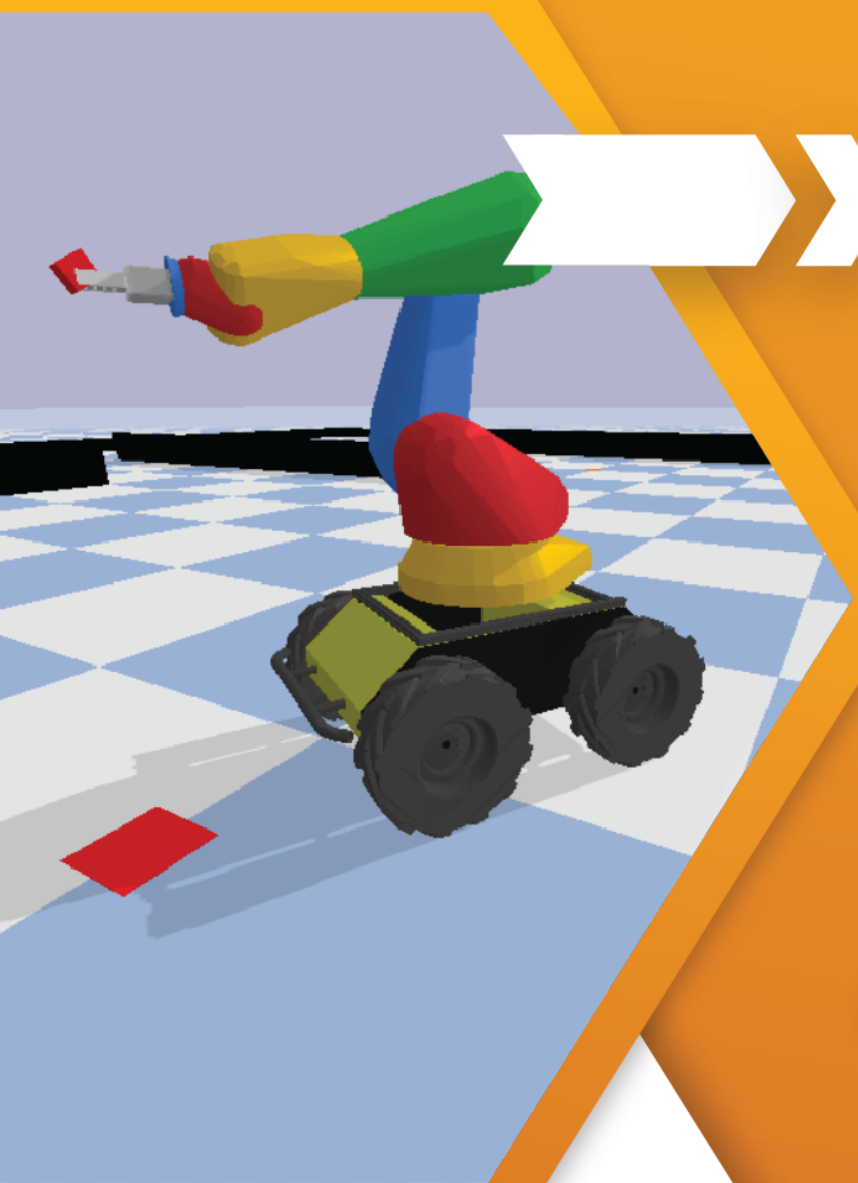
ROBOTICS CLUB
MNIT ALLAHABAD

TSAW
Transforming Humanity

A COLLABORATION OF ASTROWING MNNIT AND TSAW.

Jigyasa

BUILDING ON IMAGINATION



STEPPING INTO ELECTRONICS & ARDUINO

ABOUT US

Robotics Club MNNIT

Robotics Club MNNIT is a diverse group of robotics enthusiasts from all the college departments, which runs under the umbrella of the Student Activity Centre of MNNIT Allahabad.

Established in 2016, we are mainly concerned with building robots for academic purposes, competing at national events, or even building just out of imagination. This puts us in frequent contact with a plethora of software, hardware, and technologies, like Computer Vision, Simulation Softwares (Gazebo, Pybullet, etc.), CAD Softwares, ROS, devising algorithms, path planning, Machine Learning, Microcontrollers, Kinematics to name just a few of many. Since its creation, this club has seen the completion of hundreds of projects,
participated and won accolades in multiple national-level events, and organized various workshops with a decent footfall.

Working closely with the industries, our people regularly acquire lucrative tech giants packages, internships in IITs, and various tech companies.

Our club has also been the birthplace of a startup TSAW in the drone sector, gaining ground in the field and as a company.

We have a team of friendly experts equipped with all kinds of tutorials and workshops along with a compelling workspace to make you an integral part of this rapidly expanding world.

Jigyasa

"Tell me and I forget, teach me and I may remember, involve me and I learn."
-Benjamin Franklin

Jigyasa is the workshop venture of the Technical clubs of MNNIT, namely Robotics, Aeroclub, and Astrowing, in collaboration with TSAW, a fully functional drone startup that emerged from our clubs. We are motivated by the desire to supplement education with the present-day industry requirements, making the participants future-ready with their skills and a problem-solving mindset.

The workshops under Jigyasa comprise various projects, activities, and interactive sessions, which will help you understand the most difficult concepts in the most comfortable manner. Hence, by emphasizing innovation and imagination, these workshops will instill in your minds a profound scientific temperament and fascination towards technology.

OVERVIEW

"The expert in anything was once a beginner"

Electronics are found in a wide variety of items around us, right from remotes to mobile phones, washing machines, computers and the list keeps growing indefinitely. Increasing familiarity with electronic components is another essential tool for a budding STEM enthusiast. This workshop aims to help its participants understand the basics of electronics, right from the basic theory of digital logic to components like resistors and capacitors. We'll also discuss and use Arduino (a programmable microcontroller) and build interesting circuits on a simulator. By the end of this workshop, electronic devices will not be an absolutely unknown and uninviting territory for you; you shall have a decent understanding of how it works.

Prerequisties:

None

Target Audience:

Classes 8th-12th

WORKSHOP SCHEDULE

DAY 1:

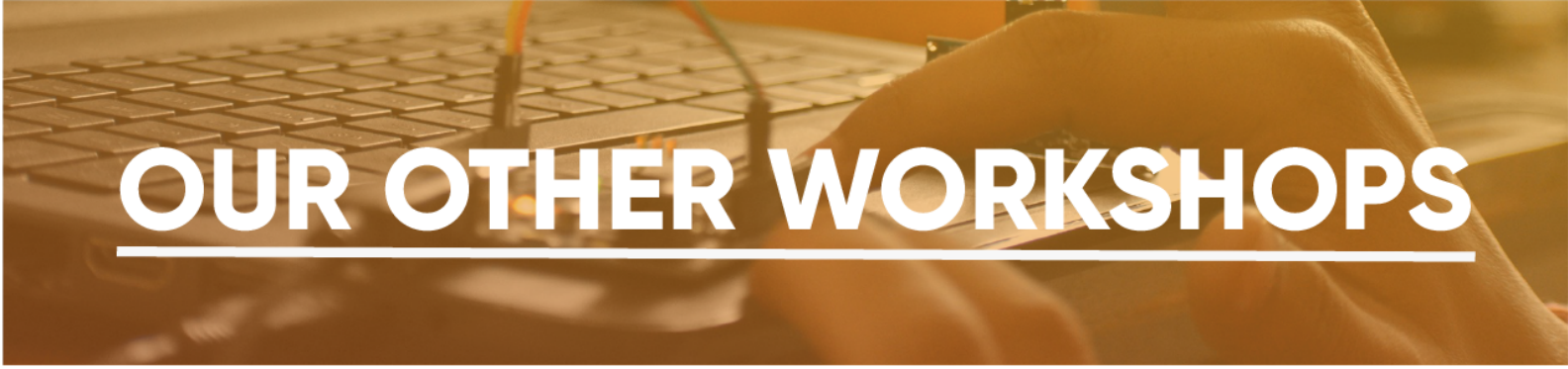
- Introduction to Electronic Systems & Circuits
- Introduction to Resistors, Capacitors, Inductors, etc
- Introduction to Logic Gates
- Understanding of Diodes and LED working
- How to measure electrical parameters-Multimeter
- Practical Use of Electronic Components and logic gates
- Understanding Electronic Signals-Analog vs. Digital Signals
- Understanding how daily use electronic devices work

DAY 2:

- What are microcontrollers and development boards?
- Difference between microprocessor and microcontroller
- Introduction to Arduino
- Understanding different types of Arduino boards and usage
- How to use the Arduino IDE (Integrated Development Environment)
- Powering and connecting your Arduino to your computer
- Uploading programs to your Arduino board

DAY 3:

- Building circuits on breadboards
- Designing a basic Circuit for LED glowing on breadboard
- What are sensors and how they are involved in Electronics
- Understanding motors, their working and their types
- Basic Idea of building a Line following robot
- Simulating the ideas developed above in TinkerCAD
- How to develop on skills gained: Projects and Resources



OUR OTHER WORKSHOPS

ASTRONOMY

- Beginner's walkthrough of Astronomy
- Diving Deeper into the Cosmos
- Astronomy from an Engineer's Perspective
- Establishing an Astronomy Club

AEROSPACE

- Introduction to Flight
- A peek into the Aerospace Sector
- Getting Started with Drones
- Drone Automation
- Establishing an Aeroclub in your College
- First step to Aerodynamics with OpenVSP, F360 and Ansys

GENERAL

- Rise and Program
- Think3D: Fundamental of 3D Modelling and 3D Printing
- Learn3D: Introduction to CAD and 3D Printing

ROBOTICS

- Kickstart your journey into Robotics
- Introduction to Artificial Intelligence
- Introduction to Kinematics in Robotics using PyBullet
- Kit-up to Set-up: To Establish a Robotics Club
- Build your own Robot
- Introduction to Simulation Software in Robotics
- Stepping into Electronics and Arduino
- Introduction to Computer Vision with Raspberry Pi
- Introduction to Autonomous Vehicles with CARLA and Imitation Learning
- Internet of Things (IoT)

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