



Course Contents:

1.IntroductiontoARDUINO

- Introduction to Open Source
- Introduction ARDUINO
- Understanding the Environment
- Why ARDUINO?

2.ARDUINO: Knowing your Microcontroller

- Arduino UNO Semitics
- What is Microcontroller?
- Introduction to Microcontroller: 328P
- PIN Descriptions
- Why Arduino is popular

3.ARDUINO IDE

- Let's install the IDE
- Let's get started with Arduino IDE
- Say Hello to programming : Glow Led

4. DIY Circuit Designing

- Resistor, Capacitor, Buttons, LEDs
- Learn about circuit designing
- How to use Breadboard
- Understanding & making own circuits
- Understanding the Arduino Sketch

5. Programming the Arduino

6.Display it with Arduino

- Interfacing Displays
- LED: Programming LED Patterns
- Displaying patterns, Relays of patterns
- Displaying : Seven Segment Display
- Displaying : 16x2 LCD



7. Running Motors

- What's H-Bridge
- How L293D works?
- Interfacing Actuators: DC Geared Motor
- What's PWM?
- Controlling **RGB** Lights

8.Arduino: Learn to the Core

- Learn wireless communication: PC to Arduino
- **USART** : Bluetooth Communication
- **PWM** : Controlling voltage
- **ADC**: Displaying analog value on Serial Monitor
- External Interrupts

9.Interfacingsensor to Arduino

- What are sensors!
- Programming IR Sensors
- Accelerometer Sensor
- Interfacing Ultrasonic Sensor
- Interface PIR Sensor
- Bluetooth Module
- Temperature Sensor

10. Relays: Controlling Appliances

12. Gesture Controlled Electronic/Electrical Operations

14. Bluetooth Controlled Home Automation.

Projects

- LED Blinking
- Switch controlled Relays of LED Patterns
- Collision Avider Robot
- Intelligent Line Follower
- Mobile Controlled Ardu-Bot
- Phototropic/Photophobic Robots
- Displaying Values on LCD
- Making Timer Clock



- Displaying RGB Light
- Displaying Seven Segment Display
- **UART**: Controlling motor using Serial Communication
- Developing Distance Calculator/Obstacle Finder Robot
- Displaying values on Serial Monitor
- Displaying Temperature on LCD
- **Hand Gesture** Robot
- Motion Controlled Home Automation
- DTMF controlled Home Automation
- **Bluetooth** Controlled Ardu-Bot
- **ADC**: Analog to Digital Conversion with ARDUINO

ToolKitContent:

- Arduino Board
- Motor Driver Board
- Bread Board
- USBProgrammer
- 16x2 LCD
- Connecting Wires
- IR sensor
- DTMF Module
- RGB Led
- LED & Resistor Packet
- Motors
- Wheels
- CasterWheel
- Screw Packets
- Chassis
- SoftwareCD

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