

DIGITAL HEALTH RECORD

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ABSTRACT

Abstract— Majority of patients face problems due to negligence of officials. And to maintain all the records in registers or papers for Person, Doctor or even Government is a very complicated task. The hand written prescriptions can be sometimes difficult for shopkeeper or Chemist to understand and finally results in giving the wrong medicines that causes more harm than help. And so there is need to maintain the health record digitally to reduce the doctor's task and help the patients to understand their health record. In this project, we are developing a cloud based application which works as Software as a Service that will store every registered person's lifetime health record that can be retrievable anytime, anywhere. This Web application will be used by the doctors, where they will be able to access patient's medical history by their ID and diagnose the current sickness accordingly. Doctors can read, write and edit Patient's reports and prescriptions will be automatically generated which will reduce the chances of misunderstanding with the chemists.

Keywords: Cloud Storage, Health Record, Software as a Service, Doctors, Patients, Web Application

1. INTRODUCTION

This project is mainly focused on the medical data of the patients. Patient consults doctors and gets a report that is checked by doctors then a particular medication is given to the patient. The reporting process required from the doctors is very time consuming. If the patient is physically disabled then he/she has to struggle at these things. Because of these problems, we've thought of an idea that a unique id will be given to the patients so that doctors can access their reports, if needed. After examination, all the reports and prescription will be uploaded to the patient's id. The patient, then, can get the medicines whenever they want to. In case, the patient lost his hardcopy of the reports then it can be retrieved from our portal. Let's take a scenario," A patient is suffering from a disease so he consulted a doctor and got his report online. The patient needs to go out of the city for some business purpose and there he got ill. If he consults a doctor, he can show his previous medical reports to the doctors so that they can examine him properly by keeping allergic medications aside". For this type of scenario, this system comes in handy.

2. METHODOLOGY

To develop a Web Application we are using front end as Bootstrap Technology which is in very popular now a days for Responsive web applications. And for backend Salesforce cloud which provide more advance automated feature for Storing, Retrieve and Update patient health data. Salesforce Cloud improves the Data Quality and Management of the Customers.[1][2] All CRMs have one core function that is to manage the data about customers. Salesforce gives an easy interface to the organizations so that the customer data can be easily managed by the providing companies with a host of easy-to-use options to input. There are various options in the Data Loader like Insert, Update, Upsert, Delete, and hard delete which allows user to add new records, modify or change or delete existing records. "Upsert" is an operation that is a combination of Inserting and Updating record. If a record in a specific file matches an existing record, the existing record is updated with

the values in your file.[3][4] And new record is created when no match is found. When hard delete operation is performed on records, the deleted records are not stored in the Recycle Bin.

The reason to use Bootstrap Technology is

- i. Speed of Development
It is extremely an easy and speedy procedure to begin with Bootstrap. Bootstrap is very versatile too. Bootstrap can be utilized along with HTML, LESS, CSS or with Software as a Service.
- ii. Responsiveness
Mobile devices, nowadays, continue to grow because of “On-the-Go” system as advancing in technology so the idea of responsive page came into existence. With the help of Bootstrap, websites can be easily adjusted to any screen resolution.

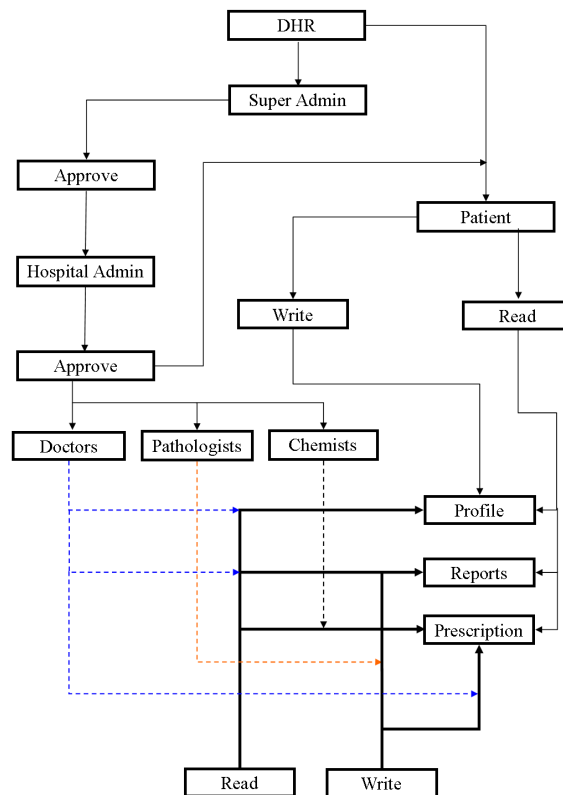


Fig-1: DHR Relation Model

In DHR (Digital Health Record) System, the DHR portal has login page for Patient, Doctor, Pathologist and Chemist and above them are HA and SA (Hospital Admin and Super Admin). SA controls the Hospitals that are to be registered in the DHR System. For each Hospital there are HA to register Doctors, Patients, Pathologists and Chemists and each HA is registered by the SA. Because of this usage restriction by SA and HA, DHR system will get no fake registrations from fraud hospitals. Only those systems will be registered in DHR which seems reliable to the DHR Admins (Super Admins).

The users that are Doctors, Pathologists or Chemists must register first through the HA and he/she will give them a unique ID that will be later used to login to their individual portal for their particular work. Patient is an independent object who can register through HA or can register individually from DHR website. This also tells the motive of DHR systems to give the rights to patients they deserve.

So, Patient's data will be stored in the cloud. For security and reliability of data Patient's data is divided into three parts:

- i. Profile
- ii. Reports
- iii. Prescriptions

Every profile will have their specific permissions for accessing each other's data.

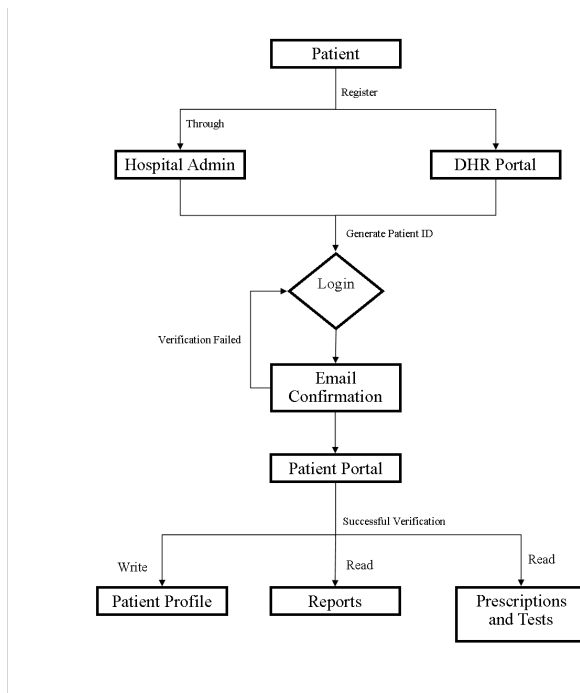


Fig.2 Role of Patient in DHR

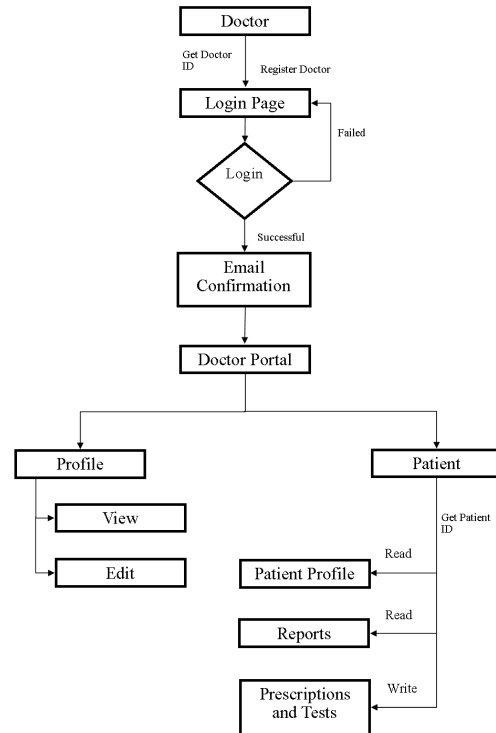


Fig.3 Role of Doctor in DHR

Patient can register through the DHR Portal or through the Hospital Admin of any Hospital. After registration a unique ID will be generated and given to the patient and with that a confirmation mail for the successful registration will be sent to the user. By using ID user can open Patient's portal where the Patient can write and edit his/her profile and can only read reports and prescriptions.

Every Hospital has its Hospital Admin. Hospital Admin will register the Doctor to the DHR system. After successful registration, Hospital Admin will give Unique ID to the Doctor. Doctor then will get the confirmation Email of successful registration and he/she can login to their portal. In Doctor's portal, he can edit or view profile and he can write prescriptions and tests, can view Patient's profile and reports.

Pathologists and Chemists must register through the Hospital Admin and they will get their unique ID. After successful registration a confirmation Email is sent to the user and their respective portal will open. There they can read and edit their profile. Pathologists can write reports and can read prescriptions whereas Chemists can only read the prescription.

3. RESULTS AND DISCUSSIONS

The change of method from paper records to digital medical records designed to combine data from services which provide necessary support for the organization, such as pharmacy, pathology laboratory and radiology, with record tracking, such as administration records. The analysis in the Digital Health Record system got the patient convenience i.e. online medical records and consultancy.[5] Patients liked DHRs because

they experienced improvements in their health care related and enhancements in communication between Patients and Doctors. Doctors and Pathologists practitioner could easily share information on patients medical problems and coordinate patients care with other providers via DHRs. Participants noticed that they had received fast test results with DHRs than receiving reports on paper, which participants associated with more responsive care, and participants noticed the benefit of providers using a search function to quickly find relevant test results and view trends of results.

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