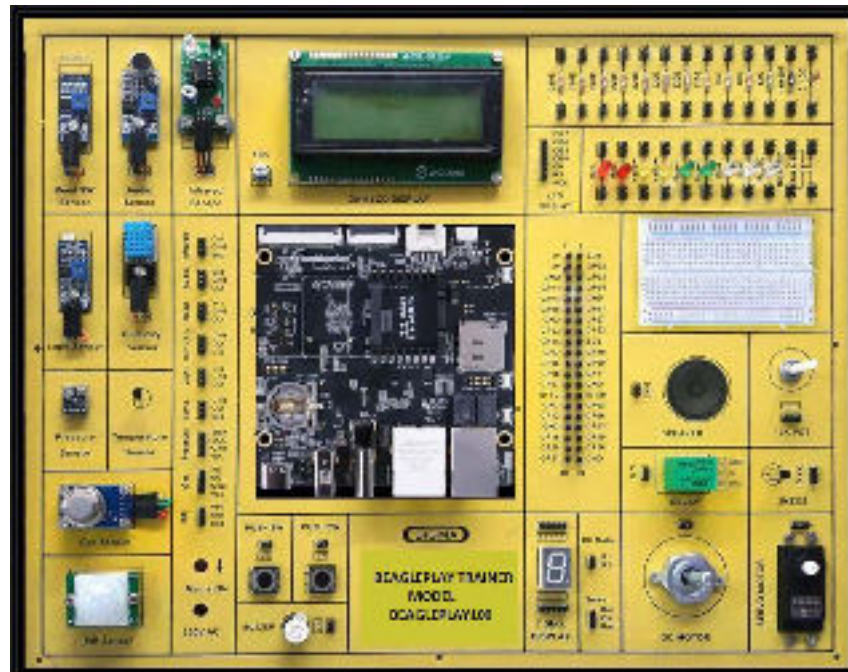# SIGMA

BEAGLEPLAY MICRO CONTROLLER TRAINER

MODEL-BEAGLEPLAY100

SPECIFICATIONS

This trainer has been designed with a view to provide practical and experimental knowledge of Internet of Things (IOT) with Sensors programing with BeaglePlay 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. BeaglePlay Microcontroller Board

1. Processor   : TI AM6254 (multicore A53s with R5, M4s and PRUs)
2. PMIC   : TPS6521901
3. Memory   : 2GB DDR4
4. Storage   : 16GB eMMC
5. WiFi   : WiFi 6 and BLE, Antennas: 2.4GHz & 5GHz
6. BLE/SubG

   CC1352P7 M4+M0 with BeagleConnect firmware

   BeagleConnect Wireless enabled

   Antennas: 2.4GHz & SubG IEEE802.15.4 software defined radio (SDR)
7. Ethernet

   Realtek RTL8211F-VD-CG Gigabit Ethernet phy

   Connector: integrated magnetics RJ-45
8. USB type-C
9. Power supply : 5V @ 3A
10. Output: N/A (USB-C DRP Not supported)
11. HDMI
12. microSD
13. USB 2.0 type-A (480Mbps)
14. mikroBUS connector - I2C,UART, SPI, MCAN, MCASP, PWM, GPIO
15. Grove connector - I2C, UART, ADC, PWM, GPIO
16. CSI connector compatible with BeagleBone AI-64, Raspberry Pi Zero / CM4 (22-pin)

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:

1. 20 X 4 - LCD Display
2. 1 Channel Relay board
3. 7 Segment Display
4. Different Resistors
5. Red, Green, Yellow LED
6. 10K Pot
7. Push Switch – 2 Nos
8. Audio Buzzer Board
9. Breadboard - 400 Points
10. 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 BeaglePlay Board
2. To understand Operating System for BeaglePlay Board
3. To understand Communication Protocols
4. To understand USB Interface for BeaglePlay Board
5. To understand that how to connect 20 x 4 LCD Display to BeaglePlay Board

6. To understand theory of Air Humidity and Temperature DHT11
7. To understand theory of Air Quality - MQ135
8. To understand theory of Soil / Water Temperature Sensor
9. To understand theory of Leaf Wetness Sensor - Rain Detector Sensor
10. To understand theory of Soil Moisture Sensor
11. To understand theory of Air Ambient Light Sensor - LDR

12. To understand Active Audio Buzzer
13. To understand 1 Channel Relay Board
14. To understand fundamental of DC motor and its driver
15. To understand fundamental of Stepper Motor and its driver

16. To make LED blink
17. To connect LCD Display
18. To measure Humidity using Humidity - DHT11 Sensor
19. To measure Air Humidity and Temperature using DHT11 Sensor
20. To measure Air Quality using Air Quality Sensor
21. To measure Temperature of Soil using Soil Temperature Sensor - DS18B20
22. To measure wetness of Leaf using Leaf Wetness Sensor - Rain Detector Sensor
23. To measure Moisture of soil using Soil Moisture Sensor
24. To measure Ambient Light using LDR Light Sensor

25. To use Audio buzzer for Output signal Alarm
26. To control 1 Channel Relay
27. To operate DC Motor control
28. To operate Stepper Motor

29. To send Sensors data to Website Cloud page using Wifi and Internet
30. To send Sensors data to MySQL Cloud Server and store them
31. To send Sensors data to Local Host Server and Store them on website html page
32. To send Sensors data to Mobile using GSM Gateway by SMS
33. To send Sensors data to Mobile using Android Mobile App
34. To send and display Sensors Data on website Smart Dashboard on a server

Contact us

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