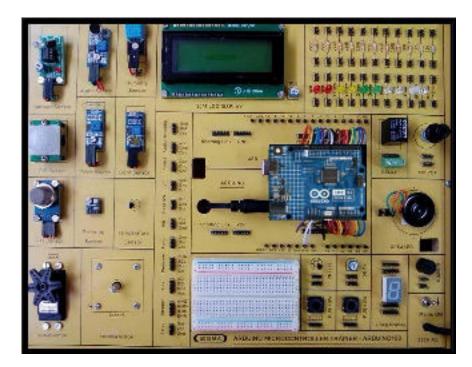


ARDUINO MINIMA MICROCONTROLLER TRAINER MODEL-ARDUINO-MINIMA100



This trainer has been designed with a view to provide practical and experimental knowledge of Internet of Things (IOT) with Sensors programing with Arduino Minima 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 desodlering for easy repair / replacement
- 5. The acrylic cover is fitted on PCB to safeguard main parts.

B. Arduino Minima Microcontroller Board

- 1. MCU: 48 MHz Arm® Cortex®-M4 microprocessor with a floating point unit (FPU)
- 2. Real-time Clock (RTC)
- 3. Memory Protection Unit (MPU)
- 4. Digital Analog Converter (DAC)
- 5. 256 KB Flash Memory
- 6. 32 KB SRAM
- 7. 8 KB Data Memory (EEPROM)
- 8. 14 x Digital pins (GPIO), D0-D13
- 9. 6 x Analog input pins (ADC), A0-A5
- 10. 6 x PWM pins: D3,D5,D6,D9,D10,D11
- 11. Capacitive Touch Sensing Unit (CTSU)
- 12. USB 2.0 Full-Speed Module (USBFS)
- 13. up to 14-bit ADC
- 14. up to 12-bit DAC
- 15. Operational Amplifier (OPAMP)
- 16. 5 V operating voltage
- 17. Power via USB-C at 5 V
- 18. 1x UART (pin D0, D1), 1x SPI (pin D10-D13, ICSP header), 1x I2C (pin A4, A5, SDA, SCL)
- 19. 1x CAN (pin D4, D5, external transceiver is required)
- 20. Power Jack 9V DC, 1A

C. Sensors:

- 1. Air Humidity and Temperature DHT11
- 2. Air Quality MQ135
- 3. Soil / Water Temperature Sensor DS18B20
- 4. Leaf Wetness Sensor Rain Detector Sensor
- 5. Soil Moisture Sensor
- 6. Ambient Light Sensor LDR Light Sensor

D. Modules and Hardware:

- 1. 20 X 4 LCD Display
- 2. 1 Channel Relay board
- 3. DC Motor with Motor Driver board
- 4. Stepper Motor with Motor Driver board
- 5. 7 Segment Display
- 6. Different Resistors
- 7. Red, Green, Yellow LED
- 8. 10K Pot
- 9. Push Switch 2 Nos
- 10. Audio Buzzer Board
- 11. Breadboard 400 Points
- 12. 2 mm interconnection Sockets

E. Accessories

1.	USB to Square USB Cable	: 1 No
2.	2 mm Banana Jack Jumper – Connectors	: 30 Nos
3.	9V, 1A Power Adaptor – Barrel 2.1mm	: 1 No
4.	Pen Drive - 16 GB with All Codes	: 1 No
5.	Printed Manual	: 1 No.
6.	Softcopy of Manual – On Pen Drive	: 1 No
7.	E-Books for IOT Subject – On Pen Drive	: 10 Nos. in PDF Format
8.	Mp4 Video for IOT Subject – On Pen Drive	: 40 Nos

EXPERIMENTS

- 1. To understand theory and working of Arduino Minima Board
- 2. To understand Operating System for Arduino Minima Board
- 3. To understand Communication Protocols
- 4. To understand USB Interface for Arduino Minima Board
- 5. To understand that how to connect 20 x 4 LCD Display to Arduino Minima Board
- 6. To understand theory of Air Humidity and Temperature DHT11
- 7. To understand theory of Air Quality MQ135h
- 8. To understand theory of Soil / Water Temperature Sensor
- 9. To understand theory of Leaf Wetness Sensor Rain Detector Sensor
- 10. To understand theory of Soil Moisture Sensor
- 11. To understand theory of Air Ambient Light Sensor LDR
- 12. To understand Active Audio Buzzer
- 13. To understand 1 Channel Relay Board
- 14. To understand fundamental of DC motor and its driver
- 15. To understand fundamental of Stepper Motor and its driver
- 16. To make LED blink
- 17. To connect LCD Display
- 18. To measure Humidity using Humidity DHT11 Sensor
- 19. To measure Air Humidity and Temperature using DHT11 Sensor
- 20. To measure Air Quality using Air Quality Sensor
- 21. To measure Temperature of Soil using Soil Temperature Sensor DS18B20
- 22. To measure wetness of Leaf using Leaf Wetness Sensor Rain Detector Sensor
- 23. To measure Moisture of soil using Soil Moisture Sensor
- 24. To measure Ambient Light using LDR Light Sensor
- 25. To use Audio buzzer for Output signal Alarm
- 26. To control 1 Channel Relay
- 27. To operate DC Motor control
- 28. To operate Stepper Motor

Contact us

Registered Office

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

Contact Person

Prof. D R Luhar – Director

Mobile: 9824001168Whatsapp: 9824001168

Phones:

Office	: +91-79-26852427
Factory	: +91-79-26767512
	+91-79-26767648
	+91-79-26767649

Factory

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

E-Mails :

sales@sigmatrainers.com drluhar@gmail.com