International Journal of Advance Research in Science and Engineering
Volume No. 12, Issue No. 04, April 2023
www.ijarse.com
IJARSE
ISSN 2319 - 8354

Automatic Medical Dispatcher with Dynamic Telemontoring Using IoT In Rural Areas

L.Saritha[1], K.Mohan Sai[2], M.Kokila[3], Sk.Alekhya[4], Sk.Sohel7

[1]Assistant Professor,[2,3,4,5]UGStudents,

Department of Electronics and Communication Engineering,Tirumala Engineering college, Narasaraopet, Guntur Dist. Andhra Pradesh

ABSTRACT

The automatic medical dispatcher with dynamic telemonitoring using Iot in rural areasis an innovative system designed to improve healthcare services in remote regions. It leverages the power of the Internet of Things(IOT) to enable remote monitoring of patient's vital signs and the automatic dispatching of medical professionals in case of emergencies .This system uses sensors to collect data and transmit it to be centralized server for analysis, and the analyzed data is used to trigger alerts to health care providers when necessary. This technology helps healthcare providers when necessary.This technology helps helathcare providers to respond quickly to emergencies, reduce patient hospitalization, and improve overall healthcare outcomes in rural areas.The automatic medical dispatcher with dynamic telemonitoring is a promising solution to helathcare challenges faced by remote regions.

I INTRODUCTION

An innovative answer to the healthcare issues encountered by rural areas is the autonomous medical dispatcher with dynamic telemonitoring utilising IoT. Many locations have limited access tohigh-quality healthcare, and travelling a long way to the nearest hospital can frequently make it difficult to get prompt medical care. With the help of IoT, this system enables automatic sending of medical personnel in case of emergencies as well as remote monitoring of patients' vital signs. It makes use of sensors to gather data, transfer it to a central computer for processing, and, when required, alert healthcare personnel in real-time. In rural areas where access to high-quality healthcare is scarce, this technology has the potential to enhance healthcare outcomes, lower hospitalisation rates, and save lives.

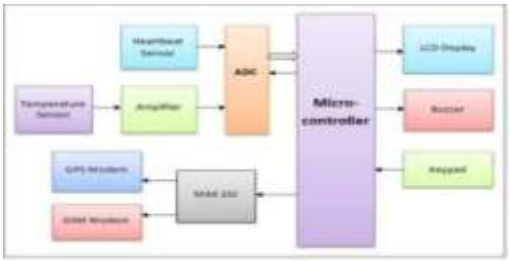
II LITERATURE REVIEW

The deployment of autonomous medical dispatchers with dynamic telemonitoring utilising IoT in rural regions has been the subject of several research. These studies have demonstrated the technology's potential to greatly enhance medical results, lower hospital stays, and save lives. Yet, there areobstacles to this technology's adoption in rural regions, including poor connection, high costs, and the requirement for specific training for healthcare professionals. Researchers have suggested fresh approaches to tackle these problems, such as LPWAN technology, cloud-based analytics, and AI algorithms to raise the technology's usability, precision, and affordability. To fully realise the promise of this technology and remove obstacles to its use in rural areas, more

study is required.

III EXISTING METHOD

In rural locations, the current autonomous medical dispatcher with dynamic telemonitoring approach uses sensors attached to the patient's body to gather information like temperature, blood pressure, and heart rate. When warnings are required, healthcare practitioners get them in real- time once the data has been transferred to a centralised server for examination. The technology permits automated sending of medical personnel in case of emergency and remote monitoring of patients' vital signs. In rural areas where access to high-quality healthcare is scarce, this technology has the potential to enhance healthcare outcomes, lower hospitalisation rates, and save lives. The current approach has already been put into practise in a few areas, and better healthcare results andfewer hospital admissions have shown how successful it is.



LIMITATIONS OF EXISTING METHOD

- In rural areas, access to high-speed internet connectivity can be limited, which can affect the real-time transmission of patient data. This can cause delays in healthcareproviders receiving alerts and responding to emergencies.men safety device with GPS tracking and alert.
- The implementation of this technology can be expensive,making it difficult for healthcare providers in rural areas to afford it. The necessary equipment ,as well as training healthcare providers, can be a significant barrier to implementation. This can limit the accessibility of the technology to rural areas with limited resources.

IV PROPOSED METHOD

Here proposed system is designed to reduce the difficulties in rural areas.The suggested approach is intended to lessen the challenges faced by rural residents. It incorporates the notion of a functioning e-health care system. By connecting to individuals in faraway locations, the technology primarily minimizes human work. Remote monitoring of health data to achieve intelligent healthcare has lately drawn a lot of interest in the existing system due to the substantially expanding deployment of the Internet of Things (IoT). Theproposed system uses Health Chain, a large-scale IoT-based approach for protecting the privacy of health data, to carry out fine-grained access control. Our implementation is in the modification portion of the change. In all the remote locations where people cannot find a decent or top doctor on time, we set up the Anytime Medical Counter. We

put in temperature and heartbeat monitor,The medical device is also connected to a load cell, single relay, ultrasonic sensor, and headphone. Users of the medical counter are observed from a distance. Application for audio conversation and doctor chat is installed on both ends. The user uses the AMM machine to receive the medications that the doctor has prescribed after the doctor has examined the patient. To obtain the timings for taking medications, the user can submit a request to the server. The system receives a certain set of URLs via which the results of the interface are shown.

SOFTWARE REQUIRED

Microcontroller, PIC

In order to provide remote patient monitoring and prompt medical aid in case of emergency, PIC microcontrollers can be employed in an autonomous medical dispatcher system with dynamic telemonitoring leveraging IOT in rural locations.PIC microcontrollers can be applied in thefollowing ways, for example :

Sensor Interfacing :PIC

In order to collect patient data, PIC microcontrollers may link a variety of sensors, including temperature, pulse, and blood pressuresensors.

IoT connectivity:

To transfer patient data to a central server for remote monitoring, PIC microcontrollers may be linked to the internet via IoT technologies like Wi- Fi or GSM.

PIC microcontrollers can be set up to deliver real- time notifications to medical staff in the event of crises such a rapid shift in patient vital signs. Automatic dispatch: In the event of an emergency, PIC microcontrollers can be used to activate an automatic medical dispatch system, allowing medical workers to react swiftly and efficiently.

BLOCK DIAGRAM OF PROPOSED METHOD

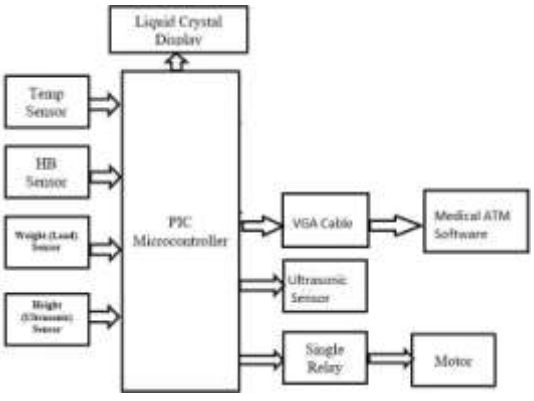


Fig 1:Block diagram

LM35 Temparature Sensor-

To maintain the health condition, body temperature is an important factor. Here we use LM35 series body temperature sensor. It is operates in +10.0mV/°C scale factor with 0.5°C accuracy.The output voltage of the LM35 series precision integrated-circuit temperature sensors is directly proportional to the temperature in degrees Celsius. Compared to linear temperature sensors calibrated in Kelvin, the LM35 gadget offers an advantage because .

For easy Centigrade scaling, the user does not need to deduct a sizable constant voltage from the output.

The output of the precise IC temperature sensor LM35 is proportional to the ambient temperature (in o C). As the sensor circuitry is enclosed, oxidation and other processes are not allowed to affect it. Temperature can be monitored more precisely with the LM35 than it can with a thermistor. Also, it doesn't raise the temperature in still air by more than 0.1 oC and has minimal self- heating.

HEARTBEATSENSOR

The board's functioning is relatively straightforward. To turn on the IR sensor, the Enable(EN) pin has to be pushed high once the board has been powered by a 3-5.5V supply. Then,lightly press the tip of your fingertip on the sensor's face. Your finger should not move and should not apply excessive pressure on the sensor. The circuit settles down after a few seconds, and you will then see the LED blinking in time with your heartbeat. The output signal (Vout) may be connected to the microcontroller's digital I/O pin or ADC input pin to measure the heart rate in beatsper minute (BPM). Using an oscilloscope, the output voltage waveform may also be seen. I used Digilent's Analog Discovery tool to connect and examine the input PPG and output waveforms from the two LPF stages.

RESULTS

The below figure represents the output onhardware kit.

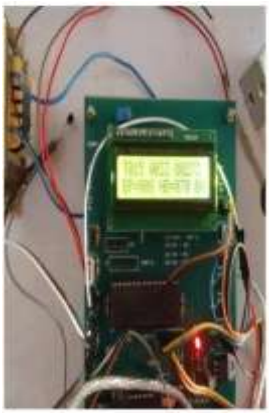


Fig : **Output of hardware kit.**

Fig. Experimental output

V CONCLUSION

IoT technology is the combination of several technologies that allows various devices and objects to communicate with one another and utilise various network technologies. The proposed system provides patients with better and more effective health care services. The information gathered is networked globally via the internet and communication devices, which are then connected to cloud services. Doctors can use this information to quickly and efficiently solve a patient's problem. The suggested concept is a well-equipped system that allows a doctor to check on a patient whenever and wherever. If the cutoff value is achieved, a warning to see a doctor is delivered to the patients. This technique is useful for patients who are instructed to spend their whole day in bed and for sick patients since it allows the doctor to physically monitor the patient from their home with the help of camera which is used in the homes.

VII REFERENCES

[1] Govind Sway ,Ravi Kishore Kodali and Boppana Lakshmi, "An Implementation of Iot for healthcare ", IEEE Reecent Advancements in Intelligent Computational Systems(RAICS)10-12 December 2015.

[2] Punit Gupta , Deepika Agarwal,Jasmeetchhabra,Pulkit kumar Dhir, IOT based smart healthcare kit "Jaypee University of Information Technology. International Conforence on Computational Technologies.

[3] M.Thiyagarajan, Chaitanya Ravendra, "Integration in the Physical World in IoT using Android Mobile Application," International Conference on Green Computing and Internet of Things(ICGCIoT), pp. 8- 10 Oct,2015