IOT BASED PATIENT MONITORING SYSTEM DURING COVID-19

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ABSTRACT: Nowadays monitoring individual's health day to day has become an important concern in view of Covid19. It would help us to diagnose some changes that could happen inside a human body. Two of the important parameters that could be monitored are the internal temperature level and heartbeat of a person that could be made a part of an IOT system. This is used to monitor the health of a person. The objective ofthis paper is to build a structure for understanding the health care system and to provide treatment for patients. The theme of this paper is to build a framework organized for the survey of health professionals and to give answers for patients.

Key words: loT, Health monitoring, Temperature sensor, Heart rate sensor, Oxymeter MAX30100, Thingspeak, ESP8266 wifi module, Buzzer

I. INTRODUCTION

With tons of new healthcare technology start-ups, IoT is rapidly revolutionizing the healthcare industry. In this project, we have designed the IoT Based Patient Health Monitoring System using ESP8266 & ATmega328P . The IoT platform used in this project is ThingSpeak. ThingSpeak is an open-source Internet of Things (IoT) application and API to store and retrieve data from things using the HTTP protocol over the Internet or via a Local Area Network. This IoT device could read the pulse rate and measure the patient body temperature. It continuously monitors the pulse rate and patient body temperature and updates them to an IoT platform.The ATmega328P Sketch running over the device

implements the various functionalities of the project like reading sensor data, converting them into strings, passing them to the IoT platform, and displaying measured pulse rate and temperature on character LCD.

II. LITERATURE SURVEY

A remote patient monitoring system is proposed in [1] where it is possible for doctors to monitor the patients from remote locations using World Wide Web (WWW). This system helps doctors as well as patients to get rid of the hospital environment for more amount of time in situations where diagnosis can be done at home.The system developed in this paper includes a service for locating the patients and as well a system for monitoring all the physiological parameters of the patient.Parameters like oxygen level, blood pressure, heart rate, temperature etc. are important to estimate one's health. Monitoring these parameters nowadays is very important to sense any danger that might happen in the near future.

In [2] Maradugu Anil Kumar et al have proposed a system for monitoring the above said parameters.The physician/doctor can be able to track the record of patient as the data is stored in a server.

In [3] Ufoaroh S.U et al have proposed a system which monitors the heart rate of a patient and sends an SMS alert to the concerned person and medical personnel if the value exceeds a set threshold through

GSM. The heart rate is also displayed in an LCD screen.Along with monitoring of the parameters related to health there is a need to store that data in a cloud platform and make the entire system connected to IOT. Such system is proposed by Ngo ManhKhoi et al in [4]. As the data generated will be huge in this paper authors have studied the bandwidth requirements and volume of data that is generated at every single point of time using protocols like CoAP, MQTT and HTTP.

In [5], [15] authors have presented how IOT can be applied to home automation. Using this technology a home can be converted in a smart way where most of the physical work will be reduced. We can also design our home in such a way that consumption of electricity can also be tracked.

In [6], [7] AyushBansal et al have discussed a system that could trace a person's ECG that will be sent to a server where analysis is done on the data and corresponding graphs will be given to the concerned person and doctor. This system helps in detecting any cardiac problems.

In [8] KaleemUllah et al have found out that in the existing methods of providing patient details and monitoring that patient namely e-health and m-health there is no involvement of mobile in sensing the

parameters of the body. So they have proposed a system that looks into the aforesaid issue.

III. PROPOSED SYSTEM

This is a simple block diagram that explains the IoT Based Patient Health Monitoring System using ESP8266 & ATmega328P . Pulse Sensor and LM35 Temperature Sensors measure BPM & Environmental Temperature respectively. The MAX30100 is an integrated pulse oximetry and heartrate monitor sensor solution.ATmega328, nice or wise management of this when receiving these values, these values are saved showed on the display and at a similar time sent to the IoT system exploitation the Wi-Fi module with Wi-Fi modules within the IoT display system these numbers area unit for various websites and applications Wi-Fi sources, and chat area unit used for this employing a web site or app, doctors will track pulse rate and their patients from anyplace.The ATmega328 Pprocesses the code and displays it to 16*2 LCD Display. ESP8266 Wi-Fi module connects to Wi-Fi and sends the data to IoT device server. The IoT server used here is Thingspeak. Finally, the data can be monitored from any part of the world by logging into the Thingspeak channel.
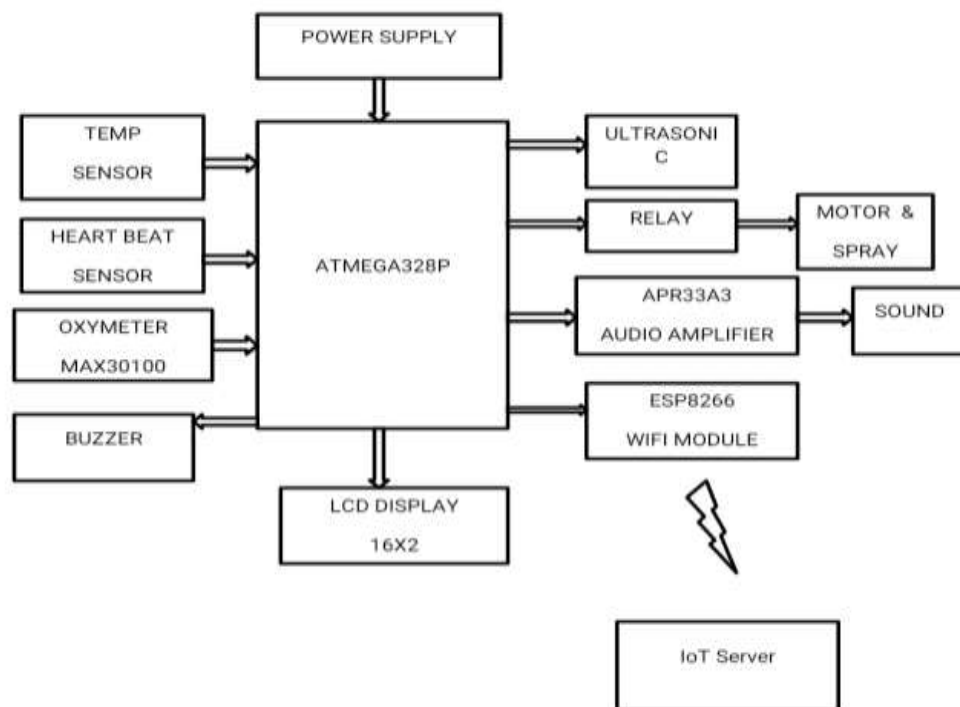

Fig 1 Block diagram of the proposed model

IV. CONCLUSION

The proposed patient health monitoring system can be used extensively in an emergency conditions as they can be monitored daily, recorded and stored as a database. In the future Iot device can be integrated with computer computing so that the database can be shared across intensive care and treatment hospitals. And also in this pandemic this health monito-ring is very useful, we can avoid go to hospital regularly in this pandemic and check our self in our house only.

REFERENCES

[1] Sowmya, K. &Chandu, A. &Nagasai, A. &Preetham, C. &Supreeth, K.. (2020). Smart Home System Using Clustering Based on Internet of Things. Journal of Computational and Theoretical Nanoscience. 17. 2369-2374. 10.1166/jctn.2020.8897.

[2] Teju, V. &Sai, K. &Swamy, &Bharath, K.. (2020). Mining Environment Monitoring Based on Laser Communication with Internet of Things. Journal of Computational and Theoretical Nanoscience. 17. 2375-2378. 10.1166/jctn.2020.8898.

[3] Kishore K.H., Harsha S.P.S., Allu S.S.K., Teja P., Raghuveera E., Basha F.N. (2019), 'Iot based humidity and temperature monitoring using arduinouno', International Journal of Innovative Technology and Exploring Engineering, 8(6), PP.167-171

[4] Raghuveera E., Kumar N.P., Yeswanth A.S., Pavan L.S.M. (2019), 'Soil moisture monitoring system using IOT', International Journal of Innovative Technology and Exploring Engineering, 8(7), PP.549-554

[5] Penchala Naidu T., Sri Varma J.G.R.S.N., Sumanth Kumar K.L.N.P.V.P., Prasad N.V., Saketh H. (2019), 'Surveillance of environment using node Mcu based on Iot', International Journal of Recent Technology and Engineering, 8(1), PP.785-788

[6] Pavithra, T &Sastry, J. (2018). Strategies to handle heterogeneity prevalent within an IOT based network. International Journal of Engineering & Technology. 7. 77. 10.14419/ijet.v7i2.7.10264.

[7] Gopi Krishna P., Sreenivasa Ravi K., Hari Kishore K., Krishna Veni K., Siva Rao K.N., Prasad R.D. (2018) , 'Design and development of bi-directional IoT gateway using ZigBee and Wi-Fi technologies with MQTT protocol',International Journal of Engineering and Technology(UAE), 7 (2),PP. 125- 129

[8] Manikandan, R and Dr.R.Latha (2017). "A literature survey of existing map matching algorithm for navigation technology. International journal of engineering sciences & research technology", 6(9), 326-331.Retrieved September 15, 2017.

[9] A. Mdhaffar, T. Chaari, K. Larbi, M. Jmaiel and B. Freisleben, "IoT-based health monitoring via LoRaWAN," IEEE EUROCON 2017 -17th International Conference on Smart Technologies, Ohrid, 2017, pp. 519-524, doi: 10.1109/EUROCON.2017.8011165.

[10] K. Ullah, M. A. Shah and S. Zhang, "Effective ways to use Internet of Things in the field of medical and smart health care," 2016 International Conference on Intelligent Systems Engineering (ICISE),Islamabad, 2016, pp. 372-379,doi:10.1109/INTELSE.2016.7475151.