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Review On: Smart Healthcare System in One Touch

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Abstract: As per our observation use of mobile devices and internet services is increasing day by day. So we classify our proposed system as mobile application & web based application. The research is based on the use of Internet of Things (IOT) technology to can solve the various problems related to hospitals. Currently, the major challenge of healthcare system is to improve the quality of care patient. User firstly registers to the system so that he/she can be log in to system for processing. Doctor enrols to the system through the user ID and password and doctor give prescription to the patient. The pathological reports of the patients provided by the doctor that is Blood Test, ECG, Diabetes test, etc. are then send to the Lab. The Blood samples of the blood are then given to the Blood Bank. The patient who requires the blood will send the requirement message to the Blood Bank and Blood Bank notify[6] that whether the Blood Samples of the blood is available or not. After log in of the patients, patients reports are getting generated by the pathological labs are send to the specified doctor and according to that reports doctor will prescribe to the patient. By using different IOT Devices[5] like Sensors such as Temperature and Heart Rate Measure Sensors will sense the parameters of the patients and stored on the device that is Raspberry Pi & then this confidential information is stored on the Cloud and security[9] is provided to the Cloud.

Keywords: Sensors, Android, Cloud, wearable devices, internet of things (IOT), smart hospital, etc.

Introduction:

The research is based on the use of Internet of Things (IOT) technology to can solve the various problems related to hospitals. Currently, the major challenge of healthcare system is to improve the quality of care patient. So, to achieve this challenge, all the players must understand the complexity of the system at different levels and especially logistic system. For a supply chain, in any system, needs to be designed to minimize cost and maximize patient care. In hospital, we have different type of products: high cost and low cost items, perishable and durable goods, consumed in large and small volumes. Also, the one of complex sub system of logistic hospital system is the medicine drug circuit.

In hospital environments, patient monitoring is a vital part of patient care. While there has been many improvements in mobile monitors, typical hospital room's use peripherally attached devices and sensors to monitor the patient's vital signs. In some cases, such as, for temperature measurements, readings are taken every half hour or so by nurses. Temperature readings are taken orally or using a temporal vein thermometer. Many other important information, such as, the patient's sweating rate, convulsions, chills, and seizures are often monitored only visually or not monitored at all. Even for those values that are monitored, most readings are taken at specific intervals. Since the monitoring is often done via wired sensors, the patient's movements are restricted and the patient is often limited to the hospital bed.

Literature Review:

In paper [1], the authors have used WBAN, where patient mobility is achieved and remote patient monitoring is done and also tele-medicines are used for tele-surgery.

In paper [2], the authors have implemented the Wireless Sensor Network (WSN) to make the healthcare system smart.

In paper [3], a solution is given to the intelligent neonatal ward environment monitor system. The neonatal ward is equipped with multiple sensors, such as temperature and humidity sensors, light sensors, fire sensors, etc. Real-time environment data is transmitted to the monitor software in the tablet computer through the ZigBee module.

In paper [9], the authors have used microcontroller as a gateway for secure communication where it collects data from different sensors and sends it over network through Wi-Fi. It also provides real time monitoring of the health care parameters for doctors.
In paper [10], the authors have used decision-making models that help pharmaceutical Staff where the simulation models of medicine drugs supply chain is used.

Existing System:

In day to day life Hospitals, when the patients enter in hospital there registration will be done manually. On the other hand there is compounder who fill the registration entries of the patients. It will spends the more time of the patients. In case of the pathological reports there is also no proper link or drug supply chain between the pathological ab and the chemists. Also there is link between doctor, Blood Bank and the pathological reports is available now a days which is manual one, so it consumes more time and also less accurate. So it increases the manual work and the efforts of the human being or the patient. So it also becomes the time consuming and the lengthy process.

Proposed System:

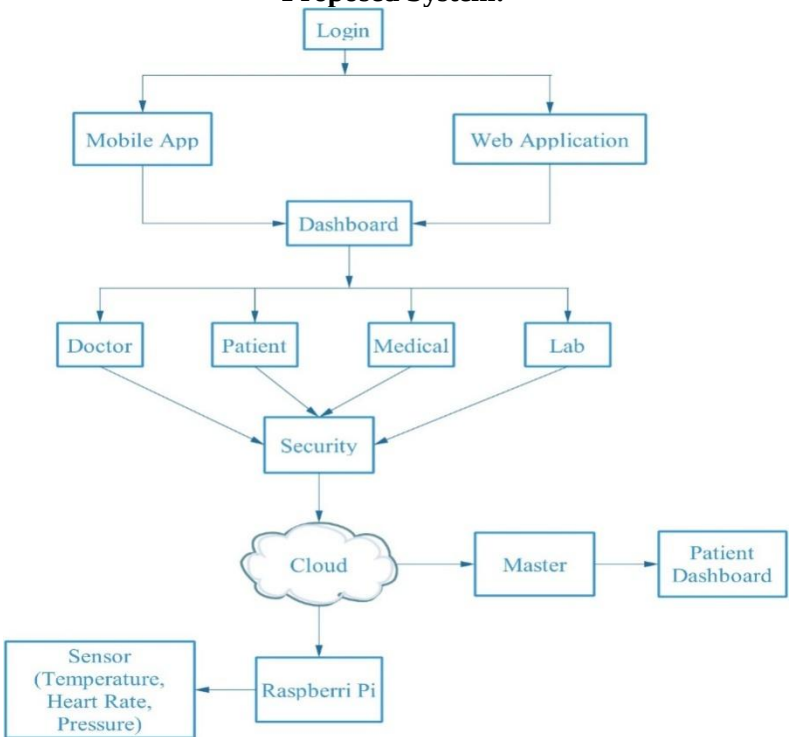

Fig. Architecture of Proposed System

The proposed System is classified into the two environments according to the choice of the users depending on the availability of the device that is Mobile Application and the Web based Application. When the patient is Login to the system by entering the Username and the Password then the Dashboard will open in front of the Patient. There are four modules of the Smart Hospital System that is Doctor, Patient, Medical and the Pathological Labs. There is interconnection link between the chemist and the Lab and also in the Doctor and the Pathological Lab. When the Patient enter in the Hospital System then their registration is done digitally and their request is made to the Doctor. Then Doctor will identify the Patient that whether he/she is IPD patient or the OPD patient. After that Doctor provide guidelines to the patient.

The Cloud stores the past history as well as newly admitted patient's history.So that the Doctor will easily provide the guideline to the Patient by seeing the Past history of his/her treatment given by another Doctor. Data uploading is done on cloud by using encryption and data is retrieved using decryption using MD5 algorithm. And there is a drug supply chain provided between the chemist and the Pathological Lab also in between the Blood Bank and the Doctor. So that it will reduces the efforts of the patient as well as any other human being. It saves the time of the patient. The objective is that it reduces the manual work of the patient as well as doctor as registration, reports are provided digitally.All manual work is shifted to the automated one which will provide more accuracy and lead to highest efficiency.

Algorithmic Strategy:

MD5 Algorithm:

In our system, we are going to use MD5Algorithm. This algorithm will be used to secure the confidential data as a credential information of the doctors and patients which is stored on the Cloud. This algorithm is preferable because it provides the high level security with the encryption technique.

Steps:

1) Enter the input string
2) Append padded bits
3) Append length
4) Initialize MD5 Buffer
5) Process message in 6-word blocks
6) Output
7) Summary

Applications:

- Banking Sector
- Finance and Marketing
- Educational Organization and Universities
- Vehical manufacturing and Production industry
- Consumer Electronics
- Pharmaceutical Industry

Conclusion:

In our proposed system we will use IOT devices to improve information security in smart hospital and ability to recover from difficulties of hospital's patients'. It will also prevent disruption to smart components which would cause greater impact to safety of patients and goal is to increase patient's safety. As we uses different sensors it will increases the efficiency and it will also reduce the manual work and will reduces the human efforts.

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