

IOT BASED REMOTE HEALTH MONITORING SYSTEM

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ABSTRACT

As the technology changing every year so, there have been an attempts to utilize the new technology in various areas to improve the quality of human life. One of the major field of research that has seen an adoption of the technology is the healthcare sector. As a result, our project is an attempt to solve a healthcare problem currently people are facing. The main objective of our project is to design a remote healthcare system. It covers of three main parts. The first part is, detection of patient's condition with the proposed system, second is to storing data on cloud storage and the last part is to provide the data for remote viewing. Remote viewing of the data enables a doctor or guardian to monitor a patient's health progress from anywhere. In this project, we have presented an IoT architecture customized for healthcare applications. The main motive of this project is to come up with a Remote Health Monitoring System that will made with locally available sensors with a view to making it affordable for everyone.

Keywords: IoT; remote healthcare system; cloud

I. INTRODUCTION

IoT is a promising field, which is revolutionizing the society by integrating the advances in wireless networking with miniaturized micro, Nano sensors, devices, actuators, and embedded microprocessors/controllers to meet the demands of wide range of applications existing in the world. The concept of the wireless sensor networks is purely based on the following simple equation. Sensing + Processing + Transfers and receiving = numerous applications. Based on the different types of applications, smart nodes, smart sensors and their communication, networking, construction varies in IoT environment. The IoT environment is incomplete without the cloud to access sensed data for further processing, decision-making in an efficient manner. A remote healthcare monitoring system is an extension of a hospital medical system where a patient's vital body state will be monitored remotely but in the smaller version with the approximate similar efficiency. Earlier these disease detection systems were only available in hospitals, they are very huge, bulky, and with the complex circuit system which required high power consumption and expert skills for the operation. Constant development in semi-conductor technology industry have led to sensors and microcontrollers that are smaller in size, faster in operation, low in power consumption and affordable in cost.

II. INTERNET OF THINGS FOR HEALTHCARE

IoT is one of the important fields, which has been guessed as one of the promising technology drivers for automation and control in almost every industry. It has widely been researched over the past couple of years. IoT implemented health-monitoring systems for rural areas have tremendous influence over conventional healthcare systems. The cost of medical healthcare is rising and even higher for chronic diseases, which leaves a serious impact on the people's life. The population of elderly people is increasing continuously, which makes an impact on medical facilities or services. Various advantages of IoT have been seen in the various healthcare sector in the form of wearable devices and medical applications. Various hospitals use these IoT machines to monitor the location of medical service teams, personnel and patients. An IoT based e-Healthcare system lets medical practitioners carry information with them anywhere they go through apps on their mobile devices. This system helps them to provide a better treatment and observation of the patients. Any healthcare system designed for remote monitoring must ensure continuous data analysis to support the patient efficiently with provision of maximum diagnostic data through sensors. Remote monitoring not only reduces the round trip visit to doctors but also helps in emergencies. This following service is useful for aged or chronically ill patients who would like to avoid a long hospital stay. Number of wireless sensors and hardware can be used to gather and transmit data signals, which are collected, and the processor will be programmed in such a manner so they are able to send and receive data and alerts automatically to analyze the sensor's data. All attached sensors provide data in a specific format, which is unstructured and challenging to manipulate and understand. Therefore, there is a demand for a complex and Hybrid Database Management System (DBMS). Real-

time, long-term, remote monitoring, miniature, wearable sensors. Long battery life of designed device. Assistance to the aged and chronic patients. The system should be easy to use with minimal buttons.

III. PROPOSED METHOD

The main idea of the proposed system is to design a Patient Monitoring System which will able to establish two-way communication i.e. not only the patient’s data will be sent to the doctor through SMS and email on emergencies, but also the doctor can send required suggestions to the patient or guardians through SMS or Call or Emails. In addition, this system helps Patient itself or guardian can able to track patient’s location at any point in time through Google Maps, which would enable to send medical services in case of an emergency for non-bed ridden patient. In this paper, the above-proclaimed issues is been marked by the proposed IoT based e-healthcare monitoring system for detection and estimation of general health profile of a patient. Our proposed Iot based health monitoring system is based on a remote e-health monitoring system that consist of a portable sensing unit comprising of Pulse detection, ECG, Body temperature and blood pressure etc. The system establish a voice communication between a patient and medical practitioner and has the features of storing and processing the sensed data locally for storage and diagnosis of the patient. The system is capable of working online modes so that it can be use efficiently in Internet connected areas.

IV. SYSTEM OVERVIEW

Objective

- To develop health-monitoring system i.e. it measures body temperature and heart rate, ECG, blood pressure, humidity sensor etc.
- To design a system that will stores the patient data over a period using database management.
- To do analysis of collected data from the different sensors that are used for the better overview patients Condition and give them better observation and solution.

V. BLOCK DIAGRAM

The block diagram of system (fig. 1) contain body temperature and heart rate, ECG, blood pressure, humidity sensor etc. This health monitoring sensors are used to collect health related data i.e. for data acquisition. Communication process completed with the help of controller, which send the data on the internet. Data processing will be occurs at server. All data collected and aggregated at server point. To display patient’s health related information in understandable format it can be shown on web page i.e. data management, which can be used by, related patient’s doctor, parents or any other person who is taking care of patient.

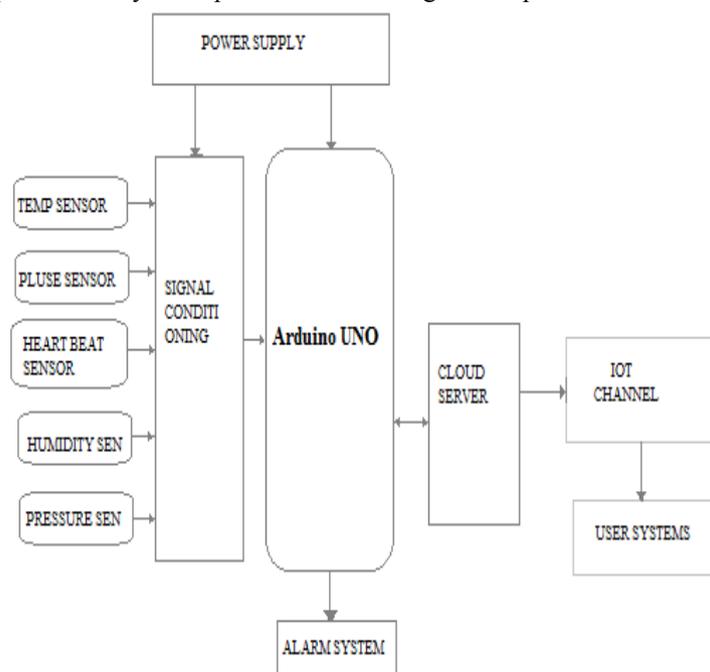


Fig .1 Working Diagram

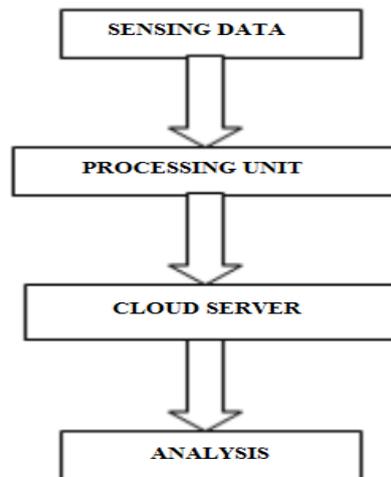
**Fig. 2**

Diagram (fig. 2) shows the working flow of system. The results collected from sensor are analyzed i.e. if abnormal change in body temperature, heart rate or other has been detected, then emergency alert will be send automatically to inform the Doctor about patient's health .So it reduces critical conditions in Hospital.

VI. CONCLUSION

Important fact came under notice while selecting project design is that all the circuit components used in the remote health detection system are available easily. With the tremendous 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 led to increased development of embedded systems that the healthcare specialists are adopting. Same embedded systems have also been adapting in the Smartphone technology. In addition, with increased internet usage in most developing countries through mobile phones, and with use of Internet of things (IoT) will become adaptable at a faster rate. This Remote e-Health Care system uses these concepts of new technology to come up with a better system for the improved quality of life for people in society.

VII. REFERENCES

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