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HEALTH BAND using IOT

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ABSTRACT: patient remote monitoring using IOT describes the collection and interoperation of Patient data collected from the sensors from the hospitals through IOT Technology. The collected sensor data will support the doctor in the emergency situation for the betterment and improvement of Patient health. This proposed idea will help doctors to know about the state of patient health and monitor anywhere in the world. The data collected through the IOT will help the patient to recover easily and also enhanced medical care can be given to the patients at a low cost.

I. INTRODUCTION

IOT means connecting various computing devices using Unique identifiers (UID'S) and sending data by a network without human-to computer interaction. Examples of various IOT devices are smart homes, wearable health monitoring devices, smart devices, etc. Wearable devices will monitor the information of patient's health condition. The sensors used in these devices measure physiological signs like temperature, heartrate, blood pressure ,respiratory rate and blood oxygen saturation is used to obtain patients results in ECGS(Electro cardiograms), EMGS(Electromyograms),etc. These sensors are arranged in WBAN called as wireless body area network and are arranged on skin, clothing, persons tissue. With the data obtained from wearable devices we can get symptoms of COVID-19 and it can be considered as early warning to diagnose COVID-19 and other disease.For Also, there is a relation between IoT and cloud where IoT is used to generate huge data and Cloud provides the path to store that data. The technology of wearables is considered as smart electronic devices which has microcontrollers embedded in it .All these devices can be used on our body as accessories. Wearable devices are mostly used in the fields of medicine, education, entertainment and in many real time applications.

Objective:

- The main objective of this research is to provide awareness of the role played by these devices in COVID-19 period and also post surgery patients.
- These devices are used in detecting symptoms of COVID-19 and air brone disease help the patients in providing required medication.
- The information obtained from the patients is stored in the Server using IOT.
- With this data the doctor can diagnose the patients condition and provide the required treatment.
- The data obtained from patients like their pulse rate, oxygen levels, etc is stored in the Server.

II. PROBLEM STATEMENT

Isolation and quarantine help protect the public by preventing exposure to people who have or may have a contagious disease corona and other air borne disease . But the patient is not following this system so here we design a module to solve this problem and save the splitting of virus. The standard diagnosis method is by real-time reverse transcription polymerase chain reaction (RRT-PCR) from a nasopharyngeal swab. Preventive measures include social distancing, quarantining, ventilation of indoor spaces, covering coughs and sneezes, hand washing, and keeping unwashed hands away from the face. The use of face masks or coverings has been recommended in public settings to minimize the risk of transmissions. There are several vaccine candidates in development, although none has completed clinical trials.

III. TECHNOLOGIES USED

Arduino Embedded C

A few years ago I finally broke down and bought an Arduino microprocessor board. It seemed a good, economical way of brushing up on my microprocessor skills, and with all the available accessories I could even expand my horizons a

bit. Since then I've gone the usual route with blinking LEDs and buzzing buzzers galore. I've even explored networked devices with my trusty Ethernet shield.

Up until now, I've been using the Arduino IDE which is a good, painless way of getting programs running on the board. It uses a subset of the 'C' language with easy access to several software libraries and on-board functions such as timers and I/O ports. The ease of operation however, comes at the expense of some of the efficiency of full scale embedded 'C', and hides some useful details of the microprocessor from the user. In the loop() routine for example, not only are the functions of the program carried out but the routine continually checks background functions like the serial port and timers. The analog Read () function always selects the analog channel before doing a conversion, which significantly slows down operation.

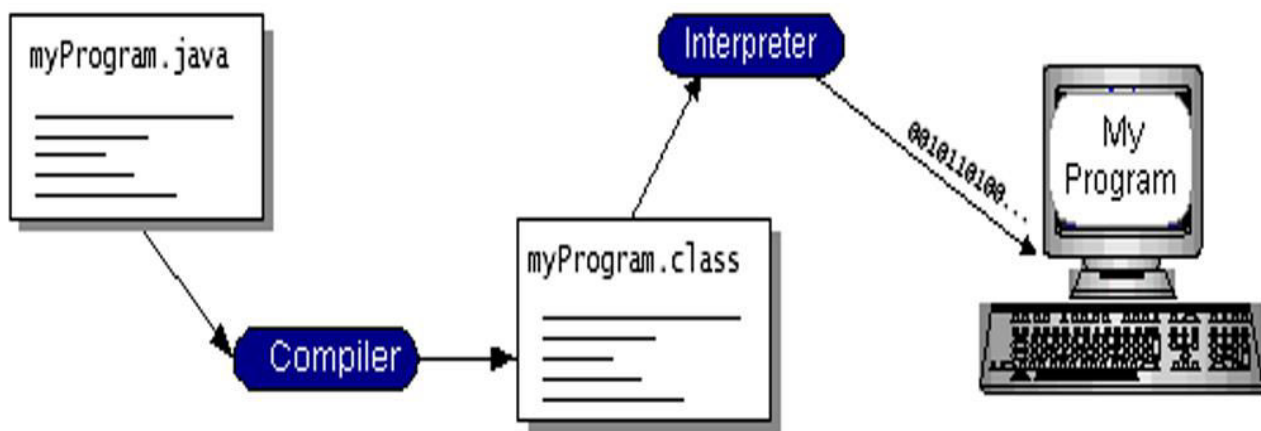
There are ways around these issues of course, but by the time you've implemented them, your code starts to resemble an embedded 'C' program, so it might be time to bite the bullet and start programming in C. Another reason for programming microprocessors in C is that C has become the de-facto standard for microprocessor development, so if you switch devices you will have running start at your new environment.

The Java Programming Language

It is a phase free programming lingo that extends its parts wide over the framework. Java2 interpretation introduces another parts than are possible with AWT

- It's a light weight package, as they are not executed by stage specific code.
- Related classes are contained in javax.swing and its sub groups, for instance, javax.swing.tree
- Components illuminated in the swing have a bigger number of limits than those of AWT.

Java byte codes are the stage free codes interpreted by the interpreter on the Java arrange. The go between parses and runs each Java byte code rule on the PC. Gathering happens just once; understanding happens each time the program is executed. The going with figure demonstrates how this capacities.



We can consider Java byte codes as the machine code headings for the Java Virtual Machine arrange that has a Java compiler. The byte codes can then be continue running on any use of the Java VM. That infers that the length of a PC has a Java VM, a comparative program written in the Java programming lingo can continue running on Windows 2000, a Solaris workstation, or on an iMac

PYTHON

Python is an object-oriented programming language created by Guido Rossum in 1989. It is ideally designed for rapid prototyping of complex applications. It has interfaces to many OS system calls and libraries and is extensible to C or C++. Many large companies use the Python programming language include NASA, Google, YouTube, BitTorrent, etc. Python is widely used in Artificial Intelligence, Natural Language Generation, Neural Networks and other advanced fields of Computer Science. Python had deep focus on code readability & this class will teach you python from basics.

Here python language used for IR sensor and HD camera

Characteristics of Python

- It provides rich data types and easier to read syntax than any other programming languages
- It is a platform independent scripted language with full access to operating system API's

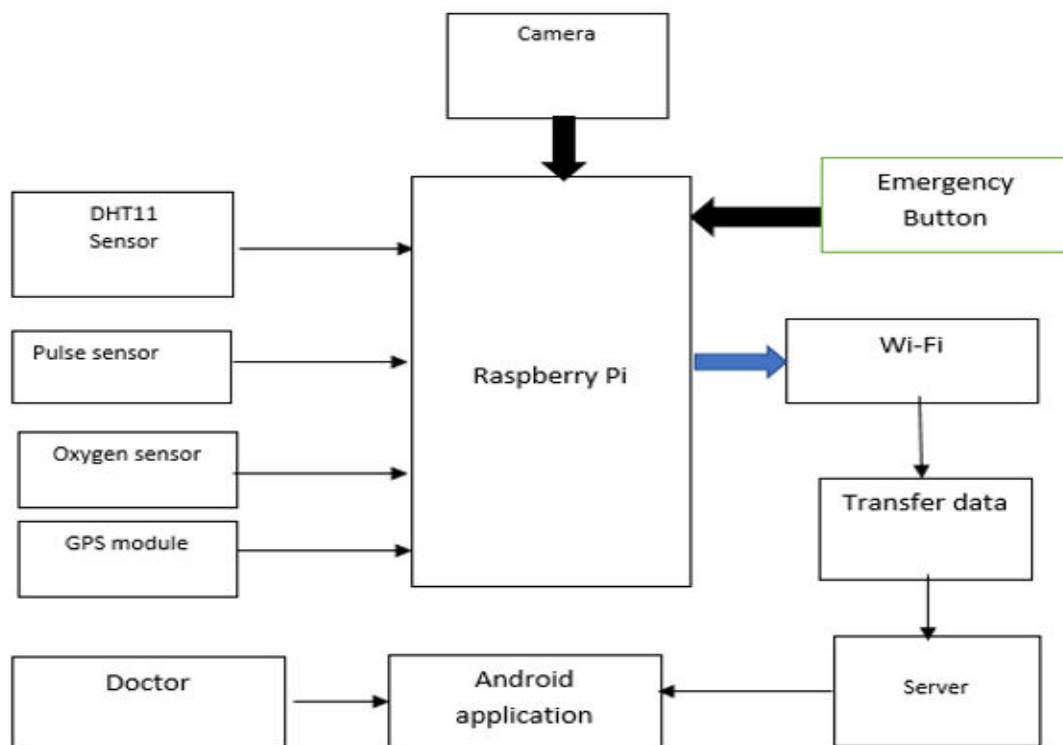
- Compared to other programming languages, it allows more run-time flexibility
- It includes the basic text manipulation facilities of Perl and Awk
- A module in Python may have one or more classes and free functions
- Libraries in Python are cross-platform compatible with Linux, Macintosh, and Window

IV. SYSTEM DESIGN

- Design Consideration
- The explanation behind the plan is to orchestrate the course of action of the issue dictated by the necessities report. This stage is the underlying stage in moving from issue to the game plan space. All things considered, start with what is obliged; diagram takes us to work towards how to satisfy those necessities. The design of the system is perhaps the most essential segment affecting the way of the item and note worthily affects the later stages, particularly testing and upkeep. System diagram delineates all the huge data structure, report game plan, yield and genuine modules in the system and their Specification is picked.

System architecture

- The architectural configuration procedure is concerned with building up a fundamental basic system for a framework. It includes recognizing the real parts of the framework and interchanges between these segments. The beginning configuration procedure of recognizing these subsystems and building up a structure for subsystem control and correspondence is called construction modelling outline and the yield of this outline procedure is a portrayal of the product structural planning. The proposed architecture for this system is given below. It shows the way this system is designed and brief working of the system.



V. RESULT AND ANALYSIS

IoT Technology is an integration of various technologies which enables different devices and objects to interact with each other and use different network technologies. The proposed system gives better and effective health care services to patients and the information collected is networked worldwide through internet and communication devices in turn connected to cloud services and doctors can use this data and provide a quick and effective solution. The proposed

model is a well-equipped system where the doctor can check his patient anywhere, anytime. Emergency alert e-mail is sent to the patients if the threshold value is reached to consult the doctor.

VI. CONCLUSION

- Isolation and quarantine help protect the public by preventing exposure to people who have or may have a contagious disease.
- In this paper the management will monitor the virus effected patient and quarantine people through the cloud also we can monitor the improvement of the patient temperature of the body where he is inside the building or not.
- Isolation separates sick people with a contagious disease from people who are not sick.
- Quarantine separates and restricts the movement of people who were exposed to a contagious disease to see if they become sick using raspberry pi.

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