

HEALTHCARE MONITORING SYSTEM USING IOT

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ABSTRACT :

IoT in Healthcare Monitoring is the one play a Major in treatment of the where health Monitoring should be done continuously. The proposed system here consists of various medical devices such as sensors and web based applications which communicate via network connected devices and helps to monitor and record patients' health data and medical information. The proposed outcome of the paper is to build a system to provide 24/7 monitoring the patients even in the remotest areas with no hospitals in their areas by and in homes that connecting over the internet and store information through the various devices provided in the kit using a microcontroller that records the patient's heart rate, blood pressure, temperature, humidity. The system would be smart to intimate the patient's attendees and the doctor about the patient's current health status and full medical information in case any medical emergency arises. The collected Data will be stored in the database for the further assistance and treatment to be done based on the previous records. This Information can be used to analyze and predict chronic disorders or other diseases such as heart attacks in the preliminary stage itself. There is a GPS Tracking System to track a patient's location with the latitude and longitude and respond immediately by the location without any delay in finding the location.

KEYWORDS : Microcontroller, GPS, 16x2 display, Database.

INTRODUCTION

Hospitals always need better management. The database of all patients should be handy enough. But also, there should be

data prevention. Also the patient data should be kept private in case. Healthcare is the most important concern of many countries in the world. Improving the lives of patients especially in the weaker parts of the society which include the elderly, physically and mentally disabled as well as the chronically ill patients is the major factor to be improved. In the existing system, the data is recorded in the form of paperwork or on a general storage server. But generally that data is accessible to all the staff and doctors. Hence we are proposing a new way where patients and doctors are able to communicate through mobile applications and web applications.

I. SYSTEM ARCHITECTURE

A. Proposed System:

An IOT Based Health Monitoring can monitor the patient continuously without any assistance of the human where the patient is in critical condition. The web based or mobile based applications which communicate via network connected devices and helps to monitor and record patients health data and medical information. There is a GPS is Tracking System to track patients location with the latitude and longitude. The Data Will be stored in the database for further reference of the patients health data.

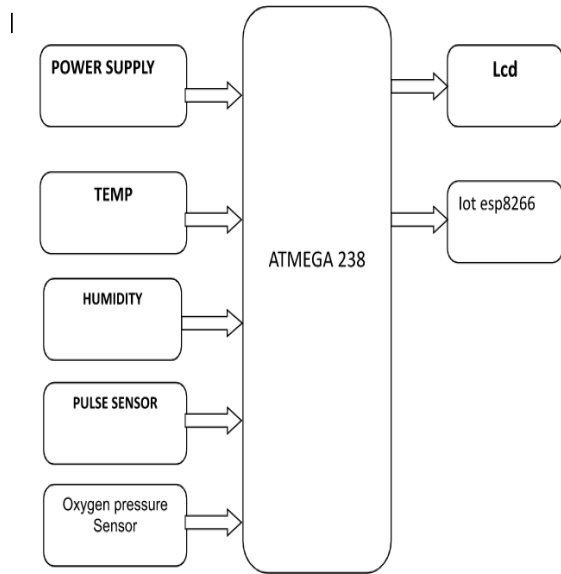


fig: Block Diagram

B. Hardware:

The main hardware components used are

- **Light Crystal Display (LCD):**

A liquid crystal display (LCD) is a thin, flat display device made up of any number of color or monochrome pixels arrayed in front of a light source or reflector.

- **HeartBeat Sensor :**

The heartbeat sensor is based on the principle of photoplethysmography. It measures the change in volume of blood through any organ of the body which causes a change in the light intensity through that organ (a vascular region).

- **Arduino:**

It is a compact board which can be used in various devices and various fields. It has overall 22 input/output pins out of which 14 pins are digital pins. It has a flash memory of about 32 kb. These pins can control the operations of digital pins as well as analog pins. This module is a breadboard friendly board which can be easily used anywhere.

- **Pulse Sensor:**

Heart rate data can be really useful whether you're designing an exercise routine, studying your activity or anxiety levels or just want your shirt to blink with your heart beat. The problem is that heart rate can be difficult to measure. Luckily, the Pulse Sensor Amped can solve that problem.

- **Temperature Sensor:**

Temperature sensors are vital to a variety of everyday products. For example, household ovens, refrigerators, and thermostats all rely on temperature maintenance and control in order to function properly.

- **WIFI Module:**

WiFi modules (wireless fidelity) also known as WLAN modules (wireless local area network) are electronic components used in many products to achieve a wireless connection to the internet.

- **ATMEGA 328:**

ATmega328P is a high performance yet low power consumption 8-bit AVR microcontroller that's able to achieve the most single clock cycle execution of 131 powerful instructions thanks to its advanced RISC architecture. It can commonly be found as a processor in Arduino boards such as Arduino Fio and Arduino Uno.

C. Software:

The cloud server acts as a mediator between the modules. The cloud server is connected to the Wi-Fi module. The user receives messages through the SMS module if any abnormalities occur. The messages sent by the SMS module are managed by the cloud. As soon as the sensor takes the measurements, the status of the cloud will be updated in the Database.

II. IMPLEMENTATION

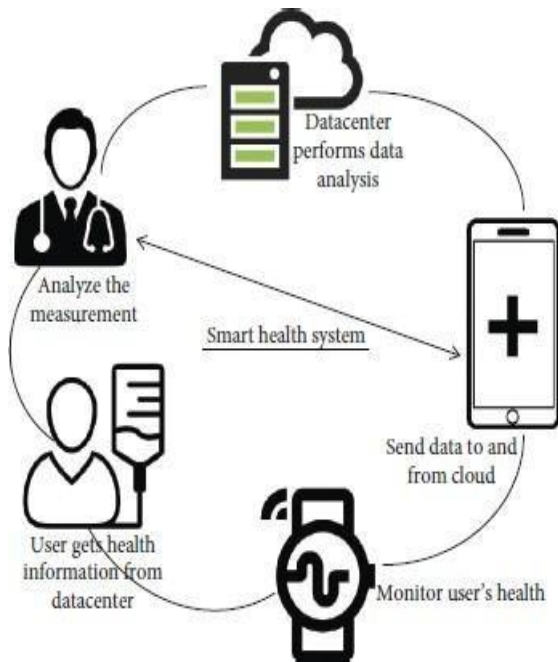


fig: System Architecture

This section contains the implementation of the proposed system. When The patient is admitted in the hospital ICU he will be monitored using this circuit that contains all the sensors and whenever the sensor value reaches the value above the given range it will give indication to the doctors and the patient representatives by alerting them and they will reach the patients location and treat them accordingly.

III. RESULT AND DISCUSSION

As per paperwork, health monitoring system design is based on a researcher idea that meets the patients need. As per consideration of conventional systems, this system is still in use from their manufacturing but it is very bulky to handle individually and size and cost are also more compared to the advanced system and also it takes more than 1minute for getting the exact result. As per the advanced system, each system has its own advantage. Each health monitoring system has different specifications as per patient's requirement. This system provides more medical instrument facility on single

system on-chip compared to conventional systems. This system takes less than 1 minute to calculate results related to health conditions.

IV. CONCLUSION AND FUTURE WORK

Because of wireless data transmission over the internet, health related data will be sent to the doctor's personal computer or on his mobile. So, I need to go to the hospital every time and send a message to the doctor to get an immediate remedy related to the health condition. It can further add features like GPS etc.

V. REFERENCES

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