

# Smart Health Monitoring System using IoT

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**Abstract:-** This paper gives us the system that monitoring patient health by using heart beat sensor, blood pressure sensor, temperature sensor, glucose meter and humidity sensor. By this we can easily provide alert from users or patients critical condition send to the doctor at real time over internet. In India many patients are not getting proper help during critical condition like heart attacks and that why patients are dying in those periods. In the patient monitoring system based on Internet of things project, the real-time parameters of patient's health are sent to cloud using Internet connectivity. These parameters are sent to a remote Internet location so that user can view these details from anywhere in the world. There is a major difference between SMS based patient health monitoring and IOT based patient monitoring system. In IOT based system, details of the patient health can be seen by many users. The reason behind this is that the data needs to be monitored by visiting a website or URL. Whereas, in GSM based patient monitoring, the health parameters are sent using GSM via SMS.

## I. INTRODUCTION

This is one of the Latest electronics project ideas related to Medical applications. One more benefit of using IOT is that, this data can be seen using a desktop computer, laptop, using an Android smart phone or Tablet. The user just needs a working Internet connection to view this data. There are various cloud service providers which can be used to view this data over Internet. Things speak, Sparkfun and IOT Geek are few famous and easy to use service providers among these.

IOT patient monitoring has 5 sensors. First one is a temperature sensor, second is Heartbeat sensor and the third one is humidity sensor. We also measure the BP and insulin level using sensors. This project is very useful since the doctor can monitor patient health parameters just by visiting website or URL. And nowadays many IOT apps are also being developed. So now the doctor or family members can monitor or track the patient health through the Android apps. To operate IOT based health monitoring system project, you need a Wi-Fi connection. The micro-controller or the Arduino board connects to the Wi-Fi network using a Wi-Fi module.

This project will not work without a working Wi-Fi network. You can create a Wi-Fi zone using a Wi-Fi module or you can even create a Wi-Fi zone using Hot-spot on your smart phone. The Arduino UNO board continuously reads input from these 5 senses. Then it sends

this data to the cloud by sending this data to a particular URL/IP address.

## II. SYSTEM SPECIFICATION

### Hardware Specifications

- Heartbeat Sensor
- Temperature Sensor
- Humidity sensor
- Pressure sensor
- Insulin sensor
- Wi-Fi Module
- LCD Display
- Buzzer

### Software Specifications

- Arduino Uno
- MC Programming Language: C
- IOTGecko

## III. METHODOLOGY

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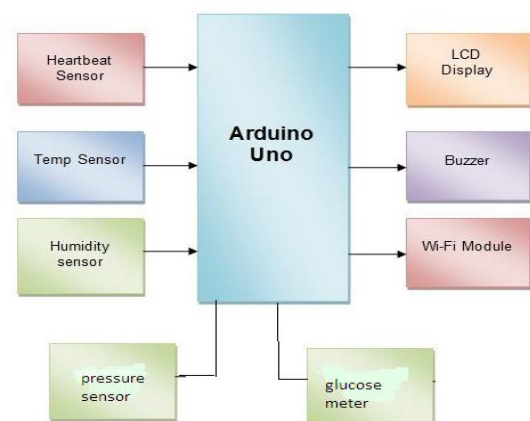


Fig. 1: Health Monitoring System Using IOT

The microcontroller or the Arduino board connects to the Wi-Fi network using a Wi-Fi module. This project will not work without a working Wi-Fi network. You can create a Wi-Fi zone using a Wi-Fi module or you can even create a Wi-Fi zone using Hotspot on your smart phone. The Arduino UNO board continuously reads input from these 5 senses. Then it sends this data to the cloud by sending this data to a particular URL/IP address. Then this action of sending data to IP is repeated after a particular interval of time.

#### IV. EXISTING SYSTEM

This monitoring system is also be used by arduino controller alone. But it is not sufficient because with the use of IOT we can collect the information from anywhere (world wide). By use of arduino controller alone we can get the information from one place only. It is space limited. It needs Doctor or nurse to monitor the patient and device always at the particular place.

#### V. ADVANTAGES OF THIS PROJECT

- IOT Monitoring proves really helpful when we need to monitor & record and keep track of changes in the health parameters of the patient over the period of time. So with the IOT health monitoring, we can have the database of these changes in the health parameters. Doctors can take the reference of these changes or the history of the patient while suggesting the treatment or the medicines to the patient.
- Hospital stays are minimized due to Remote Patient Monitoring. Hospital visits for normal routine checkups are minimized.
- Patient health parameter data is stored over the cloud. So it is more beneficial than maintaining the records on printed papers kept in the files. Or even the digital records which are kept in a particular computer or laptop or memory device like pen- drive. Because there are chances that these devices can get corrupt and data might be lost. Whereas, in case of IOT, the cloud storage is more reliable and does have minimal chances of data loss.

#### VI. IOT APPLICATIONS OF THIS PROJECT

This is an important sensor based project which has the latest technology implemented in it. And it has many applications & advantages as mentioned below.

- IOT Health care is the most demanding field in the medical area. This project is for, elderly person in our home. Also for the senior citizen living alone or living with 1 or 2 members. This project really proves helpful when family members need to go out for some emergency work.
- Disable patients can use this project. Disable patients who find it really difficult to go to doctors on daily

basis or for those patients who need continuous monitoring from the doctor.

#### VII. CONCLUSION

An efficient PHMS is developed to monitor the up to date status of the patient irrespective of the presence of the doctor. The system collects information like temperature, blood pressure and pulse rate of the patient and updates the same to the doctor. The system is evaluated experimentally and collected the sample data of ten patients to verify the status of patients. The doctor can monitor the progress of patients' health now and then to advise them about their health.

#### REFERENCES

- [1] Dr. N. Dhanasekar, S.Soundarya, IOT Based Monitoring System in SMART AGRICULTURE, International journal of research and analytical reviews Volume 5, Issue 2, April – June 2018, E ISSN 2348 –1269, Print ISSN 2349-5138
- [2] Dr.N.Dhanasekar, Ganesan Subramanian G, Accidental Navigation and Rescue System using GSM and GPS Technology Associate Professor, Asian Journal of Research in Social Sciences and Humanities, Vol. 6, Issue 11,2016
- [3] Vandana Milind Rohokale, Neeli Rashmi Prasad, Ramjee Prasad “A Cooperative Internet of Things (IoT) for Rural Healthcare Monitoring and Control” 2011 Center for TeleInFrastructure, Aalborg University, Denmark, P.P 978-1-4577-0787-2/11.
- [4] Charalampos Doukas, Ilias Maglogiannis “Bringing IoT and Cloud Computing towards Pervasive Healthcare” 2012 Sixth International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing, P.P 978-0-7695-4684-1/12.
- [5] Junaid Mohammed, Abhinav Thakral, Adrian Filip Oceanu, Colin Jones, Chung-Horng Lung, Andy Adler “Internet of Things: Remote Patient Monitoring Using Web Services and Cloud Computing” 2014 IEEE International Conference on Internet of Things (iThings 2014), Green Computing and Communications (GreenCom2014), and Cyber-Physical-Social Computing (CPSCoM 2014),P.P 978-1-4799-5967-9/14.
- [6] Tae-Yoon Kim, Sungkwan Youm, Jai-Jin Jung, Eui-Jik Kim “Multi-hop WBAN Construction for Healthcare IoT” 2015 International Conference on Platform Technology and Service, P.P 978-1-4799-1888-1/15.