

Autonomous Human Body Scanning Using Wireless IoT Network Implementation for Health Care Application

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Abstract--Nowadays technology is slowly entering into our daily lives, replacing obsolete devices and techniques with sparkling and smarter technologies. Although they are meant to help people, the reaction and willingness to use such smarter devices by the people can be unexpected among the elderly. A fall event is one of the main factors that influence the physical and psychological health of an elderly person. In this project an enhanced fall detection system is proposed for elderly person monitoring. The smart sensors contain temperature sensor, heart beat sensor and mems accelerometer sensor. The main aim of this work is to give comprehensive overview of this area of research and sensors used in health care monitoring device.

Keywords: Health monitoring, fall detection, smarter technology.

I. INTRODUCTION

Biological parameters of patients body like heart rate, temperature are measured using respective sensors. By using a web server a doctor or a concerned person can continuously monitor a patients condition. The patient's history will be

stored on web server and doctor can access the information whenever neede form anywhere and need not be physically present. Concerned people will be notified through an SMS using additional GSM based technology. Internet of things(IOT smart and connected care is particularly important one. Networked sensors either worn on our body or embedded in our living environments, make possible the gathering of rich information indicative of our physical and mental health. Captured on a continual basis, aggregated, and effectively mined, such information can bring about a positive transformation change in the health care landscape.

II. LITERATURE SURVEY

After considering some of the research papers, it has been noticed that it is very hard to find various abnormalities in the heart beat count of 25 years old ranges form 140 to 170 beats/minute, whereas in 60 years old people. It ranges from 115 to 140 beats/minute. Patients are not satisfied with the treatment which doctors normally use for finding the heart beat count. So, there should be a device to track the internal changes in the body. VeenaTripathi in her paper discuss the health care scheme and its focus on measurement and

monitoring various biological parameters of patients body like heart rate, oxygen saturation level in blood and temperature using a web server and android applications where doctors can continuously monitor patient's condition on his

smart phone. Veena Tripathi in her paper discussed about considering Apply 1 watch series 2 with OS 3.2.0 and specialized all the specifications and sensors used to monitor health parameters I.e heart rate, calories burned, distance covered etc.

III. HARDWARE COMPONENTS

1. Node MCU
2. LM35 temperature sensor
3. Heart beat sensor
4. MEMS sensor
5. GSM module

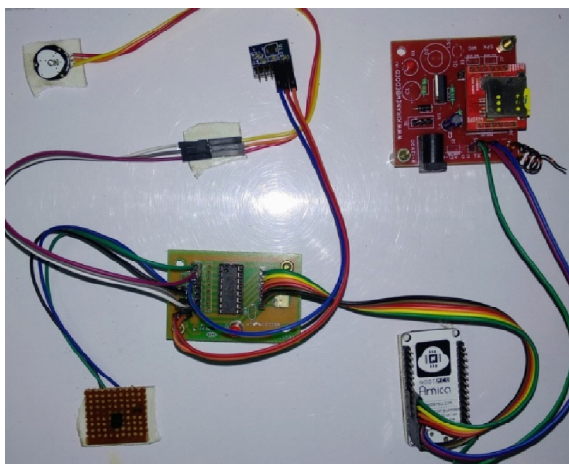


Fig 1: Hardware Components Connections

IV. SOFTWARES USED

1. Arduino IDE
2. Embedded C Language

V. BLOCK DIAGRAM

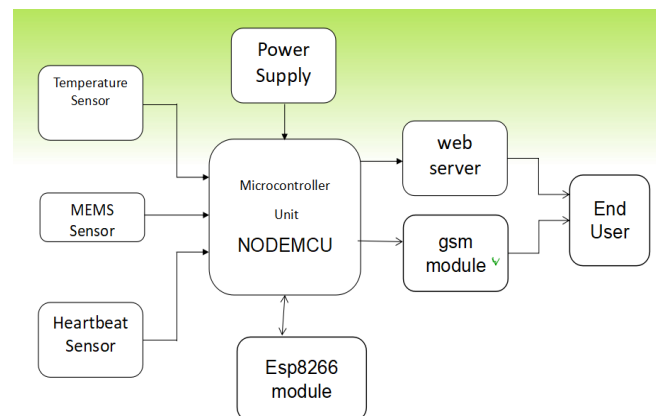


Fig 2-Block diagram of health care implementation health care application

VI. WORKING AND IMPLEMENTATION

Various components used for the work are temperature sensor, heart beat sensor, MEMS accelerometer, Arduino, ESP8266 WIFI module, GSM module. The three sensors detect the change in temperature, change in pulse rate and fall of a patient respectively. These changes are considered to be the input to the arduino. According to stipulated changes in the sensor values and the ranges mentioned in the written code, arduino generates specific output or data is stored in a we page through which an end user can monitor the patient. Arduino does not have an in built wifi module, so an additional wifi module is required. Wifi module is required. This smart technology

can be used anywhere in the world without any restrictions.

The values from the sensor are continuously been recorded by microcontroller, if the values exceed the normal value then microcontroller send alert sms to the respect mobile phones and also updates

the web page where values are continuously monitored.

The values from all sensors are taken by microcontroller and is sent to the concerned people and authorities when the something is out of limit.

VI. UML DIAGRAMS

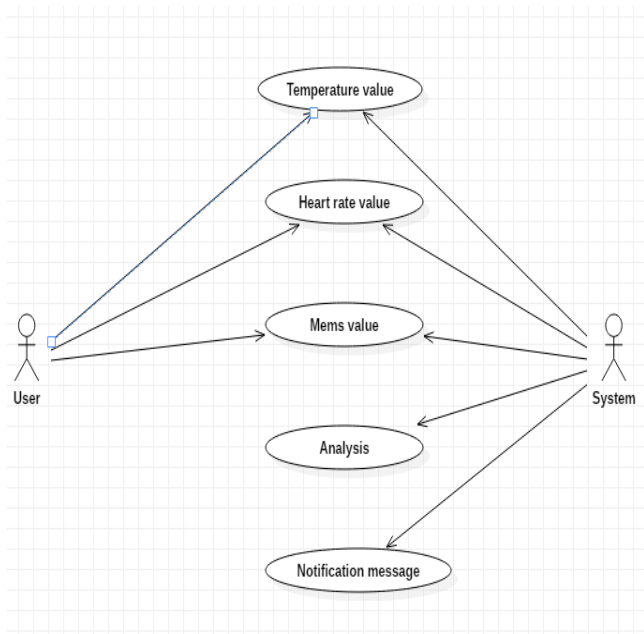


Fig 3-Use case diagram

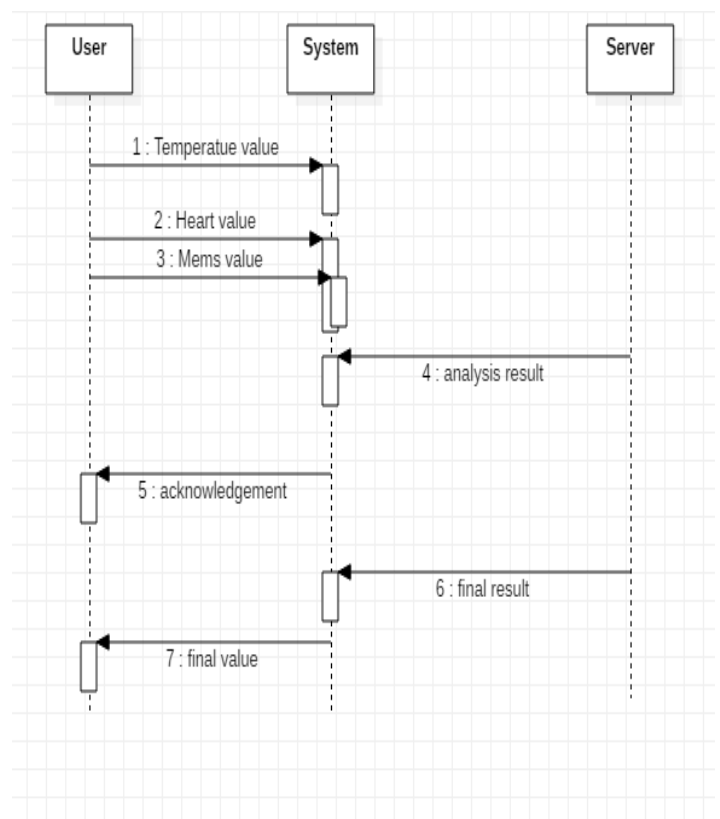


Fig 4-Sequence diagram

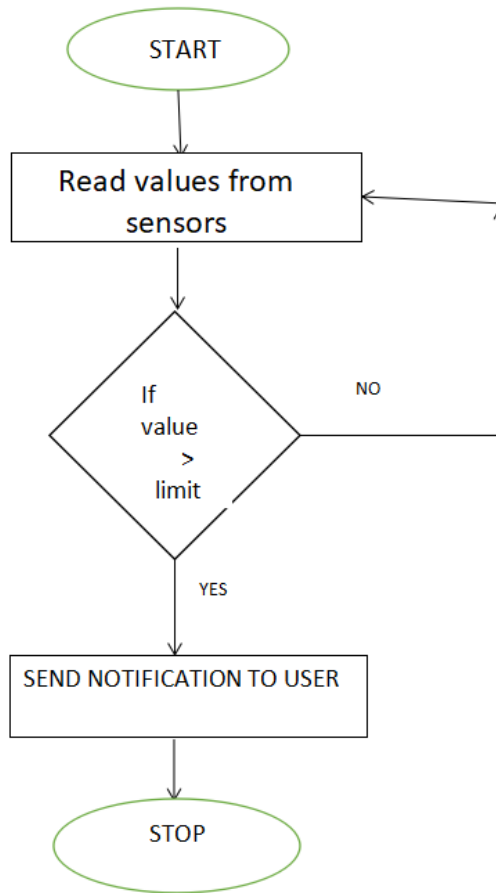


Fig 5- flow chart of the this implementation

VII.RESULT ANALYSIS

If the biological parameters of the patient changes from normal level to either of lower or higher limit of values set, the respective sensor identifies the change in the values and sends an input signal to

5:57 📶 📶 HD 📶 HD 📶 HD 📶 54%

← Alert System 📞 ⋮

Tuesday, 2 Apr • 6:10 PM

mems abnormal

Fig 6. Fall detection SMS notification

the micro-controller. The micro-controller is responsible to notify it to the end user.

1. Temperature sensor-LM35

Range: -55 to +150

Lower limit: 0

Higher limit:+45

Notification message: Temperature of the patient has risen/fallen to respective temperature

2.MEMS Accelerometer

Lower limit:10

Higher Limit:440

5:23 📶

📶 HD 📶 HD 📶 HD 64%

📶 192.168.43.33 📶 ⋮

ESP8266 Temperature, HB and MEMS

Temperature: 36.00

Heart beat: 64

MIMS: 410

Fig 7. Result on website

IX.OBJECTIVE

Objective of this project is to deliver mankind with automated health monitoring system which with out any manual involvement looks after a person's health condition using IOT and gsm to send data.

Another objective of developing monitoring systems is to reduce health care costs by reducing physician office visits, hospitalizations, and diagnostic testing procedure. The IOT and GSM technology helps the server to update the patient data on website and also send message to respective care taker of patient.

X.CONCLUSION

The health monitoring device is therefore replacing the wired and manual monitoring of a patient because of a much smarter and innovative technology. The additional GSM technology ensures that hteuser receives a notification message without even connected to an internet.However the information received through the web pages makes the project more efficient because of the application of IOT.

XI.REFERENCES

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