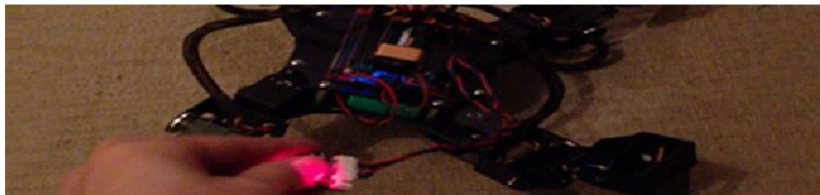


TECHNOLOGY LEARNING CENTER

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Workshop on Accele-robotics



About workshop:

This is an innovative workshop to hone your Microcontroller skills with one of the most interesting transducers available, the “Accelerometer”. These days the Accelerometer is almost everywhere: in your phones, gaming consoles, PDAs, music players, digital cameras and where not!! It also finds the most varied industrial usage in construction, vehicle collisions, health monitoring machinery, braking systems, navigation, image stabilization etc. Keeping this in mind, we have designed this workshop to train students on the concepts of AVR microcontrollers (Atmega8/32) and ADC and design advanced applications based on the Accelerometer. Students will learn to interface the Accelerometer with their Microcontrollers and get it to work in applications.



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Workshop Schedule:

DAY 1

Session 1

Introduction to Robotics

Types of Robots

Applications of Robots

Diff b/w Micro Controller & Micro Processor

Introduction to ATMEGA8 controller

General purpose I/O pins

How to program in IDE AVR Studio4/5

Register description in ATMEGA8 controller

Session 2

Programming pins as OUTPUTS

How to Dump program into Micro controller

Interfacing LEDS to controller

Locomotive system of ROBOT



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About Motor driving IC L293D

Making of moving ROBOT

Different GUI available

Introduction to 16*2 LCD

Working principle of 16*2 LCD

Interfacing LCD to Microcontroller

Designing LCD function using Header files

Implementation of Moving message display



DAY 2

Session 1

What is an Acceleration sensor?

Types of acceleration sensors available in market

Different interfacing technologies used with Acceleration sensor

Hardwire interfacing circuitry of a 3 axis acceleration sensor

Introduction to ADC

Programming internal ADC in atmega8



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Session 2

Configuring acceleration sensor for orientation detection

Reading x,y,z parameters using LCD

Designing the gesture controlled algorithm

Making of a Accele-ROBOT

Review of the workshop

Q&A session

Take Away for the Participants:

- Create and manage designs by using the Avr studio software design environment.
- Exposures to the different softwares required for building a human interface machine.
- Implementation artificial intelligence using embedded C.
- Different interfacing technologies to interface different sensors.
- Hands-on Experience in developing of Accele-robotix.

Workshop Benefits and Highlights

- Learn & Interact with Robotics Experts and get to know basics of Robotics and its control.
- Receive an unparalleled education on the art of Robotics with personal one-on-one attention.
- Learn to program and build robots within 2 days.
- PowerPoint Presentation, Live Demos, Interactive Question & Answer sessions and comprehensive material.



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Benefits of the participants

- Certificate of Participation to all Participants from Technology Learning Center
- Free Softcopy of workshop content
- Technology Learning Center summer training redemption coupon

Our Requirement for the program

- Minimum of 50 teams for conducting the workshop
- One Computer CD-ROM drive for each team or students are requested to get their laptop preferably with Windows OS.
- LCD projector and microphone PA system.
- Seminar hall or computer lab for conducting the workshop.

Workshop Duration

2 Days [7 Hours/Day]

Pre-requisites:

The modules are designed in order to cater the basics of Robotics and coding however following pre-requisites will be an added advantage.

- Basic knowledge of C programming.
- Basic Electronics.



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