International Journal For Advanced Research In Science & Technology
A peer reviewed international journal
www.ijarst.in
ISSN: 2457-0362

CLEVER AND SPONTANEOUS HEALTH CHECKING OF PATIENT USING WIRELESS NETWORK

[1]Mr. S. Ashok, [2]T. Shruthi, [3]A. Usha Sree, [4]K. Manasa

[1]Assistant Professor, Department of Electronics and Communication Engineering,
[2,3,4]Student, Department of Electronics and Communication Engineering,
Sridevi Women's Engineering College, Telangana, India.
shruthitammali00@gmail.com
Ushasree6193@gmail.com
manasakotha25@gmail.com

ABSTRACT:

Using a Wireless Sensor Network, this article details the system's architectural architecture for providing smart healthcare. Checking up on a patient's vitals is a typical responsibility in every setting where medical treatment is provided. With the help of the suggested system, patients would be equipped with a number of body-sensors to measure various biometrics. Patients wear Arduinos, which act as the sensor node's facilitator and transmit data over WiFi to a server. Because of its widespread usage in healthcare, WiFi causes almost little interference with other equipment. The server uses the threshold value to identify aberrant patient conditions, and then sends the doctor an SMS, an email, and a live video stream. Wearing the sensors isn't restrictive, and the patient's ability to move about while still keeping in touch with their doctor thanks to the system's built-in video stream. By using this method, we can better serve patients who need round-the-clock remote health monitoring.

I. INTORDUCTION:

Because of a lack of routine monitoring, many patients in India are negatively impacted every day [10]. In addition, hospitals are not ideally suited for measuring parameter values in real time since patients cannot be monitored continuously. Doctors have an uphill battle when it comes to checking in on their patients often and keeping tabs on their health state in real time [14]. Our method has the potential to be useful in resolving such issues. Health and wellness management is one of the most crucial areas where new technologies are being put to use [11]. Proactive approaches, typified by early identification, prevention, and improved health management, are replacing traditional reactive methods in the healthcare industry. In this model, important

components of personalized health care are medical issue monitoring and well-being management.

II. LITERATURE REVIEW:

The E-health sensors shield kit interface kit was presented by Ananda Mohan Chatterjee et al. [1] as a means by which family members and consulting physicians may keep tabs on a patient's health status through the internet. Yet, no alerts, such as emails or text messages, are sent to the appropriate loved ones or medical professionals. With the use of a Raspberry Pi and some sensors, P. Kumari et al. [2] have developed a healthcare system for monitoring patients, with data on the patient's heart rate, breathing, temperature, and motion being gathered and shown on a screen through the putty program. Our suggested method, however, also includes an alert warning to ensure that the patient receives his or her medication. Sarfraz Fayaz Khan [3] has shown how the Internet of Things (IoT) and RFID tags may be used to create an effective healthcare monitoring system for patients. Yet, our document includes preventative steps regarding the patient's health by managing the appliances and supplying the necessary medications to the patient. Freddy Fernandez et al. [4] has focused only on health monitoring and notifying physicians and loved ones of any changes in the patient's condition. In addition, our approach focuses only on monitoring and timely alerting, and does not involve control of the appliances themselves.

S. Siva [5, 6] et al. showed that the smart hospital system may be used to track a patient's vitals. Patients' vital signs may be monitored with the spark kit. In the event that the patient's temperature or heart rate exceeds a certain threshold, an alarm is delivered to the caregiver's device.

III. EXISTING SYSTEM:

Each person has the inherent right to the WHO's definition of "healthy life," which is the best possible state of health. Motivated by this, we set out to design a cutting-edge system that monitors patients' vital signs with the assistance of sensors and keeps physicians up to date through the web in the event of any problems, with the hope of reducing mortality rates.

International Journal For Advanced Research In Science & Technology
A peer reviewed international journal
www.ijarst.in
ISSN: 2457-0362

IV. PROPOSED SYSTEM:

In the work suggested here, an Arduino Uno is used to keep tabs on vital signs including temperature, EEG, and heart rate. As the signals from these sensors have a low level (gain), an amplifier circuitry and control signal unit (SCU) are employed to boost them before sending them on to the Arduino Board. Here, the patient's temperature, EEG, and heart rate are all tracked by separate sensors and sent to a cloud database, where they can be accessed from anywhere over the internet.

BLOCK DIAGRAM:

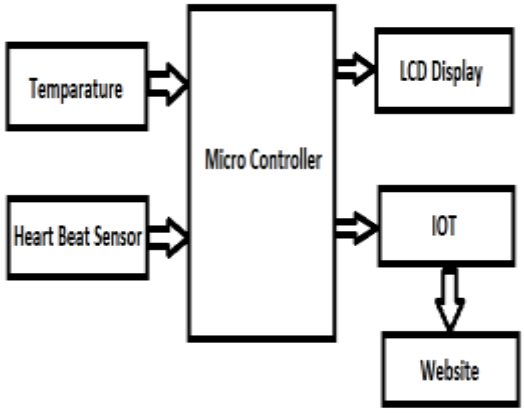

Figure 1. Block diagram

The main objective of this endeavor is to create a sophisticated system for monitoring patients' health. The suggested system's big picture is shown in Fig.1. The patient's temperature and heart rate may be monitored thanks to the sensors implanted all over their body. Two more sensors have been placed in the patient's house to monitor the relative humidity and ambient temperature. The data from all four sensors is sent to a central processing unit for analysis. The resulting numbers are then sent to the initial station over the IoT cloud. The doctor may get the values from the central station and use them wherever they happen to be. The doctor may assess the patient's condition and decide on a course of treatment based on data from the patient's temperature, heart rate, and environmental sensors.

International Journal For Advanced Research In Science & Technology
A peer reviewed international journal
www.ijarst.in
ISSN: 2457-0362

The Internet of Things (IoT) has several uses in the healthcare industry that improve outcomes for patients, their families, doctors, hospitals, and insurers. Wearables such as fitness trackers and other wirelessly linked devices such as heart rate monitor cuffs, glucometer, etc. make up the Internet of Things (IoT) for patients.

PULSE SENSOR:

The terms heartbeat sensor and heart rate sensor both refer to the same thing. Connecting this sensor from a finger or the ear to an Arduino board enables it to function. In order to determine a person's heart rate with ease.

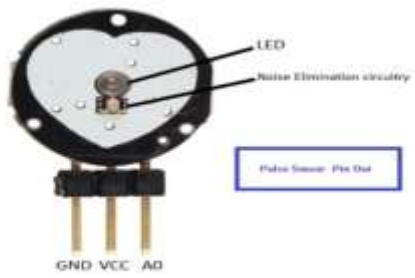

Figure 2. Pulse sensor

The basis of operation for a pulse sensor is rather simple. The first surface is where you'll find the connections for the ambient light sensor and light-emitting diode. Similarly, the circuit responsible for the noise suppression and amplification is linked on the second layer.

The LED is placed over a vein in a body, such as at the tip of a finger or ear, but it must be placed over a layer directly. After the LED has been positioned above the vein, it will begin to shine. Blood circulation begins in the veins after the heart begins to beat. Hence, we can determine heart rates by monitoring blood flow.

If the blood circulation is detected, the light source sensor will pick up an increased amount of light since the blood will act as a replica of the original source. This imperceptible shift in the seen light may be tracked over time to determine our heart rates.

International Journal For Advanced Research In Science & Technology
A peer reviewed international journal
www.ijarst.in
ISSN: 2457-0362

TEMPERATURE SENSOR:

An electronic sensor used to record, monitor, or communicate changes in temperature by taking readings from its surrounding environment and converting them into digital form. A wide variety of temperature sensors are available.

Figure 3. Temperature sensor

Electrical signals are used by temperature sensors to provide readings. Sensors are made up of two metals, and they detect changes in temperature by monitoring the current across the diode's terminals. The temperature rises as the voltage rises. also increases.

V. RESULT:

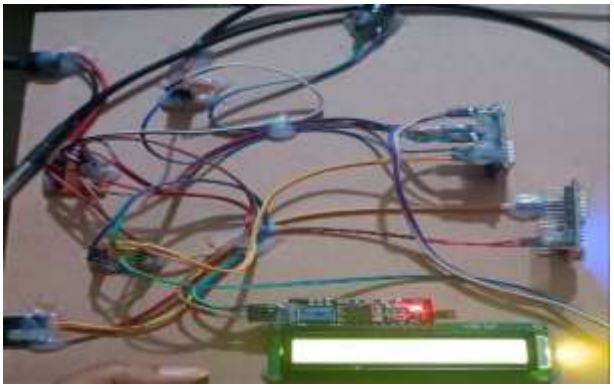

Figure 4. Alert Notifications

The figure 4 gives the notification of the pulse, spo2, temperature.

International Journal For Advanced Research In Science & Technology
A peer reviewed international journal
www.ijarst.in
ISSN: 2457-0362

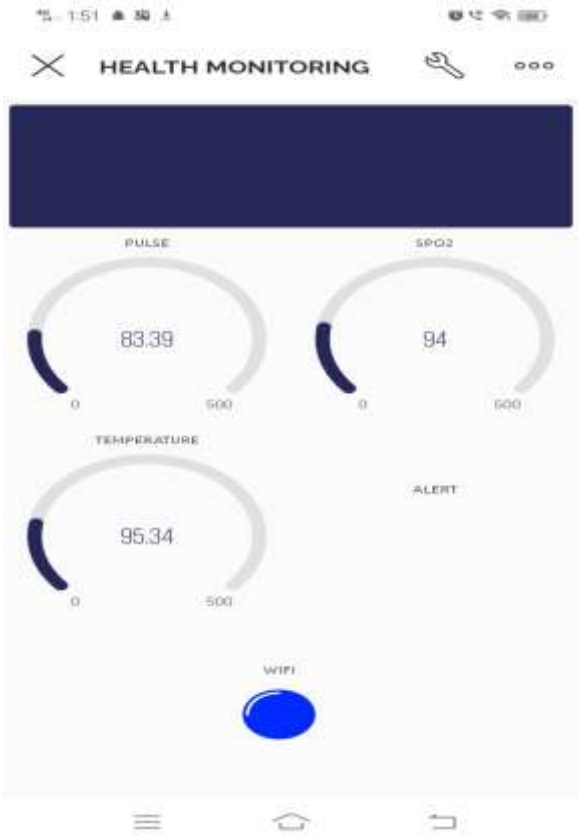

Figure 5 Displays the values

Figure 5 Displays the values of spo2, pulse, temperature of the patient.

VI. REFERENCES:

[1] S. J. Jung and W. Y. Chung, "Flexible and scalable patient's health monitoring system in 6LoWPAN," Sensor Lett., vol. 9,no. 2, pp. 778–785, Apr. 2011.

[2] W. Y. Chung, C. Yau, K. S. Shin, and R. Myllylä, "A cell phone based health monitoring system with selfanalysis processor using wireless sensor network technology," in Proc. 29th Annu. Int. Conf. Eng. Med. Biol. Soc., Lyon, France, 2007, pp.

[3] G. Lawton, "Machine-to-machine technology gears up for growth," Computer, vol. 37, no. 9, pp. 12–15, Sep. 2004.

[4] C. Kim, A. Soong, M. Tseng, and X. Zhixian, "Global wireless machineto- machine standardization," IEEE Internet Comput., vol. 15, no. 2, pp. 64–69, Mar.–Apr. 2011.

[5] Real time wireless health monitoring application using mobile devices, International Journal of Computer Networks & Communications (IJCNC) Vol.7, No.3, May 2015, Amna Abdullah, Asma Ismael, Aisha Rashid, Ali Abou-ElNour, and Mohammed Tarique.

[6] Secured Smart Healthcare Monitoring System Based on Iot, International Journal on Recent and Innovation Trends in Computing and Communication Volume: 3 Issue: 7, Bhoomika.B.K, Dr. K N Muralidhara.

[7] Real time wireless health monitoring application using mobile devices, International Journal of Computer Networks & Communications (IJCNC) Vol.7, No.3, May 2015, Amna Abdullah, Asma Ismael, Aisha Rashid, Ali Abou-ElNour, and Mohammed ,Tarique.

[8] Secured Smart Healthcare Monitoring System Based on Iot, International Journal on Recent and Innovation Trends in Computing and Communication Volume: 3 Issue: 7, Bhoomika.B.K, Dr. K N Muralidhara.

[9] Goutam Motika, AbinashPrusty," Wireless FetalHeartbeat Monitoring System Using ZigBee & IEEE 802.15.4 Standard", 2011 Second International Conference on Emerging Applications of Information Technology, 978-0- 7695-4329-1/11, 2011 IEEE DOI 10.1109/EAIT.2011.89 .

[10] S. M. Mahalle, P. V. Ingole, "Design and Implementation of Wireless Body Area Sensor Network Based Health Monitoring System", International Journal of Engineering Research & Technology, Vol. 2 Issue 6, pp. 105- 113, June 2013.

[11] M.Prakash, CJ Kavitha Priya, "An Analysis of Types of Protocol Implemented in Internet of Things Based on Packet Loss Ratio", Proceedings of International Journal of Information and Communication Technology for Competitive Strategies, ISBN: 978-1-4503-3962-9, DOI: https://doi.org/10.1145/2905055.2905085, 4th – 5 th Mar 2016

[12] M. Prakash, U. Gowshika, T. Ravichandran, "A Smart Device Integrated with an Android for Alerting a Person's Health Condition: Internet of Things" Indian Journal of Science and Technology, Vol 9 (6), February 2016. DOI: https://doi.org/10.17485/ijst/2016/v9i6/69545

[13] Dr.A.Sabanayagam, G.AnishGirija," DESIGN AND MODELING OF MOBILE HEALTH MONITORING SYSTEM", International Journal of Innovations in Scientific and Engineering Research (IJISER),vol4,no 2,pp.63- 65,2017.

[14] "Healthcare Monitoring System Using Wireless Sensor Network", D. Mahesh Kumar, Department of Electronics, PSG College of Arts and Science, Coimbatore - 641 014.Volume 04, Issue 01 Pages:1497-1500 (2012), ISSN:0975-0290.

[15] https://www.ibm.com/blogs/internet-of-things/6-benefits-of-iot-for-healthcare/