PATIENT HEALTH MONITORING SYSTEM OVER IOT

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Abstract:

Everyday many lives are affected because the patients are not timely and properly operated. Also for real time parameter values are not efficiently measured in clinic as well as in hospitals. Sometimes it becomes difficult for hospitals to frequently check patients conditions. Also continuous monitoring of ICU patients is not possible. To deal with these types of situations, our system is beneficial. Our system is designed to be used in hospitals for measuring and monitoring various parameters like temperature, heart beat and humidity level. The results can be recorded using arduino. Also the results can be sent to server from arduino. Doctors can login to a website and view those results. The data is recorded in server and doctor can see the patient information with ip address in web browser. The entire system is connected to Wi-Fi network.

Keywords: Real time parameter values, continuous monitoring.

1. Introduction

Now-a- days, Health care Environment has become technology oriented. Humans are facing a problem of unexpected death due to the reason of heart attack which is because of lack of medical care to patient at right time. 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 relatives in case of any issues.

2. Related work

"Implementation of health-care monitoring system using Arduino NODE MCU", by AbhilashaIngole, ShrikantAmbatkar, SandeepKakde, presented at the IEEE ICCSP 2015 conference in 2015.In this paper basic parameters like body temperature & heart beat is monitored and is transferred on webpage to make it locally visible for users. The system is design to read the body temperature and heartbeat of patient at run time. The system mainly focused on collecting the physical parameter and then that information is made available for multiple users.

"Arduino Based Patient Monitoring System uses Wireless Sensor Nodes", by Mendrela Biswas, presented at International Research Journal of Engineering and Technology (IRJET) in April-2016.In this project, the monitoring of the patient is done by the doctor continuously without actually visiting the patient. Here, we are using various sensors to sense the physiological parameters like temperature, blood pressure, ECG and the level of saline.

3. Existing System

Now-a-days Health care Environment has become technology oriented. Humans are facing a problem of unexpected death due to the reason of heart attack which is because of lack of medical care to patient at right time.

Disadvantages of Existing System:

- Clinical Care.
- Frequently visiting clinic for the regular checkup.
- Blood pressure, sugar level, temperature monitored using various physical instruments.
- Time consuming for both doctor and patient for regular checkup.
- Different equipment's used in healthcare communicate makes a ubiquitous system.

4. Proposed System

So we are developing project to avoid such sudden death rates by using Body Health Monitoring. In this system a patient will be carrying hardware having NODE MCU and sensors which monitors heart pulse and body temperature, all sensors are interfaced to Arduino NODE MCU, DHT11 temperature sensor which will monitor body temperature of the patient, Opto electronic sensor, conveniently strapped on the finger, to give continuous indication of the heart pulse to NODE MCU for monitoring the heart beat rate. All these sensors are interfaced to Arduino for sending the patient data to doctor over IoT, the doctor can see the patient health condition by entering the IP Address of Arduino in web browser.

Advantages of Proposed System:

- Easy to monitor the patient health within short span of time.
- Best to be used on rural areas with less equipment in an effective way.
- It is a multipurpose system so that overall conditions are easily measured.
- Easy to operate the system.
- Time saving for both doctor and patient in the basis of regular checkup.
- Compared with compact sensor it gives better performance**.**

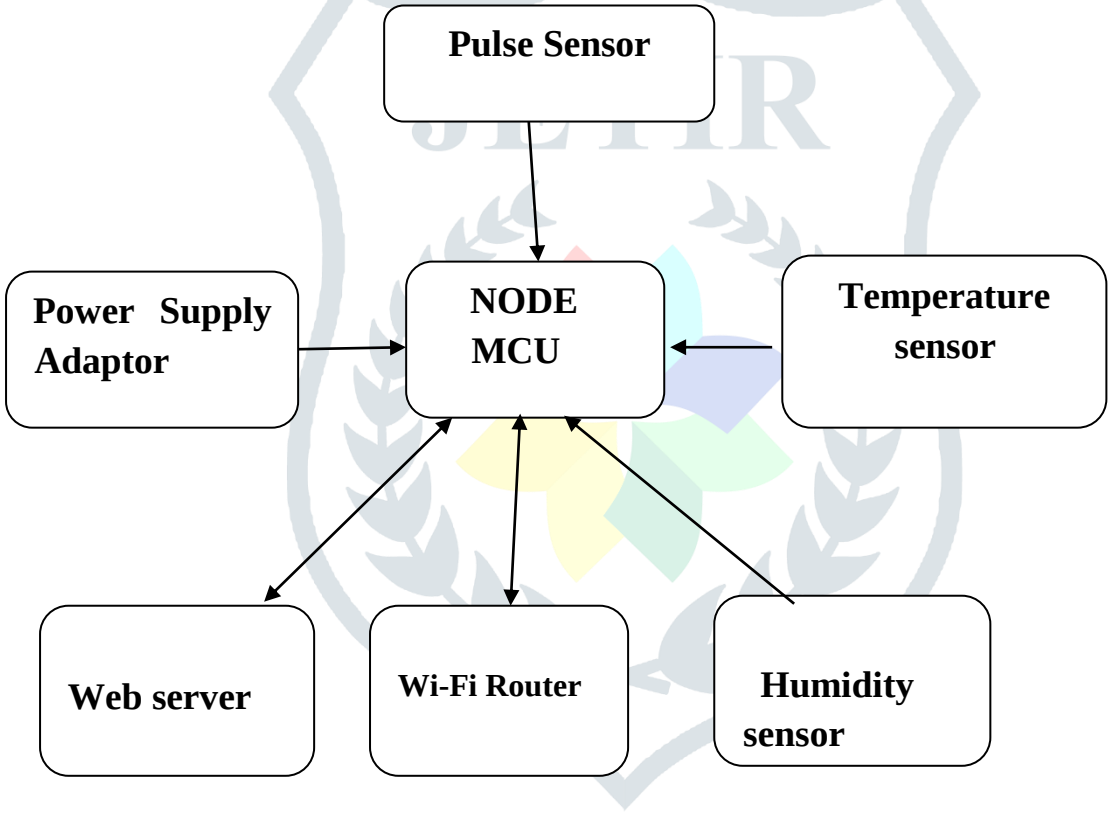


Fig:1 Block diagram for working of the Proposed System

The above Figure 1 shows the work flow operations of all the sensors, Node MCU,PCB board.

Steps

1. Connect Pulse Sensor output pin to A0 of Arduino and other two pins to VCC & GND.
2. Connect LM35 Temperature Sensor output pin to A1 of Arduino and other two pins to VCC & GND.
3. Connect the LED to Digital Pin 7 of Arduino via 220 ohm resistor.
4. Connect Pin 1,3,5,16 of LCD to GND.
5. Connect Pin 2,15 of LCD to VCC.
6. Connect Pin 4,6,11,12,13,14 of LCD to Digital Pin12,11,5,4,3,2 of Arduino.
7. Place the DHT11 sensor in the fist of your hand.
8. In the same way place the INVNT_11 pulse rate sensor on the nerve of your hand.

9. By placing the temperature sensor in the fist of the hand and pulse rate sensor on the nerve. The data monitored through this Sensors are displayed on the web browser by entering the IP address on the browser.
10. The IP address of arduino is obtained by using a software called Advanced IP scanner.

5. Result

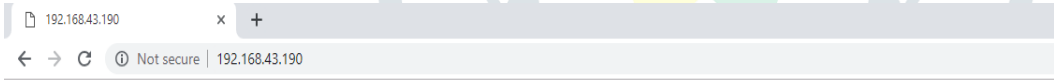
PATIENT HEALTH MONITORING SYSTEM

Patient Name : Rajitha

Temperature: 33.00

Humidity: 70.00

Pulse: 750



PATIENT HEALTH MONITORING SYSTEM

Patient Name : Kavya

Temperature: 32.50

Humidity: 72.00

Pulse: 751

6. Conclusions and Future Scope

This project is very useful as compared to existing system in hospitals, which will help doctors to see the patient health from remote location through monitor or mobile and disable patients can use this project who find it really difficult to go to doctors on daily basis or for those patients who need continuous monitoring from the doctor.

- The whole health monitoring system, which we have proposed can be integrated into small compact unit as small as a cell phone or a wrist watch.
- This will help the patients to easily carry this device with them wherever they go.

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