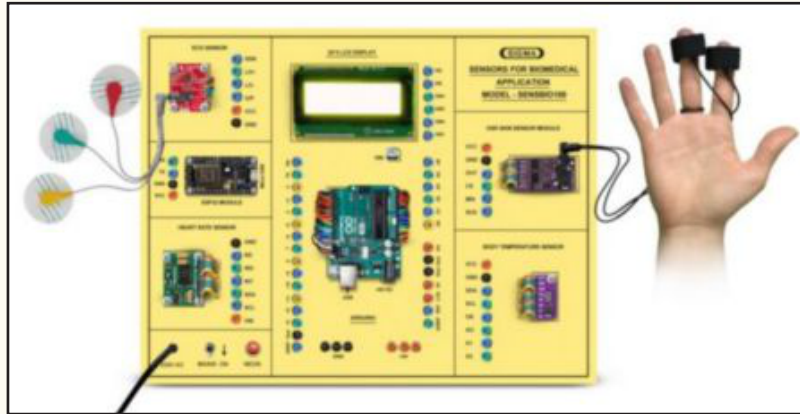




SENSORS FOR BIOMEDICAL APPLICATION MODEL-SENSBIO100

This trainer has been designed with a view to provide practical and experimental knowledge of Biomedical Sensors programming for Internet of Things (IOT) with Arduino IOT Board.



SPECIFICATIONS

1. Hardware

Following Parts are assembled on Single PCB of size - 18 Inch x 15 Inch

1. Arduino Microcontroller Board

1. Arduino Uno Microcontroller board based on the ATMEGA328P
2. 14 Digital Input / Output pins (of which 6 provide PWM output)
3. 16 MHz Ceramic Resonator
4. Flash Memory : 16KB (of which 2KB used by boot loader)
5. USB Port
6. Power Jack – 9V DC, 1A

2. Sensors:

1. Electro Cardio Graph - ECG Sensor - Ad8232
2. Heart Rate Sensor - HR – MAX30102
3. Galvanic Skin Response Sensor - GSR - CJMCU 6701
4. Human Body Temperature Sensor – MAX30205

3. Modules and Hardware:

1. 20 X 4 - LCD Display
2. ESP32 – Wifi Module
3. 2 mm interconnections

Sigma Trainers and Kits
E-113, Jai Ambe Nagar,
Near Udgam School,
Thaltej,
AHMEDABAD - 380054.
INDIA.

Phone(O): +91-79-26852427
Phone(F): +91-79-26767512
Mobile : +91-9824001168
Email : sales@sigmatrainers.com
: drluhar@gmail.com
Web : www.sigmatrainers.com

Dealer:-

2. Accessories

1. USB Cable : 1 No
2. Ethernet Cable : 1 No
3. Micro USB to USB cable for ESP32 : 1 No
4. Required Connecting Electrodes : 1 Set for Each sensor
5. Power Supply Adaptor : 5V, 1A - 1 No
6. Jumper wires : 50 Nos.
7. Pen Drive with Software, Library, Driver, Codes, Soft Copy of Manual and Mobile App : 16 GB
8. Printed Practical Manual : 1 No
9. E-Books for Biomedical IOT Subject : 10 Nos. in PDF Format
10. Mp4 Video Class for Biomedical IOT Subject : 40 Nos
11. Excitation accessories for each sensor

3. Cabinet and PCB

The complete circuit diagram is screen printed on component side of the PCB with circuit and Parts at the same place. The PCB with components on front side is fitted in elegant wooden box having lock and key arrangement. The acrylic cover is fitted on PCB to safeguard parts. It works on 230 V AC Supply.

EXPERIMENTS

A. Theory Experiments for Arduino Board

1. To understand theory and working of Arduino Operating software.
2. To understand Pin and Connection Diagram of Arduino.
3. To understand USB Interface for Arduino.
4. To understand 20 x 4 LCD Display.

B. Theory of ESP32 Wireless Module

5. To understand theory and working of ESP32
6. To understand Operating System for ESP32
7. To understand Pin and Connection Diagram of ESP32
8. To understand USB Interface for ESP32

C. Theory Experiments for Sensors

9. To understand theory and Connection Diagram of ECG Sensor
10. To understand theory and Connection Diagram of Heart Rate Sensor - HR
11. To understand theory and Connection Diagram of Galvanic Skin Response Sensor - GSR
12. To understand theory and Connection Diagram of Human Body Temperature Sensor

D. Practical Experiments

13. To get draw ECG of a person using ECG Sensor and to interpret it
14. To measure Heart Rate of a person using Heart Rate Sensor and to interpret it
15. To measure Galvanic Skin Response of a person using GSR Sensor and to interpret it
16. To measure temperature of a person using Human Body Temperature Sensor and to interpret it

E. Server, Cloud Configuration, IOT Gateway, Nodes and Mobile App Experiments

17. To send different Biomedical Sensors data of a person using Wifi Wireless Node to Main Base IOT Receiver
18. To send and display different Biomedical Sensors data of a person in a server Web Page
19. To send different Biomedical Sensors data of a person to website webpage and store them into MySQL Server
20. To receive and show different Biomedical Sensors data of a person on Android based Mobile App
21. To send and display different Biomedical Sensors data of a person on website Smart Dashboard on a server.