



**Course& Kit Content
Of
Robotics & Embedded 'C'
Duration 7 Days**

Kit Partner

ROBOMART.com

Corporate Office

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Course Name : **ROBOTICS WITH AVR**
Certification : By Robosapiens Technologies Pvt. Ltd.
Fee : 5900/- Only
Toolkit : **FREE** to Each Participant

Detailed Course Content

1. Introduction to Robotics

- 1.1. History of Robotics
- 1.2. Why Robotics
- 1.3. How Robotics works
- 1.4. Application of Robotics
- 1.5. Current Industrial Robotics
- 1.6. Future of Robotics

2. Anatomy of Robotics

- 2.1. What are Basic Modules?
- 2.2. Why Need of Basic Modules
- 2.3. Working Approach on Robotics

3. Introduction of Electronic Components

- 3.1. What is Electronic Component?
- 3.2. History of Electronic Component
- 3.3. Various Electronic Component
- 3.4. Application of Electronic Component
- 3.5. How to use Electronic Component

4. Introduction to Sensors

- 4.1. What is Sensor?
- 4.2. Various Basic Industrial Sensors-IR- Analog Sensor
- 4.3. IR Digital Sensor
- 4.4. Color IR_TSOP Sensor
- 4.5. Light Sensor
- 4.6. Sound Sensor

- 4.7. DTMF Module
- 4.8. Selection of Sensor
- 4.9. Basic working Technique of Sensor
- 4.10. Application of Sensor
- 4.11. How to Interface Sensor
- 4.12. How to Design Analog/Digital Sensors

5. Introduction to Computational Devices

- 5.1. What is Computational Device?
- 5.2. Transistor
- 5.3. Logic Gates
- 5.4. Microprocessor
- 5.5. Microcontroller
- 5.6. Difference B/W Various Computational Devices
- 5.7. Application of various Computational Devices
- 5.8. Selection of Computational Device
- 5.9. How to use Various Computation Device/
- 5.10. Work on AVR Family with Mega Series (ATmega8)

6. Interfacing to Actuator

- 6.1. What is Actuator?

7. How to work on Educational & Engineering Level Actuator

- 7.1. DC Motor
- 7.2. DC Geared Motor
- 7.3. Stepper Motor
- 7.4. Servo Motor

8. Introduction to Driving System/Locomotion

- 8.1. What is Driving System?
- 8.2. Various Types of Driving System
- 8.3. Why need Driving System

9. How to Drive Motor

- 9.1. H-Bridge Motor Drive
- 9.2. Advanced Motor Driver

10. Introduction to Programming Languages

- 10.1. Various programming Languages
- 10.2. Selection of programming Language
- 10.3. Need of Flow Diagram
- 10.4. How to write First “LED BLINKING” Code in Embedded C
- 10.5. Why always First “LED BLINKING” Code?
- 10.6. Practice on various LED Pattern
- 10.7. Debugging of Error Program

11. Introduction to LCD Display

- 11.1. Pin Description of 16x2 LCD Display
- 11.2. Application of 16x2 LCD Display
- 11.3. Programming of 16x2 LCD Display

12. Interfacing of Anatomy of Robot

- 12.1. Assembling of Robot

13. Introduction to Timer/Counter

- 13.1. What is Timer/Counter
- 13.2. Application of Timers/Counter
- 13.3. Registers of Timers/Counter's Different Modes
- 13.4. Programming on Atmega8 Timers/Counter













14. Introduction to Analog to Digital Convertor (ADC)





- 14.1. ADC, How it works???
- 14.2. Different Mode and Registers of ADC
- 14.3. Programming ADC

LIVE Projects Covered

1. LED Blinking
2. Running LEDs
3. Sand Glass Filling of LEDs
4. Decoration LEDs/ LED Patterns Etc.
5. Sensor Interfacing
6. DC Motor Driving
7. Black Line Follower using two IR-Sensor
8. White Line Follower using two IR-Sensor
9. Sound Operated Robot
10. Light Searching Robot
11. Wall follower Robot
12. Edge Avoider Robot
13. Intelligent Line Follower Robot
14. Mobile Controlled Robot
15. Displaying your Name on LCD
16. Blinking Text on LCD
17. Digital Voltage Measurement

7 Days KIT Contains

Sl. No.	Name of the Component	Quantity	Figure
1	Robosapien's Atmega8 Development Board	1	
2	USB Cable A to B Type	1	
3	2X16 LCD Display	1	
4	Robosapien's Educational and Software Material CD	1	
5	IR Digital Sensor	2	
6	Sound Sensor	1	
7	150 RPM Single Shaft BO Rectangle	2	
8	Robosapiens Caster Wheel	1	
9	Robosapiens 76mm Wheel	2	
10	Robosapiens Chassis Board	1	
11	Screw Driver	1	
12	Nut Bolt Packet	1	

13	DTMF Module	1	
14	4 PIN Female to Female Jumper Wire	1	
15	3 PIN Female to Female Jumper Wire	1	
16	1 PIN Female to Female Jumper Wire	3	
17	Analog Voltage Sensor	1	
18	Paper Beg/Box	1	