

SUMMER TRAINING PROGRAM 2013

(Robotics with AVR)

Introduced By:



In Association with:



YD Tech Sourcing Pvt. Ltd.

Contact Us:

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Summer Training Program 2013

- ❖ **Course Name:** Robotics with AVR
- ❖ **Course Duration:** 30 Days, 50/60hrs
- ❖ **Course Fee:** INR 6900 (Including Taxes)
- ❖ **Course Certification:** Certified by Matbotrix Technologies (Regd.) & YD Tech Sourcing Pvt.Ltd.
- ❖ **Course Level:** Intermediate Level
- ❖ **Robotics Toolkit:** Free to Each Participant
- ❖ **Study Material:** Books & CDs free to each participant
- ❖ **Group discount:** Up to 15%
- ❖ **Website:** <http://www.matbotrix.com>

Course content:

1. **Introduction to Robotics**
 - Future of Robotics
 - Current trends in Robotics
 - Robotics Applications
2. **Basics of Electronics**
 - Practical understanding of all major electronic Components
 - Working with Resistance, Diode, capacitor, LED, ZENER, Basic ICs
3. **Basic of Embedded C language**
 - Difference between C and Embedded C
 - Conditional statements
 - Looping
 - Array
 - Structures
 - Pointers

4. Embedded System design

- Introduction to micro controller
- What is a micro controller? What's inside it? What makes it an embedded system?
- What are the different families of microcontroller, its derivatives and its applications in industrial projects?
- Why AVR is the most widely used micro controller family?

5. Introduction to Microcontrollers and AVR Architecture

- This session includes introduction to the AVR series of microcontroller, especially Atmega8/ATMega16/atmega32.
- Introduction to ATMega8/ATMega16/Atmega32 features
- I/O ports.
- Data registers
- Interrupts.
- Timer/Counter.
- External/Internal clocks
- ADC (Analog to Digital Conversion using microcontroller).

6. Introduction to Embedded C Programming

- Embedded C-Programming for Microcontroller.
- Introduction to C, flow control statements, functions.
- Data types, operators and expressions.
- Program structures and debugging.
- Program burning and execution

7. Interfacing of peripherals to Microcontroller (Atmega8/16)

- Geared DC Motor.
- Stepper Motor.
- Motor Driver.

- Relays.
- Solid State Drivers.

8. Interfacing of various kind of Display devices

- Displays.
- LED.
- LCD.
- Seven Segment Display

9. Interfacing various devices with the microcontroller.

- Input Devices.
- Switches.

10. Interfacing and Study of Sensors to enable microcontroller to acquire environmental data.

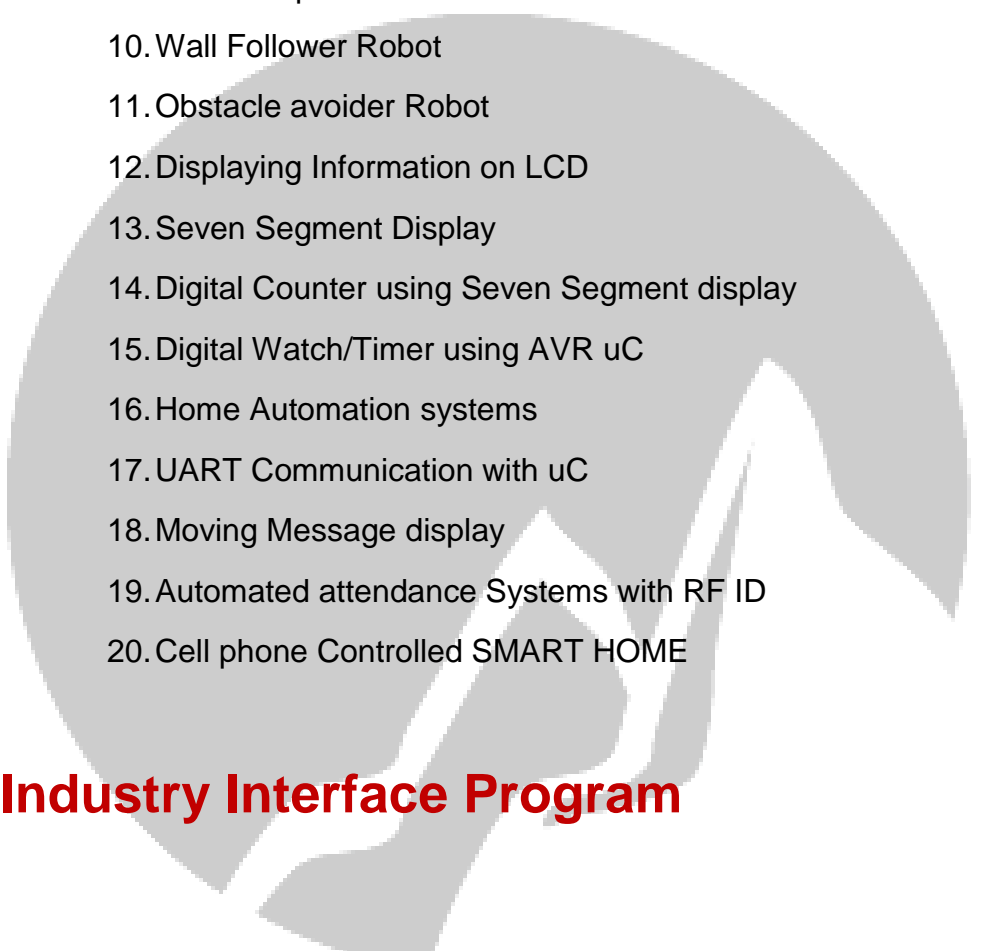
- Sensors.
- Color Sensors
- Light Sensors.
- Sound Sensors
- Touch Sensors
- Temperature Sensor

11. Project Building and implementation of ideas

- Designing
- Development
- Programming and customizing
- Debugging

Projects Covered:

1. Black Line Following Robot
2. White Line Following Robot
3. Intelligent Line Following Robot

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4. Automated Computer Operated Robots
 5. Computer Keyboard Operated Robots
 6. Edge Avoider Robot
 7. GSM/Cell phone Operated Robot
 8. Photo Phobic Robot
 9. Photo Tropic Robot
 10. Wall Follower Robot
 11. Obstacle avoider Robot
 12. Displaying Information on LCD
 13. Seven Segment Display
 14. Digital Counter using Seven Segment display
 15. Digital Watch/Timer using AVR uC
 16. Home Automation systems
 17. UART Communication with uC
 18. Moving Message display
 19. Automated attendance Systems with RF ID
 20. Cell phone Controlled SMART HOME

Industry Interface Program

Projects

- 1 Assignments / Mini Projects
- 1 Major Project

Domains / Industry

- Manufacturing
- Architecture
- Civil
- Electricals and Electronics