E Health Records For Developing System Used Security

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Abstract- *This project deals with E-health web application framework, cloud platform and provide the security to the upcoming health data. This work presents the whole development process of the self-care management web-app framework which provides instructive supports for future other E-health field application. The report consists of the following main parts: analysis, design and implementation, and evaluation. Literature review and internet search are main methods for making an investigation on existing systems and related works. A prototype is developed by using Java, Java script, CSS, and HTML technologies. We will create one encrypted key and it will access patient, doctor, and nurse. We will get authority to detect fraud related to electronic health record(Lu & song, 2013)*

Keywords- Cloud, Electronic Health Records, Framework, Patient, Service Oriented Architecture, Encryption

I. INTRODUCTION

This project deals with the Corporate Medicare Management. This project is very helpful to both Medicare staff as well as to the public. It is having mainly Administration and Client module.The growing quality demand in the hospital sector makes it necessary to exploit the whole potential of stored data efficiently, not only the clinical data, in order to improve diagnoses and treatments, but also on management, in order to minimize costs and improve the care given to the patients. In this sense, Data Mining (DM) can contribute with important benefits to the health sector, as a fundamental tool to analyze the data gathered by hospital information systems (HIS) and obtain models and patterns which can improve patient assistance and a better use of resources and pharmaceutical expense. Data Mining is the fundamental stage inside the process of extraction of useful and comprehensible knowledge, previously unknown, from large quantities of data stored in different formats, with the objective of improving the decisions of companies, organizations or institutions where the data have been gathered. However, data mining and the overall process, known as Knowledge Discovery from, is usually an expensive process, especially in the stages of business objectives elicitation, data mining objectives elicitation, and data preparation. This is especially the case each time data mining is applied to a hospital: many meetings have to been held with the direction of the hospital, area coordinators, computer scientists, etc., to establish the objectives, prepare the data, the mining views and for training the users to general DM tools.

II. LITERATURE REVIEW

The literature search was conducted from November 2014 through February 2015. STARLITE (sampling strategy, type of study, approaches, range of years, limits, inclusion and exclusions, terms used, electronic sources) search strategy with the terms documentation, electronic health record, implementation, benefits, and challenges was used10 (Fig 1). The study included narrative reviews, commentaries, case studies, case series, surveys, clinical case studies, randomized controlled studies, governmental reports, and insurance company reports. The study also included reports on the progress of implementation of EHRs, quality of documentation, or experience in teaching facilities. The search was limited to the English language, and the databases searched were PubMed, Current Index to Nursing and Allied Health Literature, and Index of Chiropractic Literature. The search was further limited to articles directly applicable to small chiropractic offices and teaching clinics. Reference tracking was used to identify additional citations. Large national network or hospital studies, radiology- or laboratory-related studies, and studies that involved specific conditions were excluded because the implementation problems were not likely to be applicable to individual chiropractic practice or teaching facilities. The final results eliminated duplicates and those citations that were not relevant to the topics of interest. RESULTS A total of 45 full-text articles from all databases were used. There were reports of implementation in small medical offices, 11 satisfaction with EHR systems, 12,13 and methods of importing the documentation content.14 All of these reports indicated consistent problems that affected the quality of the documentation. Commentaries revealed the use and misuse of the documentation information generated by EHR systems.14 One study looked at the sociological aspect of EHR systems and how it affected the quality of care. 15 This study provided insight into the doctor-computer-patient relationship, with the computer demanding more attention

than the patient. The computer intervention resulted in the doctor missing nonverbal patient communication, resulting in a negative effect on quality of care. There were 10 governmental and private insurance reports found and 8 used. These reports reviewed the overall EHR system utilization rate and provided an overview of the trend. Common themes noted throughout the articles reviewed were difficulties in utilization of all the features of the new software, intrusive change in workflow, financial constraints on small office budgets, and imposition in the doctor-patient relationship, which often led to dissatisfaction in practice. There was inconsistent reporting on the effects of EHRs on changes in quality of care but consensus on the other issues.

III. OVERVIEW OF PROPOSED SYSTEM

A. Design Considerations

In designing the proposed framework for the EHR of this paper, of upmost importance are the considerationsfor:

i. *Confidentiality* that is, only the entitled users, under the defined terms, have access to data and information on the proposedsystem.
ii. *Authentication* that is, a verification that the ownership of an information is actual due to the right patient and it emanated from the expected source;
iii. *Availability* that, is the capacity of proposed system to be used by the entitled users under the defined terms of access andexercise.

B. Architecture of the proposed Framework

Fig. 1 depicts the architecture of the proposed framework a cloud-based EHR system presented in this paper. The framework allows at the users side for two categories of users that include patients and medical practitioners/assistants to access the system using a variety of devices that includes Smartphone, laptops and desktop computers. A patient' request to access the system remotely will be routed through the gateway while medical practitioners/assistants accesses the system via a communication network. The cloud side consist of a set of servers that includes an application server that handles all application operations between users and the system's backend of the database; a database server that provides database services to other components of the framework; a file server which is a location for shared disk access; a web services server which provides business logic for users' requirements and a security server that ensures security of stored data and access control.

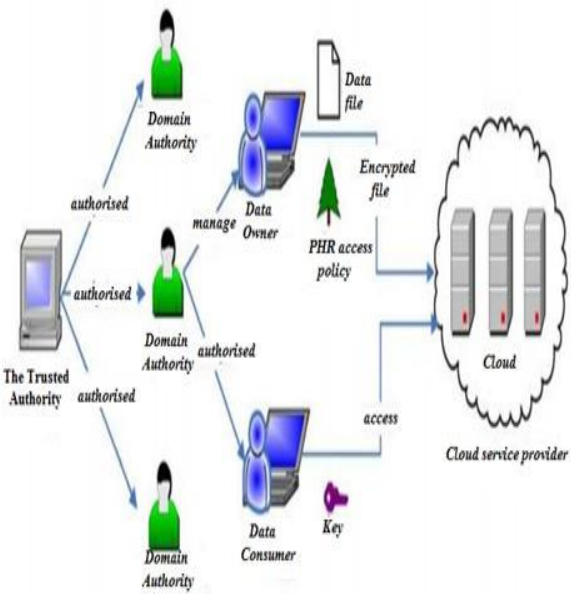

Fig. 1: The Proposed Framework for a Cloud-based EHR System

The EHR system can be accessed through a web portal over a private network by patients, doctors, nurses and medical assistants with valid credentials using various devices that include Smartphones, laptop and desktop computers. The security of patient information and data is to be by a public key cryptosystem and steganography. Recorded patient's data are routinely saved and transferred to the network server via Secure File Transfer Protocol (FTPS) for future referencing. Patients' medical data accessed by medical practitioners with valid credentials can be used by them to analyze and manage patients' medical history, reaction to medication, evolution and possibly send to patients, a medical recommendation. Also, physicians can communicate with patients through the web portal while patients too can access their personal medicalrecords.

C. Implementation View of the ProposedFramework

Fig. 2 depicts the implementation view of the proposed framework.

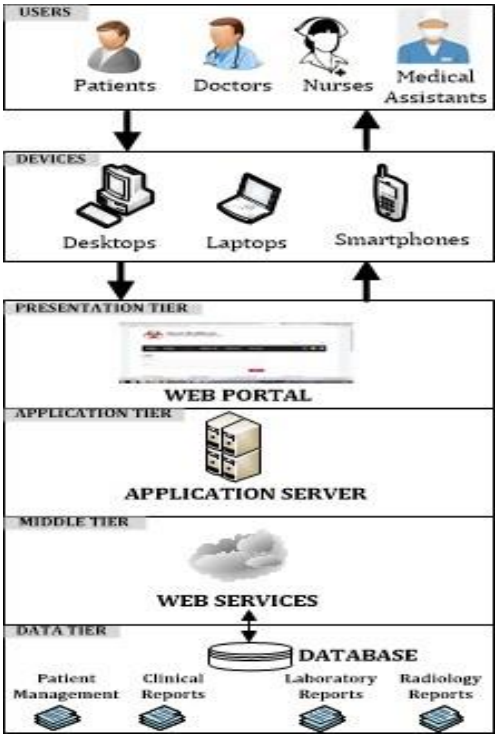

Fig. 2: Implementation view of the proposed framework

The implementation view of the proposed framework is a multi-layered approach consisting of the Presentation, Application, Middle and Data tiers. The foremost layer is the Presentation tier which is a web portal that facilitates the exchange of information between users and the system and among various users. It is a layer that is independent of other layers underneath it since it was to be implemented for a variety of devices. Next to the Presentation tier is the Application tier. The Application tier collates users' inputs (data and information) and process them. Beneath the Application tier is the Middle tier. The Middle tier is essentially made up of services layer that handles issues bothering on integration of different applications, problems arising from disparity in data structures implemented, technical conflict in connectivity to different protocols and soon. This layer is composed by web services. The last of the layers is the Data tier. The patient data requests by the EHR application is supplied by the data tier.

The algorithm for authentication of users is as stated below:

i. Start
ii. Initialize Status Flag =False
iii. Input User name and password
iv. User authentication: a search by the database for a match with the supplied user's credential
v. If there is a match in the database with the supplied credentials, change Status Flag =True
vi. Grant User login Else
vii. Display "INVALIDUSER"
viii. End

The algorithm for creating and retrieving a patient's record is depicted hereunder:

Let *DB* be the database of the EHR system and in *DB*, let there exist, patients *Pi* for $1 \leq i \leq n$ for *n* number of patients.

To retrieve the health record of any patient *Pi*

i. Start
ii. UserAuthentication
iii. JoinCloud
iv. Supply *Z* which is the Patient's identity ofPatient *Pi*
v. Verify if $Z \in DB$
vi. If$Z \in DB$,displaypatient'srecord Else
vii. Display "NO MATCH FOUND IN THE DATABASE"
viii. Profile newpatient
ix. Update the database *DB* with the newrecord

End

IV. CONCLUSION

In this paper I can do it is security for patient monitoring system. We can access one key for security both sides like Patient, doctor nurs()e or medical. If anyone gets fraud related to patients record we can getting authority to disable this person.

V. CITATION

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- D. K. Vawdrey, T. L. Sundelin, K. E. Seamons and C. D. Knutson, "Trust negotiation for authentication and authorization in healthcare information systems," Proceedings of the 25th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE Cat. No.03CH37439), 2003, pp. 1406-1409 Vol.2, doi: 10.1109/IEMBS.2003.1279579.Abstract: The expanding availability of health information in an electronic format is strategic for industry-wide efforts to improve the quality and reduce the cost of health care. The implementation of electronic medical record systems has been hindered by inadequate security provisions. This paper describes the use of trust negotiation as a framework for providing authentication and access control services in healthcare information systems. Trust

negotiation enables two parties with no preexisting relationship to establish the trust necessary to perform sensitive transactions via the mutual disclosure of attributes contained within digital credentials. An extension of this system, surrogate trust negotiation is introduced as a way to meet the security requirements of healthcare delivery systems based on mobile computing devices and wireless communication technologies. These innovative technologies have enormous potential to improve the current state of security in healthcare information systems.URL:https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=1279579&isnumber=28599

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