



“This is Computer age next will be Robotic era”

WORKSHOP ON “X-ROBOSENSE” LEARN TO DEVELOP ANALOG & DIGITAL SENSORS AND RUN A ROBOT

ThinkWare conceptualized practical based course in Sensor designing & use of basic electronics in this with self developed modules & AVR Devboard based kits for Engineering students.

ThinkWare: Technology & Innovation Kiosk

Shepherding-Intelligent-Tomorrow

ThinkWare is a venture which deals in the domain of Robotics, Embedded Systems & MATLAB with strategically current focus in educational domain to bridge the gap between Industry demands & current academics offerings in Institutes. With a passion in Robotics and keeping constant eye on various national & international events, we have vast experience in the same and a constant focus in this grooming industry. **ThinkWare** was founded by a strong team of young Engineers & budding Entrepreneurs working in the same industry, and is currently incubated at STEP-ITBI, JSSATE Noida. The company is properly backed by the experienced academicians and Industries.

X-RoboSensio “xpert in Sensor Designing & Robotics”

X-RoboSensio is meant for those who want to explore more than autonomous robotics to how they sense obstacle, line & external environment. We bring you a workshop on advanced sensors. This might be your opportunity to learn about some very important sensors which could give you a new perspective of electronics & its importance. The workshop will be focused on introducing you to the new kind of sensors and learning how to use them.

X-RoboSensio also provides you a chance to befriend the feature rich AVR Microcontroller. We would be exploring the different features of the AVR Microcontroller.

All these sessions will be revolving around developing applications on the advanced sensor modules & AVR platform specially designed by ThinkWare. This kit includes, microcontroller based board, programming tool, sensors etc. Hands on sessions on this kit help the participants to enhance their embedded C programming and PC hardware interfacing. By the end of this workshop, we promise to leave you with a head rush of ideas about what all you can accomplish with the things you have learnt in these 2 days.

Features of Workshop:

- Take away Robot kit worth Rs. 4000/- will be given to each team of 4 students.
- Certificate of participation will be given to each participant.
- Free 30 days 8051 e-learning course on Thinkware.com worth Rs. 1500/-
- Free access to INDIA’s best Robotics forum “RoBoFreaks” at Thinkware where students can publish their projects & will be acknowledged.
- Study material & Thinkware CD will be given to each student.
- Lifetime membership account on www.thinkware.com to avail all discounts in future.

The concepts that will be covered in the 2 days span are:

- Analog & Digital Sensors’ designing
- AVR Microcontrollers
- Programming
- Interfacing with sensors

Session 1: The concepts that will be covered are:

- Basics of Microcontroller
- Introduction to Autonomous Robotics.
- Comparison among various microcontrollers.
- Architecture of AVR Micro-controller.
- Embedded C.
- Detailed study of AVR with PORTx, PINx & DDRx Registers
- Various types of sensors.
- Electronics Characteristics of Sensors.

- Different types of Motors.
- Intelligence in robots with Micro-controller.
- Use of macros to make programming easier for complex interfacing

Session 2:

- Designing of Analog & Digital Sensors
- Working of Obstacle detector Sensor
- Working of Sound Sensor
- Working of Touch Sensor
- Working of Distance measuring Sensor
- Working of Temperature Sensor
- Working of Color Sensor

Session 3: Hands-on session will include:

- Working with AVR micro-controller (ATMEGA 16).
- Use of USB/Serial port programmer.
- Using Ponyprog/ AVR Burner Software.
- Working with compilers (WinAVR and Ponyprog).
- Introduction to Embedded C & Macros programming.
- Controlling DC motors using microcontroller.
- Interfacing of LED's & making various patterns

Session 4: Hands on Session:

- Interfacing of Switches
- Interfacing of TSOP, Sound, Bump, Analog IR, LDR, LM35 Sensor.
- Programming of robot with sensor calibration
- Interfacing with Stepper Motors

This session will include both, introduction to simple sensors and study of advanced sensors. These are the sensors which can prove to be extremely useful in many applications, and will improve the capability of your machine dramatically. Hands on sessions will concentrate on at least one activity with the use of each sensor.

The kit includes the following components:

The controller board (Brain)

- Built around the AVR ATmega16 microcontroller.
- 4 switches and 4 LEDs on board.
- I/O ports for external peripherals
- 8 ADC Input Channels.
- AVR Serial Programmer with FRC Cable.
- RS 232 Cable

Think Ware, venture of KC Robotics & Embedded Pvt. Ltd.

www.thinnkware.com

- Analog IRSensor
- TSOP Sensor
- Bump Sensor
- Sound Sensor.
- LDR Sensor
- Temperature Sensor
- Motor Driver Module.
- LCD
- Power Adaptor
- Packaging Box.

Course Duration:

- The workshop will be of 2 days (15 hours)

Requirements from college:

- LCD Projector for the lecture.
- Computers to each team for programming.
- Electronics Lab having soldering stations.
- Lodging & Boarding facility for the trainer during workshop.
- Minimum participation of 60 students.

Contact:

ThinkWare a venture of **KC Robotics & Embedded Private Limited**

Mob: +91-9211786062

Phone: +91-120-6494440

Fax: +91-120-2401451

Website: www.thinnkware.com

Email: training@thinnkware.com

Address: #4 ITBI, C-20/1 JSSATE-STEP Sector 62 Noida (U.P.)-201301 [India]