

## Fire Extinguisher Robot

Fire is like a double-edged sword. Discovery of fire stands as a milestone in the history of mankind. Fire fighters try their best to fight and extinguish fires when in need. But at the household level, it is observed that if the fire can be extinguished at an early stage, many major accidents can be averted. The Workshop is dedicated in training the students on the design and manufacturing of a Printed Circuit Board. This workshop is to build a robot that can detect and extinguish fire.

### **Session 1 : Introduction**

- Introduction to Robotics
- What is Robot - In Depth Explanation
- Various Type of Robots
- Robots Applications in Different Domain
- Future Scope for Robotics

### **Session 2 : Introduction to all types of electronics components and Sensor.**

- How do IR Sensors work?
- What is a fire-extinguisher Robot?
- Test your IR Photodiode Sensor

### **Session 3 : Introduction to Microcontroller**

- What is Microcontroller?
- Difference between Microcontroller and Microprocessor
- Microcontroller architecture and Interfacing
- Working of a Microcontroller
- Structure of a Microcontroller
- Development Board Schematic
- Explaining various components on Development Board

#### **Session 4 : Introduction to Motor Driver**

- How does a Robot move ?
- Motors and Motor Drivers IC
- Working of a DC Motor

#### **Session 5 : Assembling of the Robotics Kits.**

#### **Section 6 : Introduction to Programming Language and Software tool chain**

- Programming Languages- Assembly Vs Embedded 'C'
- Introduction to Embedded C programming languages
- Microcontroller Programming using Embedded 'C'
- Software Installation
- Getting started with the Avr studio to start writing your first program
- Writing your First 'Embedded C' Program
- Fire-Extinguisher Programming Logic
- Designing algorithm for robot
- Write the code for a Robot
- Flashing the code onto the Robot

#### **Section 7 :Testing & Troubleshooting**

- Troubleshooting
- Testing Fire-Extinguisher Robot

#### **Section 8 : Competition and Certification distribution**