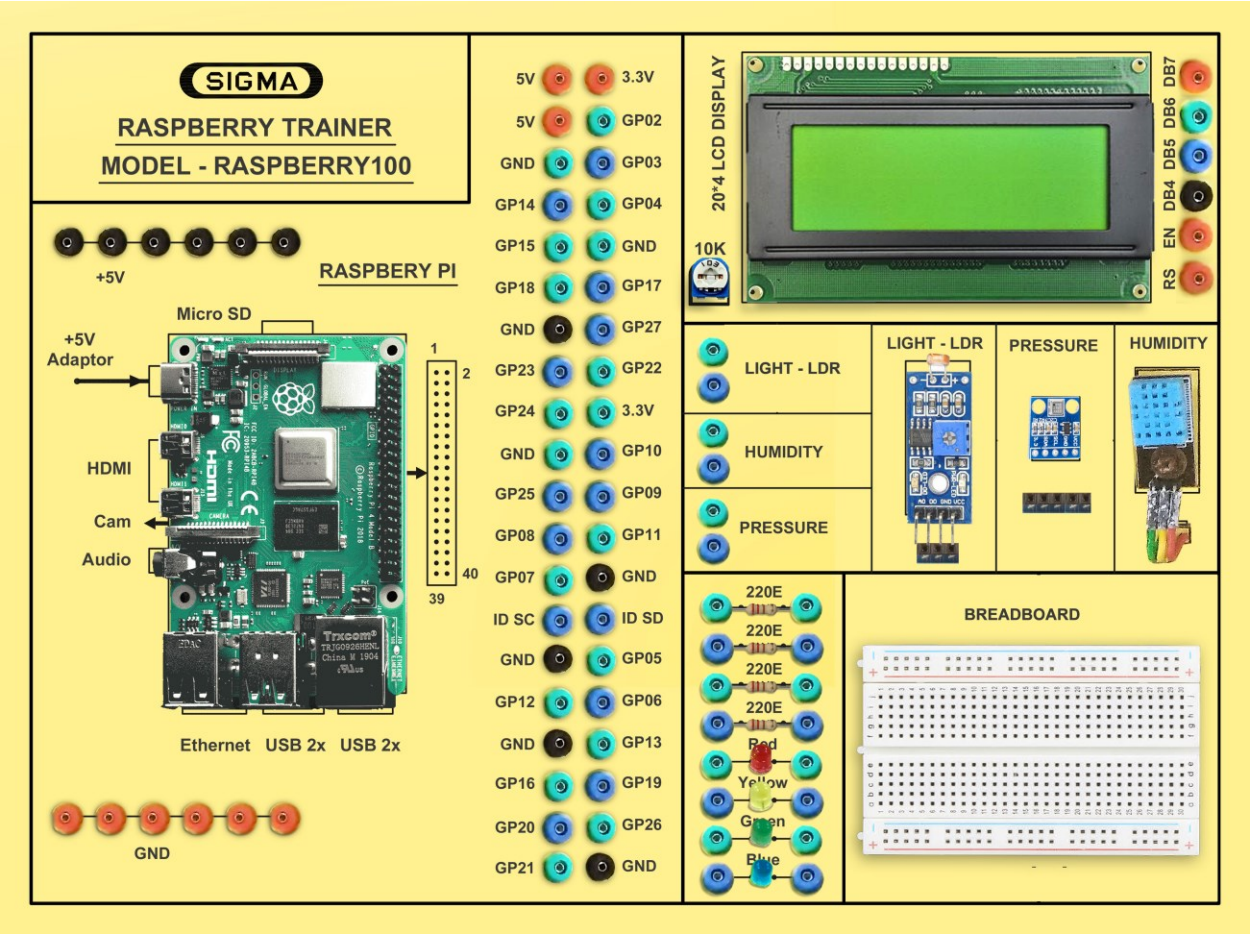
RASPBERRY MICROCONTROLLER TRAINER

MODEL - RASPBERRY100L

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



SPECIFICATIONS

1. Hardware

Following Parts and Modules are assembled on Single PCB of size – 12”x9”

1. Raspberry Board – Pi-4

1. Processor : 64bit, ARMv7
2. RAM - 1 GB
3. Memory - 32GB
4. OS: Open Source Linux
5. Connectivity:

   Dual-Band 2.4/5.0 GHz Wireless LAN

   Bluetooth 5.0

   USB Interface – USB 2.0 – 2 Ports, USB 3.0 – 2 Ports,

   Gigabit Ethernet
6. Video and Sound

   2 × micro HDMI Interface ports (up to 4Kp60 supported)

   2-lane MIPI DSI display port

   2-lane MIPI CSI camera port

   4-pole stereo audio and composite video port Output
7. Power - 5V, 3A DC via USB-C Connector

2. Sensors:

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

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
4. Adaptor Casing

2. Accessories

1.	Memory Card	: 32 GB SD Card
2.	USB Cable	: 2 No
3.	Ethernet Cable	: 1 No
4.	HDMI to Mini HDMI Connector Cable	: 1 No
5.	Power Supply Adaptor	: +5V DC, 3A - USB C Connector
6.	Jumper wires -2 mm	: 50 Nos.
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 for Raspberry PI 4

1. To understand theory and working of Raspberry PI.
2. To understand Operating System for Raspberry PI.
3. To understand Communication Protocols - UART, I2C, SPI and Rs485.
4. To understand USB Interface for Raspberry PI.
5. To understand Ethernet Cable Interface for Raspberry PI
6. To understand micro SD Card Interface for Raspberry PI
7. To understand 20 x 4 LCD Display.

B. Practical Experiments

1. To detect an object using IR object detection sensor
2. To detect light intensity using LDR sensor
3. To determine temperature and humidity sensor using DHT11
4. To determine the atmospheric pressure using BMP180 sensor