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PATIENT HEALTH MOTORING SYSTEM USING SMART JACKET

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Abstract

This project deals with the healthcare sector by monitoring the condition of the patient and filling the gap in between the multi-specialty hospitals majorly situated in cities and remote areas with no or less medical facilities. We are designing a solution for remote health monitoring by implementing a database and securely storing the data from sensors into it. The user can access the data through a android app and view his/her health status of the measured parameter on the app. We are using Wi-Fi for transmission of data over the internet. The aim of this project is to prepare an affordable solution for remote health application. For this we are implementing a database and accessing that database using a app. The data of a person will be secured by keeping a login portal so that no third party can access data which personalizes the health monitoring system. We are aiming to make a product through this project. The product must be portable and must provide ease of use than that of existing products. Through this project we can fill the gap between rural areas and multi-specialty hospitals by making a solution for remote health application.

Keywords: IoT, Machine Learning, MAX30100

Introduction

INTRODUCTION: Health is a major concern for any living being. We strive to live. As IoT is growing with integrating various domains into itself. The remote-health application will be an exact scenario for introduction of IoT in healthcare sectors. For that, this project provides a solution for health monitoring at any place and at any time. This project is to make a personalized health monitoring system where the data is collected from the person and data will be sent over Wi-Fi and then stored inside a cloud database with identity number assigned for each registered person. Using that id, no the data from the sensor is stored in the database. The person using the device can observe real-time data in his/her profile inside their personal login system. The stored data can be viewed as per the user's requirement in his/her profile. This app can be accessible via Mobile Phone. The user can share their credentials to their doctors for examining the medical condition of the person. By this we can achieve the application for remote health monitoring with IoT.

LITERATURE SURVEY:
[1] IoT-Based Health Monitoring System Development and Analysis
[2] IoT-Based Healthcare-Monitoring System towards Improving Quality of Life
[3] Indigenous Health Tracking Analyzer Using IoT
[4] IOT Patient Health Monitoring Project
[5] SICU Ambience and Patient Health Monitoring System with IOT principles

[6]Review of an IoT-based Remote Patient Health Monitoring System.

S.No	Author	Algorithm	merits	Demerits	Future Scope
1	Turki M. Alanazi	HTTP protocol over the Internet or via a Local Area Network.	This IoT device could read the pulse rate and measure the surrounding temperature.	If the sensor get damaged then we cant monitor the patients health	In future, we can add more sensors to develop more
2	Suliman abdulmalke	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	Real-time remote monitoring via connected IoT devices and smart alerts can diagnose illnesses, treat diseases, and save lives in case of a medical emergency.	Health monitoring is very important in terms of prevention, particularly if the early detection of diseases can reduce suffering and medical costs.	Such growth will be due to the increasing demand, the improvement of 5G connectivity and IoT technology, and the growing acceptance of healthcare IT software
3	V. Muneeswaran	IOT based Patient Health Monitoring System with Nested Cloud Security … (ECG) signal analysis and based on an algorithm, heart function is monitored	Smart sensors analyze health conditions, lifestyle choices, and the environment and recommend preventative measures, which will reduce the occurrence of diseases and acute states.	The diagnosis and prompt treatment of various diseases can radically improve alternatives for the medical treatment of the patient.	The plans of tech giants like Apple, Google, and Samsung to invest in bridging the gap between fitness-tracking apps and actual medical care are sure to contribute to the process too
4	Prachi patil	we propose an innovative system that automated this task with ease. Our system puts forward a smart patient health tracking system that uses Sensors to track patient health and uses internet to inform their	IoT reduces costly visits to doctors and hospital admissions and makes testing mo	Remote patient monitoring does have some drawbacks, such as its reliance on technology that not all patients can afford. RPM systems need reliable internet connections.	Despite the downsides, further digital transformation in healthcare is inevitable and the concept of IoT

		loved ones in case of any issues.			
5	Santosh vardhan reddy mankena	The heart of the proposed system architecture is Node MCU microcontroller.	Accessibility of electronic medical records allow patients to receive quality care and help healthcare providers make the right medical decisions and prevent complications.	Some of your patients may not have broadband access, making it harder for them to participate in RPM setups	will continue to capture and change the landscape of healthcare services. Thus, it seems to be high time to look beyond the challenges and embark on the journey to connected healthcare devices
6	Sangeetha yempally	These systems are embedded with controller's are processors with required sensors.	IoT devices help track the administration of drugs and the response to the treatment and reduce medical errors.	Personal data can be hacked if this end to end connection is not secure. Criminals can use this personal data of others for their own benefits. Accuracy issues may come due to handling such massive data in real-time.	A sensor in this health monitoring system will collect information about the patient's health condition. It is smaller in size, faster, and more affordable

Proposed Methodology

In this project, we are developing an IoT solution for remote health application. We are developing a personalized approach for implementing Health Monitoring System.

The data collected from the sensor will be stored in a cloud database and can be viewed in his/her personal App. Which the person has the access to see his data collected during the testing process.

Our project consists of two part which are hardware part and software part. Hardware part of the system consists of hardware sensors, communication devices etc. Software part of the project contains a real time database which gets updated frequently with the data from the sensor and App.

Hardware sensor node contains a NodeMCU connected to various sensors. These sensors are connected to NodeMCU. The programming part is done in Arduino IDE software. We can install NodeMCU ESP8266 board in Arduino IDE and connect to it. NodeMCU supports all major communication protocols like I2C, UART etc.
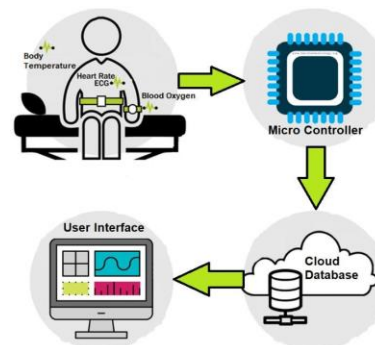

Figure 4.1 Working Methodology

We used five sensors namely MAX30100 pulse oximeter sensor, MLX90614 IR temperature sensor, AD8232 ECG module, MQ-135 Gas Sensor, NEO-6M GPS Module. MAX30100 works through transmitting and receiving IR light. It has an inbuilt ADC to communicate with Arduino. Same is with MLX90614, it also works with IR transmission and reception. These both sensors communicate with microcontroller through I2C protocol. AD8232 which is ECG module[9] works on basis of obtaining electrical pulses using electrodes. It is an analog sensor, and the electrodes are connected to sensor using 3.5mm analog input jack. Displaying the retrieved data from sensors onto the person's app in real-time along with the stored values will be the result of this project.

Results and Discussion

The image shows the results of the continuous data updation in the database by the sensors. The graph depicts the total count of data resources that have been updated by external applications like hardware and app development software.
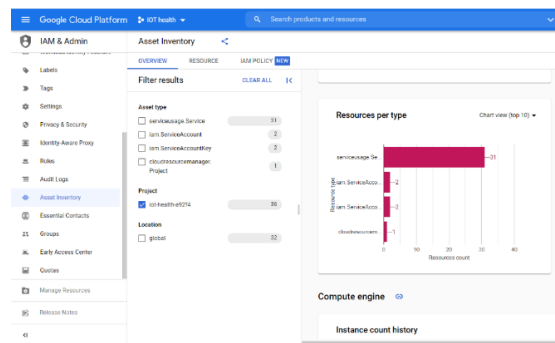

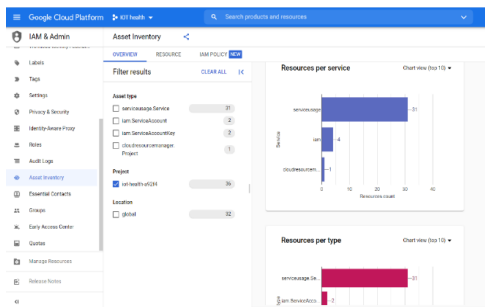Figure 4.1 Results displayed on firebase

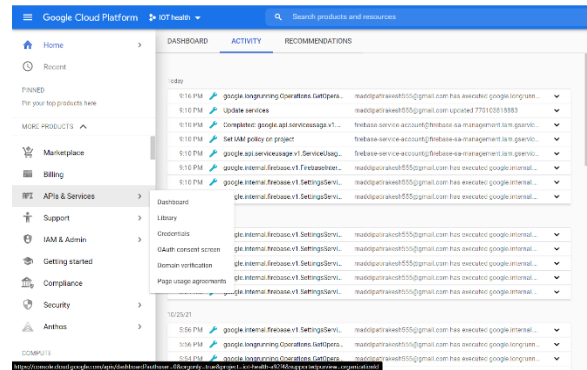Figure 4.2 Shows up to now how many times the circuit is in used

Figure 4.3 Activity Tracker

Figure 9.2 Indicates the results on MIT app

Conclusion

By using this project, we can easily monitor and organize our health data in real-time. The integration of app to this project makes the data accessible from any device connected to the Internet from any location. The biosensors providing accurate data will make this project to be used in everyday life for monitoring. This project delivers a reliable and cost-friendly solution for remote-health application[10] using Internet of Things (IoT) technology.

We can extend the usage of this project by adding more sensors into the sensor node. By adding various sensors into the project makes a complete health monitoring device.

We can make this solution wireless by connecting a battery which acts as power supply. This makes the sensor node

portable and easy to use. We can develop a well-integrated product which is portable and can be used as a real-world application.

References

1. J. S. R. Gaurav Raj, Neelam Rup Prakash, "IoT Based EMG Monitoring System,"
a. Int. Res. J. Eng. Technol., pp. 355–361, 2017

2. E. Baba, A. Jilbab, and A. Hammock, "A health remote monitoring application based on wireless body area networks," 2018 Int. Conf. Intell. Syst. Comput. Vision, ISCV 2018, vol. 2018-May, pp. 1–4, 2018, doi: 10.1109/ISACV.2018.8354042.

3. 3.A. B. Jani, R. Bagree, and A. K. Roy, "Design of a low-power, low-cost ECG & EMG sensor for wearable biometric and medical application," Proc. IEEE Sensors, vol. 2017-Decem, pp. 1–3, 2017, doi: 10.1109/ICSENS.2017.8234427.

4. K. S. Sankar et al., "Wireless Health Monitoring System using IOT," Int. J. Sci. Res. Sci. Eng. Technol., vol. 5, no. 03, pp. 268–273, 2019, doi: 10.32628/ijsrset196263.

5. A. J. Z. Jian-Min, "IoT Based Patient Health Monitoring System Using LabVIEW and Wireless Sensor Network," Int. J. Sci. Res., vol. 6, no. 3, pp. 894–900, 2017, doi: 10.21275/ART20171643.