

A Secure E-Health System

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ABSTRACT

Existing Health Management Systems are faced with various security and privacy issues such as unauthorized Access to Patient Records, internet security issues, etc. The proposed system mainly focuses on the security of Electronic Medical Records . The purpose of the project entitled “A SECURE eHealth SYSTEM” is to develop software which is user-friendly, fast, and cost-effective. It deals with the collection of patient’s information, Doctor details, Medical information. Traditionally, it was done manually. The main function of the system is to register and store patient details, add symptom and doctor details and retrieve these details as and when required, and also to manipulate these details meaningfully. System input contains patient details, doctor details while system output is to appoint a doctor for the patient, display these details on the screen, securely generated electronic medical records, forward prescriptions to the medical store. The eHealth system can be entered using a unique ID generated during registration and password. It is accessible either by a doctor, patient, pharmacist. Only registered members add data into a database. The data can be retrieved easily. The data is well protected and the data processing becomes very fast.

Keywords : Security, Electronic Medical Record, eHealth

I. INTRODUCTION

The project “A Secure eHealth System” includes registration of patients, registration of doctors, registration of pharmacist, storing their details securely

into the system, sending prescription to pharmacist.

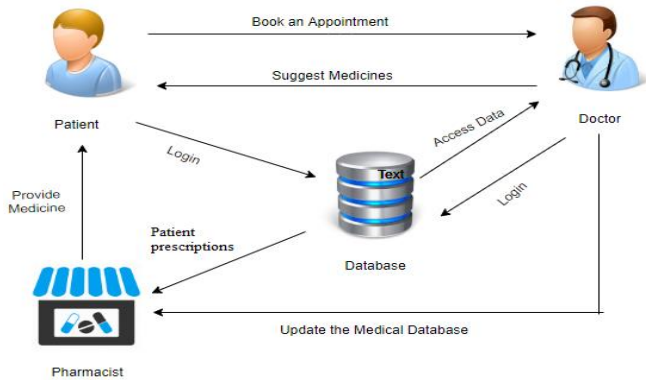
This system give a unique id for every patient and stores the details of every patient and the stuff automatically. Patient can search availability of a doctor and the details of a patient.

The eHealth System can be entered patient ID generated during registration and password. It is

accessible by patient, doctor and pharmacist. Only they can add data into the database. The data can be retrieved easily. The interface is very user-friendly. The data are well protected and the data processing becomes very fast. The EMR is generated by doctor and uploaded to local server, and prescriptions are forwarded to pharmacist. Also mail about the Medical stores name and address is send to patient. EMR contains prescription, description, Allergies and Reports of the patient. Reports are stored in encrypted format. The eHealth System can be designed for multispeciality hospitals, to cover a wide range of hospital administration and management processes. It is a Hospital Management

System. It provides information across the hospital. It also support decision making for patient care.

II. SYSTEM ARCHITECTURE



In Secure eHealth system the patient registers with a hospital, and the hospital determines that the patient is subject to which department and patientId will be generated. Then allocate a doctor for diagnosing, and the patient makes an appointment with the hospital to obtain the diagnosing information (e.g. time and place). At the corresponding time, the patient delegates to the doctor, and is diagnosed and treated. Then the doctor generates the EMRs for the patient and outsources the encrypted EMR to storage server. Doctor outsources the prescription to nearest pharmacist. Pharmacist provide proper medicine to patients and bills are automatically generated. Prescription are visible at pharmacist login and these prescription are flush out after clicking submit button by pharmacist.

III. METHODS AND MATERIAL

We are using agile model for our project.

1. Requirement Gathering and Analysis:

In this phase, we identify what are various requirements that needed for our projects such as software and hardware required, database, and interfaces.

2. System Design:

In this system design phase, we design the system which is easily understood by the end user i.e. user friendly. We design some UML diagrams and data flow diagrams to understand the system flow and system module and sequence of execution.

3. Implementation:

In the implementation phase of our project, we have implemented various modules required of successfully getting the expected outcome at the diferent module levels. The small program is called unit. Each unit is combined for testing. Each unit is tested independently.

4. Testing:

The different test cases are performed to test whether the project module is giving expected outcomes in assumed time. All the units developed in the implementation phase and are combined into a system after testing of each unit. The entire system is tested. It checks for any faults and failure.

5. Deployment of System:

Once the all testing is done, the product is deployed in the customer environment or released into the market. In this phase customer reviews are gathered.

6. Maintenance:

Some issues come up in the client environment. To fix those issues patches are released. In this phase according to the customer some changes happens.

IV. RESULTS AND DISCUSSION

A fully developed and user friendly system to secure patient's EMR (Electronic Medical Record). This system encrypt all the reports of patient and store it on database and in local host. AES algorithm is used for providing security to EMR.

VI. REFERENCES

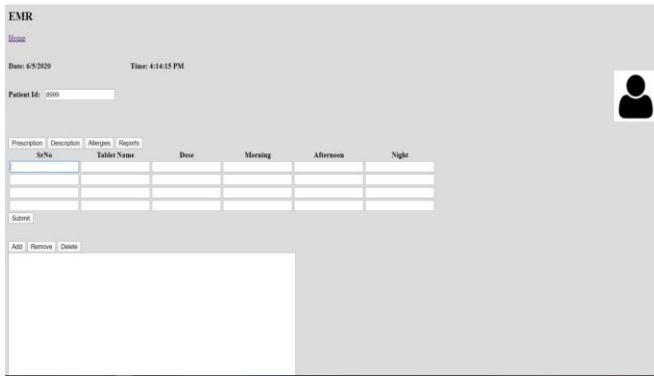


Figure 2. EMR format

A. COMPARISON:

Table 1. Comparison between existing system and proposed system

Existing System	Proposed System
1.Prescription given by doctor are in written format and stored in file.	1.Prescription given by doctor are in EMR template.
2.There is chances of missing files and require time to handle this process.	2.There is no chances of missing files.
3.Data is not secure.	3.Data is more secure
4.Doctor can not directly send prescription to the pharmacist	4.Doctor send prescription to the pharmacist with hiding all patient details.

V. CONCLUSION

In this paper, we have proposed the secure encrypted EMRs for eHealth systems, namely A Secure eHealth System. We are entering details of the patients in the System. So data will be secured. Using this application we can retrieve patient’s history very easily. Thus processing information will be faster. It easily reduces the chances of missing files and data processing becomes very fast.

[1] Review of Security Issues in E-Healthcare and Solutions, 'Patience E. Idoga, 2Mary Agoyi Computer Engineering Department,(2016).

[2] Electronic Health Record Systems: A Current and FutureOriented View, Cindy Mei, EvodieClerger, DevlinaDavis ,(2013)CDStore:Toward Reliable, Secure, and Cost-Efficient Cloud Storage via Convergent Dispersal, Mingqiang Li, Chuan Qin, Jingwei Li, and Patrick P. C. Lee, (2016).

[3] Achieving efficient and privacy-preserving truth discovery in crowd sensing systems, Wei Quan, Yana Liu, Hongke Zhang, and Shui Yu, (2017).

[4] A Methodical Review of e-Health Systems Developed for Indian Healthcare Sector, Pushpa Sharma1, T. R. Shivaram2 and Anil Sharma-Nov(2016).

[5] HealthDep: An Efficient and Secure Deduplication Scheme for Cloud-Assisted eHealth Systems, Yuan Zhang, Student Member, IEEE, Chunxiang Xu, Member, IEEE, Hongwei Li, Member, IEEE, Kan Yang, Member, IEEE, Jianying Zhou, and Xiaodong Lin, Fellow, IEEE(2018).

[6] L. D. Xu, W. He, and S. Li, "Internet of things in industries: A survey," IEEE Transactions on Industrial Informatics, vol. 10, no. 4, pp. 2233– 2243, 2014.

[7] G. Xu, H. Li, C. Tan, D. Liu, Y. Dai, and K. Yang, "Achieving efficient and privacy-preserving truth discovery in crowd sensing systems," Computers & Security, vol. 69, pp. 114–126, 2017.

[8] H. Ren, H. Li, Y. Dai, K. Yang, and X. Lin, "Querying in internet of things with privacy preserving: Challenges, solutions and opportunities," IEEE Network, 2018, to appear.

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