

This trainer has been designed with a view to provide practical and experimental knowledge of Internet of Things (IOT) with Sensors programming with Arduino and Raspberry IOT Board.

SPECIFICATIONS

A. Main Specs

1. Following Parts and Modules are assembled on Single PCB of size - 18 Inch x 15 Inch.
2. The complete circuit diagram is screen printed on component side of the PCB with circuit and Parts at the same place.
3. The PCB with components on front side is fitted in elegant wooden box having lock and key arrangement.
4. Modules and Parts should be removable without desoldering for easy repair / replacement
5. The acrylic cover is fitted on PCB to safeguard main parts.

B. Arduino Microcontroller Board

1. Arduino Uno Microcontroller board based on the ATMEGA328P
2. 14 Digital Input / Output pins (of which 6 provide PWM output)
3. 16 MHz Ceramic Resonator
4. USB Port
5. Power Jack – 9V DC, 1A

C. Raspberry Microcontroller Board – Pi 4

1. Processor : 64bit, ARMv7
2. RAM - 2 GB
3. Memory - 32GB
4. OS: Open Source Linux
5. Connectivity:
Dual-Band 2.4/5.0 GHz Wireless LAN
Bluetooth 5.0, Gigabit Ethernet
USB Interface – USB 2.0 – 2 Ports, USB 3.0 – 2 Ports,
6. Video and Sound
2 × micro HDMI Interface ports (up to 4Kp60 supported)
7. Power - 5V, 3A DC via USB-C Connector
8. On Board 32 GB SD Memory Card with all Codes and Libraries

D. Sensors and Modules

1. LED Bar Module
2. Temperature Sensor Module
3. IR Sensor Module
4. Audio Buzzer Module
5. IR Sensor Module
6. Camera Module
7. X Bee Module
8. Stepper Motor
9. Traffic Signal Module
10. Lift Elevator Module
11. Intrusion Detector Module
12. 20 X 4 - LCD Display
13. Different Resistors
14. Different Color LEDs
15. Red, Green, Yellow LED
16. 2 mm interconnection Sockets

E. Accessories

- | | |
|--|-------------------------|
| 1. USB to MicroUSB Cable | : 1 No |
| 2. Ethernet Cable RJ45 | : 1 No |
| 3. HDMI to Micro HDMI Cable | : 1 No |
| 4. VGA 15 pin Male to HDMI Converter | : 1 No |
| 5. 2 mm Banana Jack Jumper – Connectors | : 30 Nos |
| 6. 5V, 2A Micro USB Power Adaptor | : 1 No |
| 7. Pen Drive - 16 GB with All Codes | : 1 No |
| 8. Printed Manual | : 1 No |
| 9. Softcopy of Manual – On Pen Drive | : 1 No |
| 10. E-Books for IOT Subject – On Pen Drive | : 10 Nos. in PDF Format |
| 11. Mp4 Video for IOT Subject – On Pen Drive | : 40 Nos |
| 12. Online Cloud/Server Services for 2 years on Our Sigma Server | |

EXPERIMENTS

1. Study various types of Arduino and install Arduino IDE.
2. Study temperature/humidity sensor. and write a program to monitor temperature/humidity using Arduino.
3. Study and implement RFID using Arduino.
4. Implement MQTT protocol using Arduino.
5. To study and Configure Raspberry Pi.
6. Study and implement Zigbee protocol using Arduino/ Raspberry Pi.
7. To interface Bluetooth with Arduino/ Raspberry Pi and write a program to send the sensor data to smartphone using Bluetooth
8. To interface LED/Buzzer with Arduino/ Raspberry Pi and write a program to turn on LED for 1 seconds after every two seconds.
9. To interface OLED with Arduino/ Raspberry Pi and write a program to print temperature and humidity.
10. To interface motor using relay with Arduino/ Raspberry Pi and write a program to turn on the motor.
11. Interface Ultrasonic sensor and IR sensor with Raspberry Pi and write a program to detect an object.
12. To interface ultrasonic sensor with Raspberry Pi/ Arduino and write a program to calculate distance of object.
13. Study of implementation of Web server using Node MCU and ESP module.
14. To create a local server using Node MCU.
15. To fetch humidity and temperature using DHT 11 sensor and sent it to local server.
16. Write a program to continuously monitor sensor reading through internet.
17. To generate API and program Node MCU.
18. To create Web page and control Home Appliances through Wi-Fi.
19. To create Adafruit account and using Adafruit to read sensor values and send data to node MCU.
20. To create local host server.

Contact us

Registered Office

SIGMA TRAINERS AND KITS
E-113, Jai Ambe Nagar,
Near Udgam School,
Drive-in Road,
Thaltej,
AHMEDABAD-380054. INDIA.

Factory

SIGMA TRAINERS AND KITS
B-6, Hindola Complex,
Below Nishan Medical Store,
Lad Society Road,
Near Vastrapur Lake,
AHMEDABAD-380015. INDIA.

Contact Person

Prof. D R Luhar – Director

Mobile : 9824001168

Whatsapp : 9824001168

Phones:

Office : +91-79-26852427

Factory : +91-79-26767512
+91-79-26767648
+91-79-26767649

E-Mails :

sales@sigmatrainers.com

drluhar@gmail.com