A Survey On Iot Health Parameters Monitoring System

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ABSTRACT:

We are concerned with the development of internet technologies and how those technologies connect to machines. The development of technology has greatly benefited human life by simplifying and improving processes. The Internet of Things (IoT) is useful in many aspects of daily life, including smart homes, cities, the environment, agricultural fields, and medical fields. Nowadays, a lot of people who work full-time struggle to keep an eye on their loved ones, especially elderly patients. Therefore, we are adopting this IoT-based patient health monitoring system to solve this problem. The user can monitor their loved ones with the aid of sensor technologies, a microcontroller, and a Wi-Fi module. By employing this approach, those persons who are typically unable to talk can communicate. When there is no one available to care for the patient, this system monitors the situation and notifies the appropriate authorities by sending a message through WiFi. When a patient is receiving frequent check-ups or long-term home care, the module provides the patients with the possibility for all-day service, which may be recorded by the doctor and can receive a notification in any instance of emergency.

Keywords: IoT, Cloud, Server, Wifi Module ESP8266, IoT Platform.

I. AN INTRODUCTION

An IoT, a novel technology that enables the sharing of significant volumes of data independent of location or time, is becoming more widely used around the world. The latter fact makes remote control and extremely effective, clever, and easy observation of things possible. The IoT was used to create intricate and precise systems in a variety of industries, including the control of factories and the surveillance of entire cities [1]. The number of elderly people worldwide is rising, and they are the population most at risk of contracting diseases. As a result, this population needs specialized medical treatment and solutions for close health monitoring. The IoT is one of the greatest solutions since it makes it possible to quickly and continuously gather crucial health information about the elderly. This enables the sharing of such information across medical professionals in different locations, improving the standard of treatment delivered [2]. The bulk of older people suffer from common ailments that call for routine examinations by human medical personnel. IoT technology can help with time savings and cost-effective, accurate results in this regard [3-5]. The IoT Technology has the capacity to transmit and receive health-related data on ailments including high blood pressure (hypertension), diabetes, hyperlipidemia, and other conditions that are crucial for identifying and monitoring the health problems of the elderly [2]. In addition to the aforementioned issues, many elderly people find it difficult to regularly visit a health facility, which makes health

monitoring for them difficult [6]. IoT technologies enhance self-monitoring from home and make it simple for medical staff to follow-up on the elderly on a regular basis, precisely, and swiftly [7].

A Health Monitoring System is Required:

Today, health care is a major subject that requires solutions that are both rapid and efficient. IOT can assist the patient in taking tests related to their concern issue and even sharing the result(report) to the person or doctor of their choice. This is where the major role of IOT come into scenario, where the patient can concern their respective doctor from there home and can get treated on time. where the patient's reports can be viewed by the doctor, who can then direct the patient in specific areas of concern. The patient can consult the doctor in front of them while sitting at home and doesn't need to drive a large distance, which could be advantageous to them in a number of ways. One can even arrange appointments for the doctor visit that also online via a face time call. The fundamental concept of this project is a health monitoring system that, in emergency situations, provides information on a specific person's medical indicators like heart rate, temperature, etc. It also provides information on remote and medical observations. the use of modern technologies, such as mobile networks and cloud computing platforms, to enable individualised and superior health monitoring. Pervasive health monitoring is implemented in this research using a framework for a health monitoring system built on a cloud computing platform.
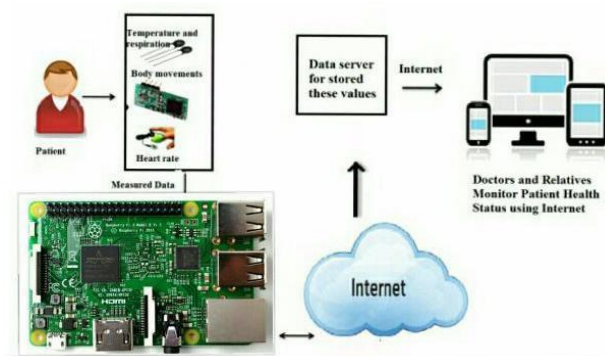

Fig.1. Model diagram of flow.

2. RESEARCH SURVEY

1. An Android mobile device with a full-featured ubiquitous healthcare solution these days, it's crucial to pay attention to both the development of wireless mobile technologies and healthcare awareness. Because it offers services at any time and everywhere, ubiquitous health care solutions have grown in significance. To meet all of our needs In order to monitor and analyse Ecs [Electrocardiography] waveforms from wearable Ecg devices in real time under the protection of a wireless sensor network, an Android smart phone device has added a fourth mobile monitoring terminal. We are able to reduce wire network complications and move healthcare from one location to another desired location thanks to the use of wireless sensor networks in healthcare. As an extension to monitoring programmers, mobile phones are used as barcode decoders for medical care. For the purpose of offering better and more complete healthcare services. To verify and assist an outpatient in the administration of medication, we can use a barcode decoder.

2. The Evaluation of Medical Parameters Using an Android Based Body Area Network This System Has Several Important Parameters. ECG, heart rate, heart rate variability, pulse oximetry, plethysmography, and fall detection are some of them. The system that focuses on the measurement and evaluation of these crucial parameters is the tele-medical system. There are two different designers of a (wireless) body network in an Android smart phone. The Real Time System Has a Variety of Features. Data transmission, data collection, and emergency communication with first responders and a clinical server are all included in the (W) Ban. It's crucial for intelligent, energy-efficient sensors. This May Be Reimbursed. In the initial ZigBee-based method, sensor nodes collect physiological data, process signals, analyse data, and then transmit measurement values to the coordinator node. In the second design, sensors are connected by cable to an embedded system. Bluetooth is used in both types of systems to transfer data to smart phones using Android operating systems.

3. An Overview of Communication and Security in Health Monitoring Systems The Rapid Development Of Sensing Technologies And Radios Powerful and flexible remote health monitoring system allows us to move. The Future Internet of Things describes this in detail (IOT). The challenges and new requirements brought on by this vision must be managed. in order to create and implement such a system. In terms of convenient and appropriate communication, maintaining the distance between sensor nodes, the human body, and the internet becomes a difficult task. Although functionality won't be required, the system must nevertheless be extremely secure. By outlining their limitations, difficulties, and potential solutions, we provide a survey of current communication protocols and security issues related to widespread health monitoring in this paper. In order to handle interoperability in heterogeneous low power wireless body area networks, we introduce a generic protocol stack and design.

4. E-Health Care Monitoring System Design and Development

Our system designs are based on wireless sensor networks (WSN) and smart devices because we are dealing with an e-health care monitoring system. Strong networks between the doctor, the patient, and the caregivers are crucial for assessing the patient's condition. Sensors are used to monitor a patient's environment and health; these sensors include environmental and medical sensors. The end user receives sensor data from the previous devices via the transmitter. Doctors and other caregivers can monitor patients using this system without physically seeing them. Additionally, they can upload prescriptions and medical records to a web server where the patient can access them at anytime, anywhere. It is a really simple process that is convenient for both patients and doctors. Doctors are able to comprehend and observe patients, whether they are in private homes or public health care facilities, with the use of this data. This is the cost-cutting method. We have also defined the sets of add-on services, which include parent monitoring and real-time health advice and action (retina).

5. A Real-Time Wearable System for Monitoring and Analyzing Physiological Signals is called Health Gear.

A Wearable System For Monitoring, Visualizing, And Analyzing Physiological Signals Is Presented By A Health Gear. A wirelessly connected cell phone is wirelessly connected to a group of non-invasive physiological sensors. The cell phone stores, transmits, and analyses the physiological data before presenting it to the user in an appropriate manner. Health Equipment Includes A Set Of Non Pervasive Sensors. We concentrate on the use of health equipment and a blood oximeter to monitor the user's blood oxygen level and pulse while they are sleeping. Additionally, we use two distinct algorithms to automatically identify sleep apnea events and to demonstrate how the overall system performs during a sleep study with 20 volunteers.

6. Internet of Things: Cloud Computing and Web Services for Remote Patient Monitoring

The "ECG Android App" is an Android application created for the healthcare industry that uses the cloud and the internet of things. This offers the End User data logging functionality in the background and visualization of their Electro Cardiogram (ECG) Waves. The logged data can be uploaded to the user's own, central cloud, which patients and doctors can access and monitor. Some Basic IoT Concepts are Presented In this paper. The IOIO Microcontroller, Signal Processing, Communication Protocols, Secure and Efficient Mechanisms for Large File Transfer, Data Base Management System, and the Centralized Cloud are among the additional technologies used. The Development of Other Healthcare Domains Can Benefit From the Infrastructure

7. Bangladesh Offers Affordable and Portable Patient Monitoring Systems for E-Health Services

The efficient, affordable, and portable patient health monitoring system is proposed in this paper. This signals from patients will be sent to the doctor for remote analysis of the patients' health report. A Raspberry Pi-based system has

been developed for collecting sensed data from sensors (sensors like temperature, blood pressure, oximeter, etc. are used). Both patients and doctors now have access to a web-based application that allows for communication between them. For those who live in rural areas, this system may be more useful.

8. Mobile Telemedicine System for Patient Monitoring and Home Care

The Implementation of a Telemedicine System for Patient Monitoring Using Mobile Telephony is described in this paper. With the help of this application, any patient can be monitored With RS232 Interface. The system demonstrated speed and dependability. It therefore represents a workable remedy for tele-homecare. Additionally, a different approach to provide high-quality medical care is required due to the high costs associated with traditional internment and the frequent problems with patient transport. The client's role in this system is to gather accurate patient data and transfer it to the server, which is based on a client-server application.

9. Apnea Medassist: Single-Lead ECG Real-Time Sleep Apnea Monitor

This Fully Automated Low Cost Sleep Apnea Monitoring System, called "Apnea Medassist," Analyzes the Signals from the Patient's ECG and Uses Support Vector Classifier to Detect Apnea. This System's Android Application is Included. The efficient optimization of the ECG processing, the use of techniques to reduce SVC model complexity, the use of ECG-derived respiration signals, and the reduction in the number of support vectors are what cause "Apnea Medassist" to have less complexity.

10. E-Health Monitoring Architecture Patient Health Management System   This system, which will be used to monitor patients' health reports in real time, is based on an Android application and a wireless network. The way this system was developed makes it more useful in emergency situations. Tele-monitoring Patient Analysis will be possible with this system. Patients' health will be continuously monitored by sensors, and the server will be updated. The patient's medical history is kept on the cloud for

accessibility worldwide. Both patients from hospitals and those receiving care at home will benefit from this system. Security Is A Concern That Must Be Taken Into Account When Storing Data On Cloud Which Can Be Accessible By Only Patients And Relatives As It Will Be Using Smart System For Accessing Data It Be Low In Cost.

SYSTEM RECOMMENDED:

In this research, patients in particular should have regular health checks, and their loved ones should occasionally be notified of their condition while they are at work. We therefore provide a creative solution that easily automates this task. Our system proposes a clever patient health monitoring system that makes use of sensors to monitor patient health and the internet to notify their loved ones of any problems. To monitor patient health, our device measures both temperature and heartbeat. The sensors are linked to a microcontroller to track the status, and the microcontroller is in turn connected to an LCD screen and a wifi connection to send notifications. The system automatically tells the user about the patient's status over IOT and also displays information of the patient's heartbeat and temperature live online if it notices any abrupt changes in the patient's body temperature or heartbeat. Thus, an IOT-based patient health tracking system uses the internet to efficiently track patient health data and promptly save lives.

3. SUMMARY

This document discusses a summary of the Health Monitoring system. This article discusses a variety of IOT-based health monitoring technologies and applications. Additionally, it describes and evaluates various IOT-based Health Monitoring system implementations, applications, and methodologies. Each technology has its own limitations and applications. The executive summary of this paper demonstrates the techniques and applications that should be used to enhance the IOT-based health monitoring system's quality.

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