DESIGN OF UNMANNED VEHICLE FOR SMART HEALTH CARE MONITORING SYSTEM

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Abstract: Medical robotics is a new interdisciplinary research field, multidisciplinary collection as a whole, including medicine and robotics. With an improvement in technology and miniaturization of sensors, there have been attempts to utilize the new technology in various areas to improve the quality of human life. One main area of research that has seen an adoption of the technology is the healthcare sector. The people in need of healthcare services find it very expensive this is particularly true in developing countries.

As a result, this project is an attempt to solve a healthcare problem currently society is facing. The main objective of the project was to design a remote healthcare system. It's comprised of three main parts. The first part being, detection of patient's vitals using sensors, second for sending data to cloud storage and the last part was providing the detected data for remote viewing. Remote viewing of the data enables a doctor or guardian to monitor a patient's health progress away from hospital premises. In the proposed system robot setup is implemented to identify the temperature, Pressure and Heartbeat values of concern person. The Internet of Things (IoT) concepts have been widely used to interconnect the available medical resources and offer smart, reliable, and effective healthcare service to the patients. Health monitoring for active and assisted living is one of the paradigms that can use the IoT advantages to improve the patient's lifestyle. In this project, I have presented an IoT architecture customized for healthcare applications. The aim of the project was to come up with a Remote Health Monitoring System that can be made with locally available sensors with a view to making it affordable if it were to be mass produced.

Hence the proposed architecture collects the sensor data through Arduino microcontroller and relays it to the cloud where it is processed and analyzed for remote viewing.

Keywords: Batterycharger, constantcurrent(CC),constantvoltage (CV), state of charge(SOC).

INTRODUCTION

Education system plays a major role in describing the innovative ideas to the students. In recent years, the definition of robot is generally used to mean an unmanned system or automation, as often seen in industrial applications. Generally, a robot is used to be shaped like humans, and referred to as machines and electric systems were capable of performing similar actions as humans. With the technological advancements in robotics field, efforts are being taken in researching, designing and development of robots for different practical purposes.

Robots designed to assist human in their work and reduced human efforts. Nowadays, robots are designed to mimic human behaviour and perform tasks similar to human. Many research companies are developing robotic arm for performing basic functions like human arm. Among different functions, writing skills is one of function. The proposed robotic arm can be used by physically challenged person for writing operation

The main aim of developing the proposed system is to facilitate the physically challenged persons to write what they speak and also this design can be used in many other applications such as data accounting in industries can be done through wireless communication from one place to another. This reduces time and efforts of the workers.

BLOCK DIAGRAM

The design of unmanned vehicle for smart health care monitoring system consist of temperature sensor, pressure sensor, heartbeat sensor, relay driver and LCD display.
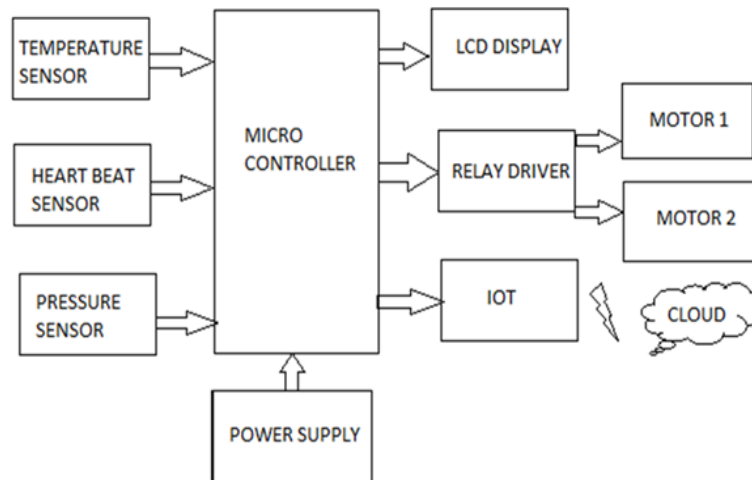
Figure Block Diagram

This paper explains about patient monitoring system which is a web application designed to aid medical professionals keep track of their patient's health, activities and environment with the help of robot. The increase in the elderly population will put a strain on the current healthcare system. A system such as this will reduce this strain by allowing nurses and doctors to efficiently keep track of multiple patient's status. This paper provided shows how principles and methodologies are achieved between patient, robot and doctor to further explain how the methods are being uploaded in IOT medium.The main objective of the experiment was successfully achieved. All the individual modules like Heartbeat detection module, pressure and Temperature are viewed using the sensors.The designed system modules can further be optimized and produced to a final single circuit. More important fact that came up during project design is that all the circuit components used in the remote health detection system are available easily.With the development in the integrated circuit industry, Micro Electro Mechanical Systems (MEMs) and microcontrollers have become affordable, have increased processing speeds, miniaturized and power efficient. This has led to increased development of embedded systems that the healthcare specialists are adopting. These embedded systems have also been adopted in the Smartphone technology. And with increased internet penetration in most developing countries through mobile phones, and with use of Internet of things (IoT) will become adopted at a faster rate. The Remote Health Care system utilizes these concepts to come up with a system for better quality of life for people in society. From an engineering perspective, the project has seen concepts acquired through the computer science and embedded study period being practically applied. The Electric circuit analysis knowledge was used during design and fabrication of the individual modules. Electromagnetic fields analysis used in the wireless transmission between microcontrollers and Software programming used during programming of the microcontrollers to come up with a final finished circuit system.

CONCLUSION

The Wireless control is one of the most important basic needs for all the people all over the world. But unfortunately the technology is not fully utilized due to a huge amount of data and communication overheads. Generally many of the wireless- controlled robots use RF modules. But our project for robotic control makes use of Android mobile phone which is very cheap and easily available. The available control commands are more than RF modules. For this purpose the android mobile user has to install a designed application on her/his mobile. Then he/she needs to turn on the Bluetooth in their mobile. The wireless communication techniques used to control the robot is nothing than Bluetooth technology. User can use several commands like move reverse, forward, move left, move right using these commands which are given from the Android mobile. Robot has a Bluetooth receiver unit that receives the commands and move left, move right using these commands which are given from the Android mobile and send it to the Arduino circuit to control the motors. The Arduino UNO then transfers the signal to the motor driver IC's to operate the motors.

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