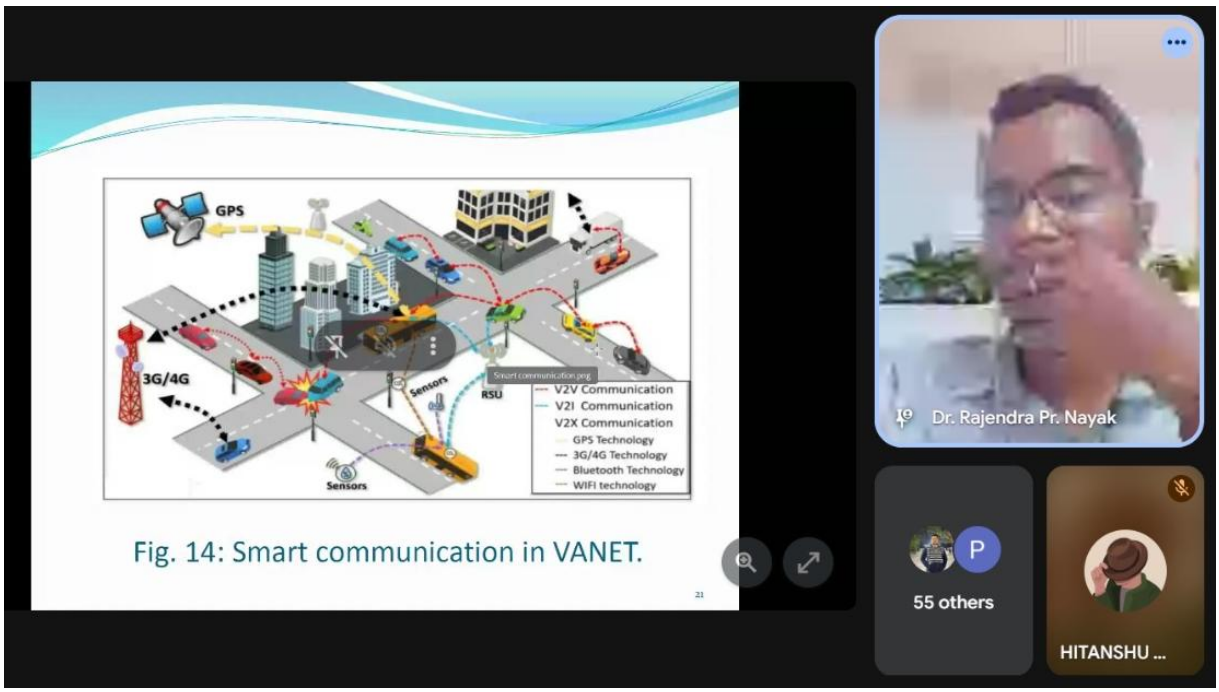
Students **appreciated** the clarity with which **Dr. Rajendra Prasad Nayak** explained technical aspects and real-world applications. They valued the career guidance and practical relevance of the session. Many participants expressed interest in **pursuing IoT-based projects** and suggested organizing similar online talks with industry professionals. The interactive Q&A segment was highlighted as particularly enriching, as it encouraged deeper discussions on opportunities and challenges.

Acknowledgements :

We extend our sincere gratitude to **Dr. Rajendra Prasad Nayak** for delivering the **Career talk** on "**IoT and Its Applications in Civil Engineering**" and sharing his valuable knowledge. His insightful presentation enriched the understanding of students and encouraged them to explore the growing role of **IoT** in **engineering practices**. We thank the School of Engineering and Technology (**SoET**), CUTM Bhubaneswar Campus, for their constant support in facilitating this important initiative. Special appreciation goes to the **BuildX** – **SoCuTech Club** of **Civil Engineering** for efficiently organizing the event in **online mode** and ensuring its success. We also acknowledge the enthusiastic participation of over **60** Civil Engineering students, whose active involvement made the session impactful. Finally, we thank the **faculty coordinators** and **technical support team** for their assistance in smooth event management.

Glimpses of the Event :


Dr. Rajendra Pr. Nayak
DEVASHISH ...
Jyoti Prakash ...
ARYAN MIS...
PRIYA RANJ...
JYOTIRMAYE...
Gayatree Sah...
41 others
HITANSHU SANIBIGRA...
5:44 PM | IOT And It's Applications in Civil Engineering


GPS
3G/4G
Sensors
RSU
Sensors
V2V Communication
V2I Communication
V2X Communication
GPS Technology
3G/4G Technology
Bluetooth Technology
WIFI technology
Fig. 14: Smart communication in VANET.
Dr. Rajendra Pr. Nayak
55 others
HITANSHU ...

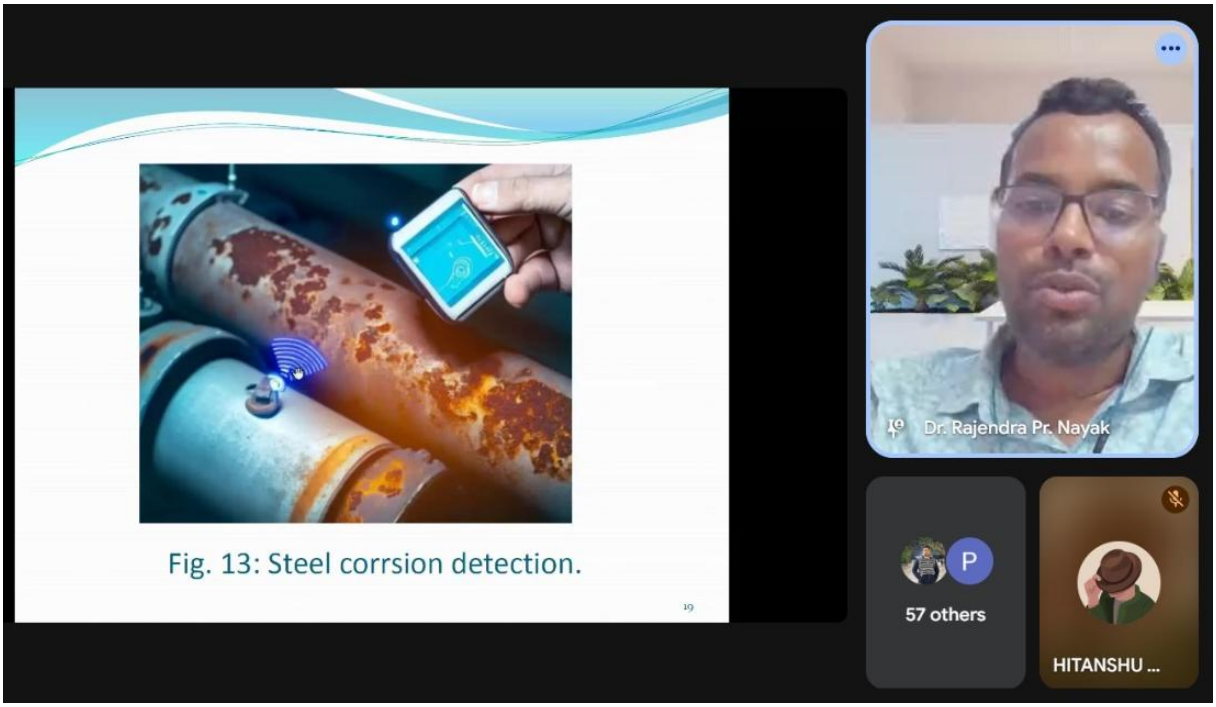


Fig. 13: Steel corrsion detection.
19
Dr. Rajendra Pr. Nayak
P
57 others
HITANSHU ...

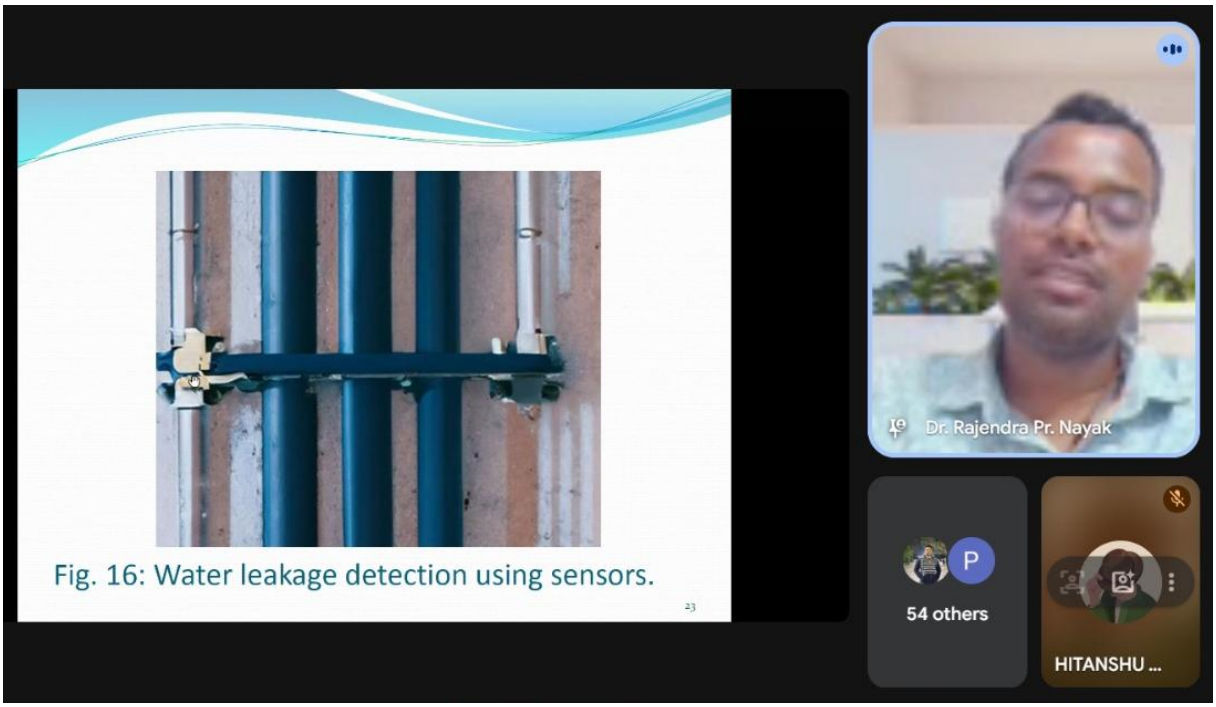


Fig. 16: Water leakage detection using sensors.
23
Dr. Rajendra Pr. Nayak
P
54 others
HITANSHU ...

Disaster Management

- IoT is used for earthquake, flood, landslide, and fire detection.
- Benefits: Early warning systems save lives.

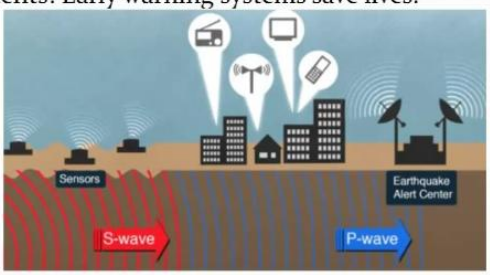


Fig. 17: Earth quake detection using Seismic sensors.

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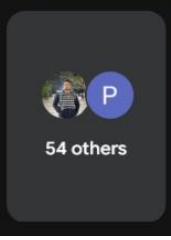

Forest Fire Detection System

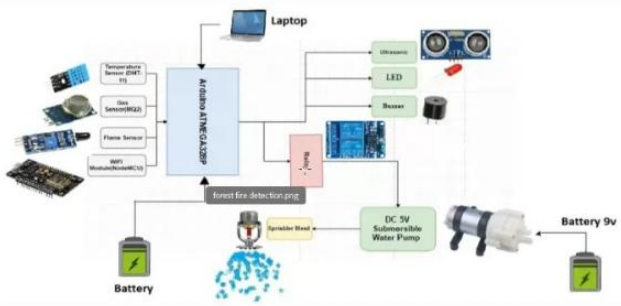

Fig. 20: Automated forest fire detection system using IoT.

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