# Human Health Monitoring System using IOT

Ankita Kausadikar, Dhanshri Katikar, Ruchira Deo, Shivani Deshpande, Dr.D.B.Bhoyar

[1] *Student, Electronics & Telecommunication, YCCE, Maharashtra, India*
[2] *Student, Electronics & Telecommunication, YCCE, Maharashtra, India*
[3] *Student, Electronics & Telecommunication, YCCE, Maharashtra, India*
[4] *Student, Electronics & Telecommunication, YCCE, Maharashtra, India*

## ABSTRACT

*Most important factor for overall development is health. But now-a-days , due to busy schedules and fast life health is usually ignored and healthcare problems are increasing at very high pace. Also elderly people suffering through dementia, and those who are disabled , retarded , handicapped or bed-ridden needs continuous attention , monitoring and timely medication. Thus considering this situation, study has been done. So, we have developed a system which will monitor the patient's health continuously. It will collect information about basic parameters like temperature, blood pressure and heart rate using sensors . The sensed information will be stored in Atmega328 and transmitted using Wi-Fi module ESP8266 via app. The technology used for transmission of data is IOT which enables communication between various electronic devices with help of internet connectivity. Hence it is a*
*low cost, low power ,easily portable and highly efficient system. With its help, it will be easy for the doctors to manage several patients at same time through smart phones.*

**Keyword : -** *IOT, Wi-Fi module, Heart sensor, Temperature sensor, Blood Pressure sensor.*

## 1. INTRODUCTION

IOT visualizes the future of anything and everything from anywhere and in all fields. It is a network of physical objects what are provided with unique identifiers (VID's) and allow the communication between those objects and other internet enabled devices. IOT, along with other communication technologies, has helped in creating revolutions and advancements in digital world. Using IOT we can transmit data over long distances and hence it is widely used for automation and control. That is , or automation and control, the most basic and prime factor is IOT. IOT provides interconnection between several electronics devices with the help of internet connection.Various devices can be embedded together to manage and exchange data. IOT has emerged vigorously in the field of e-healthcare. This has made it easy and convenient for the patients as well as doctors to get all the necessary information without visiting the hospital. Recently, advanced sensors and technologies has been made available for this purpose. Thus by making use of these sensors, we can collect basic information related to patients health. This system is not only useful in hospitals but also can be used for personal health-care. Thus, this system can be incorporated everywhere including hospitals as well as homes. This system collects the basic information like temperature, blood-pressure and heart-rate , which is stored as well as transmitted primarily to doctor and also to any one of his relatives via app. App has a specific username and unique password associated with it. All those who have access to the app can get the necessary data easily .It also notes positional changes and give personalized alerts related to medicine timings. Thus, it is a safe, low cost, low power, light weighted and highly efficient IOT based system. Because of its light weight it is highly portable and easy to install. Moreover, on failure of any sensor, it can be easily replaced. Traditionally, doctors used to play a very important role in health checkups, diagnosis and treatment. This process included registration, appointment, check-up and tests and hence used to consume a lot of time. And then finally reports were generated. This used to result in delay in diagnosis and treatment leading to aggravation of disease. Thus, to avoid this inconvenience this human healthcare system can be efficiently used. Also nowadays, in today's high paced life, health is usually ignored. People don't get enough time to go for regular checkups and visit doctors on regular basis. Thus, this system proves to be beneficial. It gives all the necessary information efficiently and health can be continuously monitored. Elderly people who are suffering from various diseases or disorders require continuous monitoring and medication. This system does the same. Along with that it

also gives medicine and appointment reminders. Alerts are given in case of any abnormal activity. Also maximum people living in rural area are unaware about their medical conditions. Also it becomes difficult for them to afford these costly tests regularly.Moreover they are not completely equipped with their diseases or disorders. But however one must have complete knowledge related to his health .So, this system provides précised information related to very basic but extremely important health parameters with great efficiency at very low cost.
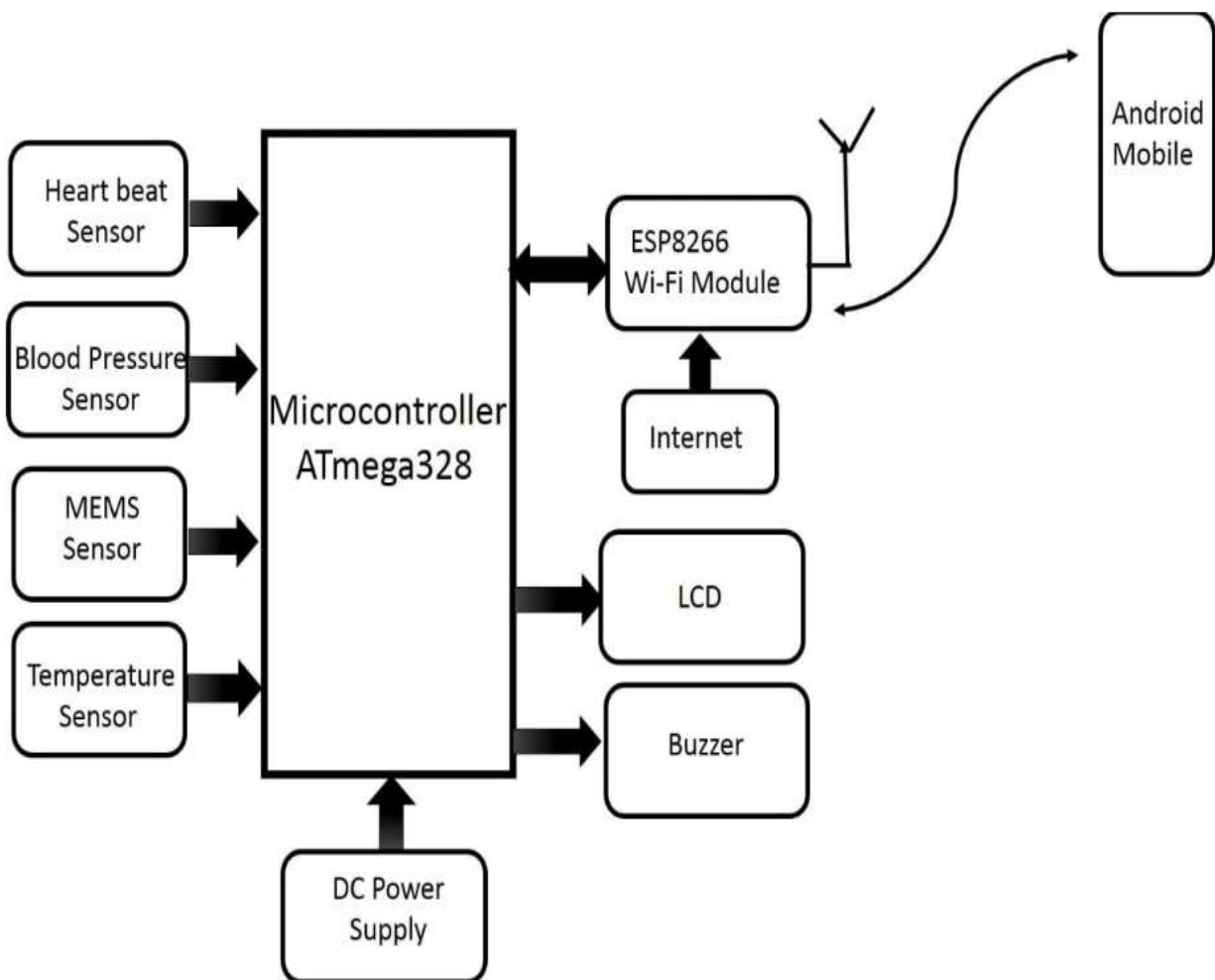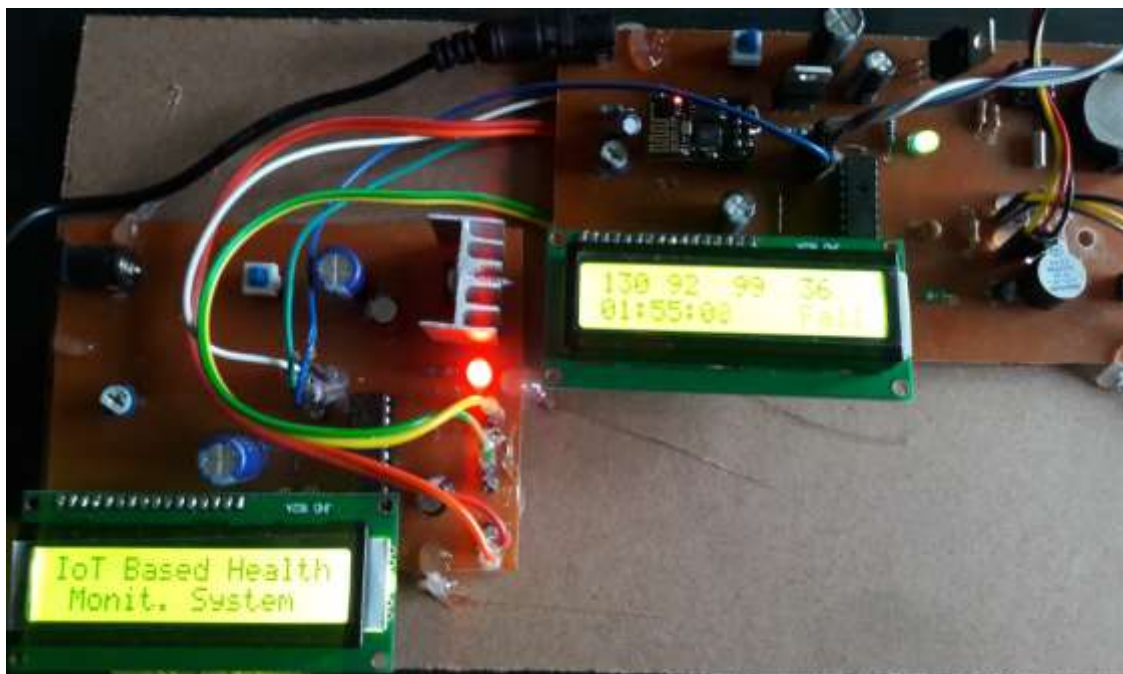
## 2. BLOCK DIAGRAM



**Chart -1**: Human Healthcare System

**Fig -1**: Working Model

**Table -1:** Outcome

|  | Temp Sensor | Heart rate Sensor | Blood Pressure Sensor | MEMS Sensor |
|---|---|---|---|---|
| Measured by Doctor | 97°F | 70/min | 120/82 | Patient OK |
| Measured by System | 99°F | 84/min | 126/90 | Patient OK |

## 3. WORKING

In this system, we have used ATmega 328 as a main unit. We have selected Arduino Uno board since it is compatible with ATmega 328. It also has in- built Analog to Digital converter. All other components and sensors are integrated on the chip. For this system we require two types of power supplies which are 5 V and 3.3 V. 5V is used as power supply for ATmega 328 and 3.3V is used for Wi-Fi module and some other components are also operated at 3.3 V. In this system we have used basic sensors like Temperature, Blood pressure, Heart rate and MEMS. These sensors are connected to Arduino Uno board according to their configurations. The threshold values of these sensors are programmed in the ATmega 328. All sensed values are compared with these pre-defined values and severity of health is known. If these parameters go beyond threshold values then the doctor and one of his relatives will be notified with it. After this, the sensed data is processed by the microcontroller and will be stored in it. Then it is transmitted through Wi-Fi module with the help of IoT via app. Wi-Fi module fetches for hotspot connection in its vicinity and it provides a path for data transmission from microcontroller to the cloud. The data is available on the cloud which can be accessed using the android application Blynk. All those who have username and unique key of the app can access the data. The output device which is LCD, displays all the parameters in the form of text. Also

this system gives personalized alerts to the doctor as well as patient about their medicine timings after definite time intervals.
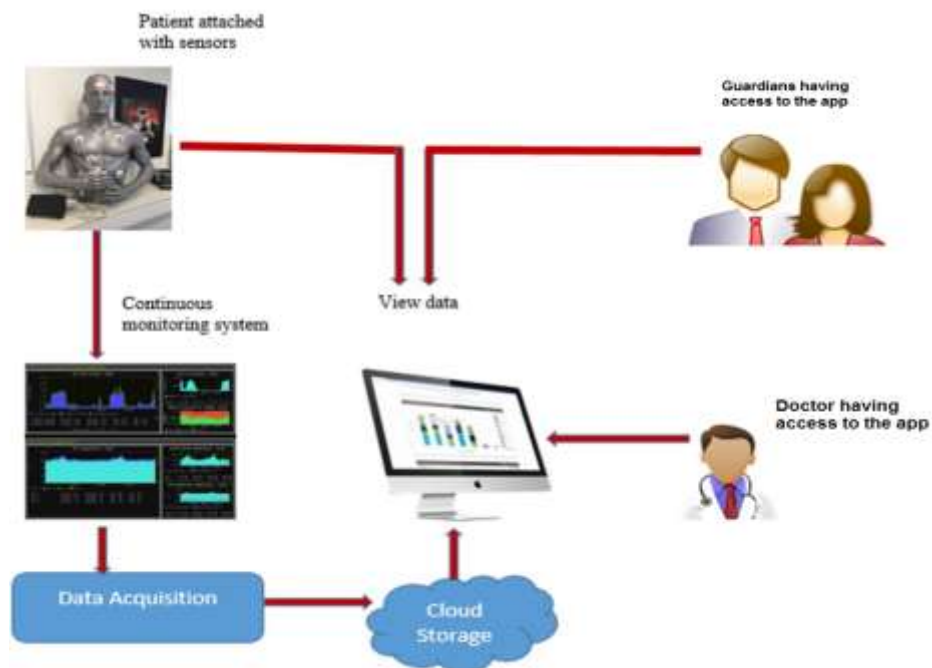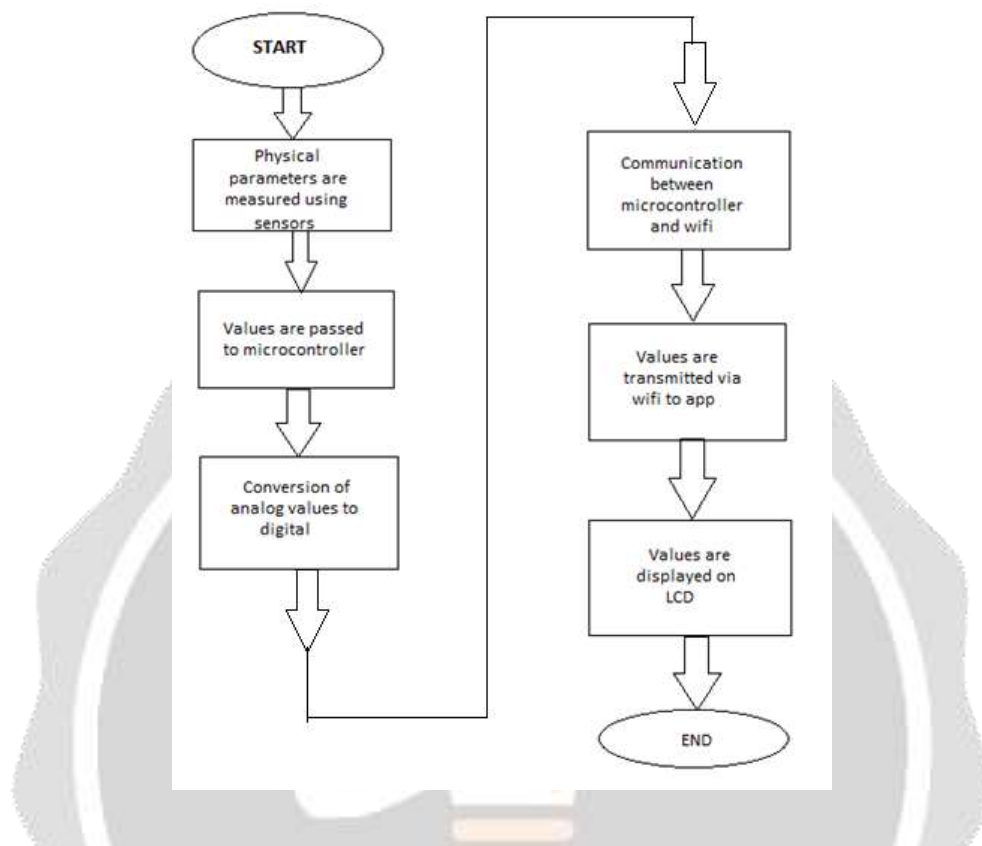
## 4. CONCLUSIONS

This paper focuses on the management of human health care management using IOT technology. It is important to get the data related to patient's health accurately and with high security. Hence we have developed a system which monitors the biological parameters of patient. It is primarily used for old aged, bed ridden, disabled or retard patients whose health needs continuous monitoring .With some additional programming and circuitry this system measures and record the patient's health parameters and send it to the doctor for early treatment. It sounds buzzer for the medicine timing as well. Thus, this is a highly efficient and secured system.

## 5. REFERENCES

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