HEALTHCARE ROBOT

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Abstract: Healthcare Robot is used to monitor patients without any physical contact of medical health care staff. Robots have the capability to move at every surface with controllable speed and self-containing light. Health monitoring system is mounted on a bot which is able to measure oxygen level, beat per minute and temperature and transfer the data on the web. Bot is capable of sending continuous video streaming on the web and through which It can control bot accordingly.

Keywords: Healthcare Robot, ESP32 and Oximeter.

1. INTRODUCTION

The main purpose of this paper is to design the prototype of a health care bot used in the medical field. This paper presents a healthcare robot that consists of four wheels around the body and a health monitoring system which will help the health care workers to examine a particular patient without having a physical contact. Robots will serve as a platform where different sensor components can be added that can be programmed to perform complex actions like temperature, heartbeat, oxygen level measurement [1].

Robot consist of a healthcare system mounted on top of a robot which measures beat per minute, oxygen percentage and temperature with sensors and reflect all the data to the web with the help of a microcontroller. A continuous steaming of the location of the robot is displayed on the web with the help of ESP32 camera and this will also help in controlling the robot accordingly.

Main purpose for representing this healthcare robot is to save the life. Moving Robots serve different tasks and uses in the health care sectors with in the conventional methods and scope of surgical and surveillance and robots are designed to become one of the most important scientific and technological innovations and advancement of the century [2]. In this paper a brief comprehensive overview of most of the readily potential uses and applications of robotics in healthcare amidst this corona virus and pandemic situation.

2. HEALTH CARE ROBOT WORKING

In working of healthcare robot, the camera of ESP 32 records the live streaming and this streaming goes to the microcontroller and microcontroller sends this value to the web through WiFi and this controls the bot from web page and sensor senses the value of temperature, beat per minute and oxygen level according deflect on blink app and the value of sensors and monitors the patients can be recorded.

a) **Working:** The steaming of camera is recorded on web page just below that there are some buttons that control health care robot motion, also there are two sliders to control light and motor speed of the robot. the value of the sensor is recorded. There are four gauges (room temperature, BPM, oxygen level and body temperature). It consists of sensor, motor controller, camera, microcontroller, web to perform the operation as shown in the figure 1.

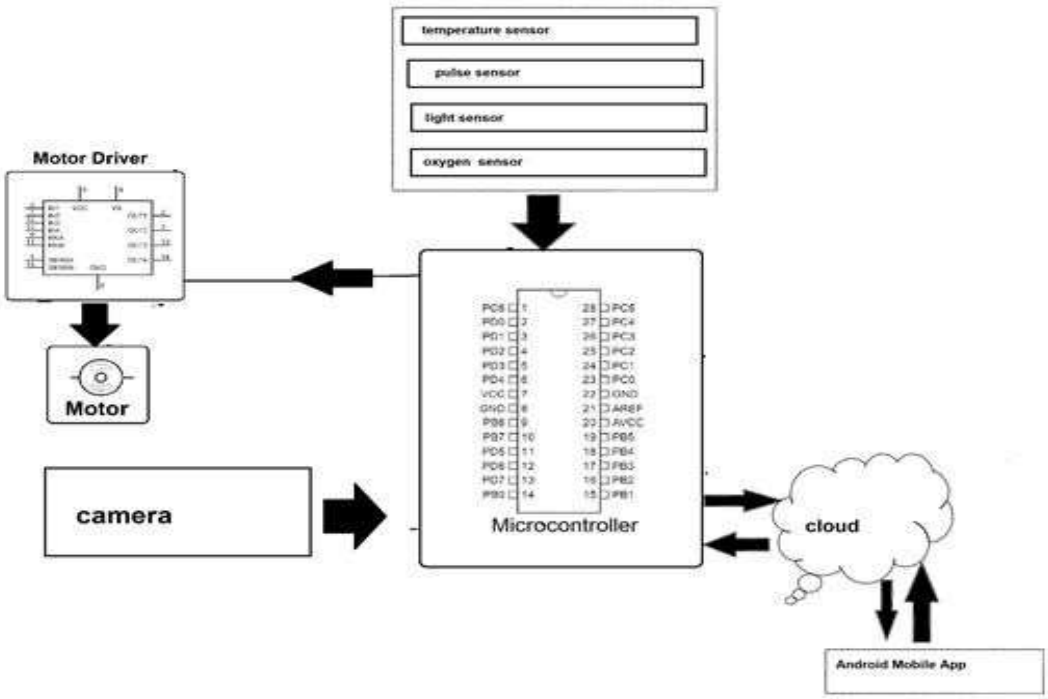

Figure 1. Healthcare Robot Working

functionality. Each component of. Temperature sensor and oximeter fetch the information deflects it's on blink app with the help of microcontroller (ESP8266) and video and control the health robot with the help of ESP32 cam has fetched [3-5].

3. FLOW DIAGRAM

a) Health Monitoring System

Start and sensor went into the continuous and read the value. After fetching the information, it will display and went again in continuous loop and exit. Temperature sensor and oximeter sense the value of temperature, oxygen percent and BPM and the value was fetched by NODEMCU 8266 and with the help of Wi-Fi the value is send to the blink app as shown in figure 2.

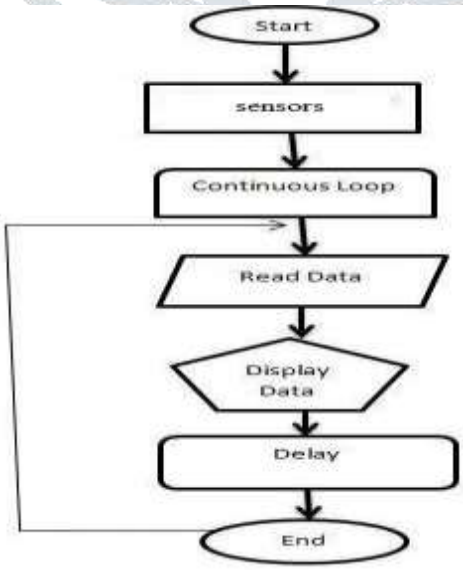

Figure 2. Health Monitoring System

b) Robot Controlling

Start give command from smart phone if moving command is received the it will act according to command and stop. If no command received the program will stop. ESP32 cam which give the platform to control healthcare robot [6] - [7]. In this project, a web page on which we are getting video steaming and there are some buttons to control the movement of healthcare robot. Command is given with the help of web page through Wi-Fi we get a command and according to that ESP32 give command to motor controller as shown in figure 3 [8-11].

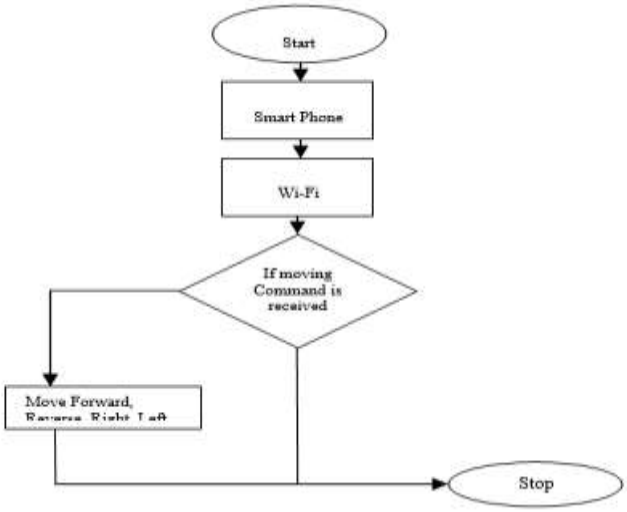

Figure 3. Flow Diagram of Robot Controlling

4. RESULT AND DISCUSSION

This paper covers a robot and mounts a health monitoring system which will help the health care workers to examine a particular patient without having a physical contact [12-13]. The web care of healthcare system is shown in figure 4.

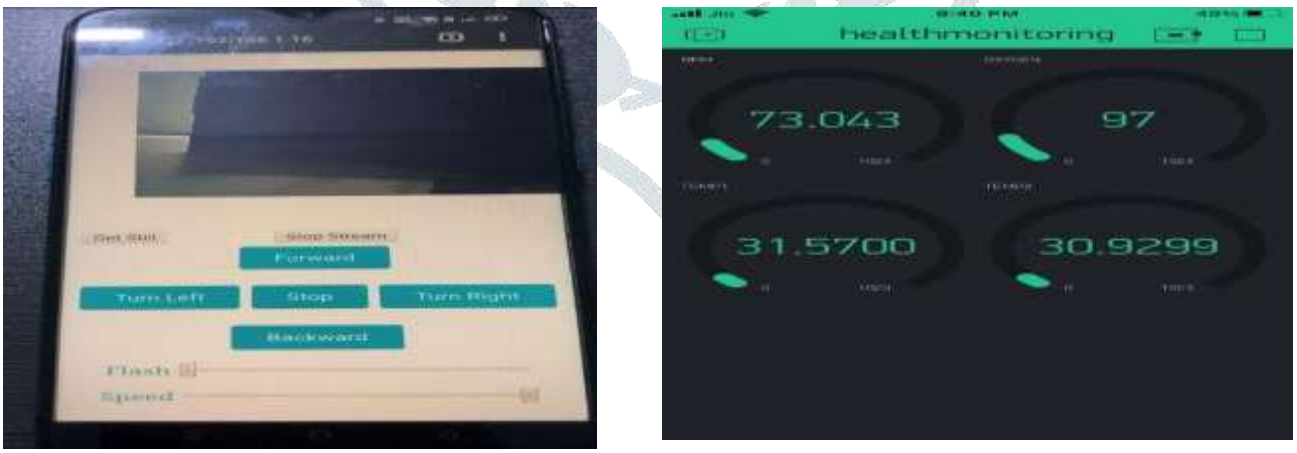

Figure 4. Web Page of Healthcare Robot

5. FUTURE SCOPE

By using new features, health care robots are expected to increase quality, efficiency, accuracy, and safety in the delivery of health services. AI development will provide a new feature in robotics. As expected, the combination of artificial intelligence and robots will make operation faster and more secure. Apart from this, data analytics, development of hardware and software programs will differentiate the range of robots in other healthcare fields. Investment and partnerships between robotic companies

and healthcare providers will improve the Healthcare robotics market [14-15]. However, the cost of robots and the ability to pay for the average person will remain important challenges to deal with.

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