



Course & Kit Content

Of

ARUDINO

Duration 7 Days

Kit Partner

ROBOMART.com

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Course Name	: Arduino
Certification	: By Robosapiens Technologies Pvt. Ltd.
Fee	: Rs. 5900/- Only
Toolkit	: FREE to Each Participant

Detailed Course Content

1. Introduction to Embedded Systems

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

2. Anatomy of Embedded Systems

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

3. Introduction to Open Source platform

- 3.1. An Overview of Open Hardware
- 3.2. Arduino Board Description

4. Introduction of Electronic Components

- 4.1. What is Electronic Component?

- 4.2. History of Electronic Component
- 4.3. Various Electronic Component
- 4.4. Application of Electronic Component
- 4.5. How to use Electronic Component

5. Introduction to Sensors

- 5.1. What is Sensor?
- 5.2. Various Basic Industrial Sensors-IR- Analog Sensor
- 5.3. IR Digital Sensor
- 5.4. Selection of Sensor
- 5.5. Basic working Technique of Sensor
- 5.6. Application of Sensor
- 5.7. How to Interface Sensor
- 5.8. How to Design Analog/Digital Sensors

6. Introduction to Computational Devices

- 6.1. What is Computational Device?
- 6.2. Transistor
- 6.3. Logic Gates
- 6.4. Microprocessor
- 6.5. Microcontroller
- 6.6. Difference B/W Various Computational Devices
- 6.7. Application of various Computational Devices
- 6.8. Selection of Computational Devices
- 6.9. How to use Various Computation Devices
- 6.10. Microcontroller architecture and Interfacing
- 6.11. Introduction to Microcontrollers & the Arduino Platform
- 6.12. How can we use microcontroller in our circuits.

7. Introduction to Programming Language

- 7.1. Programming Languages- Assembly Vs Embedded 'C'
- 7.2. Microcontroller Programming using Embedded 'C'

8. Introduction to software tool chain

- 8.1. Software Installation
- 8.2. Getting started with the Arduino IDE to start writing your first program
- 8.3. Writing your First 'Embedded C' Program

9. Interfacing of I/O devices

9.1. LEDs

- 9.1.1. Types of LEDs.
- 9.1.2. How LEDs works?
- 9.1.3. How LEDs will glow in sequence?
- 9.1.4. Interfacing of LED with Arduino

9.2. Switch

- 9.2.1. Types of switches
- 9.2.2. Their Functions
- 9.2.3. Interfacing of switch with Arduino

9.3. Buzzer

- 9.3.1. Types of Buzzer
- 9.3.2. Uses of Buzzer in Real Time
- 9.3.3. Interfacing of Buzzer with Arduino

10. Display Devices

- 10.1. Types of Display Devices
- 10.2. What is a Seven Segment Display?

- 10.3. Internal Structure of Seven Segment
- 10.4. How to glow Seven Segment?
- 10.5. Interfacing of Seven Segment with Arduino
- 10.6. Multiplexing

11. How to work on Educational & Engineering Level Actuator

- 11.1. DC Motor
- 11.2. DC Geared Motor
- 11.3. Stepper Motor
- 11.4. Servo Motor

12. How to Drive Motor

- 12.1. H-Bridge Motor Drive
- 12.2. Advanced Motor Driver

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 Interrupts

- 14.1. What is interrupts
- 14.2. Application of Interrupts
- 14.3. Registers of Interrupts Different Modes
- 14.4. Programming on Atmega8 Interrupts

15.ADC

15.1. What is ADC?

15.2. Use of ADC

15.3. What is Resolution?

15.4. Uses of different ADC Registers







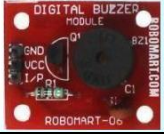




15.5. Interfacing of Analog Devices with
Digital World



LIVE Projects Covered

1. LED Blinking
2. Running LEDs
3. Sand Glass Filling of LEDs 4. Decoration LEDs/ LED Patterns Etc.
5. De-bouncing
6. Buzzer Testing
7. Sensor Interfacing (DEMO)
8. DC Motor Driving (DEMO)
9. DC Motor Driving using 4Bit Keypad (DEMO)
10. Stepper Motor Driving (DEMO)
11. Seven Segment Display
12. Seven Segment Multiplexing
13. Blinking LEDs using TIMER0
14. Blinking LEDs using Interrupts
15. Digital Voltage Measurement
16. Digital Visitor Counter (DEMO)
17. Temperature Controlled Fan (DEMO)
18. Digital Thermometer (DEMO)
19. Home Security System

7 Days KIT Contains

S. No.	Name of the Component	Quantity	Figure
1	Robomart Arduino Board	1	
2	4 bit Keypad	1	
3	4 bit LED	1	
4	Analog Voltage Sensor	1	
5	Double Digit Common Anode Seven Segment Display	1	
6	Robosapien's Educational and Software Material CD	1	
7	Digital Buzzer Module	1	
8	USB Cable A to B Type	1	
9	8 PIN Female to Female Jumper Wire	1	
10	4 PIN Female to Female Jumper Wire	2	
11	2 PIN Female to Female Jumper Wire	2	
12	1 PIN Female to Female Jumper Wire	5	