

# Robotics Workshop 1.0

IEEE PESIT South Campus Student Branch

Date: 14/04/2019

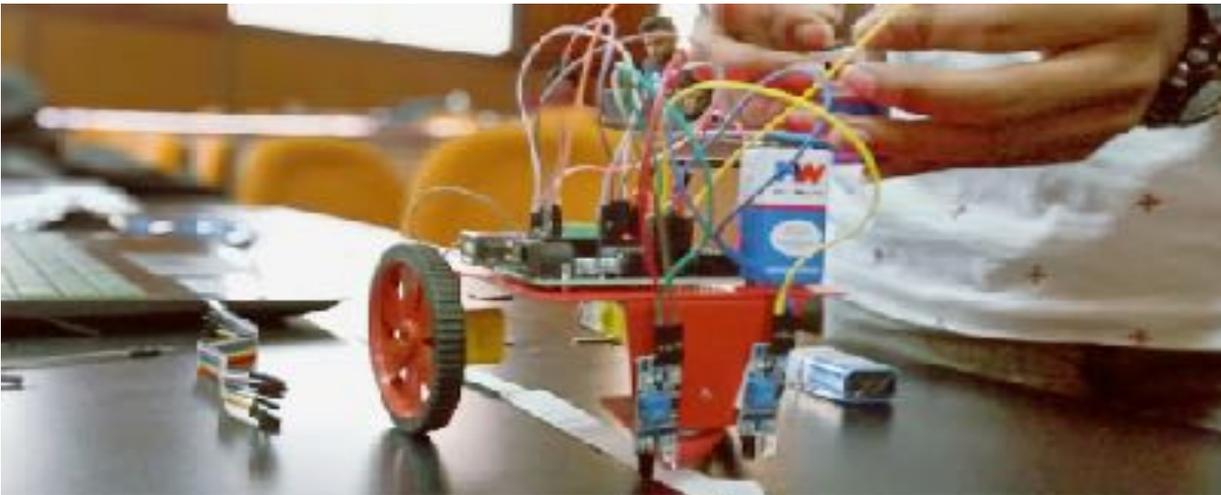
Venue :-

Seminar Hall 2, Engineering Block,  
PESIT South Campus,  
Hosur Road (1km before Electronic City),  
Bangalore, Karnataka – 560100

## THEME: BUILDING A LINE FOLLOWER AND OBSTACLE AVOIDING ROBOT

The IEEE PESIT South Campus Student Branch and the IEEE Robotics and Automation Society Bangalore Chapter, have jointly organized an introductory level robotic workshop. The objective was to get the participants familiar with working of a line follower robot and also program it for obstacle avoidance. In a world where software and robots are replacing human workforce in several industries, a line follower is an essential kind of robot which can be used in manufacturing industries for carrying objects from one place to another in the warehouse automatically. Furthermore, this workshop was also designed to demonstrate the thought process and pipeline for the development of a robot.





Sensors used:

1. IR Sensor
2. Ultrasonic Distance sensor

This workshop was divided into 2 sections:

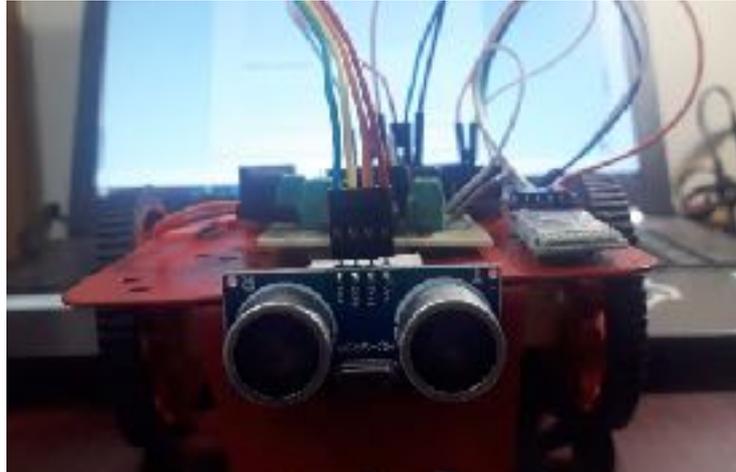
1. Morning Session
2. Afternoon Session

## SESSION 1:



The workshop started with an introduction to Arduino( the microcontroller used). Later on, in the session, assembly of different components of the line follower robot was demonstrated. After each crucial component assembly, the volunteers assisted the participants to perform the assembly. After the hardware assembly was completed, the Arduino IDE(used to write and upload code to the supported microcontrollers) was introduced to the participants. Once the participants were comfortable with the IDE the algorithm that would control the robot was discussed. The participants were encouraged to write the code by themselves and on-spot assistance was provided to those who needed it.

## SESSION 2:



The foundation laid and a working line follower robot gave an enormous boost to the participants' confidence level. As the assembly of the robot was already complete in the morning session, the focus in afternoon was on improving the robot by adding ultrasonic distance sensor to add obstacle avoiding capabilities. An introduction to the concepts behind the working of the ultrasonic distance sensor was given and a demonstration on how these concepts can be used to take the readings from the sensor was carried out. Having understood the pipeline of robot development the participants were able to complete the programming of the robot on their own with little assistance from the volunteers.

## ADDITIONAL INTERFACE

Bundled with the kit every participating team was given a Bluetooth module(HC-06) to add remote control capabilities. The working of the Bluetooth module was demonstrated and participants were asked to add remote control capabilities to the robot on their own later.

## CONCLUSION



Overall, the working of a crucial industry level robot(on a small scale) was demonstrated to the participants. More than that the volunteers were able to demonstrate the pipeline of the robot and help the participants in understanding the concepts behind some of the sensors used. The participants were satisfied as the workshop

helped them in developing an understanding of robotics and encouraged them to do more robotics based projects and participate in competitions in future.



## EVENT DETAILS

**Number of teams : 09**

**Registration fee: Rs. 1650/ per kit**

**Hosting Unit :-**

IEEE PESIT South Campus Student Branch

Supported by : IEEE Robotics and Automation Society Bangalore Chapter

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