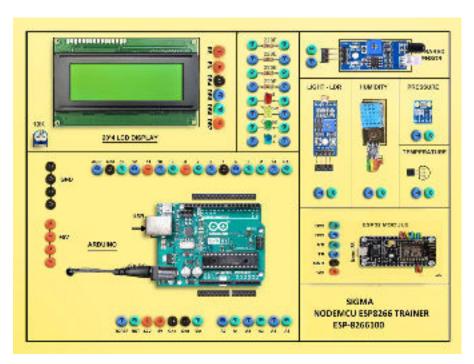
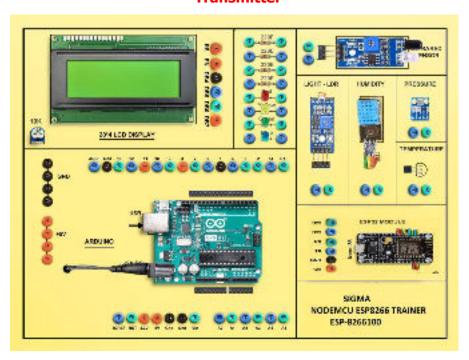


NODEMCU ESP8266 WIFI WIRELESS TRANSMITTER RECEIVER IOT TRAINER MODEL- ESP8266-100



Transmitter



Receiver

This trainer has been designed with a view to provide practical and experimental knowledge of Wireless Internet of Things (IOT) with NodeMCU ESP8266 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 and Hardware:

NodeMCU ESP8266 Module

- 1. Single or Dual-Core 32-bit LX6 Microprocessor with clock frequency up to 240 MHz.
- 2. 520 KB of SRAM, 448 KB of ROM and 16 KB of RTC SRAM.
- 3. Supports 802.11 b/g/n Wi-Fi connectivity with speeds up to 150 Mbps.
- 4. Support for both Classic Bluetooth v4.2 and BLE specifications.
- 5. 34 Programmable GPIOs.
- 6. Up to 18 channels of 12-bit SAR ADC and 2 channels of 8-bit DAC
- 7. Serial Connectivity include 4 x SPI, 2 x I2C, 2 x I2S, 3 x UART.
- 8. Ethernet MAC for physical LAN Communication (requires external PHY).
- 9. 1 Host controller for SD/SDIO/MMC and 1 Slave controller for SDIO/SPI.
- 10. Motor PWM and up to 16-channels of LED PWM.
- 11. Secure Boot and Flash Encryption.
- 12. Cryptographic Hardware Acceleration for AES, Hash (SHA-2), RSA, ECC and RNG.

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 NodeMCU ESP8266 Wifi Gateway

Contact us

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