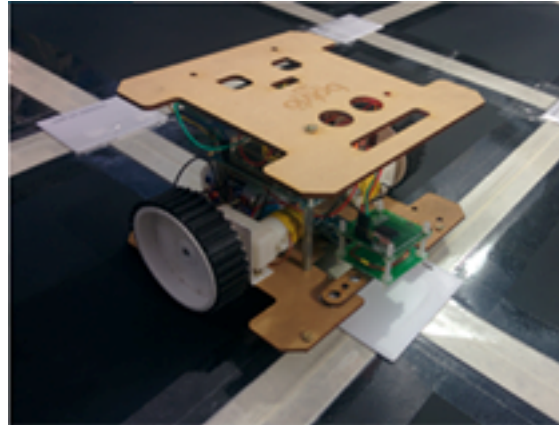


## Robotic RFID Navigation

### Workshop on Robot navigation using RFID



## About the Course:

RFID is a 14Hour Robotics workshop which is a new approach to a robotic navigation through a grid of RFID tags. Workshop will focus on building a navigation system using the RF signal from the RFID tags as a feedback signals to navigate a mobile robot within an unknown or uncertain indoor environment. This method is computationally simpler and more cost-effective than many of its counterparts in the state of the art. It is also modular and easy to implement since it is independent of the robot's architecture and its workspace.

Students will be introduced to the design and implementation of a mobile robot with integrated RFID Reader. Further they work on retrieving the information from the ID tags, interface the reader with Arduino to determines the location of tag and build algorithm from ground up to determine the direction to be navigated from robot to reach destination autonomously.

The trainers conducting this workshop have relevant experience in the field. They have conducted workshop in IITs, NITs and other premier engineering colleges across India.

## Workshop Benefits and Highlights:

- Learn & Interact with Robotics Experts and get to know basics of RFID Technology and its applications in Robotics.
- Receive an unparalleled education on the art of Robotics with personal one-on-one attention.
- Learn to work on Arduino, Navigation Algorithms and build advanced Robots within two days.
- PowerPoint Presentation, Live Demos, Interactive Question & Answer sessions and comprehensive material.

## Workshop Duration:

- 14 Hours spread over 2 Days.

## Course Outline:

SESSION	OUTLINE
1	<b>Introduction:</b> <ul style="list-style-type: none"><li>▪ Robotics, types &amp; its control.</li><li>▪ ATmega MuC Series</li><li>▪ <b>Construction of rBot</b></li></ul>
2	<b>Arduino:</b> <ul style="list-style-type: none"><li>▪ Why Arduino?</li><li>▪ Programming Syntax</li><li>▪ Controlling I/O Pins</li><li>▪ Working with LED &amp; Motor</li><li>▪ <b>Navigation Robot</b></li></ul>
3	<b>Serial Communication:</b> <ul style="list-style-type: none"><li>▪ Need of Serial Communication</li><li>▪ Serial Communication Functions</li><li>▪ Algorithm Building &amp; Implementation 1</li><li>▪ <b>Computer Controlled Robot</b></li></ul>
4	<b>RFID</b> <ul style="list-style-type: none"><li>▪ Overview on RFID Reader</li><li>▪ Active and Passive Tags</li><li>▪ Algorithm Building &amp; Implementation 2</li><li>▪ <b>Data Acquisition from RFID Tags</b></li></ul>
5	<b>Robot Navigation Algorithm Phase-1</b> <ul style="list-style-type: none"><li>▪ Overview on RFID Grid</li><li>▪ Coordinate System</li><li>▪ Algorithm Building &amp; Implementation 4</li></ul>
6	<b>Robot Navigation Algorithm Phase-2</b> <ul style="list-style-type: none"><li>▪ Navigation Algorithm</li><li>▪ Direction Finding</li><li>▪ Algorithm Building &amp; Implementation 5</li></ul>

## Swarm RFID Take Away Kit Includes:

Arduino Board : AVR ATmega Microcontroller Platform  
RFID Reader Module  
1 IR Sensor Module  
Dual Motor Driver Board  
Laser Cut Chassis  
2 DC Geared Motors  
2 Rubber Wheels  
12V Power Source  
Wires & Jumpers  
Screws, Nuts & Washer set  
Screw Driver

**Fees:** Rs. 1500/- per head.  
Kit to be provided in a group of 5 members.

### Contact:

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