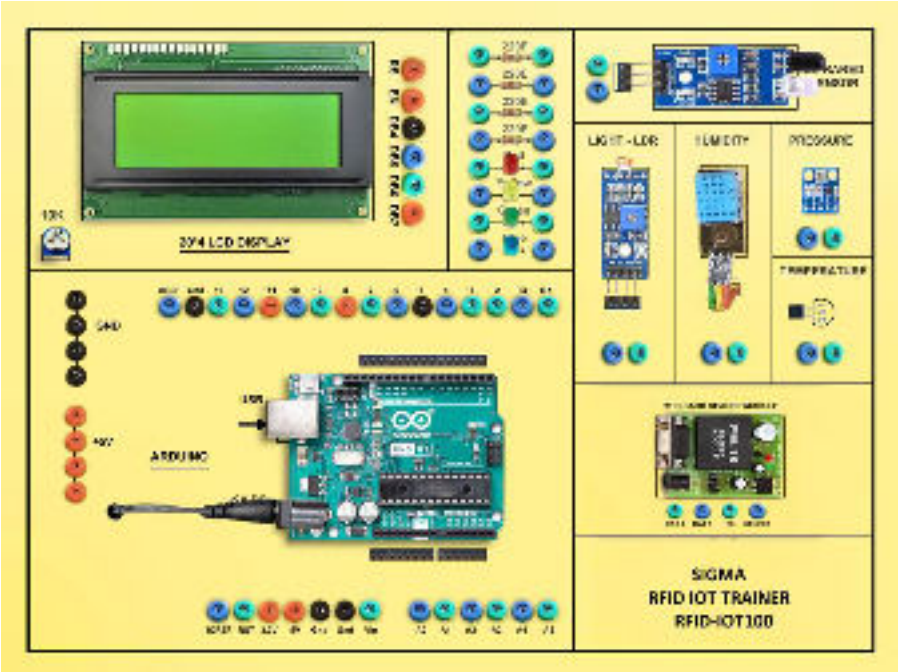
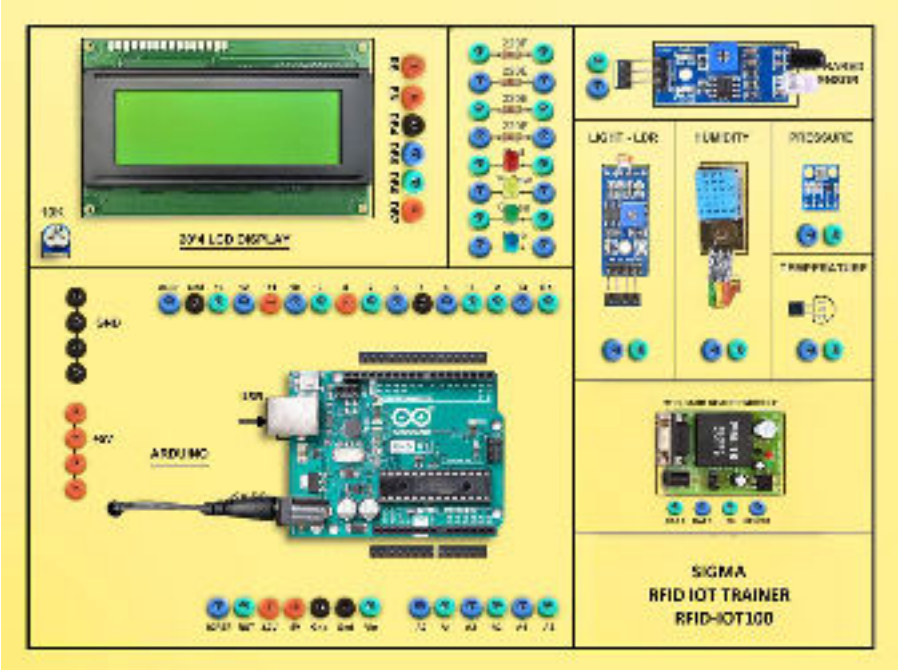
NEAR FIELD COMMUNICATION IOT TRAINER

MODEL-NFC-IOT100



Transmitter



Receiver

This trainer has been designed with a view to provide practical and experimental knowledge of Wireless Internet of Things (IOT) with NFC RF Modules 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

C. Modules

NFC RFID Card Reader Module

1. Easy to change mode : with a small SMD toggle Switch
   It is very easy to change among IIC, SPI and HSU Modes
2. Longer Reading Distance : 5 to 7 cms
3. I2C / UART : 3.3V to 24V TTL
4. SPI : 3.3V TTL with 100-ohm resistors in series
5. On-Board Level Shifter : Standard 5V TTL for I2C and UART, 3.3V TTL SPI
6. Built in PCB Antenna
7. Work as RFID Reader / Writer
8. Work as 1443-A Card or a Virtual card
9. Support II2, SPI and HSU (High-Speed UART)
10. Work in NFC Mode or RFID reader/writer Mode
11. Exchange Data with other NFC Devices such as a smartphone

D. Hardware:

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

E. 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 understand theory of NFC RFID Sensor
7. To Read and Write data on NFC RFID Cards
8. To design an RFID based Attendance System using Arduino
9. To Exchange Data with other NFC Devices such as a smartphone

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