

Puzzle Solver Robotics Workshops

Objective:

Students in middle school or high school can assemble to get hands-on experience with the fundamentals of robotics, computer science and engineering. This workshop will allow students to see their programming come to life and see their work in real life, By the time they're done, they'll be able to say that they built a robot."

Session 1: Introduction

- Introduction to Robotics.
- Basic Parts of Robotics & Future of Robotics
- Various Robotics technologies
- Intelligent Robot
- Artificial Intelligent Robot
- Application of Robotics

Session 2: Basic electronic and Sensors

- Basic Electronics Component
- Conceptual Knowledge of Basic electronic components
- Introduction on Sensors
- Sensors used in Robotics.
- Different Types of Sensors (IR, Temperature, Sound, Touch, Light, ultrasonic etc.

SESSION 3: Introduction to Raspberry Pi Board

- What is microcontroller?
- Difference Between microcontroller & microprocessor?
- Introduction Raspberry pi board
- Architecture of the Raspberry pi board
- Pin description of the Raspberry pi board
- How to interface stepper motor with the Raspberry pi

SESSION 4: Introduction To python Programming

- Python Programming for the Raspberry pi
- Introduction to python IDE
- Program structure and debugging
- PORT Programming

SESSION 5: Interfacing Of Device with Microcontroller

- Stepper motor drivers
- Interfacing of DC motor
- interfacing of Stepper and Servo motor

SESSION 6: Project Building and Implementation

- Assembling the components to build Robot
- Fun with solving Rubik's Cube

SESSION 7: Testing and Trouble shooting

SESSION 8: Competition