

## Patrons

**Prof. B.N. Singh**

Director General, IITRAM

## Coordinators

- **Dr. Saurabh Kumar Yadav**  
Assistant Professor, Mechanical and Aerospace Engg.,  
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- **Dr. Ajit Kumar**  
Assistant Professor, Mechanical and Aerospace Engg.,  
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- **Dr. Ajit Kumar Parwani**  
Assistant Professor, Mechanical and Aerospace Engg.,  
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## Organizing Committee

- **Dr. Bhingole Pramod P., IITRAM**
- **Dr Ram Kumar, IITRAM**
- **Dr. Jagat Rath**

## Student Managing Committee

- **Jitendra Yadav**

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## Key Dates:

Dates of Workshop : 31<sup>th</sup> July, 2023  
Last date of Registration : 30<sup>th</sup> June, 2023

Announcement of Short-listed candidates : 25<sup>th</sup> July, 2023

## Registration and General Information

Interested candidates are requested for on-line registration at given link on IITRAM website.

<https://iitram.in/workshop/index36/index.php>



## Accommodation

Suitably furnished accommodation will be made available to limited participants on twin sharing basis at nominal charges.

*Certificate will be awarded to the participants after successful completion of the course.*

## ONE WEEK STTP ON

# Exploring Measurement and Control in Robotics using Arduino and IoT Devices

(31<sup>st</sup> July to 4<sup>th</sup> Aug 2023)



Organized by



**Department of Mechanical and Aerospace  
Engineering  
Institute of Infrastructure Technology  
Research and Management**

(An Autonomous University established by Government of Gujarat)

Near Khokhara Circle, Maninagar East,

Ahmedabad, Gujarat 380026

Tel.: 079-67775488 / 6777 5499

[www.iitram.ac.in](http://www.iitram.ac.in)

## About the IITRAM

Institute of Infrastructure Technology Research and Management (IITRAM) has been established by the Government of Gujarat as an Autonomous University and has been mandated to bring about significant change in Engineering Education with respect to Technical and Managerial knowledge in the area of Infrastructure. The objective of this Institute is to serve as a Center of excellence in Research and Teaching in all areas pertaining to Infrastructure, and the Institute has a vision of acquiring a status of National importance in Infrastructure and related areas.

## About Department

The Department of Mechanical and aerospace Engineering at IITRAM, Ahmedabad started right after one year of the inception of campus in 2014 and has been offering B.Tech Mechanical Engineering, M. Tech (Mechanical Infrastructure) and Doctoral Programs. The students of all tiers have access to both expert faculty members in the department and institute supported industry engagement opportunities. The department has extensive laboratory and infrastructural facilities for teaching, training, research and development.



## Theme of the Course

The course 'Exploring Measurement and Control in Robotics using Arduino and IoT Devices' aims to provide a comprehensive understanding of the role of measurement and control in the field of robotics. Robotics has become an integral part of modern society, and the course will focus on the practical application of Arduino and IoT devices in the development of robotics systems. The course will cover a range of topics including DHT sensors, load cells, LIDAR, accelerometers, and stepper motor-based linear actuators. In addition, participants will learn about the use of IoT devices with Microsoft Azure, Google Firebase, and Arduino IOT. The course will provide hands-on training to participants, allowing them to develop skills in building and testing robotics measurement and control systems. The ultimate goal of the course is to equip participants with the knowledge and skills needed to tackle real-world challenges in the field of robotics. This course is ideal for engineers, research scholars, academicians, and students of mechanical engineering who are interested in the application of measurement and control in robotics.

## Objective

The objective of the course on' is to provide participants with hands-on experience in using various sensors and actuators with Arduino and IoT devices to measure and control various physical parameters in robotics. The course will cover topics such as DHT sensors, load cells, LIDAR sensors, accelerometers, pneumatic actuators, and stepper motor-based linear actuators with high precision. Participants will also learn about IoT devices with Microsoft Azure, Google Firebase, and Arduino IoT, and how to integrate them with their projects. By the end of the course, participants will have gained practical knowledge and skills in designing and implementing measurement and control systems for robotics using Arduino and IoT devices.

## Highlights of Workshop

The following topics will be covered during the program:

1. Introduction to sensors and actuators used in robotics
2. Hands-on experience with DHT sensor, Load cell, Lidar (TF Luna, TF Mini), Accelerometer, Pneumatic Actuators, and Stepper motor based Precision Control
3. Basics of IoT and communication protocols with Microsoft Azure, Google Firebase, and Arduino IoT
4. Integration of sensors and actuators with Arduino and IoT devices
5. Practical implementation of control algorithms for robotic systems
6. Interactive sessions with experts in the field of robotics and control systems
7. Demonstration of real-life applications of measurement and control in robotics
8. Hands-on training on Arduino, Microsoft Azure, Google Firebase and IoT platforms for implementing control algorithms and data logging

## Registration Fees / Participant

1	Industrial Professionals	-6000
2	Faculty	-6000
3	Research Scholars/Students	-3000

For registration please click on following link

<https://iitram.in/workshop/index36/index.php>

## Eligibility for Participation

All practicing engineers working in private, public, government organizations/industries, faculties, research scholars and students from engineering institutions are eligible to apply.

**Last date for Registration**  
**30<sup>th</sup> June, 2023**