HEALTHCARE MONITORING SYSTEM BASED IOT ON USING ANDROID MOBILES AND SENSOR'S

Niveditha . B.S & Dr. Shylaja.B.S.
Student & prof and HOD of information science engineering dept.
COMOUTER NETWORK ENGEENEERING
DR. Ambedkar Institute of technology
Bangalore, India

Abstract : In the present modern world "Things Of Internet"[IOT] plays a very major role in all almost all the fields like physical, mechanical, electrical, and etc,. Nowadays internet became basic needs to everyone by using internet we can access anything in our hand in a fraction of second in that the Things of internet became king in the field of medicine here it going to use the RFID tag sensors, electrodes, communication protocols , web application. The IOT supports a several of interaction our project here we explained about human to machine interaction [H2M]. In our project we use different sensor in order to control the death of the people. Here the sensor collects all the information of a patient body and stores that information in a IOT device and responsible doctor posses that information and sends first aid treatment instruction to the patient.

Index Terms - IOT, RFID,WEB Protocol, Sensors, ,Mobile.

I INTRODUCTION

The term IOT was coined by "Kevin Ashton" during the period of 1999. The term IOT stands for "Internet of Things".

The "Kevin Ashton" is also called has father of IOT .why he is called has father IOT because he was the first person who explained how the physical devices are connected to network devices by using internet.
The standard definition of Internet of Things (IOT) is a system of interrelated computing devices, mechanical, electrical, and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without the interaction of human-to-human or human-to-machine.

Inside the current technology enabled world, changes vicinity unit fast and therefore the status-quo is constantly noncontiguous. internet of things (IOT) is one such disruption occurring at once, that has the potential to vary the way interest is delivered. there aren't any commonplace definitions for the internet of factors, as in keeping with the definition of Gartner, "net of things (IOT) is that the network of bodily items that incorporate embedded era to talk and feel or act with their inner states or the outside environment".

The idea of net of things involves the usage of bodily technological know-how devices that seize or display information and region unit connected to the private or public cloud, facultative them to robotically cause sure occasions [3]. it permits everyday devices to talk with each other and/or with people, permits item to feel and management commonly is introduced up due to the fact the net of things (IOT). It is a extraordinarily dynamic and greatly distributed networked system, composed of a highly full-size quantity of accurate items. The standard definition of IOT is "a dynamic worldwide network infrastructure with self-configuring abilities supported common and practical verbal exchange protocols anywhere physical and digital "matters" have identities, physical attributes, and digital personalities and use sensible interfaces, and region unit seamlessly incorporated into the know-how community." the IOT allows parents and matters to be linked anytime, anyplace, with something and absolutely everyone, ideally victimization any course/network and any provider. the most members for the IOT can be attributed to the expansion of accurate telephones and drugs. Those mobile devices act as a window to the IOT global. they need the abilities to perform the wide selection of tasks for the patient & medical doctors, moreover to offering great and belongings. the mobile revolution is pushing the belongings of opportunity physical gadgets seamlessly victimization the cloud garage. as loads of and a lot of devices location unit connecting and communiqué with one another, vast volume of information is modified. this explosion of know-how must be preserve on, analyzed with superior facts analytic strategies to produce the mandatory records for every the patient and medical doctor. but, in the modern-day fashion, solely the clinical devices among the clinic infrastructure area unit connected among themselves and this community provides access thru medical apps obtainable to the clinicians.

IOT basically connects absolutely extraordinary gadgets(sensors) to each alternative. through connecting medium which might be WI-FI or wired. once object can be detected then we will be carry out movement in line with that. which is idea as good gadgets? basically IOT created everyday life honest and that we will do things automatically with victimization IOT technology. it consists of numerous area like home automation, fitness care, correct putting.

Nowadays everyone are with their work they are not having time to look after there health all are busy in making a money. In India about 60% of people loosing their lives by heart attack because without getting proper treatment or suggestion at the right time. The main aim of our project is to reduce the death of the people which is caused dye to the heart attack, air block in the thought and the respiratory level of the people by using different types of sensors like ECG sensor, gas sensor, and the pulse sensor these sensor helps to detect the condition of our body and informing to the respected person about our body condition .By using these sensors we can reduce the death of the people who are losing their lives without getting proper treatment at the right time.

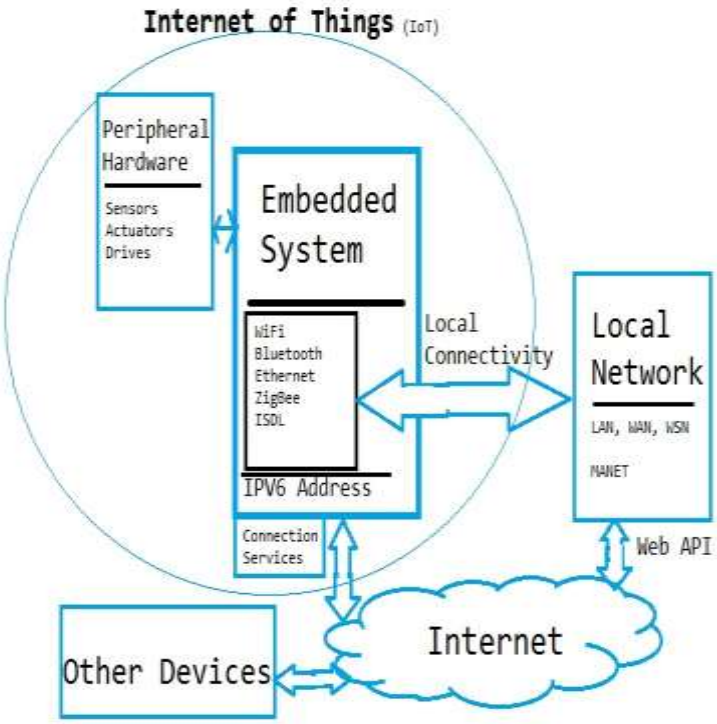

fig 1:introduction to IOT

II SYSTEM ARCHITECTURE

The figure no 1 shows the block diagram of the IOT in healthcare the system consists of ECG sensor, pulse sensor, gas sensor, atmega328/p microcontroller, IOT device, buzzer, emergency switch, power supply, voltage regulator, and finally the android app.

The three sensors are connected to the human body which collects the all the information about heart rate, pulse rate, and the respiratory value from the human body and all these information are transformed microcontroller then it process all the information and then microcontroller transforms these information to the IOT device then these IOT device which is in cloud storage checks the condition of patient and sends the information to the doctor through the android device.

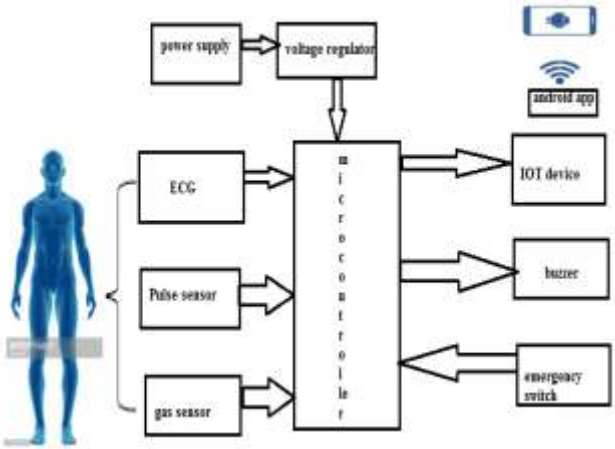

fig 2: system architecture

ECG sensor: This ECG sensor helps to record and monitoring the heart related diseases. It record the information in the form of waveform and these waveform are displayed in the android app if the patient is in good condition it shows normal otherwise it shows abnormal and informs to the doctor.

Pulse sensor: This pulse sensor plays a very important in the system architecture and this collects the pulse rate of the human that to five pulse rate at the time and display the rate of the pulse in the android app.

Gas sensor: The gas sensor we need to keep it near our mouth when we blow air from our mouth it records the respiratory value if it cross the minimum threshold value then the result is shown as abnormal in the android app.

Microcontroller: for our system architecture we use atmega328/p microcontroller it has flash memory and 32 bit program memory size and its based an AVR RISC architecture and it has high performance compare to all other microcontroller family.

IOT device: The IOT device means collection of billion physical devices which all are connected the internet and it helps for collecting and sharing the data. Inside the IOT device it has Wi-Fi module it helps foe sharing the internet.

Buzzer: When microcontroller collects and processes all the information about human body then the information is observed by buzzer if the patient is in very bad situation then it get alert and sends the information to the doctor.

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Emergency switch: The emergency switch is also act like buzzer and makes a sound when the person is in dangerous condition and it blinks a red color light in emergency condition then the person get alert.

III CIRCUIT DIAGRAM

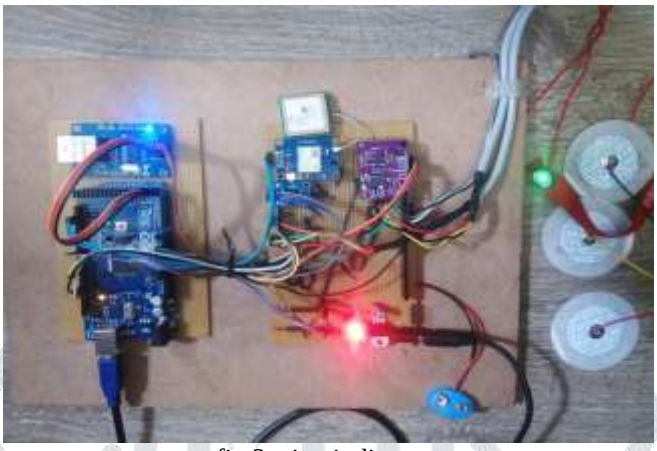

fig 3: circuit diagram

The fig 3 shows the circuit diagram of human healthcare system. Here the pulse sensor plays a very important role here we use a infrared pulse sensor it takes a mechanical single which is triggered from the blood of our finger and converts it into electrical signal using converter. The pin 2 connected to the microcontroller to the pin 1 to 13.

The gas sensor which used here is MC-2 CO carbon mono-oxide coal gas sensor . the 5v pin in gas sensor is connected to the respected pin of microcontroller.

The ECG sensor which we used for our project is AD8232 ECG sensor module. In this the output, GND, 3V, pin are connected to the microcontroller A0-A5.

The name of IOT device is rees52 serial WI-FI wireless transceiver module for IOT esp8266, buzzer, power supply, voltage regulator are connected to the respected pin of microcontroller.

IV SYSTEM FLOW

The fig 4 shows that how the system flows step by step.

The sensor collects all the respected information like ECG rate, respiratory level and pulse rate of the of the body and sends that information to the microcontroller the at mega 389p microcontroller possess the information and sends that to the my sql database centre than the data is displayed in the android app if the patient is in good condition it is notify to the care taker and if he is abnormal condition message is passed to doctor.

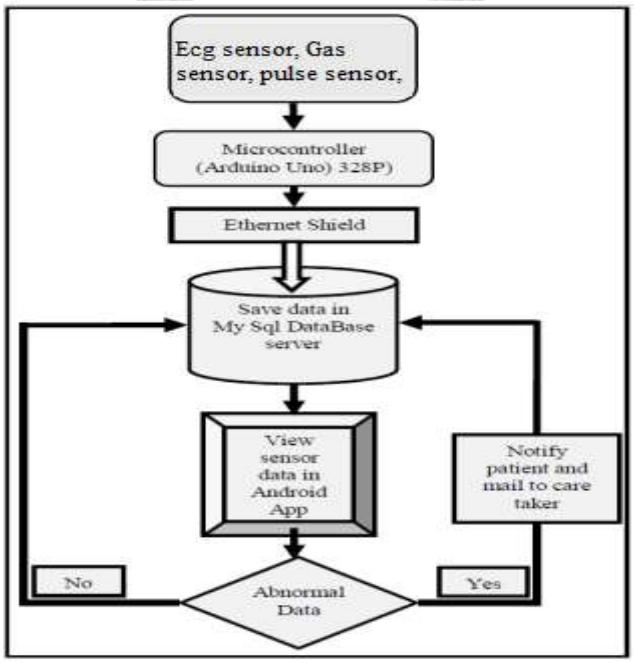

fig 4: system flow

V CHALLENGES

IOT world has challenges in several directions together with technical, regulatory, market-based and socio-ethical concerns. the middle of focus is on protective privacy as this can be the first reason behind different challenges together with government participation. Integrated effort from government, civil society and personal sector players to safeguard these values, the event of the web of Things are going to be hampered if not prevented.

Scalability:- Huge volume of information is processed as billion of IOT devices are connected to the network. Scalability has to be done by the system to the network data from the iot device. Follows and everyday object are connected with one another within the present state of the IOT evolution knowledge analytics and cloud storage for the interpretation of new data.

I**nteroperability**:- Technological standards on most are still fragmented. These technologies have to be compelled to be converged. This may facilitate to ascertain the common framework and therefore the commonplace for the IOT devices. Because the standardization method continues to be lacking, ability of IOT with heritage devices ought to be thought of vital. This lack of ability is preventing North American country to maneuver towards the vision of actually connected everyday practical good objects.

Lack of state support : – In the safety and the security of the IOT devices, standard committee has put place by the government and regulatory bodies like FDA. .

Safety of patients :– If unattended IOT devices are used as patient as wearable or implantable , thanks to purpose and nature of it. Any branches in security are life threatening and terribly vital.

Security and private privacy :– confidently integrity and convenience of patient is personal knowledge has been guaranteed of attention has been alone of IOT security and enhancements can also be researched. .

Design challenges: -The planning challenges may be met within the alone to future as the technology is rising at quicker rate . Through there are still some challenges these days but planning associate degee IOT based mostly system. these days, whereas planning associate degree IOT based mostly system

VI RESULT

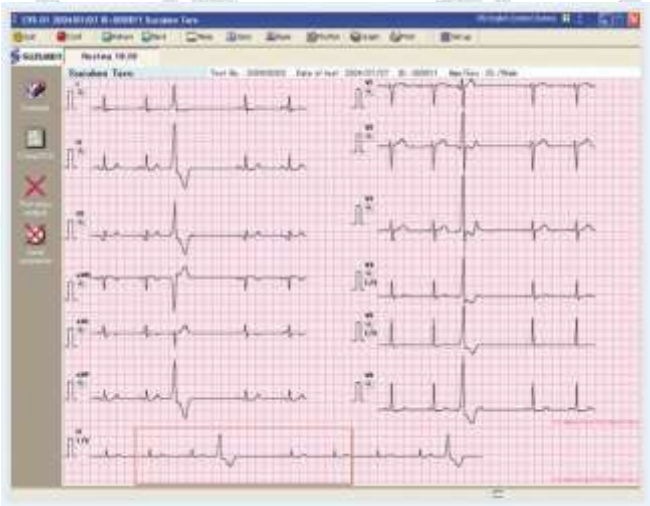

fig 5: ecg waveform

The fig shows results of my project this shows ECG waveform of our heart . If it cross some level patient in abnormal condition otherwise patient in normal situation.

We also set pulse rate to some threshold level if in case our pulse rate cross that limit our ECG waveform also differ.

VI CONCLUSION

In this paper, we have a tendency to designed associated developed an mechanical man primarily based EKG watching, metabolic process watching and appalling system, that focuses on the system design and alarm process, conjointly here we have a tendency to tested the responsibility and time delay during a real atmosphere. From this result, we have a tendency to might see that the system reflects easy style and powerful responsibility. It's conjointly supported a stable mobile operator's network atmosphere. And on the facet of shopper mechanical man phone to receive messages, there's some space for improvement in power consumption. Anyway, we have a tendency to believe that it's an exact application price for medical professionals to treat vessel and cardiopathy.

VII ACKNOWLEDGMENT

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