IOT analytics in health monitoring

Introduction :

Overview:

In the recent years use of wireless technology is increasing for the need of upholding various sectors .In these recent years IoT groped the most of industrial area specially automation and control. Biomedical is one of recent trends to provide better health care. Not only in hospitals but also the personal health care facilities are opened by the IoT technology. So having a smart system, various parameters are observed that consume power, cost and increase efficiency.By using Iot one can monitor the patient details regularly and can alert the person to react and can send sms and soon.

Purpose:

By this project one can able to see the present health details of the patient at anywhere and any time.By this we can monitor the patient details and take care of patient.

Literature Survey :

Existing problem:

In a hospital, either the nurse or the doctor has to move physically from one person to another for health check, which may not be possible to monitor their conditions continuously. Thus, any critical situations cannot be found easily unless the nurse or doctor checks the person's health at that moment. This may be a strain for the doctors who have to take care of a lot number of people in the hospital. Also, when medical emergencies happen to the patient, they are often unconscious and unable to press an Emergency Alert Button.

Proposed solution:

By using iot we can able to develop the application which shows the patient details like Body temperature , pulse, Blood pressure,etc..By this it alerts the nurse or near persons or send alert message to the patient related people and shows the details.

Theoritical Analysis:

Block diagram:

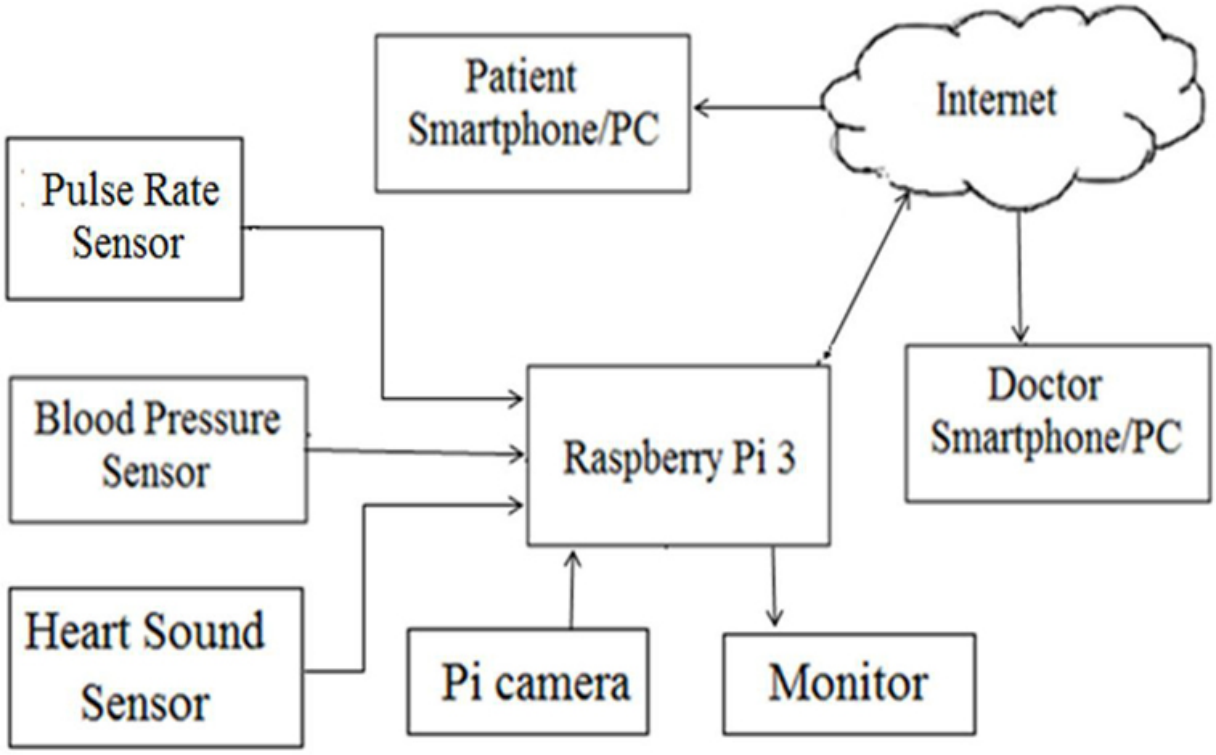


Figure 1: Block Diagram

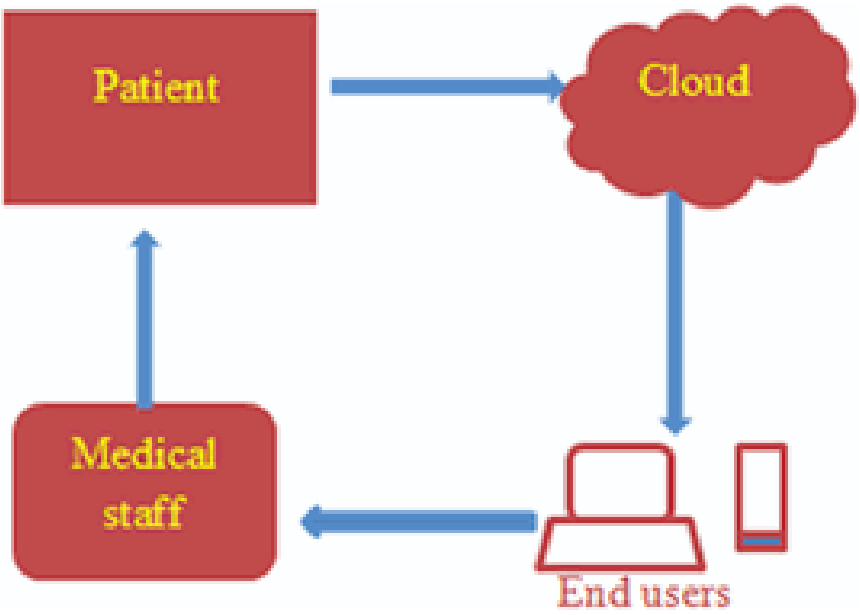
Hardware / Software designing:

The hardware part of the project involves the Raspberry Pi 3 Model. The three sensors are connected to the Pi via the I2C interface. The sensor values are read by the Pi, processed, and then sent to the IBM Cloud services using the Pi's Wi-Fi module. The data send to mobile application which was develpoed using MIT app Inventor. Here we use python language for coding.Node-Red,etc,.Software tools are used.

Experimental Investigations:

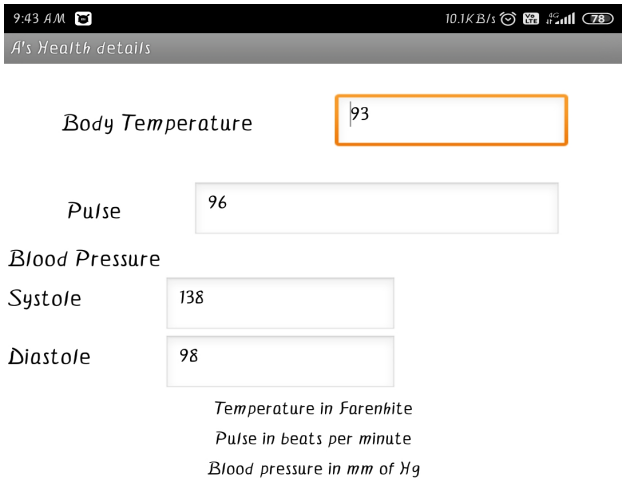
There are several IoT authentication challenges and issues that need to be understood before employing the right security solution that can dynamically vary with the situation . Based on certain critical situations such as IoT health applications, frequent authorization and authentication are necessary and could dynamically vary, potentially resulting in changes to the authorization of IoT devices. To address these issues, automated mutual authentication without user intervention is required in supporting users from remembering passwords for a large number of devices.

Flowchart :



Result :

One can see the details of patient at any where and time and it alerts the person.



Advantages & Disadvantages :

Advantages of IoT in healthcare :

The ‘all-consuming’ connection of health devices and data centralization brings many significant benefits to the table, such as:

- All-around technological enhancement. Rendering hospital visits unnecessary, passively accumulating and deeply analyzing important health data, etc. We’ve already pondered on all these advanced tech capacities galore enough. The IoMT provides space for fantastic long-term innovations.
- Cost savings. One of the greatest advantages of IoT in healthcare is that efficient autonomous systems will cost less to manage and ‘employ’ in the long run. Things are even better when it comes to patient cost savings due to fewer hospital journeys as well as accelerated diagnostics and treatment.

Accessibility. Doctors can view all the necessary data on command and check real-time patient conditions without leaving their office.

Disadvantages of IoT in healthcare :

Alternatively, some downsides that come along with the massive implementation of the IoT in healthcare include:

- Privacy can be potentially undermined. As we’ve already mentioned, systems get hacked. Lots of attention will need to be focused on data security, which requires significant additional spendings.
- Unauthorized access to centralization. There is a chance that dishonest interlopers may access centralized systems and realize some cruel intentions.
- Global healthcare regulations. International health administrations are

already issuing guidelines that must be strictly followed by governmental medical establishments integrating the IoT in their workflow. These may restrict possible capacities to some extent.

Applications :

- Medication management apps
- Fitness apps
- Body, activity, & sleep tracking apps
- Pregnancy monitoring apps
- Individual health recording apps
- Tracked Ingestible Sensors
- Remote Patient Health Monitoring

Conclusion :

Thus, the proposed system could gather, reading of various important indications of the patient and after that evaluate at cloud then caution the doctor or concerned individuals about the health condition. It monitors the vital signs and sense abnormalities. These abnormalities alert the medical staff ,it reduces the manual monitoring.

Future Scope :

It increases more applications for more and different problems and it increases oppurtunities and decreases the problems.

Biblography :

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