IoT Based Remote Healthcare Monitoring System

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ABSTRACT

In today's world technology has its own importance and plays significant role in each and every area of life. Wireless technology has a potential to assist healthcare industry by providing real-time remote area monitoring and contactless systems for upgrading medical facilities.The patient's response to therapy is monitored by the Patient monitoring sensors. If both types of sensors are used properly, they can monitor changes and provide the system with the right kind of input. Consequently, it is necessary to carefully examine system changes. IOT therefore fills the distance between everyone. The current system is stable, and a new, upgraded system plays its own role in healthcare sector.

The cloud database is built on top of the API and Android layers. The IOT system is also the foundation of artificial intelligence. IOT protocols are being worked on in space. With the use of these technologies, we can manage and keep an eye on prospective infected patients (PIP) while they are quarantined, effectively resolving important problems in healthcare. In the project all devices are used as per their capabilities .In the era of pandemic situation wireless system has its own usages .In critical condition these facilities are the best option.

Keywords :.Platforms for IOT Bridges, API Layer, PIP, Current System, RTOS-Real Time

Monitoring Systems, Android Layer and ECG Sensor.

Introduction

The highest level of artificial intelligence is employed. The foundation of the IOT is machine learning and data analysis. The IOT can also be used to control graphics at a higher level of computation. The 10 to 25 billion units that have been connected since 2021 are primarily responsible for controlling and monitoring the intelligent system. It regulates the outside environment because the patient's treatment is greatly influenced by the outside world. Three sensors are used in our project: a patient monitoring sensor, a room monitoring sensor, and an environmental sensor. The Room Monitoring sensors and Environmental sensors relay data to the internet mobile Blynk app is of great use whenever there are sudden changes in the environment.

The patient's response to treatment is monitored via a latest wireless technology. (patient monitoring sensor) Consequently, it is necessary to carefully examine all the technical as well as non-technical data provided by the system. IOT fills up the gaps between everyone. We have to upgrade these type of systems to obtain the maximum and upto highest level of computing(non-computing) as well as technical benefits from it.

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monitoring sensor, and an environmental sensor. The Room Monitoring sensors and Environmental sensors relay data to the internet mobile .Blynk app whenever there are manyhighly energized relays sudden changes in the environment.The success ratio of these system work on the efficiency of wireless connections. Uninterrupted power supply is the primary requirement for the working of the project. The comparative analysis of the working procedures of the sensors , has to be taken in to consideration.

Review Stage
There are many methods for online monitoring of the data. Wireless connection is the key part of this project. Health care department can gather all require data to treat patient without their contacts which is very much safe for the service staff in health care department.

Final Stage
This health care monitoring system consisted of seniors like EGG, DHT-11 and MQ-2 for measuring parameters of human body and external environmentally condition of the care units. All the gathered on the cloud layer is display on the mobile screen of the BLYNK application. Web service application helps in analysing the data from the cloud. This system will prove to be one of the best innovations in the field of medical science. This project also combines engineering with medical and non-medical science/technology/ robotics to serve our main big/large societies in every type of the different conditions as well as different bad, unstable, unsteady or uncontrolled situations.

2. Components Required:

2.1 MQ-2 Sensor:
This sensor is especially used for LPG, CH4 and CH4 data observant.it has fast response time and measurements taken are very fast. Potentiometer of specific values can be inserted in it. PPM is the main unit of the gases such as CO, CH4.it usually works on 5v but 3.3v is also sufficient. if modified ,other gases such as nicotine,nh3,smoke can also transmit and receive data . TT1 logic is the main feature of this sensor if it is modified further.it is one of the external sensors which are used for measurement of patient room.(room observing sensor).

Figure 2.1 MQ-2 sensor

2.2 DHT-11 Sensor:

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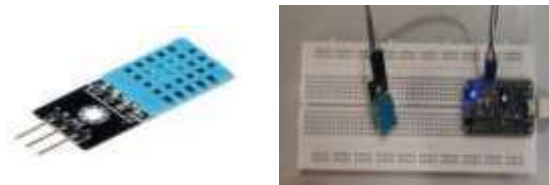

Figure 2.2 DHT-11 sensor

2.3 Node-MCU ESP8266:

ESP-32 has self-designed WI-FI network to transmit and receive data.it has multi-features than arduino-uno.it has built-in features and functions which are more advanced than arduino-uno and arduino-nano.it can wirelessly send the important data to the mobile.it has wireless in-built compatibilities. IOT Webpages are important source of data of esp-8266.mainly used in industries but can be used in hospitals also.it has its own very powerful unit for processing information.it has many digital and GPIO PINS.it is mainly used for graphical presentation of data.


Figure 2.3 Node-MCU (ESP8266)

2.4 ECG Sensor:

Heart beat sensors provide advanced detailed about heart beat if the three electrodes are attached to the hand of the patient .This advanced detailed might a chance to be associated with electrograph to measure those heart rates for every moment (BPM) rate. It meets expectations through regulation blood veins of the hand. It is mainly used for the graph of heart beats of the patients. The graph is observed every seconds.it has the potential to save many lives.

Figure 2.4 ECG sensor

3. Blockdiagram:
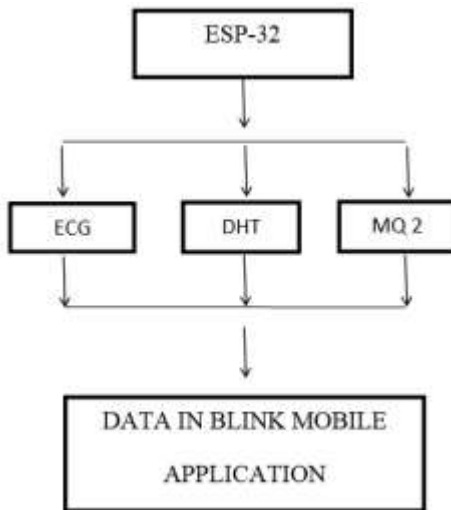
4. Methodology:

 In this project we are using three sensors namely ECG,DHT-11 and MQ-2.Graph will be obtained of the ECG sensor and digital values in appropriate unit will be obtained of other two sensors The overall stability is great. Unit of MQ-2 sensor is ppm and that of the dht-11 is humidity in percentage and temperature in Celsius. All the values of the sensors is displayed in down two figures.

The methodology is very simple, easy to use and is very inexpensive. The photos obtained are on the screen of mobile application (Blynk app) which is also referred to as quick start device.In the project, different timelines of different time zones is available which indicates the range of the time. Hence it measures time with accuracy and with great precision. Hence it is very effective in transmitting the data.

5. Results and Graphs:

Figure 5.1 Result: MQ-2 Sensor

Figure 5.2 Result: All Three Sensors

Figure 5.3 Result: ECG Sensor

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