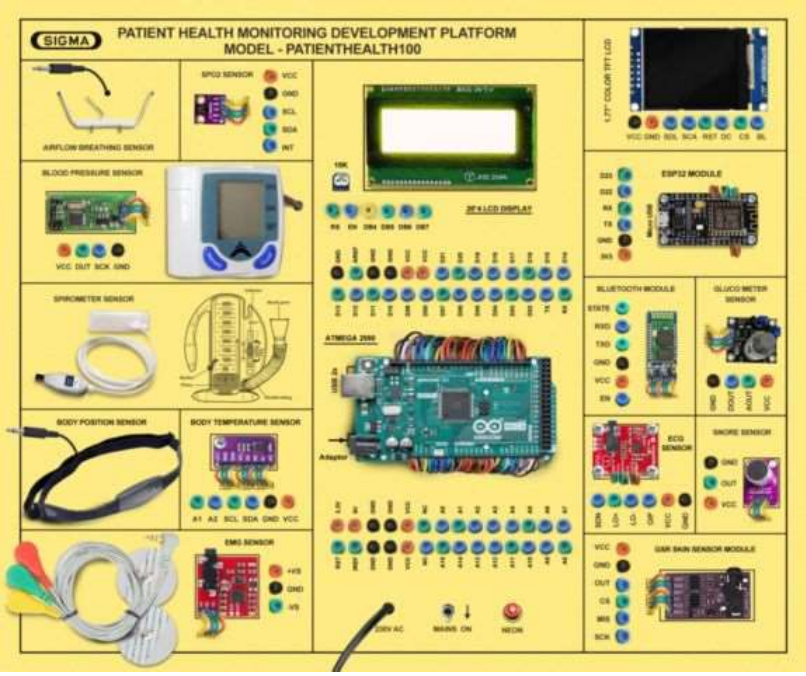
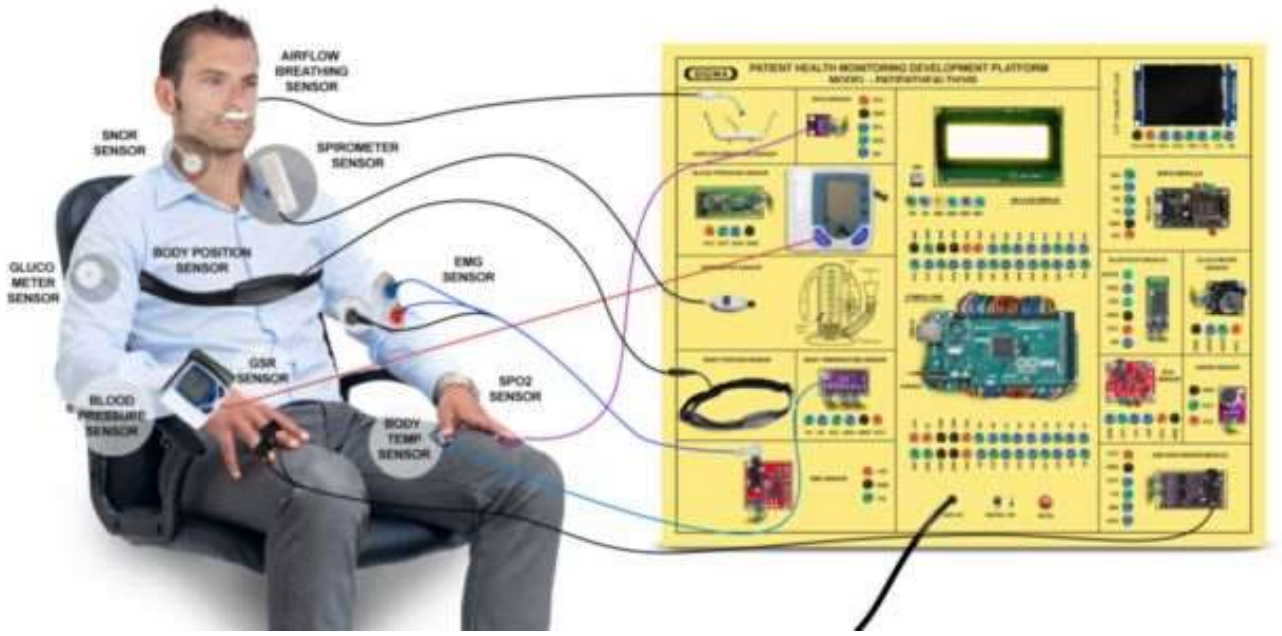
PATIENT HEALTH MONITORING DEVELOPMENT PLATFORM

MODEL-PATIENTHLTH100

SPECIFICATIONS





This trainer has been designed with a view to provide practical and experimental knowledge of IOT Patient Health Monitoring Development Platform using Biomedical Sensors programing 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 Atmega 2560 Microcontroller Board

1. Atmega 2560 Arduino Microcontroller board
2. Operating voltage: 5V
3. Input voltage (recommended): 7-12V
4. Input voltage (limits): 6-20V
5. Digital Input / Output pins : 54 (of which 14 provide PWM output)
6. Analog input pins : 16
7. DC current per I/O pin : 40mA
8. DC current for 3.3V pin : 50mA
9. Flash Memory 256 KB, 8KB used by bootloader
10. SRAM : 8 KB
11. EEPROM : 4 KB
12. Clock Speed : 16 MHz
13. Mini USB Port
14. Power Jack – 9V DC, 2A
15. Maximum 20 different Biometric parameters of a Patient can be measured by this board.

C. Sensors:

1. Electro Cardio Graph - ECG Sensor
2. Galvanic Skin Response Sensor - GSR
3. Human Body Temperature Sensor
4. SPO2 Sensor
5. Airflow Breathing Sensor
6. Blood Pressure Sensor
7. Glucometer Sensor
8. Spirometer Sensor
9. EMG Sensor
10. Body Position Sensor
11. Snore Sensor

D. Modules and Hardware:

1. 20 X 4 - LCD Display
2. 1.8 Inch TFT Colour Display
3. ESP32 – Wifi Module
4. Bluetooth Low Energy 4.0 Module
5. 2 mm interconnections

E. 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, 2A - 1 No
6.	Jumper wires	: 50 Nos.
7.	Pen Derive 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	

EXPERIMENTS

A. Theory Experiments for Arduino Atmega 2560 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.
5. To understand 1.8 Inch TFT LCD Display

B. Theory of ESP32 Wireless Module

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

C. Theory Experiments for Sensors

10. To understand theory and Connection Diagram of ECG Sensor
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
13. To understand theory and Connection Diagram of SPO2 Sensor
14. To understand theory and Connection Diagram of Airflow Breathing Sensor
15. To understand theory and Connection Diagram of Blood Pressure Sensor
16. To understand theory and Connection Diagram of Glucometer Sensor
17. To understand theory and Connection Diagram of Spirometer Sensor
18. To understand theory and Connection Diagram of EMG Sensor
19. To understand theory and Connection Diagram of Body Position Sensor
20. To understand theory and Connection Diagram of Snore Sensor

D. Practical Experiments

21. To get draw ECG waveforms of a patient using ECG Sensor and to interpret it
22. To measure Galvanic Skin Response of a patient using GSR Sensor and to interpret it
23. To measure temperature of a patient using Human Body Temperature Sensor
24. To measure Pulse rate and Body Oxygen level of a patient using SPO2 Sensor
25. To monitor Breathing (Airflow Rate) of a patient using of Airflow Breathing Sensor
26. To measure Blood Pressure of a patient using Blood Pressure Sensor
27. To measure Blood Sugar Glucose level of a patient using of Glucometer Sensor
28. To measure maximum possible exhalation which is called peak expiratory flow (PEF) of a pulmonary function of a patient using of Spirometer Sensor
29. To measure EMG waveforms of a patient using EMG Sensor
30. To observe Body Position of a patient using Body Position Sensor
31. To observer Snore sound level of a patient using Snore Sensor

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