



**Outreach & Dissemination Services Office
CSIR – Central Building Research Institute
Roorkee – 247667 (UK)**

**‘Hands-on Training on IoT and Data Processing’
October 09-11, 2024**

The CSIR-CBRI organized a 3-day training cum workshop from October 09-11, 2024, focused on "Hands-on Training on IoT and Data Processing" for engineering graduate and undergraduate students. This event was conducted by the Outreach and Dissemination Services under the aegis of the CSIR Integrated Skill Initiative. It likely covered practical skills in IoT (Internet of Things) applications and data processing, helping students to bridge the gap between academic knowledge and real-world technological applications, fostering innovation and skill development in line with CSIR's objectives.

Er. Chandrabhan Patel, Scientist & Program Coordinator, was welcomed the participants and gave an introductory talk outlining the key aspects of the program. He emphasized the aim of the workshop, which was to provide participants with practical experience and hands-on training in the areas of IoT and data processing. He also highlighted that the program was designed to balance theoretical lectures with real-world applications, offering a blend of practical work and expert lectures. The objective was to equip attendees with the necessary skills to understand and implement IoT technologies in their respective fields, making them capable of applying these concepts to solve contemporary challenges.

Dr. Ravinder Singh Bisht, Principal Scientist, was provided an insightful briefing on the work being carried out by the Construction Automation and Robotics (CAR) group. He discussed their innovative contributions to construction technologies, specifically referencing the group's involvement in Ayodhya's Shri Ram Mandir project, particularly their work on the Surya Tilak – a significant aspect of the temple's design. This project showcases the practical application of advanced construction technologies in large-scale, culturally significant infrastructures. Further, he elaborated on the IoT course, explaining that it was designed to provide in-depth knowledge on the integration of IoT into construction practices. The course aimed to help participants understand how IoT can be leveraged to improve health monitoring of construction structures, optimize resources, and save time in the construction process, thus making it more efficient and sustainable.

Er. Kanti Solanki, Scientist, was delivered a talk during the workshop on the role of IoT in our daily lives and its growing significance in various fields. He explained how IoT has become an integral part of modern infrastructure and everyday activities, highlighting its transformative potential across industries, especially in construction and automation.

In his session, he focused on the hands-on training aspect of the workshop, offering participants practical experience with IoT devices. He demonstrated how data is collected through interconnected devices and sensors, showing real-world examples of data acquisition in construction projects and other applications. Er. Solanki further explained how to effectively use IoT for monitoring and analyzing data to optimize processes, improve decision-making, and enhance operational efficiency.

Professor R. Pradeep Kumar, Director of CSIR-CBRI, was welcomed the participants during the opening of the workshop. In his inaugural address, he encouraged attendees to focus on the practical application of the skills and knowledge they would gain during the workshop. He highlighted the importance of identifying and solving real-world problems faced by people in their immediate surroundings. He also emphasized that technological advancements like IoT and data processing should be harnessed to address everyday challenges, particularly those encountered in construction, infrastructure, and public safety. He urged participants to think about how the skills acquired in this training could be used to develop innovative solutions that have a positive impact on society.

Sh. Nadeem Ahmad was delivered the vote of thanks at the conclusion of the workshop. He expressed his gratitude to all the participants, speakers, and organizers for their contributions to making the event a success. He acknowledged the efforts of the Outreach and Dissemination Services and the CSIR Integrated Skill Initiative for facilitating such an impactful program.

The three-day IoT workshop concluded with a feedback session where participants shared their insights and experiences. This was followed by a certificate distribution ceremony, with Dr. S.K. Panigrahi personally handing out certificates to the attendees. The event ended on a high note with a valedictory ceremony, marking the successful completion of the workshop and celebrating the knowledge gained by all participants.

List of Participants

S. No.	Name & Address	Email	Contact No.
1.	Er. Atul Thakur Deoria, Uttar Pradesh	atulthakur639499@gmail.com	6394996167
2.	Er. Abhishek Singh Varanasi	abhisinghpatel23404@gmail.com	9140278827
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4.	Er. Shubham Bhatu Gawali Saptashrunji Nagar, Dhule	shubham07gawali@gmail.com	7666247989
5.	Er. Tauhid Aarif Pathan Shivaji Nagar, Dhule	tauhidpathan10@gmail.com	8080690517
6.	Mr. Shivam Kashyap Roorkee	kumar.shivam@hotmail.com	8445582213
7.	Er. Sachdev Rana Roorkee	sachdevrana60@gmail.com	7983374270

8.	Er. Anushka Roorkee	chaudharyanushka332@gmail.com	8650900495
9.	Er. Rahul Kumar Patna, Bihar	rkumar.mail03@gmail.com	8541946965
10.	Mr. Yash Kumar Verma CSIR-CBRI, Roorkee	-	-
11.	Ms. Komal Joshi CSIR-CBRI, Roorkee	-	-
12.	Ms. Jyoti CSIR-CBRI, Roorkee	-	-
13.	Ms. Abhishek Singh CSIR-CBRI, Roorkee	-	-
14.	Mr. Varun Kumar CSIR-CBRI, Roorkee	-	-
15.	Mr. Anuj Kumar CSIR-CBRI, Roorkee	-	-
16.	Mr. Prateek Kumar CSIR-CBRI, Roorkee	-	-

Glimpses of Program



Inaugural Session



Group Photo



Technical Sessions



Lab Visit



Certificate Distribution

Course Content



**CSIR – Central Building Research Institute
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Training Programme on “Hands on Training on IoT and Data Processing” 09-11, October 2024

Day – 01

Hours	Oct 09, 2024
10.00 - 10.05	Welcome
10.05 - 10.15	Inauguration and key notes by Director, CSIR-CBRI
10.15 - 10.20	Course Introduction – Dr. S. K. Panigrahi
10.20 - 10.40	High Tea/Tea Break
10.40 - 11.30	Expert Lecture : Microcontrollers and Communication Protocol by Mr. Vipin Kumar
11.30 - 12.15	Getting Started with ESP32 and Arduino Cloud by CB Patel
12.15 - 13.00	Introduction to IoT by KL Solanki
13.00 - 14.15	Lunch Break
14.15 - 15.15	Hands on: Basic Programming by CB Patel
15.15 - 15.30	Tea Break
15.30 - 16.30	Image Processing using Deep Learning by Dr Anindya Pain

Day – 02

<i>Hours</i>	<i>Oct 10, 2024</i>
10.15 – 11.00	Expert Lecture: IoT Protocols by Mr. Vipin Kumar
11.00 – 11.15	Tea Break
11.15 - 12.15	Hands on practice with ESP32 by Mr. CB Patel
12.15 - 13.00	Hands on - IoT-enabled fire alarm system by Mr. CB Patel and Team
13.00 - 14.15	Lunch Break
14.15 - 15.15	Role of IoT in Robotics By Dr. R.S Bisht
15.15 - 15.30	Tea Break
15.30 - 16.30	Hands on - Transmitting Temperature and Humidity data over wi-fi network by Mr. KL Solanki and Team

Day – 03

<i>Hours</i>	<i>Oct 11, 2024</i>
10.15 – 11.00	Lab Visit/ Signal Processing
11.00 – 11.15	Tea Break
11.15 - 12.15	Expert Lecture: The talk is on few real life IoT applications by Dr Panigrahi IIT Roorkee
12.15 - 13.00	Hands on: Real-Time Multi-Device Data Aggregator Using User Datagram Protocol by Mr. CB Patel
13.00 - 14.15	Lunch Break
14.15 - 15.15	Expert Lecture: Sensors Data Processing by Dr Kshitij Shakya
15.15 - 15.30	High Tea/Tea Break
15.30 - 16.30	Hands on - ESP32 for IoT applications by CB Patel
16.30 – 17.00	Closure

Organizing Team:

- Yash Varma
- Abhishek Singh
- Prateek Kumar
- Komal Joshi
- Anuj Kumar