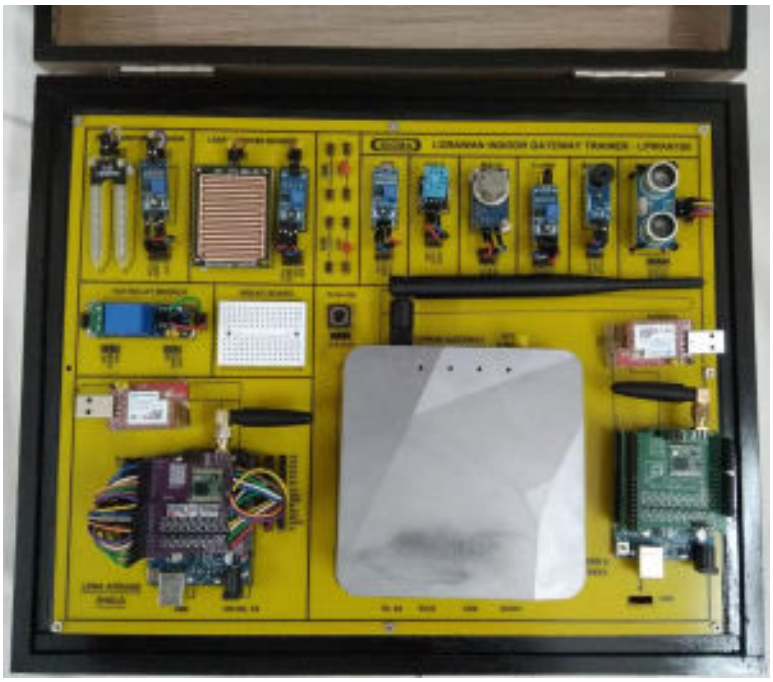
02. MULTI MCU MULTI WIRELESS IOT TRAINER

MODEL-LORA-MULTI-ELITE100

SPECIFICATIONS



This trainer has been designed with a view to provide practical and experimental knowledge of Internet of Things (IOT) with Sensors programing with Lora Arm Cortex M4 and ESP32 IOT Boards.

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. Micro Controllers

1. Arm Cortex M4 LoraWAN MCU- STM32WLE5JC : 1 No
2. Wifi IOT Gateway Module - ESP32 - WROOM : 1 No
   Xtensa® Dual Core 32-bit LX6 Microprocessor

C. Sensors

1. Infrared Sensor – Digital Output Module : 1 No
2. Ultrasonic Sensor - HC-SR04 : 1 No
3. Soil Moisture Sensor : 1 No
4. Temperature and Humidity Sensor – SHT11 : 1 No

D. Multiple Onboard Embedded Communication Protocols

1. I2C
2. SPI
3. UART
4. RS485
5. RS232
6. CAN (For ESP32 only)
7. Analog 10, 0-30V & 4-20mA
8. Multi-Functional GPIO

E. Multiple Onboard Wireless Communication Protocols

1. Bluetooth
2. BLE
3. Wifi
4. Zigbee
5. LoRaWAN
6. GSM (Optional)
7. NB-IoT (Optional)
8. SigFox (Optional)

G. Programming Examples

1. Embedded C Programming
2. Arduino Programming

H. Tools Used

1. Arduino IDE
2. STM32 Cube IDE
3. STM32 Cube Programmer
4. Serial Port Utility
5. Cube MX

I. Other Parts

1.	RS232 Cross-Over Cable	: 1 No
2.	RS232 Straight Cable	: 1 No
3.	RS232 Male to RS232 Female Converter	: 1 No
4.	RS485 to USB Converter	: 1 No
5.	RS485 to UART Converter	: 1 No
6.	RS232 to TTL Serial Converter	: 1 No
7.	RS485 to TTL Serial Converter	: 1 No
8.	CAN to TTL Serial Converter	: 1 No
9.	USB to UART TTL Serial Converter	: 1 No
10.	12 V, 2A DC Power Adaptor	: 1 No
11.	4-20mA & 0-10V Signal Generator	: 1 No
12.	Energy Meter with RS485 Output	: 1 No
13.	3 Core Shielded Cable 1 meter for RS485 / CAN	: 1 No

14. 24W Dimmable Street Light with 0-10V PWM Control Input : 1 No
15. 2 Channel Relay – 5 V, 5A : 1 No
16. Audio Buzzer – Active High : 1 No
17. TFT LCD Display – 1.8 Inch : 1 No
18. Push Switch – Active High : 1 No
19. Push Switch – Active Low : 1 No
20. Slide Switch : 2 No
21. RGB LED - Common Cathode : 2 No
22. RGB LED - Common Anode : 1 No
23. High Precision Pot – 10 Turn - 10K : 1 No
24. Audio Interface Support : 1 No
25. Breadboard - 400 Points : 2 No
26. Probe Tester : 1 No
27. Servo Motor with Driver PCB : 1 No
28. Stepper Motor with Driver PCB : 1 No
29. Multimeter : 1 No
30. LCD Display- 20 X 4 : 1 No
31. LEDs : 2 No
32. Resistors – 220 Ohm : 4 No
33. Analog GPIO
34. Digital GPIO
35. 0-10V PWM Output
36. M-M Jumper Wires : Bunch of 40
37. M-F Jumper Wires : Bunch of 40
38. F-F Jumper Wires : Bunch of 40

J. Accessories

1. All Cables and Adaptors
2. Pen Drive : 16 GB with All Codes and Soft copy of Manual
3. E-Books for IOT Subject : 100 Nos. in PDF Format
4. Mp4 Video for IOT Subject : 100 Nos
5. Online Cloud/Server Services : For 1 Years on Cloud Server
6. Live Training at College : For 2 Days for 4 Hours per Day
7. After Sale Training support : By Online Zoom Meeting or By Whatsapp Video Call

EXPERIMENTS

1. To understand theory of Arm Cortex MCU- STM32WLE5JC and ESP32 Boards and all sensors and Parts
2. To measure all Sensors data using Arm Cortex MCU and ESP32 Boards.
3. To converter RS232, RS485 and CAN protocol to Serial TTL protocol

4. To send Sensors data from Transmitter Node to Base Receiver using Bluetooth Gateway
5. To send Sensors data from Transmitter Node to Base Receiver using BLE Gateway
6. To send Sensors data from Transmitter Node to Base Receiver using Zigbee Gateway
7. To send Sensors data from Transmitter Node to Base Receiver using Wifi Gateway
8. To send Sensors data from Transmitter Node to Base Receiver using LoRaWAN Gateway
9. To send Sensors data from Transmitter Node to Base Receiver using NB-IOT Gateway
10. To send Sensors data from Transmitter Node to Base Receiver using SigFox Gateway
11. To send Sensors data from Transmitter Node to Base Receiver using RF Gateway – 433 MHz

12. To send Sensors data to Mobile using GSM Gateway and display it on Mobile by SMS
13. To detect Sensors data Location using GPS Gateway and control it using LoRaWAN Server
14. To send Sensors data to Mobile and display them in Mobile App

15. To send Sensors data to Cloud and display them on Website page
16. To send Sensors data to MySQL Cloud Server and then store and export it in xls file
17. To send Sensors data to Local Host Server, store and export it in xls file
18. To send Sensors data to Local Host Server and Display on website html page
19. To send Sensors data from Transmitter Node to LoRaWAN Cloud Server
20. To export Sensors data from LoRaWAN Cloud Server to xls file

21. To analyse, monitor and Draw Graph of Sensors Data using Smart Dashboard Remotely
22. To make Smart Dashboard for Remote Monitoring and Analysis

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