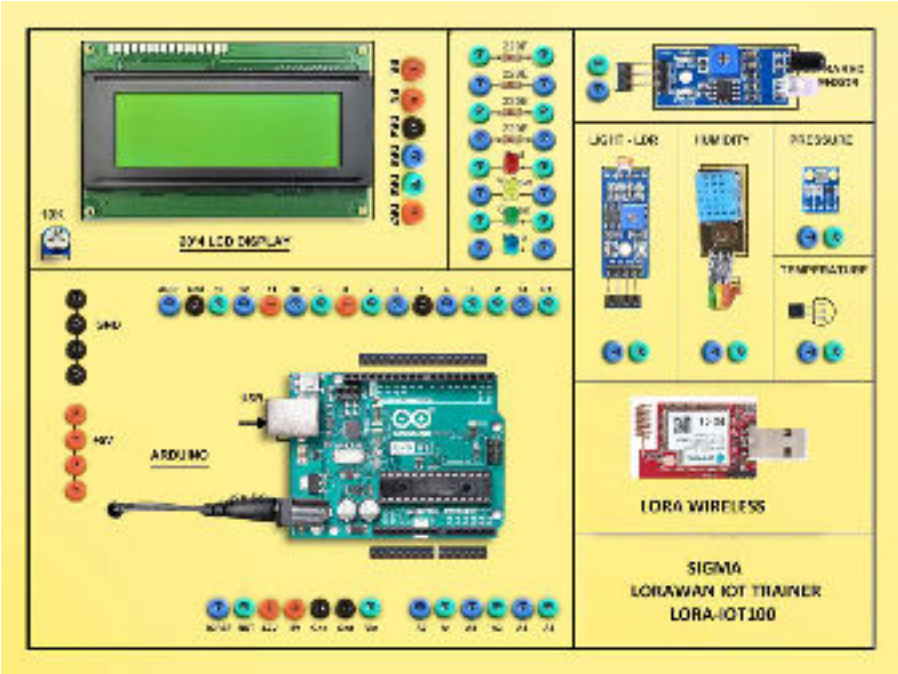
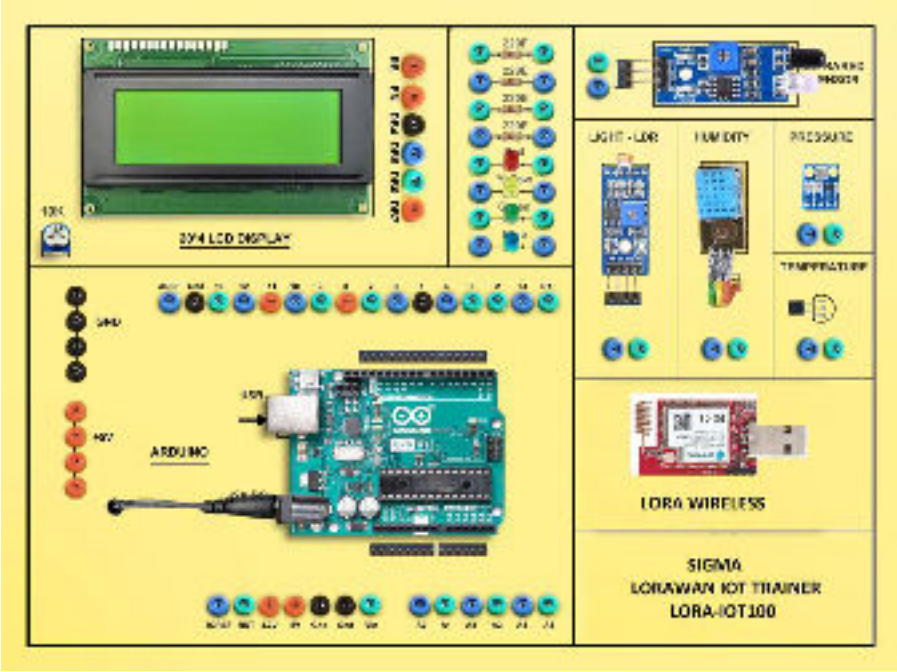
LORA WIRELESS TRANSMITTER RECEIVER IOT TRAINER

MODEL- LORA-IOT100



Transmitter



Receiver

This trainer has been designed with a view to provide practical and experimental knowledge of Wireless Internet of Things (IOT) with LoRa Module with Arduino 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 Microcontroller Board

1. ATMega328P Processor - AVR CPU at up to 16 MHz
2. 8 Bit AVR® RISC Based microcontroller
3. Memory : 32KB Flash, 2KB SRAM, 1KB EEPROM
4. Power On Reset (POR)
5. 2 x 8 Bit Timer/Counter
6. 1 x 16-bit Timer/Counter
7. USART, SPI, I2C
8. PWM Channels : 6 Nos.
9. Digital Input / Output pins : 14 Nos (of which 6 provide PWM output)
10. 16 MHz Ceramic Resonator
11. USB Port
12. 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

LORA Transmitter and Receiver Module

1. Ultra-long RF range
2. Support LoRaWAN v1.0.3 protocol
3. Support Peer-to-Peer protocol
4. TCXO crystal to ensure RF performance on low temperature
5. Spring RF Antenna
6. World-wide unique OTAA keys.
7. AT Command via UART-TTL interface
8. Firmware upgradable via UART interface
9. Open Source Mobile App for LoRaWAN signal detect and GPS tracking.
10. CPU : 32-bit 48 MHz
11. Flash : 256KB
12. RAM : 64KB
13. Input Power Range : 5 V
14. Frequency Range : 150 MHz to 960 MHz
15. Maximum Power : +22 dBm constant RF output
16. High sensitivity : -148 dBm

E. Hardware:

1. 20 X 4 - LCD Display
2. LEDs and Different Resistors
3. 2 mm interconnection Sockets

F. 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 Board
2. To understand Operating System for Arduino Board
3. To understand Communication Protocols
4. To understand USB Interface for Arduino Board
5. To understand that how to connect 20 x 4 LCD Display to Arduino Board

6. To make LED blink
7. To connect LCD Display
8. To measure Humidity using Humidity - DHT11 Sensor
9. To measure Air Humidity and Temperature using DHT11 Sensor
10. To measure Air Quality using Air Quality Sensor
11. To measure Temperature of Soil using Soil Temperature Sensor - DS18B20
12. To measure wetness of Leaf using Leaf Wetness Sensor - Rain Detector Sensor
13. To measure Moisture of soil using Soil Moisture Sensor
14. To measure Ambient Light using LDR Light Sensor

15. To send Sensors data from Transmitter Node to Base Receiver using LoRa Gateway

Contact us

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