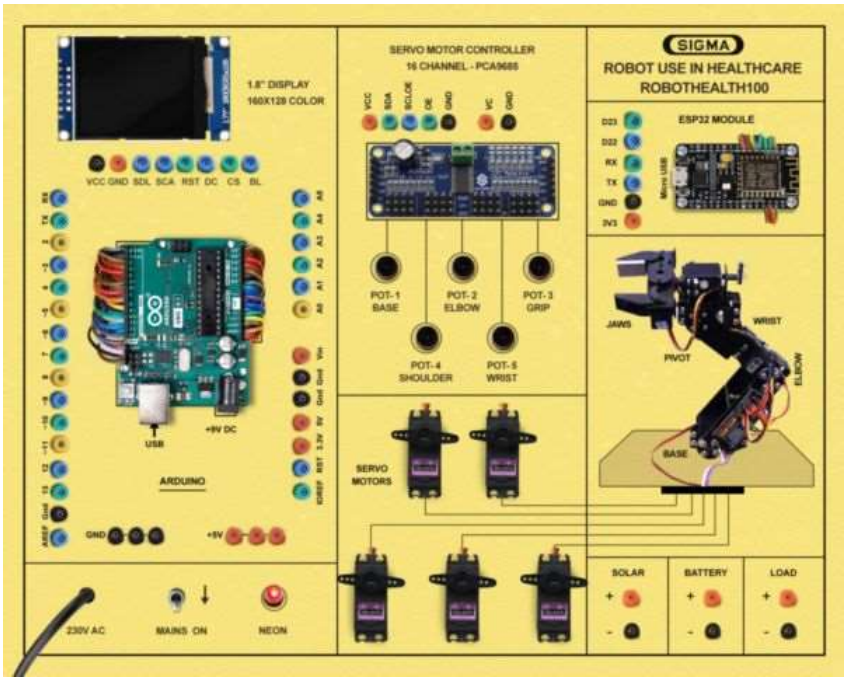
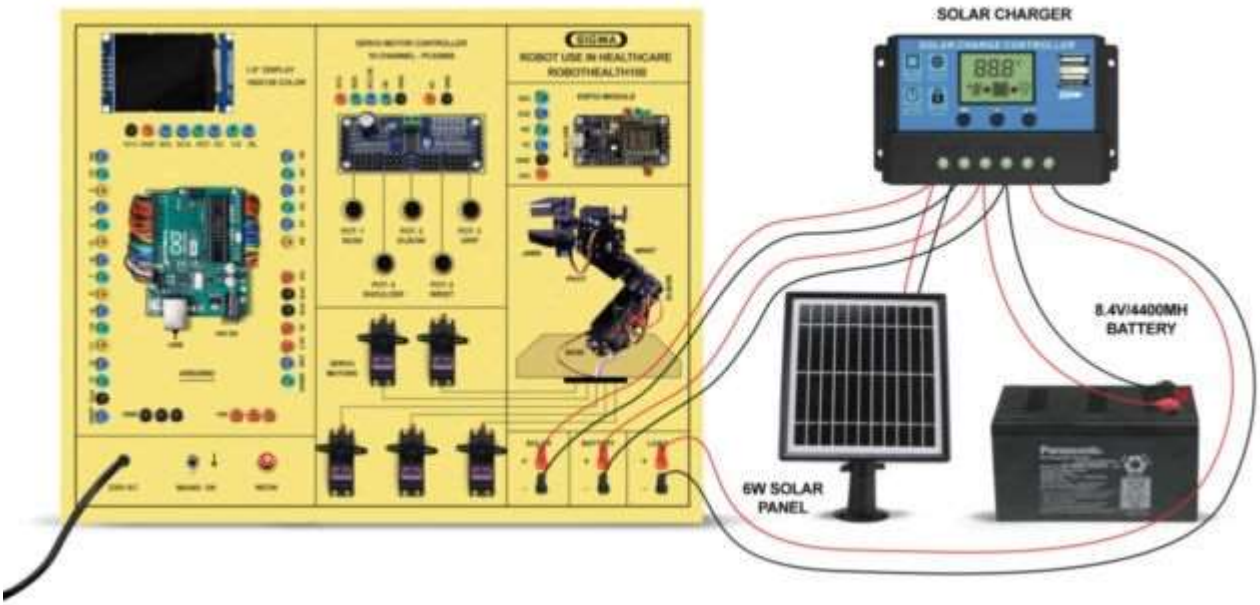
ROBOTS USED IN HEALTHCARE

MODEL- ROBOTHEALTH100

SPECIFICATIONS





This trainer has been designed with a view to provide practical and experimental knowledge of Robots used in healthcare using 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. 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. USB Port
5. Power Jack – 9V DC, 1A

C. Robot Interface:

1. RC Servo Motors consists of 5 degree of freedom (DOF)
2. Base : 0 to 180 Degree
3. Shoulder (1 and 2) : 0 to 180 Degree
4. Elbow : 0 to 180 Degree
5. Wrist : 0 to 180 Degree
6. Grip : 50 to 90 Degree

D. Modules and Hardware:

1. DC Power Supplies : +8.4V
2. Battery Power : 8.4V / 4400mAh
3. Display : 160x128 TFT Color LCD – 1.8 Inch Display
4. ESP32 Wifi Module
5. 20 X 4 - LCD Display
6. 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.	Power Supply Adaptor	: 9V, 1A - 1 No
5.	Jumper wires	: 50 Nos.
6.	Pen Derive with Software, Library, Driver, Codes, Soft Copy of Manual and Mobile App	: 16 GB
7.	Printed Practical Manual	: 1 No.
8.	E-Books for Biomedical IOT Subject	: 10 Nos. in PDF Format
9.	Mp4 Video Class for Biomedical Robot Subject	: 40 Nos

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 20 x 4 LCD Display.
4. To understand 160x128 TFT Color LCD – 1.8 Inch Display.
5. To understand Charger and Battery used for Arduino

B. Theory of Robot

6. To understand Theory and Working of a Robot Mechanism
7. To understand Servo Motors used in a Robot Mechanism
8. To understand different parts used in a Robot Mechanism
9. To understand different movements used in a Robot Mechanism
10. To study how to interface RC Servo motors with Arduino microcontroller
11. To study the concept of Wifi communication
12. To study the concept of Pick and Place Robot
13. To study interface color sensor and study of application like color detection and sorting
14. To charge Battery using Solar Panel to drive Robot Mechanism

C. Practical Experiments

15. To move Base of a Robot by Pot
16. To move Shoulder of a Robot by Pot
17. To move Elbow of a Robot Pot
18. To move Wrist of a Robot by Pot
19. To move Grip of a Robot by Pot
20. To move Base of a Robot by wireless Wifi
21. To move Shoulder of a Robot by wireless Wifi
22. To move Elbow of a Robot wireless Wifi
23. To move Wrist of a Robot by wireless Wifi
24. To move Grip of a Robot by wireless Wifi

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