



“This is Computer age next will be Robotic era”

WORKSHOP ON X-MOBROB “AUTONOMOUS ROBOT ON MOBILE/SENSOR”
ThinkWare conceptualizes practical based module in Autonomous Robotics with inhouse developed Robotic kits to provide students a good platform to learn the concept of AVR Microcontroller based autonomous Robots which can be controlled by Sensors/ Mobile Phone.

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-MobROB “xpert in Robot control by Mobile Phone & Sensor”

X-MobRoB is a workshop that introduces you to the exciting world of microcontrollers! The workshop designed by ThinnkWare is a two day workshop that is aimed at giving hands-on feel of working with AVR microcontrollers. Various interesting open problems are floated and the participants are encouraged to think out-of-box and come up with innovative ideas. Post workshop, a participant gets good exposure to artificial intelligence and embedded systems and is ready to embark on numerous exciting microcontroller based projects. Here students will learn to control robot with Sensors & Mobile Phone.

Features of Workshop:

- Take away Robot kit worth Rs. 3000/- 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 Thinnkware.com worth Rs. 1500/-
- Free access to INDIA’s best Robotics forum “RoBoFreaks” at Thinnkware where students can publish their projects & will be acknowledged.
- Study material & Thinnkware CD will be given to each student.
- Lifetime membership account on www.thinnkware.com to avail all discounts in future.

Workshop Course content:

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 interfacings

Session 2: 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 Stepper motors using microcontroller.

- Interfacing of LED's & making various patterns

Session 3: Hands on Session:

- Interfacing of Switches
- Working with TSOP Sensor
- Programming of robot with sensor calibration
- Interfacing with Stepper Motors

Session 4: DTMF decoder ICs

- What is DTMF?
- Interfacing of DTMF ICs
- Concept and Algorithms
- Integrating DTMF with nokia series mobile
- Study of DTMF decoder IC 8870
- DTMF Keypad Frequencies
- **Explaining** DTMF based circuitry used with MOBILES.
- Explaining s/w program used to control dc motor operation using DTMF signals.
- Programming of ATMEGA16 microcontroller for Mobile control Robot
- Test run of Mobile Controlled Robot

Course Duration:

- The workshop will be of 2 days (16 hours)

Take away Kit Content:

1. AVR Development Board with ATMEGA 16 Microcontroller- 1 No.
2. IR Sensor Module (TSOP) with 3 pin connector. – 1 No.
3. MobROB robot wheels with Grip- 2 Nos.
4. MobROB robot chassis- 1 No.
5. AVR Serial Programmer with FRC Cable- 1 No.
6. Stepper motor- 2 Nos.
7. Motor driver IC's- 2 Nos.
8. Software CD- 1 No.
9. Study material Book- 1 No.
10. Screws and pipes
11. Serial Cable/USB cable
12. One Packaging Box

Requirements from college:

- Infrastructure as classroom with proper seating arrangement for participants.
- LCD Projector for the lecture.
- Lodging & Boarding facility for the trainer during workshop.
- Computers for the programming depending on no. of participants
- Minimum participation of 60 students.

Contact:

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