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Emergency Predictor System with Intelligent Cloud Management for Hospitals

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ABSTRACT: This paper represents the system for monitoring the patient's health 24/7 by using IoT for government hospitals and it is a wearable devices it get all information from the sensors and stores in a cloud it predict the emergency of the patient using decision making system and give the effective outcome. Now a day, patient monitoring system is getting much more popularity to the researcher and patient guardian. This system has the capability to monitor physiological parameters form patient body at every 15 collecting pulse, body temperature and heart rate, blood pressure from the patient's body and send the data into IoT Cloud platform and health condition of patient stored in the cloud. It enables the medical specialists and authorized person to monitor patient's health, where the medical specialist or authorized person can continuously monitor the patient's condition on the cloud server. The proposed outcome of this research is to give suitable and effective result.

KEYWORDS: IoT module, wearable device, sensors, cloud platform, medical specialist, decision making system, authorized person, effective result.

I. INTRODUCTION

The healthcare monitoring system has emerged as one of the most vital system and became technology oriented from the past decade and also health monitoring devices have become increasingly crucial in recent times due to factors such as heightened health awareness, pandemic preparedness, telemedicine's rise, chronic disease management, an aging population, fitness and wellness trends, personalized healthcare, research contributions. These devices play a pivotal role in promoting healthier lives, improving healthcare access and outcomes with this we additionally include intelligent cloud system this integration of both will leads to efficient improvement in the medical technology. It helps to make our society as health conscious society. The Internet of Things (IoT) is essential in innovative applications such as smart cities, smart homes, education, healthcare, transportation, and defense operations. IoT applications are particularly beneficial for providing healthcare because they enable secure and real-time remote patient monitoring to improve the quality of people's lives. This review paper explores the latest trends in healthcare-monitoring systems by implementing the role of the IoT. The work discusses the benefits of IoT-based healthcare systems with regard to their significance, and the benefits of IoT healthcare. We provide a systematic review on recent studies of IoT-based healthcare-monitoring systems through literature review. The literature review compares various systems' effectiveness, efficiency, data protection, privacy, security, and monitoring. The paper also explores wireless- and wearable-sensor-based IoT monitoring systems and provides a classification of healthcare-monitoring sensors. We also elaborate, in detail, on the challenges and open issues regarding healthcare security and privacy, and QoS. Finally, suggestions and recommendations for IoT healthcare applications are laid down at the end of the study along with future directions related to various recent technology trends. The term Internet of Things (IoT) was invented by Kevin Ashton in 1999 and refers to data on the Internet that are connected to evolving global service architecture [4,5]. IoT is the product of advanced research on information and communications technology. It can potentially enhance urban residents' quality of life. Since the global population is increasing at an astonishing rate, and the prevalence of chronic diseases is also on the rise, there is growing demand for designing cost-effective healthcare systems that can efficiently manage and provide a wide range of medical services while reducing overall expenses [5,6]. The IoT has become a key development area recently, enabling healthcare-monitoring system advancement. The IoT healthcare-monitoring system aims to accurately track people and connect various services and things in the world through the Internet to collect, share, monitor, store, and analyze the data generated by these things. However, the IoT is a new paradigm where all connected physical objects in any intelligent application, such as smart city, smart home, and smart healthcare, are addressed and controlled remotely. Diagnosing disorders and monitoring patients is essential to

providing medical care, and applying sensor networks to the human body will significantly assist in this endeavor. In addition, the information is readily accessible from any location in the world at any given time. The main contribution of this research paper is to highlight IoT based healthcare-predicting systems in detail so that future researchers, academicians, and scientists can easily find a roadmap to understand the current healthcare-monitoring systems and can easily provide solutions and enhancements for such critical applications. In this research paper, we provide a general idea of IoT based healthcare predicting systems in a systematic way, along with their benefits and significance, and a literature review.

PROBLEM STATEMENT:

Humans are facing a problem of unexpected death due to various illness which is because of lack of medical care to the patients at right time. In the hospitals, especially in government hospitals patients are allowed to visit the doctor on the basis of who will be come first. In case of emergency treatment require for the other patients compared to who visit first. However, they provide the treatment for first one. Also the medical staffs and doctors can't take care of the patient for continuous duration. Whenever the emergency treatment is required for the patient, the doctors may not know that at the time. Due to this, the patient may lead to death.

II. OBJECTIVE

The primary goal was to develop a reliable patient monitoring system using IoT and intelligent cloud system, so that the healthcare professionals can monitor their patients, who are either hospitalized or at home using an IoT based integrated healthcare system with intelligent cloud and also to provide information about status of the patient to the hospital control room and also to the patient's relatives. A wearable device based wireless healthcare monitoring system was developed by using IOT and intelligent cloud system. This Patient health predicting system helps to enable monitoring of patients in the hospitals without medical staffs near to the patient. The patient can able to access their data by using patient information card.

III. RELATED WORK

In [1] this paper tells about the IoT based wearable device it detects the respiratory function. This paper is related for wearable device it is applied for medical ventilation, it provides the essential healthcare to the patient and helps to save the life of the patient. This method assess the patient's respiratory status and analyzes and tracks their respiratory rate. In [2] this paper proposes the development of an intelligent health monitoring system with alerts and continuous monitoring using wearable devices, it helps to save the patient life from emergency. It is capable of collecting biometric data on human health. This concept was proven by the development of a prototype using sensors are connected to a microcontroller which transmits its information through the MQTT to a node-RED powered dashboard that handles the health metrics monitoring. The designed prototype has proven the satisfactory to provide the evidences that support the developed research questions. This paper also related for our research paper. In [3] it is based patient monitoring using ESP8266 and Arduino. Internet of Things is a technological paradigm which can be incorporated in real time patient monitoring system. The review and implementation of real time monitoring of patients using biomedical sensors and microcontroller is presented where physiological parameters like heart-rate, body temperature is measured. This IoT prototype could read the pulse rate and measure the body temperature updates them to things peak an IoT platform. This paper also related for our paper from these paper we get a knowledge about the wearable device, ESP8266, IoT platform and many things and useful for our research paper

IV. EXISTING SYSTEM

The existing system for this project would be a health monitoring device that are not integrates various health parameters such as major heart. problems, lung disease, fever and various diseases into a single device. This devices does not consider and store about the previous health status. It tells about only the current health status of the patient.

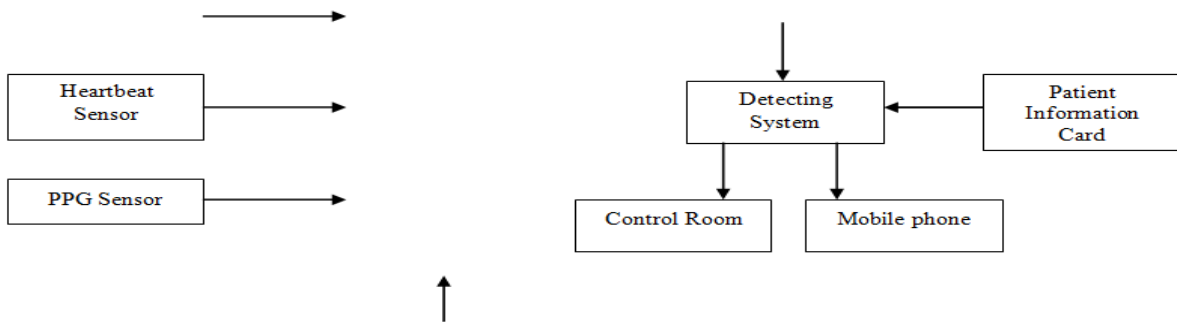
V. PROPOSED SYSTEM

But our proposed system is a integrated device. Because, it monitor the various health parameters through the single device and also consider and store the previous health status of the patient. This system compares the previous health status and current health status of the patient. Finally it gives the effective result by using detecting system. Here we

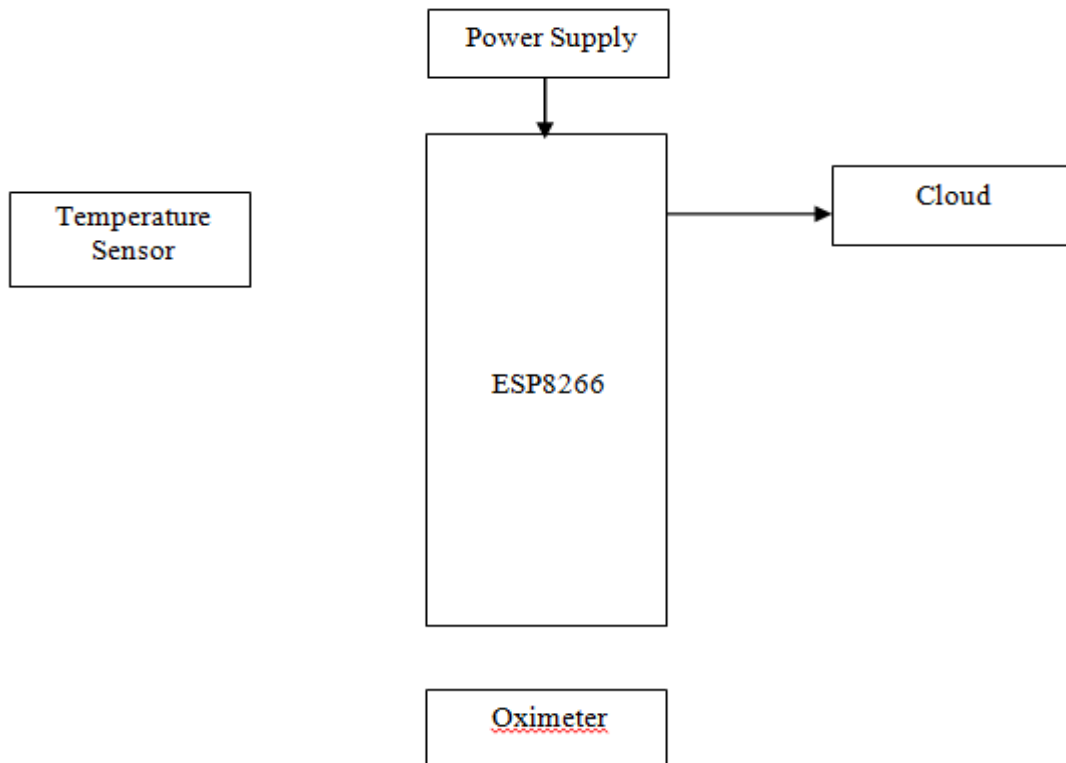
have additional advantage that is patient information card. By scanning the QR code in the card we can access patients health details.

SENSORS:

Sensors play an important role in creating solutions using IoT. Sensors are devices that detect external information, replacing it with a signal that humans and machines can distinguish. In this paper we use temperature sensor, heart beat sensor, PPG sensor, these sensors are used to sense the body temperature, heart rate, blood pressure of the patient. This information is given to the IoT module by the sensors. Other than sensors oximetry for detecting the oxygen level of the patient.



BLOCK DIAGRAM:



This block diagram shows the operation of the project. In this project temperature sensor, heart beat sensor, PPG sensor, oximetry are used.

MICROCONTROLLER:

In this paper ESP8266 is used as a microcontroller. It is a system on a chip (SOC) Wifi microchip for internet of things applications. It is low cost, small size and adaptability with embedded devices the ESP8266 is now extensively across IoT devices.

CLOUD:

In this paper cloud helps to store the data of the patient after that authorized people only access that information. One component that improves the success of the Internet of Things is Cloud Computing. Cloud computing enables users to perform computing tasks using services provided over the Internet.

The use of the Internet of Things in conjunction with cloud technologies has become a kind of catalyst, the Internet of Things and cloud computing are now related to each other. These are true technologies of the future that will bring many benefits.

DECISION MAKING SYSTEM:

Decision making system helps to take decision about patient's health condition based on the data stored in the cloud. In this project decision making system plays the major role and vital role. It compare the previous health status and present health status of the patient after that it takes the decision.

PATIENT INFORMATION CARD:

This card stores the health details of the particular patient. By scanning the QR code in the card we can access the patient health details anywhere in the world.

WEARABLE DEVICE:

In the medical field, wearable devices can connect doctors, patients, clouds, and other parties to understand changes in conditions, to alleviate pain, treat diseases, and facilitate the collection of a large sample of case data, which is helpful for the development of national epidemiology strategies and preventive medicine. These devices are used mainly in health and safety monitoring chronic disease management, disease diagnosis and treatment and rehabilitation.

The health and safety monitoring function of wearable devices is mainly used for older adults, children, pregnant women, and patient groups. The wearer's gait, walking speed, posture, respiratory rate, blood oxygen, heart rate, blood pressure, energy expenditure, position, and other related parameters are monitored in real time to inform nursing requirements. For older adults, a high-quality independent life requires solutions to complex nursing needs related to mobility, intelligence, and independent living, which can be provided by the characteristics of wearable technology. Godfrey et al [8] used wearable devices for gait and fall quantification in older adults, monitoring the viability of older adults' daily activities in an unattended home environment and recognizing the main types of movement (walking, standing, sitting, lying) to help older adults to live independently. Jung et al developed a wearable fall detection system to detect falls by rapidly uploading data for the position of older adult individuals to the medical center and ensuring timely help and treatment. For children, in addition to detecting routine vital signs for health management, wearable technology is a useful tool for tracking children's daily activities with the rise of wearable devices, children's smart watches, bracelets, and backpacks with tracking and positioning functions have emerged in the market. Furthermore, wearable technology can also be used to monitor mood. Sequeira [7] have demonstrated the feasibility of wearable tools in the prediction of depressive symptoms in children and adolescents. For example, wearable sensors can be used to monitor the symptoms of patients with Parkinson disease during drug treatment to help doctors adjust drug doses and evaluate the efficacy of new drugs and used photo plethysmography in heart rate monitoring of patients with epilepsy and showed excellent seizure detection performance. Based on the above information about the wearable device for the project.

VI. METHODOLOGY

In this project we use heart beat sensor, temperature sensor, PPG sensor, Oximetry, which are monitor using ESP8266. This sensor signals are send to ESP8266. The patient's body temperature, Oxygen level, heart rate, blood flow is measured using respective sensor and its stores the information to the cloud based system as well as monitored

anywhere in the world using internet source. All these sensors are embedded in the form of wearable device.

This intelligent cloud system which acts as a server. Then the server sends the data to decision making system unit. In this project we use Patient Information card it stored the patient's previous health status then the decision making system compare the present health status and previous health status of the patient after this decision making system gives the result if the patient will need any emergency treatment and also sends the full data about the patient to the monitor room and also to the patient's relative number through the intelligent cloud system.

VII. CONCLUSION AND FUTURE WORK

Our project is useful to the hospitals due to large number of people visit only there, we use intelligent cloud system, this system will helps to store and compare the previous and current health status of the patient and give correct result to the patient and the doctor. By using patient information card we can access the health status of the patient anywhere in the world.

By this we can also monitor the patients full time even if they are in unconscious and give immediate intimate to the control room and patient's relatives through the intelligent cloud system Through this activity we can save many lives. In future we can we develop this project to the next level by adding some extra advanced features.

REFERENCES

1. Davisson F.T Morais, Gilberto Fernandes, Jr. Gildario D. Lima and Joel J.P.C Rodrigues, IoT based Wearable and Smart Health Device Solution for Capnography, 2023.
2. Tiago Caixerio, Daniel Cale, Carlos Coutinho, Wearable devices for Health Remote Monitor System, 2022.
3. Paul Stone Brown Macheso, Angel G Meela, IoT based Patient Health Monitoring Using ESP8266 and Arduino, 2021.
4. Farhan L., Hameed R.S., Ahmed A.S., Fadel A.H., Gheth W., Alzubaidi L., Fadhel M.A., Al-Amidie M. Energy Efficiency for Green Internet of Things (IoT) Networks Survey Network. 2021;1:279–314.
5. Alekya R., Boddeti N.D., Monica K.S., Prabha R., Venkatesh V. IoT based smart healthcare monitoring systems: A literature review. Eur. J. Mol. Clin. Med. 2021;7:2020.
6. Naveen, Sharma R.K., Nair A.R. IoT-based Secure Healthcare Monitoring System; Proceedings of the 2019 IEEE International Conference on Electrical, Computer and Communication Technologies (ICECCT); Coimbatore, India. 20–22 February 2019; pp. 1–6.
7. Sequeira L, Perrotta S, LaGrassa J, Merikangas K, Kreindler D, Kundur D, Courtney D, Szatmari P, Battaglia M, Strauss J. Mobile and wearable technology for monitoring depressive symptoms in children and adolescents: A scoping review. J Affect Disord. 2020 Mar 15;265:314–324. doi: 10.1016/j.jad.2019.11.156.
8. Godfrey A. Wearables for independent living in older adults: Gait and falls. Maturitas. 2017 Jun;100:1626. doi: 10.1016/j.maturitas. 2017.03.317



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