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Wireless Body Sensor Network Using Wearable Health Monitoring Gadget

V Parthasaradi¹, S Chitra², N Atshaya³

Assistant Professor and Head, Department of Electronics and Communication Engineering, E.G.S Pillay Engineering College, Nagapattinam, India¹.

Assistant Professor, Department of Electronics and Communication Engineering, E.G.S Pillay Engineering College, Nagapattinam, India².

PG student, Department of Electronics and Communication Engineering, E.G.S Pillay Engineering College,
Nagapattinam, India ³

ABSTRACT: Monitoring your beloved ones becomes a difficult task in the modern day life. Keeping track of the health status of the patient at home is a difficult task. Especially old aged patients should be periodically monitored and their loved ones need to be informed about their health status from time to time while at work. So we propose an innovative system that automated this task with ease. Our system puts forward a smart patient health tracking system that uses Sensors to track patient health and uses internet to inform their loved ones in case of any issues. Our system uses temperature as well as heartbeat sensing to keep track of patient health. The sensors are connected to a microcontroller to track the status which is in turn interfaced to an LCD display as well as Wi-Fi connection in order to transmit alerts. If system detects any abrupt changes in patient heartbeat or body temperature, the system automatically alerts the user about the patient's status over IOT and also shows details of heartbeat and temperature of patient live over the internet. Thus IOT based patient health tracking system effectively uses internet to monitor patient health stats and save lives on time.

KEYWORDS — WIFI Connection, IOT, Health Tracking System.

I.INTRODUCTION

In this project, the research is about an IoT-based health monitoring system. In particular, for COVID-19 patients, high blood pressure patients, hypertension patients, diabetic patients, etc., in a country territory, in rural areas, the number of doctors is not exactly the same as in urban areas. Medical equipment is not readily available in rural areas, except for government medical center. The percentage of patients in these clinics is greater than that in government medical facilities. Similarly, the equipment has, for the most part, ended. As a result, if an emergency situation arises, this hardware component will send a report to the physicians or medical professionals as soon as possible. The remaining work will be done by doctors based on their reports.

II .OBJECTIVE

This project helps to monitoring the health issue of the person and continously intimating the information of the person .For example heart rate, blood pressure and oxygen level etc...

III. LITERATURE SURVEY

The primary function of this system is to monitor the 3 health parameters of a patient. We have monitored the temperature, Humidity, and Heart Beat of the Patient. The Data collected by these sensors is sent to the Microcontroller. The hiMicrocontroller then transmits the data to the user in the form of SMS. Here we are using the GSM modem in order to transmit the information.

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From the transmitter, the recordings of patient health parameters are sent as an SMS to the caretaker or the expert or a doctor which has been given as the recipient. Not only do we send the information through the GSM module as SMS, but we also display the readings on LCD. And when the conditions go abnormal then we sense those values and then alarm the people around by blowing the alarm and also sending by sending an urgency SMS.

V. METHODOLOGY

The W-BAN consists of three categories of sensing devices, which are the heartbeat sensors as depicted in the body temperature sensors and the blood pressure sensor as demonstrated.

The heartbeat sensor data indicates the regularity of the heartbeats, which can also reflect the myocardialactivities. Such sensors have been commonly applies for monitoring patients with heart disease. The heartbeat sensor provides a simple way to study theheart's function, it monitors the flow of bloodthrough the ear lobe. As the heart forces bloodthrough the blood vessels in the ear lobe, the amount of blood in the ear changes with time. The sensorshines a light lobe (small incandescent lamp) through the ear and measures the light that is transmitted. The clip can also be used on a fingertip or on the webof skin between the thumb and index finger.

The temperature sensor in the circuit will read the temperature from the surroundings and shown the temperature in Celsius (degrees). The LM35 is aWan et al. EURASIP Journal on Wireless Communications and Networking.

The blood pressure sensor is a non-invasive sensordesigned to measure human blood pressure. Itmeasures systolic, diastolic, and mean arterial pressure utilising the oscillometric technique. Monitoring blood pressure at home is important formany people, especially if someone has high blood pressure. Blood pressure does not stay the same all the time.

Arduino Complier: Arduino language is a subset of c/c++, where you can also use assembly for ultra-low level code.when saying programming on Arduino, in fact you don't program the Arduino board itself, but the microcontroller inside the board. For example, the Arduino Uno has a Atmega328p microcontroller.

VI. ADVANTAGES

- Lower power dissipation and generally greater energy efficiency.
- Higher reliability and greater physical ruggedness.
- Extremely long life.

VII. APPLICATIONS

- Highly automated manufacturing processes, resulting in low per-unit cost.
- Lower possible operating voltages, making transistors suitable for small, battery-powered applications.
- No warm-up period for cathode heaters required after power application.
- Lower power dissipation and generally greater energy efficiency

VIII.FUTURE SCOPE

The future work of the project is very essential in order to make the design system more advanced. In the designed system the enhancement would be connecting more sensors which measures various health parameters. We can also add a GPS module in IoT based health monitoring system using Arduino and Wi-Fi module. The GPS module will find out the location or position of the patient using longitude or latitude received. Then it will sent the location to the cloud using Internet Of Things and then doctors can find out the position of the patient in case they have to take some preventive action or nearest hospital will be informed automatically using GPS and ambulance will be sent to the patient. And establishing a Wi-Fi-mesh network will also increase the communication range.

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IX. CONCLUSION

With the wide use of internet, this work is concentrated to execute the internet technology to establish a system which would communicate through internet for better health. Internet of Things rules the whole world in various fields, mainly in health care sectors. Hence the present work is done to design an Internet of Things based smart patient health tracking system using an Arduino microcontroller. In this, pulse rate sensor is used to detect the heart beat and temperature sensor to read the temperature and sends the data to the cloud using internet. This information is also sent to the LCD display, so patient can easily know their health status. During critical situations to alert the doctor, the warning message is sent to the doctor's phone and at the same time buzzer turns to alert the care taker. The doctor can view the sent data by logging the specific website or IP address. Hence continuous patient monitoring system is designed.

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