Published by :
http://www.ijert.org

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 8 Issue 06, June-2019

Heart Rate Monitor using IOT

Sanket R. Jadhav
Department of Electronics and Telecommunication
K. K. Wagh Institute of engineering,
Nashik, India

S. S. Bhabad
Department of Electronics and Telecommunication
K. K. Wagh Institute of engineering,
Nashik, India

***Abstract*— These days we have increased the percentage of heart diseases including increased risk of heart failures. Our system uses sensors that allows to detect heart rate of patient using heartbeat sensor even if the person is at home. The sensor is then interfaced with our selected microcontroller that checking time to time heart rate readings and transmitting them over internet. The user can set the heart beat limits high and low. After sensing these limits, system will monitoring and if the patients heart beat is goes above the limit, system will send the alert message to the controller which then transmit this data over internet. System always monitors for high as well as low blood pressure. Therefore one who monitor heart rate as well as get an alert message of heart attack to the patients directly from all around the world.**

Keywords—Heart beat sensor, Microcontroller, IOT

I. INTRODUCTION

These days a number of people are losing their life due to heart attack. Heart attack can occur when the blood flow to heart is blocked. Owing to late diagnosis of heart attack we are unable to save the lives of many peoples. Human cardiovascular system consist of mainly blood vessels and heart and approximately six liters of blood that the blood vessels transport. Heart beat rate is one of the important parameters of the cardiovascular system. The measurement of heart rate is used by professionals to assist in the diagnosis and tracking of medical conditions of patient. In this paper, we present a system that will detect heart attack by monitoring the heart rate as well as blood pressure. Then sending the data of patient over internet anywhere from the world. For a healthy adult, ordinary heart rate is 70 to 100 beats per minute as research. Athlete's heart beat generally range from 45 to 65 beats per minute as research, depending upon their body fitness. If a person's heart rate is constantly over 120 beats per minute then the person is said to be having higher heart rate which is also notorious as tachyarrhythmia. It can decreases the efficiency of heart by letdown the amount of blood pumped through the body can result in chest pain and other many cardiac diseases. Resting Heart Rate is the rate at which your heart beats when you are at the rest after 10 minutes. Though, the best time to measure the RHR is right after you wake up in the morning. Generally, the lower a person's RHR, the more fit that person and the person need not work hard. With the advancement in technology it is easy to monitor the patient's heart rate even at home or at the work station. Internet of things is dexterity of network mechanism to intellect and gather information from world to us then share the information through internet anywhere from anywhere it can be managed for some tenacity.

II. SYSTEM OVERVIEW

A. Blood pressure / Heart rate sensor – Display + Analog out

Blood Pressure & Pulse reading are shown on display with analog out for external projects of embedded circuit processing and display. Shows Systolic, Diastolic and Pulse Readings. Compact design fits over your wrist like a watch. Easy to use wrist style eliminates pumping. Intelligent, automatic compression and decompression.

B. Microcontroller - ATMEGA32

It is high performance, low power 8 bit microcontroller based on AVR enhanced RISC architecture. By executing powerful instruction in single clock cycle, ATmega32 achieves throughputs approaching 1 MIPS per MHz allowing the system designer to optimize power consumption versus processing speed.

III. SYSTEM DESIGN

We shall monitor a body temperature with the help of temperature sensor and heart beat in beats per minutes with the help of blood pressure sensor. Temperature, heart rate and blood pressure these three parameters will be measured and that would be sent to the server with the help of internet. On a server there would be a web page on which we will have name of patient and all of the three parameters. User can connect to server from anywhere from the world with the help of internet.

A. Block diagram

According to fig. we will use ATmega32 as microcontroller. These needs power supply, so we will give 5V power supply to it. The microcontroller has inbuilt oscillator having frequency ranging from 1-8 Mhz. Then we have to give manual reset. After these we have to give the inputs to it. First we will give temperature sensor, next would be the heart beat / blood pressure sensor. The produced output will be displayed with the help of the LCD display. We need WIFI module to send this information to the server. This WIFI module will be connected to hotspot. Hotspot would be behaving like a source of internet. User can connect to server with the help of internet.

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 8 Issue 06, June-2019

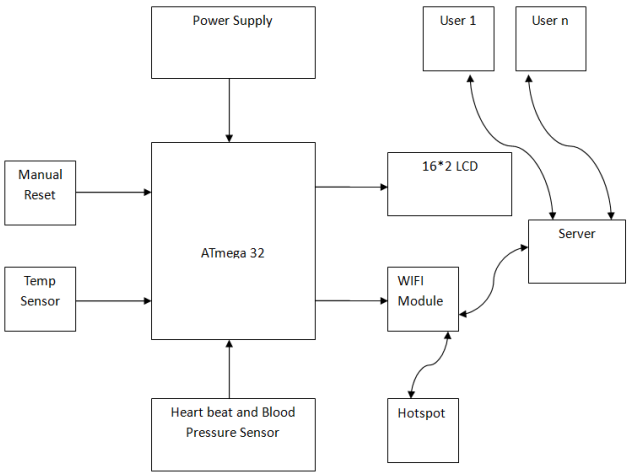

Fig.1 Block diagram

B. *Circuit Diagram*

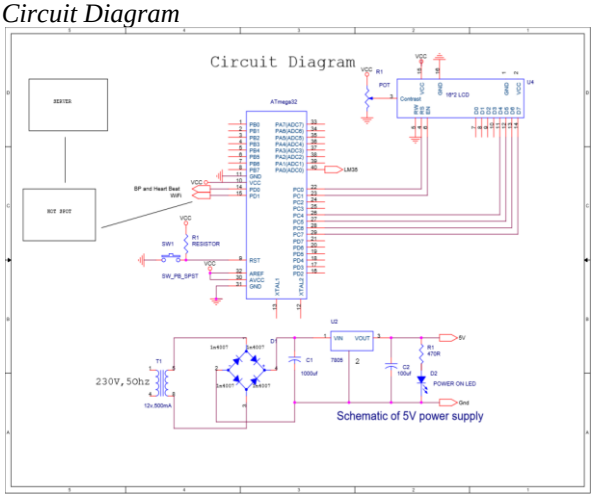

Fig.2 Circuit diagram

C. *Proposed System*

Fig.3 Propose System

IV. EXPERIMENTAL RESULTS

Thus we get all of the three parameters i.e., Temperature, Heart beat and Blood pressure. The heart beats are in beats per minutes. The blood pressure is in systolic as well as in diastolic form. We can see the results on web page, which is showing below.

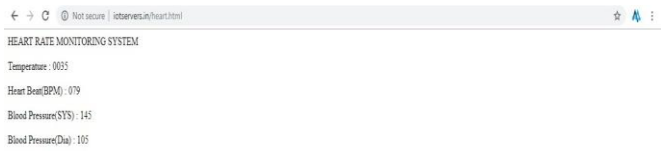

Fig.4 Web page results

CONCLUSION

In this paper, we presented a real time monitoring system for heart related problems. Different from many existing healthcare system, the proposed system is an integrated system for both diagnosis and monitoring.

The diagnosis components of the system is capable of diagnosis the heart disease. On other hand monitoring system is based on simple and inexpensive wearable sensor that detects heart rate and send it to the server.

To prove the effectiveness of the proposed system, we ran experiment for both components. For diagnosis as well as monitoring components.

REFERENCES

[1] A. and D, Newman, "UCI machine learning repository". (2007).
[2] A. F. Otoom, "Effective features set and dimensionality reduction for object classification". University of Technology, Sydney (UTS). (2010).
[3] A. F. Otoom. A. Kefaye. M. Ashour. Y. Shanti and M. Al-Majali. "Real-Time monitoring of patients with coronat artery disease", accpeted for publication in the 3"° International Conference on Information and Computer Networks, Florence. Italy.
[4] American Heart Association. http://www.heart.org/HEARTORG'. (2014).
[5] C. M. Bishop. Pattern Recognition and Machine Learning. Springer, (2006).
[6] C. W. Mundt. K. N. Montgomery and U. E. Udoh, " A multiparameter wearable physiologic monitoring system for space and terrestrial applications", IEEE Transactions on Information Technology in Biomedicine. vol. 9. no. 3, (2005). pp. 382-391.
[7] H. Alemdar and C. Ersoy. "Wireless sensor networks for healthcare: A survey". Computer Networks. vol. 54, no. 15, (2010). pp. 2688-2710.
[8] I. H. Witten and E. Frank. "Data mining: Practical machine learning tools with java implementations". Morgan Kaufmann. San Francisco. CA. (2000).