

Web Based Application For Medical Platform

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ABSTRACT

The Health Insurance Portability and Accountability Act, commonly known as HIPAA, is a series of regulatory standards that outline the lawful use and disclosure of protected health information (PHI). HIPAA compliance is regulated by the department of Health and Human Services (HHS) and enforced by the Office for Civil Rights (OCR). The existing system either built for patients looking to purchase medicine online or booking doctors appointment as well as the patients health record is not maintained there with the help of HIPAA compliance. The proposed system is a collection of four different healthcare application. First, it will maintain patients health record by following HIPAA compliance. Second, it will help patients to purchase medicine online. Third, it will help in booking doctors appointment and the last sharing pathologist report on the system. Electronic Health Records (EHRs) and types of Patient Health Information (PHI) from EHRs that are relevant to clinical practices. EHR is a digital version of a patient's paper chart. EHRs are real-time, patient centered records that make information available instantly and securely to authorized users. While EHR does contain the medical and treatment histories of patients.

Index Terms –PHI (Protected Health Information), HHS (Health and Human Services),OCR(office for Civil Rights) , HIPAA(Health Insurance Portability and Accountability Act)

1. INTRODUCTION

If anybody is ill and wants to visit a doctor for checkup, he or she needs to visit the hospital and waits until the doctor is available. The patient also waits in a queue while getting appointment. If the doctor cancels the appointment for some emergency reasons then the patient is not able to know about the cancelation of the appointment unless or until he or she visits the hospital. As the mobile communication technology is developing rapidly, therefore, one can use the mobile's applications to overcome such problems and inconvenience for the patients. There is much work in the literature in this regard [1-14]. An intelligent agent based appointment system has been proposed in [1] in which a scheduling system is provided for patients. The junior medical staff schedules appointment according to the priority level. [2] proposed an Android application that is used to remind the patients of their dosage timings through Alarm Ringing system so that they can stay fit and healthy. Searching doctors and hospitals alongwith navigation details are also available in the app so they can get proper treatment on time. [3] proposed an android based appointment management system which uses application programming interfaces (APIs) from Google map and calendar. This appointment based application can be used with other appointment based systems. The mobile application accepts appointments by saving the record of the appointment on the phone calendar which is synchronized with the Google calendar. The user gets an alert based on preset specified time before the appointment time and date.

[4] proposed a Health Track system that communicates with sensors via smart phone for data collection, and stores data concurrently to the central server for further analysis via the internet. Some online systems that are already functional still have some drawbacks. To overcome these drawbacks an online patient appointment system is proposed using Near Field Communication (NFC) technique and Android enabled mobile application. This system works by registration and scheduling appointments based on NFC that accesses patient's health records and reports to alert nurses and doctors. There is another interesting work which is Disease Self-inspection and Hospital Registration Recommendation System (DSRRS) [6]. It uses Representational State Transfer (REST) style for communication interface between reasoning service and the system. Before reasoning users disease history is retrieved from Personal Health Record (PHR) and passed as an input to reasoning service. Mainly the input contains User's information, disease history, Knowledge base (symptoms) and output of reasoning service. [7] described an android smart phones and tablets application that is freely downloadable from Google play store and it provides various functionalities including personnel medical records, to trace position of actual user in real-time. Routing algorithm is used to find minimum distance for destination building. Another study

consists of an online database for the monitoring of patient with artificial heart [8]. This database consists of monitoring terminal that is portable and keeps continuous record of a patient including history. There are other studies which involve handheld healthcare [9, 10, 11] and efficient algorithms for appointment scheduling including self-inspection [12, 13, 14].

The proposed work in this paper is an Online Hospital Management Application that uses an android platform that makes the task of making an appointment from the doctor easy and reliable for the users. Android based online doctor appointment application “Mr. Doc” contains two modules. One module is the application designed for the patient that contains a login screen. The patient has to register himself before logging in to the application. After logging in, the patient can select a hospital and can view the hospital details. The patient has the option of selecting a doctor from the list of doctors and can view the doctor’s details. The patient can request for an appointment on his/her preferred day/time. The selected day/time slot will be reserved and patient will receive the notification of the successfully added appointment. The patient can view the location of the hospital on map. In addition, the patient can contact to the hospital and the doctor by making a call or may send an email to the doctor.

The second module is the admin module that is designed on the website. The admin views all details of doctors and all appointments by the admin. The admin can add doctor, view patient’s details and doctor’s details and can view appointments also. All the doctors of the specific clinic are registered by the admin. Doctors cannot register themselves.

Rest of the paper is organized as follows. Section II explains the design interface and the tools which have been used. Section III discusses the implementation and screenshots. Section IV concludes the paper.

II. DESIGN INTERFACE

The front end design is simple and user-friendly. Once the application is started the patient will register himself and then he will be able to log in into the application. The patient can make an appointment by selecting the preferred doctor, date and time. The appointments are managed by the admin through a website. The admin also registers a doctor. Admin is able to view doctors, view patient’s records and view feedback also. The back end design includes a server which acts as a centralized database. All the data of the registered doctors and patients and the data regarding the appointments are placed on the server. The data is approached and shared by using API’S between the website and the android application.

A. ANDROID

Android is an open source operating system which is Linux based and android platform is used to develop many useful applications for the mobile devices that makes the tasks of everyday life easy and

faster. The android platform also provides built in database (SQLite database) and Web services. Android platform provides connectivity between the server and the application using certain APIs, hence the task of making a doctor appointment using a mobile application connected to a website located on the server becomes easy using the advanced features and libraries available on the android platform.

B. SOFTWARE DEVELOPMENT TOOLS

The following software tools were used during the development process.

- ☐ Android studio 2.1.1 and SDK plug-in
- ☐ JDK 6
- ☐ Android 6.0 (Marshmallow) installed packages
- ☐ Ipage Server
- ☐ HTML
- ☐ Php

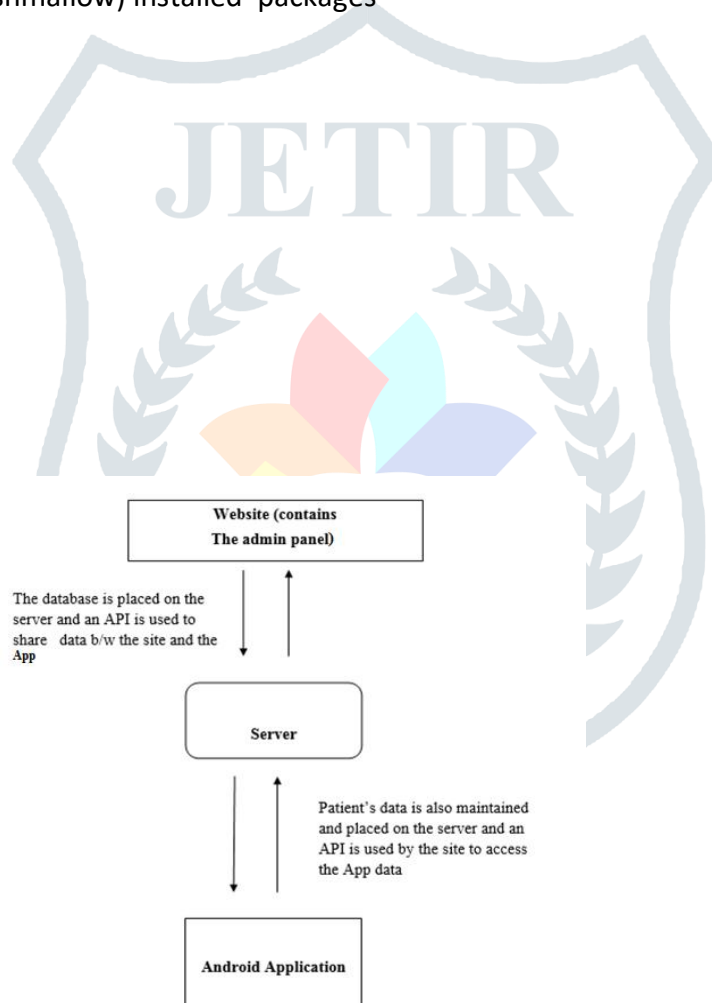


Figure 1: Block diagram of the appointment application



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Phone Number

Email Address

Appointment Date

Message

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Outpatient List

Add New Outpatient

Patient Id* P270715

First Name* Barton

Middle Name V

Last Name* Sharkey

Gender* Male Female

Date of birth* 07/10/1973

Blood Group* Select Blood Group

Symptoms* Now he is fine.

Diagnosis Report No file selected.

Assign Doctor Jimmie Dagley

Home Town Address* Block-C002., Street-55

City* London

State London

Country England

Zip Code* 856242

Mobile Number* 5625412523

Phone 256321

Email* barton@ymail.com

User Name* barton

Password*

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Add Patient

The proposed online appointment system has been implemented in android studio for application development and website is developed using HTML and PHP. The tasks involved in this work are divided into modules. The data is approached and shared by using API'S between the website and the android application. The proposed system is efficient and has friendly user interface. Addition of the admin and

doctor modules in the android application are included in future work. That would help the doctor to register on the application and perform all the tasks on the app. The admin would be able to use the app for managing the details of the patients and the doctors instead of using the website. A payment or some amount may be charged to the users/patients while making an appointment to avoid the unethical users. As many users only register themselves just for fun and has no concern by making an appointment. Some more future directions are the improvements in the patient's module which includes setting reminders for the appointments and saving the appointment date to the calendar.

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