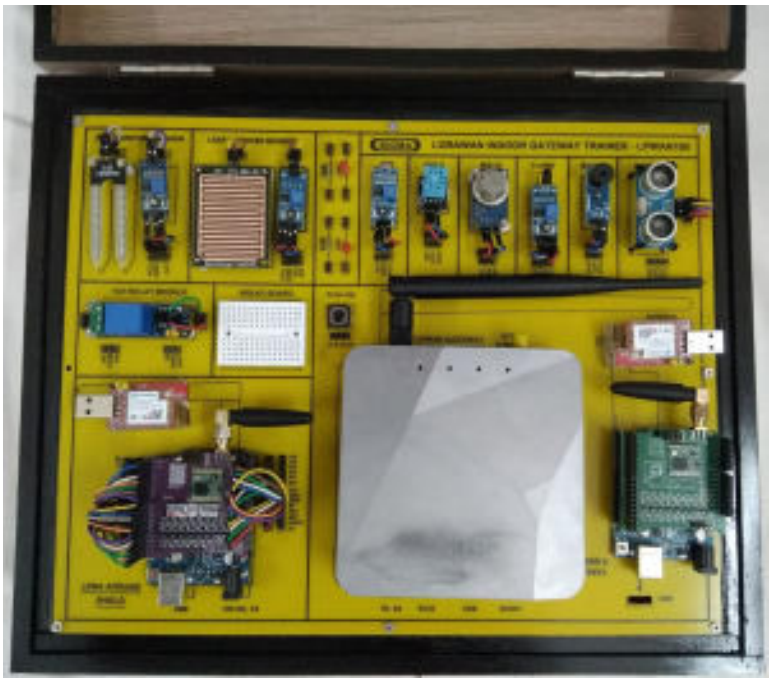
# 11. LORAWAN RASPBERRY GATEWAY TRAINER

## MODEL-LORA-LORA-RASPGW100

## SPECIFICATIONS



This trainer has been designed with a view to provide practical and experimental knowledge of Internet of Things (IOT) with LoRaWAN Gateway Communication Sensors programing with Raspberry IOT Boards with LoRaWAN Gateways.

## 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. Raspberry Pi 4 : 2 No
2. LoRaWAN Gateway Module – HAT : 1 No
3. 5 dbi LoRa Antenna for 865MHz : 2 No

### C. Sensors

1. Flame Sensor : 1 No
2. Photosensitive LDR Sensor : 1 No
3. Temperature and Humidity Sensor : 1 No
4. Ultrasonic Distance Sensor : 1 No

### G. Features

1. Integrates Semtech SX1302/3 normal band and SX1250 radio RF frond-end chip
2. Onboard PA and LNA, features +26dBm emit power and -141dBm high sensitivity receiving gain
3. The SX1303 supports Fine Timestamp and network positioning based on time difference of arrival (TDOA)
4. 52-pin Mini-PCIe socket for easy integration into various embedded systems
5. Onboard 4 LED indicators for module operating status
6. Comes with development resources and manual (example in C)
7. Standard Raspberry Pi 40 PIN GPIO extension header, supports Raspberry Pi series boards
8. Incorporate L76K module with GPS/BD support, provide accurate clock and location info for gateway module

## I. Micro Controllers and other parts

| | | |
|---|---|---|
| 1. | USB Cables | : 2 No |
| 2. | Flame Sensor | : 1 No |
| 3. | Photosensitive LDR Sensor | : 1 No |
| 4. | Temperature and Humidity Sensor | : 1 No |
| 5. | Ultrasonic Distance Sensor | : 1 No |
| 6. | White LED | : 5 Nos. |
| 7. | Audio Buzzer | : 1 No |
| 8. | Relay Module | : 1 No |
| 9. | Jumper Wires Male to Male | : 20 Nos |
| 10. | Jumper Wires Female to Female | : 20 Nos |
| 11. | Jumper Wires Female to Male | : 20 Nos |

## 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 |

## EXPERIMENTS

1. To explain theory of All Micro Controller Boards, All Wireless Gateways and All Sensors Parts
2. To measure all Sensors data using Raspberry Board
3. To setup and configure LoRaWAN Cloud Server
4. To send live Sensors Data between two Arduino Lora Shield using Peer-to-Peer Lora Communication
5. To send live Sensors Data between two Lora USB Modules using Peer-to-Peer Lora Communication
6. To send live Sensors Data to LoRaWAN Cloud and View on Website Page Dashboard
7. To send live Sensors Data to LoRaWAN Cloud and View on Android Mobile App
8. To send live Sensors Data to LoRaWAN Cloud and save on MySQL Cloud Server and then store and export it in xls file
9. To send Sensors data to Local Host Server, store and export it in xls file
10. To send Sensors data to Local Host Server and Display on website html page

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