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IOT Based Digital Patient Health Monitoring System

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ABSTRACT: "IOT based Digital Patient Health Monitoring System" is designed to improve the understanding of people's health by utilizing modern technology for continuous monitoring and tracking. In the current integrate of smart devices, the project utilizes various sensors and a network of IOT platform to gather real-time health data. This system allows for remote monitoring, data analysis, and timely interventions, contributing to effective healthcare management. The project integrates smart devices and systems to create a network that captures real-time health data from individuals. Wearables equipped with sensors, facilitate the collection and secure transmission of essential health metrics such as heart rate, ECG(electrocardiogram), body temperature, and humidity. This data is then processed and analyzed by sophisticated algorithms. A user-friendly IOT platform interface, providing individuals with access to their health data and personalized insights. Users can set health goals, receive the suggestion of medicines and track their progress over time. Privacy and security are prioritized, with robust encryption protocols implemented to protect sensitive health information. Continuous monitoring allows for early detection of anomalies or trends, enabling timely medical interventions and reducing the risk of severe complications.

KEYWORDS: Heart reate, ECG, Body temperature, Humidity.

I. INTRODUCTION

This system puts forward a wise patient health monitoring system that uses sensors to trace patient health and uses internet to intimate their loved ones or concerned doctors in case of any emergency. IOT based patient health monitoring system effectively uses internet to watch patient health status and save lives on time. For this reason fast conditional medication may be simply done by this technique. This system is easy to setup and is capable of high performance and time to time response. The readings taken daily are sent to doctors and enable them to suggest the medicine and physical exercise routine that enable them to improve the quality of life and overcome such disease. IOT health care is the most emerging field in the medical area. This project is mainly for elderly person who is alone at home. It is also helpful for senior citizens living alone or with 1 or 2 members. This is really helpful when relatives or members of the family have to go out for some unavoidable reasons. Multi challenged person can use this project, disabled patients who find difficulty to go to doctors on regular basis or for patients who need continuous monitoring from the doctor..

II. PROBLEM STATEMENT

As a saying goes “Health is wealth” ,In India in Every minute four peoples are die due to heart attack and 3740 fever death cases in Indians every year, so we try to handle this conditions by our project. Our IOT based project monitor the heart beat rate and send it to the website that doctor or patients loved one can see and any abrupt change in patient body so we can save the ones life. It also measures the parameters like body temperature and room temperature also humidity and ECG monitoring. Docters or nurses are not capable to monitor at a time all patients so this system we can put in hospitals also. Disable patients which are not able go hospital on daily basis for routine this system is very useful for them.To overcome from scenario “Digital Patient Health Monitoring System” is better way.

III.OBJECTIVE OF PROJECT

1.Make sure to watch and check important signs like heart rate, blood pressure, and other health factors regularly.
2.Detect any health issues or problems early on, so we can do something about them quickly.
3.Support people with ongoing health problems by keeping track of things related to their specific conditions.

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4.Allow doctors to keep an eye on patients without them needing to come in for checkups all the time, especially if they have long-term health problems.
5.Look at the health information and figure out useful things about a person's health, like how well treatments are working.
6.Give healthcare that's customized for each person based on their own health information and what they prefer.
7.Help people take an active part in their own health by letting them see their health information and encouraging them to be involved in managing their well-being.
8.Overall, the aim is to make healthcare more personalized and effective for each individual.

IV.SCOPE OF PROJECT

Looking at the growth of IoT technology in the medical sector, it wouldn't be wrong to say that the future of IoT in healthcare will be bright.Monitoring patient effiectively and efficiently is as important to hospitals and health our system plays vital role in monitoring patient digitally.

- General Body Check-up on the Go

Patients wearing IoT-powered wearable devices can easily contact their doctors for immediate assistance through the web server linked with the devices. It will not only save traveling time and money but also help patients get accurate information regarding ailments timely.

- End-to-end Connectivity

With the integration of the latest technologies and mediums, our system in healthcare can offer a seamless connection and data-sharing process. These systems can leverage the power of Wi-Fi, to enhance end-to-end connectivity between doctors and patients through server. Consequently, tracking and identifying health issues becomes convenient and less time-consuming.

- Real-time Reporting and Monitoring

One of the most crucial benefits of using IoT in healthcare is that it provides healthcare specialists with real-time updates on their patients' health. This constant reporting and monitoring can help prevent or at least prepare them for serious conditions like cardiac arrests, asthma attacks, hypertension, etc., in advance.
This can be extremely useful in cases where the conditions of patients are highly critical and every second counts. For instance, real-time reports of patients in intensive care units or the ones put under special supervision can be obtained using IoMT devices.

V. EXSISTING SYSTEM OR MODEL

The system used for health monitoring is the fixed monitoring system, which can be detected only when the patient is in hospital or in bed. In existing system, patient needs to get hospitalised for regular monitoring of the patient. It is not possible once he/she is discharged from the hospital. This system cannot be used at home. Also one of the system is developed which patient can use anywhere but it only detect heart beat and body temperature.

VI. LIMITATIONS OF EXISTING SYSTEM

In existing system, patient needs to get hospitalised for regular monitoring of the patient. It is not possible once he/she is discharged from the hospital. This system cannot be used at home. The existing systems are measuring the health parameters of the patient and send it through zig bee, Bluetooth protocol etc., These are used for only short range communication to transfer the data. Not all the time the doctor can fetch these details.

VII. PROPOSED SYSTEM

First patient should place the finger on pulse sensor it detects the heartbeat also blood oxygen level and this data should be display on LCD display. Then it automatically detect the patient body temperature through DS18B20 temperature sensor. Also detect the relative humidity in the air it measures both moisture and air temperature through humidity sensor. And lastly it monitor the ECG through the AD8232 sensor and gives the ECG graph
Following three cables should be placed on body :

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• Red: RA (right arm)
• Yellow: LA (left arm)
• Green: RL (Right Leg)

Some of the things an ECG reading can detect are:

1.Chloestrol clogging up your heart's blood supply.
2.Heart attack in the past.
3.Enlargement of one side of the heart.
4.Abnormal heart rhythm.

The Arduino processes the code of all sensors 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 Thinkspeak.

VIII. CONCLUSION

The IOT-based Digital Patient Health Monitoring System utilizes smart devices and sensors to continuously monitor vital health metrics, enabling remote tracking and early detection of health issues. The project aims to provide personalized healthcare, empower individuals in managing their well-being, and offer real-time updates for timely interventions. Overcoming the limitations of existing systems, the proposed solution is user-friendly and has applications in both home and hospital settings, contributing to a more efficient and personalized healthcare delivery system.

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