PREDICTION OF HUMAN HEALTH USING IOT AND BIGDATA

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ABSTRACT

The approach towards gadget learning and IOT are considerably growing due to high call for information accuracy and real-time tracking. Human fitness may be very crucial in relation to hospitality, and among the patients suffer or die because of lack of alertness and right treatment. Ordinary health check up is the call for everybody dwelling in the international community because it prevents us from unknown risky illnesses. However, finding time for hospitals and lengthy queues is a bit tough for running specialists in addition to elderly humans due to the fact they need a young man or woman with them to aid and manual them. preserving all these items in thought this venture is being proposed with all the vital and vital IOT sensors. To find out the fundamental fitness situation of the user to E-serve track in their daily health measurements. Gadget mastering and IOT are the bottom of this challenge. Which will help to expect the actual time frequency of the customers' health to find out the fundamental fitness situation of the user to E-serve track in their daily health measurements. gadget mastering and IOT are the bottom of this challenge. which will help to expect the actual time frequency of the customer's' health.

Keywords: Human Health, Internet Of Things, Algorithms, Big Data, Sensors.

I. INTRODUCTION

The COVID-19 pandemic is inflicting plenty of change in our day by day lives. We are socially Distant, staying home, and not able to dine out at eating places. For the primary time in records, a health disaster has close down the whole global financial system, painfully demonstrating how inseparable healthcare and the financial system have turn out to be. With the COVID-19 pandemic sorting out even the extra superior healthcare structures globally, the foundations of India's healthcare device have simply additionally been shaken. The normal response to the pandemic witnessed each the non-public and authorities running in tandem. The private Indian healthcare gamer rose to the event and become presenting all of the guide that the authorities desires, inclusive of attempting out isolation beds for treatment, clinical team of workers and system at authorities, hospitals and domestic healthcare.

Before the internet of things, patients' interactions with docs have been confined to visits, and tele and text communications. There was no way doctors or hospitals should reveal patients' health constantly and make guidelines therefore. Internet of things (IOT)-enabled gadgets have made far flung monitoring within the healthcare region viable, unleashing the capability to keep patients secure and healthful, and empowering physicians to deliver superlative care. It has also improved affected person engagement and pleasure as interactions with doctors have emerged as less complicated and greater efficient. Moreover, far flung tracking of patient's fitness allows in decreasing the length of sanatorium stay and forestall re-admissions. IOT also has a primary effect on lowering healthcare charges appreciably and improving treatment results.

On this evaluation paper our intention is to clarify the concept and idea behind this project. The base of this project is Internet of things (IOT), The purpose of the challenge is to develop a wearable device particularly for elderly people to keep tune of their fitness and maintain them connected to the doctors all the time with all the essential necessities

II. METHODOLOGY

System Architecture

This system has more than one sensor like temperature and humidity, SPO2, heart rate sensor, pulse oximeter, and ECG sensor. These sensors will acquire facts of the consumer and the statistics taken is processed through Node MCU that is a microcontroller used on this venture with the assistance of datasets implemented for the health prediction.
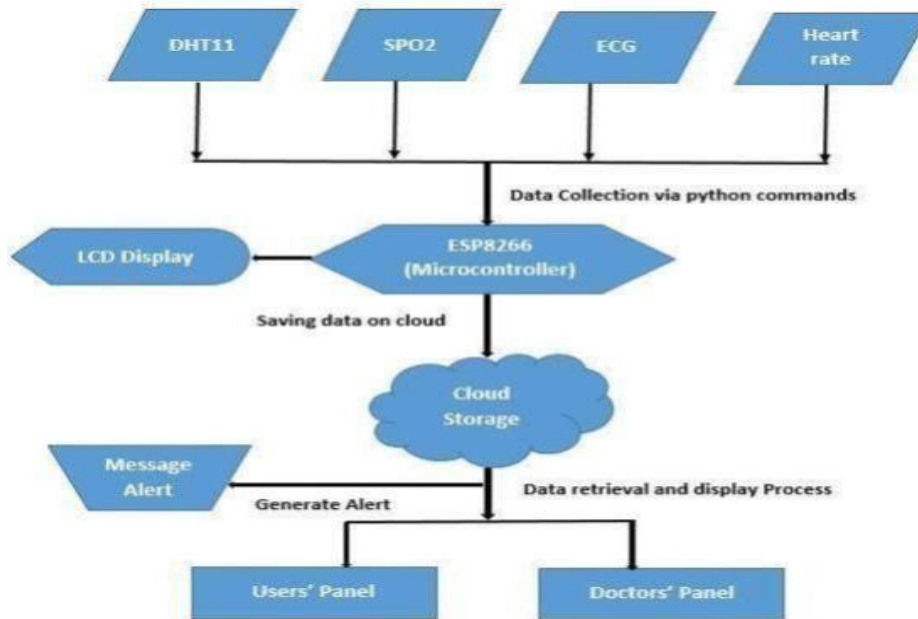
Fig 1: System Architecture

The microcontroller will show the output at the liquid crystal display screen and additionally if the user isn't healthy it will display the message of alert at the net portal so that an action could be taken over it. The records may be saved on the cloud server for backups and safety purposes that may be retrieved every time through the customers and medical doctors. The gadget has net portals, one for customers who can sign in themselves there and connect to the priority docs for normal health checkups and guidelines. The alternative one is for doctors wherein multiple doctors can be registered and attend patients on-line with minimal efforts required. They are able to recommend affected people drugs and weight loss plans etc.
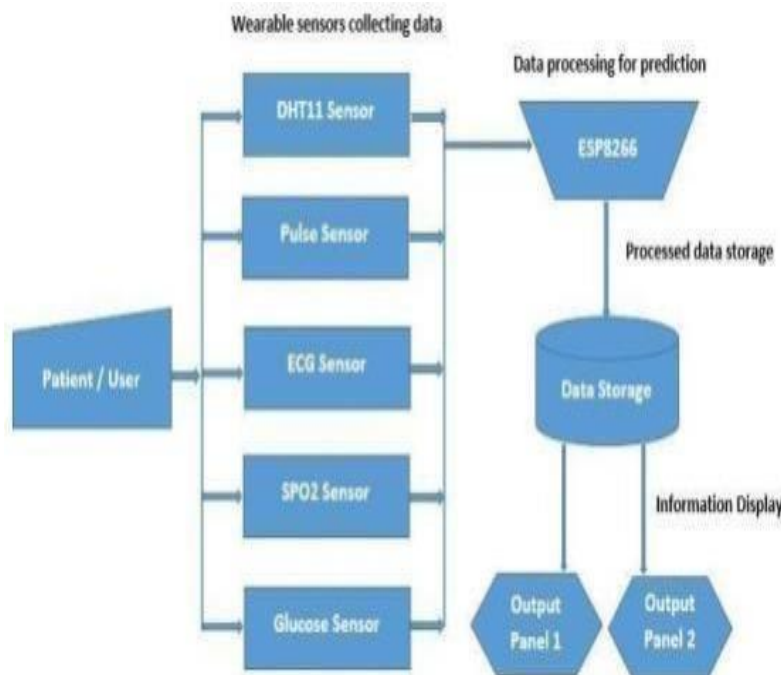
Flow Diagram

Fig 2: Flow Diagram

The above parent is displaying the go with the flow of the mission, where the utilizer will join all of the sensors to their frame and activate the primary supply of the system after that the micro controller i.e. ESP8266 node MCU will bypass the command to calculate the values from all the sensors.

After accumulating the values it will show the result on the LCD exhibit and the records may be transferred to cloud storage for kindred processing, wherein this data is stored in keeping with the patient or person's id. The information can be visually perceived on both the panels to maintain the transparency of records amassed and exhibited, if any emergency occurs sufferers can directly contact the involved medicos and docs' can easily endorse solutions on time.

III.   MODELING AND ANALYSIS

The project needs both hardware and software components to get the output on screen. Background of the project is fully dependent on IOT hardware's and their names and descriptions are mentioned below:

Hardware Requirements

1. ESP8266 Node MCU

ESP8266 is a microcontroller with a built-in Wi-Fi connectivity, that helps to operate all the sensors with a single connection.

Fig 3: ESP8266 Node MCU

2. ECG Sensor

This ECG sensor is a prototype of a big ECG machine present in the hospitals to check out the functionality of our heart using electrical impulsion.

Fig 4: ECG Sensor

3. Gas Sensor

A gas detector is a tool that detects the presence of gases in a place, frequently as a part of a safety device. The sensor is able to detect gases like nitrogen, oxygen, carbon dioxide, alcohol, etc. .

Fig 5: GAS Sensor

4. Room Temperature Sensor

This DHT11 is a combination of both temperature and humidity sensor, this sensor helps in detecting the room temperature as well as humidity level inside the room.
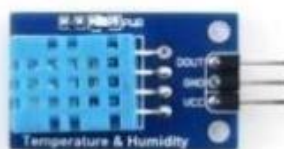

Fig 6: Room Temperature Sensor

5. Pulse Oximeter & Heart-Rate Sensor

Pulse oximeter also known as heart rate monitoring sensor is widely used in project like health monitoring using IOT. It is very simple to attach it to the microcontrollers.

Fig 7: Heart-Rate Sensor

6. Body Temperature Sensor

This sensor is used to check the body temperature of the person who is wearing this. It looks very small in size but handles big tasks easily.

Fig 8: Body Temperature Sensor

7. OLED display

OLED stands for Organic Light Emitting Diode, which displays the output of the program using the layer of organic compound lights.

Fig 9: OLED Display

8. Buzzer

Buzzer is a passive buzzer. Like a magnetic speaker, it desires voltage with distinctive frequency so that it is able to make sound for that reason.

Fig 10: Buzzer

IV.   RESULTS AND DISCUSSION

A Wearable Wrist Band is to be used as a wearable health monitoring system with all the sensors attached to it and the display on the top of the band. The system will get power supply from a 12v lithium ion battery And the entire system will be controlled by a NodeMCU esp8266 microcontroller.

Fig 11: Results

V.   CONCLUSION

This study presents a comprehensive literature review of prediction of Human health . We focused on the methods based on Big Data, Artificial Intelligence , cloud computing are used for collecting and recording the electronic health data of the patient. We have found that the capacity of IOT is summarized as a growing vicinity in the area of health care . With the help of this device, patients health related data can be monitored and the disease can be predicted Both in and out of the hospital.

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