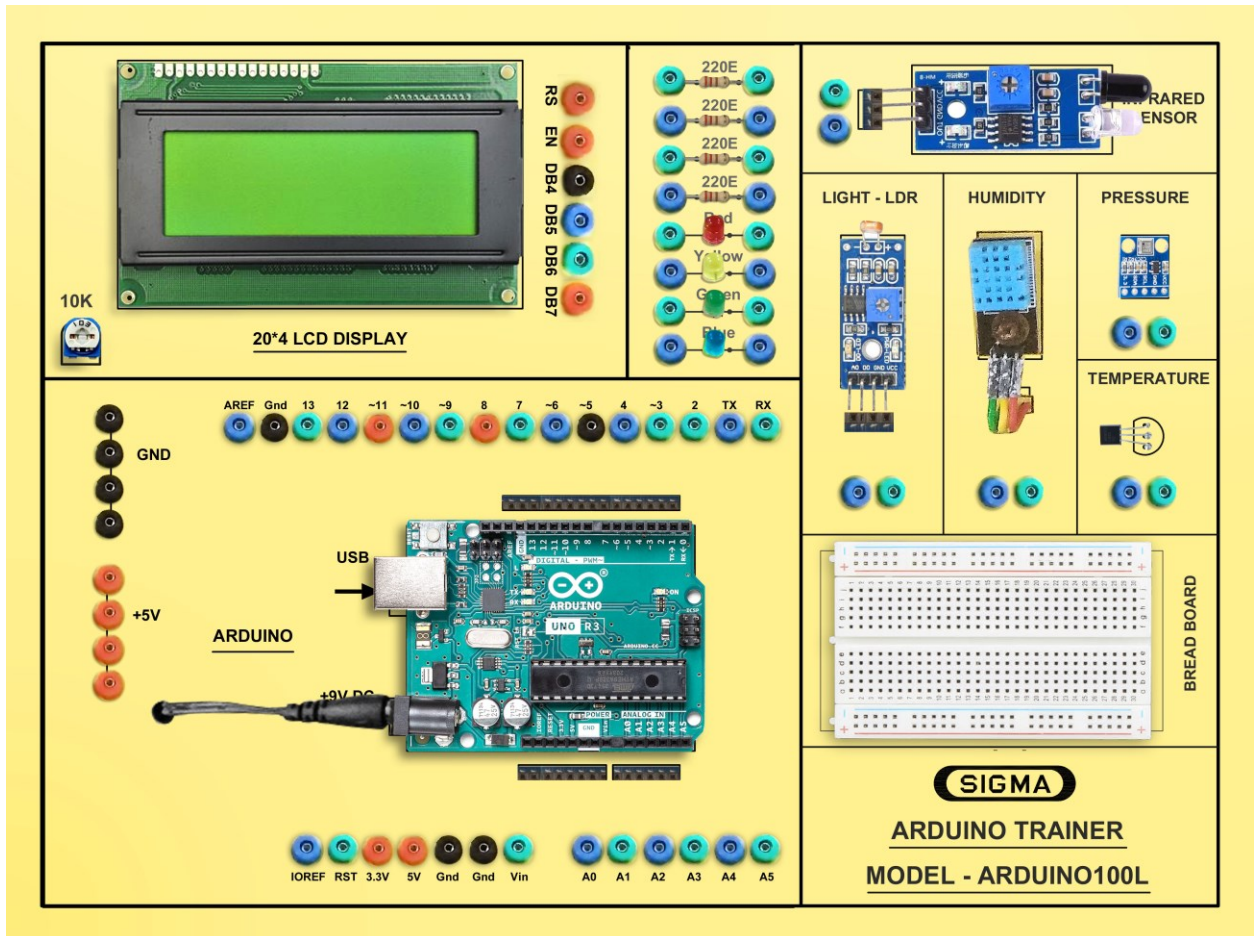# ARDUINO MICROCONTROLLER TRAINER

MODEL - ARDUINO100L

This trainer has been designed with a view to provide practical and experimental knowledge of Arduino Micro controller.

SPECIFICATIONS

1. Hardware

Following Parts and Modules are assembled on Single PCB of size - 12 "x 9"

1. Arduino Board – UNO

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

2. Sensors:

1. Infrared Obstacle Sensor
2. Light LDR Sensor
3. Temperature & Humidity Sensor
4. Atmosphere Pressure Sensor BMP180
5. Temperature Sensor LM35

3. Modules and Hardware:

1. 20 X 4 - LCD Display
2. LEDs and Different Resistors
3. Breadboard - 400 Points for testing different Sensors and circuits

2.   Accessories

1.   USB A to B cable   : 2 No
2.   Ethernet Cable   : 1 No
3.   Male to Male Connecting Wires   : 20 Nos.
4.   Female to Female Connecting wires   : 20 Nos.
5.   Male to Female Connecting Wires   : 20 Nos
6.   Power Supply Adaptor   : +9V DC, 2A
7.   Pen Derive with Software, Library, Driver,
     Codes, Soft Copy of Manual   : 16 GB
8.   Printed Practical Manual   : 1 No.
9.   E-Books for IOT Subject   : 10 Nos. in PDF Format
10. Mp4 Video Class for IOT Subject   : 40 Nos
11. Excitation accessories for each sensor

3. Cabinet and PCB

The complete circuit diagram is screen printed on component side of the PCB with circuit and Parts at the same place. The PCB with components on front side is fitted in elegant wooden box having lock and key arrangement. The acrylic cover is fitted on PCB to safeguard parts. It works on 230 V AC Supply.

EXPERIMENTS

A. Theory Experiments

1. To understand theory and working of Arduino UNO.
2. To understand theory and working Infrared Obstacle Sensor
3. To understand theory and working Light LDR Sensor
4. To understand theory and working Temperature & Humidity Sensor
5. To understand theory and working Atmosphere Pressure Sensor BMP180
6. To understand theory and working Temperature Sensor LM35
7. To understand 20 x 4 LCD Display
8. To connect Arduino to 20 x 4 LCD Display.

B. Practical Experiments

1. To determine the distance of a nearby object using ultrasonic sensor and show it in 20x4 LCD
2. To determine temperature and humidity sensor using DHT11 and show it in 20x4 LCD
3. To determine the environment temperature using LM35 sensor and show it in 20x4 LCD
4. To detect an object using IR object detection sensor and show the results in 20x4 LCD
5. To determine the atmospheric pressure using BMP180 sensor