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A Survey on Hospital Management System Using Smart Card and Cloud Infrastructure

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ABSTRACT: Rising social insurance spending has prompted an increment in calls for approaches to lessen the expense of medicinal services. In the midst of the civil argument on the best approach on cut expenses in the human services framework, one of only a handful couple of bipartisan procurements is the need to coordinate present day innovation into the capacity and exchange of therapeutic records. Current endeavors to build up such electronic medicinal records are tested by worries about patient security, issues with the consolidation of old records, and spending plan constraints. We propose the advancement of individual compact social insurance record keen cards/Cloud Expert framework based and a comparing structure to improve support and exchange of patient records as an incremental step towards a nationalized electronic record framework. Our proposition is an attainable and expense effective framework that applies existing innovation to address inefficiencies of the present paper based medicinal records framework; at the same time, it likewise serves as a move framework to encourage the appropriation of totally electronic therapeutic records.

KEYWORDS: Cloud Computing, Hospital Management, Cloud Information System, Smart card.

I. INTRODUCTION

Automation systems in hospitals serve the purpose of providing an efficient working environment for health care professionals. Access to accurate health data quickly is one of the main functions of this system. There can be many sources that the information related to the patients can be obtained from the patient, test results, doctor diagnoses for patient illness, health measurement devices and previously stored patient information [11]. The usual way of obtaining relevant data is from paper record. The Paper-based records have a low cost and have limitations such as difficult to access, time-consuming to update, secure, impossible to share and maintain for life long. The problems can be solved by increasing the capabilities of hospital automation systems by using intelligent storage and retrieval mechanism. Smart card can play a key role in sharing patient specific information. The patient can carry the health smart card with him/her anywhere and anytime and present it to the doctor at the time of consultation. Smart cards are more suitable to use in health care information systems because of they are cheap, easy to use, carry and update with new information and should not get damaged easily. Smart cards can be described as portable integrated devices that store and process data. These tiny computers with their own memories and processors have a widespread usage especially in telecommunication and mass transit systems [12].Speed, security and portability properties make smart cards a potential tool in healthcare systems.

II. RELATED WORK

In[1] author used various models to manage the hospital electronically which include (EHD) Electronic healthcare Documentation which is use for gathering the past information of the patients which helps them in rendering health services. The author also made use of (EPR) Electronic Patient Record building a new system of health services in which the application of technology for knowledge dissemination helps all health professionals to provide personalized service to every patient in accordance with the latest medical standards resulting from the most recent knowledge, and that is knowledge. He also introduced the use of smart card to provide security. In [2],[4] authors introduced to the next generation electronic smart card and about it use in various application in finance and health care sector. He also examined the electronic smart card as an efficient use of it in terms of security (privacy, confidentiality, Integrity and

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authenticity) in health care and finance sector. In[3] author explained about the RFID and how it can be used in cloud infrastructure .The various use of RFID in today's world as been explained and how it can be utilized in various domain. The RFID contain Reader Writer tag which can be used in smart card application. In[5] authors explained about the use of cloud infrastructure as an storage resource .It tells about how the health care systems will be benefited in terms of cost and utilization of resources. It offers new possibilities to access and ubiquitous management of health care data. It will improve the adoption and maintainability of evolving technologies. This will ensure the use of up-to-date technologies and skilled technical manpower to manage health care systems in an efficient and effective way. In[6] authors have used ANN for heart disease diagnosis ,in their proposed system they have identified three common heart diseases based on the sound waves. And they have stored the information on the smart card for the future reference. In [7] authors have surveyed various options for the hospital management where the first option includes the use of old method where the data is stored in the folders or in the local database. The second option tells about the use of electronic health system which makes it easy to store and transfer the information. The third option tells about the use of smart card for the electronic system which will provide the security to the data, maintenance and updating it will be a easier task. In [8] authors have used expert diagnosis system based on the cloud computing. The system is able to make the preferable diagnosis based on the user's physiological data which includes age, gender, and body mass index (BMI). Also various algorithms classifying the diagnosis in addition elastic cloud which is based on Poisson distribution which allocates the computational resources and for the experimental result tells the Navie Bayes algorithm is best fitted with higher accuracy rate.

III. PROPOSED ALGORITHM

A. *Design Considerations:*

The above system architecture explains the use of the smart card in different module of Hospital Management. Where the reader device known as RFID will be installed in each clinic, which will manage all the records, schedules, appointments, availability of doctors and such many other modules. Here in this system architecture client can be a patient or employee uses his/her smart card for the accessing the services. The client uses smart card by just giving a tag to the RFID reader and gains the access to the particular service. The service for which client has to gain access is stored on the central server in from of database. Which will help the client to track the data easily from anywhere provided it has RFID reader and rights to access it. The central server will store all the information related to the patient medical records, past history, last visited, Doctor records, attendance etc.

The use of Cloud base medical System provides the benefits of streamlined operations, enhanced administration & control, superior patient care, strict cost control and improved profitability. Cloud base medical system is powerful, flexible, and easy to use and is designed and developed to deliver real conceivable benefits to hospitals. More importantly it is backed by reliable and dependable support. This is designed for multispecialty hospitals, to cover a wide range of hospital administration and management processes. It is an integrated end-to-end Hospital Management System that provides relevant information across the hospital to support effective decision making for patient care, hospital administration and critical financial accounting, in a seamless flow.

Figure 1: Architecture

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IV. SCOPE OF THE PROJECT

All this work is done manually by the receptionist and other operational staff and lot of papers are needed to be handled and taken care of. Doctors have to remember various medicines available for diagnosis and sometimes miss better alternatives as they can't remember them at that time. The limited time and resources have restricted us to incorporate, in this project, only main activities that are performed in a HOSPITAL Management System, but utmost care has been taken to make the system efficient and user friendly. HOSPITAL Management System has been designed to computerize the following functions that are performed by the system:

1. On Line Appointments for the Patients
a) Admission of New Patient.
2. Free Medical Advice for the Patients
3. Discharge Detail Functions
    a) Discharge of Patient
b) Doctor Assigning related to Patients Disease
4. Training Courses Provided by the Hospital
5. Statement of Patient Details
a) Admitted Patient
b) Discharged Patient
c) Doctor Details
6. Total number of Patients admitted in the Hospital
7. Doctors available in the Hospital
8. Preventive Health Checkups
9. Administrator Links
a) Login Form
b) To add new doctors in the site
c) List of patients
d) List of Doctors

V. DRAWBACKS OF EXISTING SYSTEM

- Prevention of spoofing attack.
- Prevention of forging attack.
- High efficiency password verification
- Prevention of replay attack
- Prevention of denial of service attack
- Proper maintenance of data required.

VI. CONCLUSION AND FUTURE WORK

Hospital Management System not only provides an opportunity to the hospital to enhance their patient care but also can increase the profitability of the organization. Hospital Management System would enable hospitals or Nursing homes to serve the rapidly growing number of health care consumers in a cost-effective manner. Hospital Management System can also save extra money on your current computer hardware shopping. Check up with our executive to more on these Hospital administrators would be able to significantly improve the operational control and thus streamline operations this would enable to improve the response time to the demands of patient care because it automates the process of collecting, collating and retrieving patient information. Accounting sometimes becomes awfully pathetic and complex. This product will eliminate any such complexity, since the retrieval of information through its MIS will become virtually on the tip of your fingers. Very important for some, the reduced cost of the manpower would pay for the cost of this product within a short time after its implementation.

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