

“CARE”- Patients in Queue

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Abstract— For improving hospital management there is need to improve the patient care by enabling doctors by providing the up-to date information about the patients under his/her direct care. We proposed to develop Smart phone application, names as “CARE” for this purpose. The CARE app uses geo-location capability for this purpose. The CARE application uses geo location capability of a Smart phone and pulls all the patient records automatically moment the visiting doctor opens the app inside or near the hospital. It also displays the sequence in which patients need to be visited as per their medical condition and urgency. The app also provides push notifications for any medical emergency situation with all the required patient information. The server side component uses REST APIs to pull the required information. Providing a Mobile application is again a huge achievement. The paper is about to develop a mobile application using the platform independent technologies. It supports all the types of platform like android, ios, windows etc.

Key words: Frequent Pattern Mining, High Utility Itemset Mining, Transaction Database

I. INTRODUCTION

The main idea behind the paper is to solve the healthcare problems which the patients face due to improper management in many hospitals. The paper solves the problem of patients which are in queue. Also the paper is developed to improve the patients care by enabling doctors by providing the up-to-date information about the patients under his/her direct care. Idea is to develop a smart phone application named as “CARE” for this purpose CARE is one aspect of Health that is pushing the limits of how to acquire, transport, store, process, and secure the raw and processed data to deliver meaningful results. CARE offers the ability of remote individuals to participate in the health care value matrix, which may not have been possible in the past. Participation does not imply just consumption of health care services. In many cases remote users are valuable contributors to gather data regarding disease and public health concerns such as outdoor pollution, drugs and violence.

The motivation behind the development of the CARE field arises from two factors. The first factor concerns the myriad constraints felt by healthcare systems of developing nations. These constraints include high population growth, a high burden of disease prevalence, low health care workforce, large numbers of rural inhabitants, and limited financial resources to support healthcare infrastructure and health information systems. The second factor is the recent rapid rise in mobile phone penetration in developing countries to large segments of the healthcare workforce, as well as the population of a country as a whole. With greater access to mobile phones to all segments of a country, including rural areas, the potential of lowering information and transaction costs in order to deliver healthcare improves. The combination of these two factors

has motivated much discussion of how greater access to mobile phone technology can be leveraged to mitigate the numerous pressures faced by developing countries' healthcare systems.

II. LITERATURE SURVEY

Recent years have seen a gradual shift in the relative importance of different healthcare stakeholders - between physician, payer and patient. Although the patient will never have the tools to replace the roles of the physician and the payer, patients are encouraged to take a more active interest in their overall wellbeing and understand the consequences of poor health in later life. By having the patient aligned with the importance of wellness programs and sickness prevention, health systems can hope to realize savings especially from a lower burden of multiple chronic conditions. As such, there are more frequent examples of healthcare payers and/or governments pushing increasing responsibility for healthcare onto the patient, whether that be by providing incentives to patients to stay healthy (effectively targeting preventive measures) or for adhering to treatment regimes that are prescribed. In an attempt to rein in health care costs from chronic health conditions associated with unhealthy behaviors, the Patient Protection and Care Act in the U.S. includes a provision stating that beginning 2014 employers can use up to 30 .Recently in Dubai, local government officials announced a 30-day challenge (to co-incide with Ramadan) in which it promised to pay participants a gram of gold for every kilogram of weight lost.

III. PROPOSED SYSTEM

To overcome the drawbacks of existing system, we proposed to develop Smart phone application, names as CARE for this purpose. The CARE app uses geo-location capability for this purpose. The CARE application uses geo-location capability of a Smart phone and pulls all the patient records automatically moment the visiting doctor opens the app inside or near the hospital. It also displays the sequence in which patients need to be visited as per their medical condition and urgency. The app also provides push notifications for any medical emergency situation with all the required patient information. The server side component uses REST APIs to pull the required information. Information provided using latest technologies. Updating, Inserting, and all the operations can be done easily and efficiently. This application will be most useful in future so that reducing paper work will affect the time as well as the environment.

A. Architectural Design

1) Work Light Architecture

CARE will be a HTML5 application. Its high-level architecture is illustrated through the following diagram that highlights the key system components and their interactions.

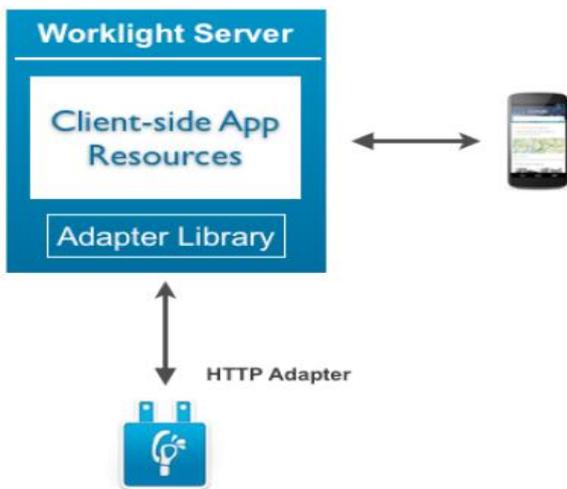


Fig. 1: Work Light Architectures

The HTML5 based mobile web application is loaded from Work light Server. It communicates with the server to fetch patients details and visit schedule, near by hospital patients queue on the basis of current location; and it receives push notification for emergency cases. A HTTP adapter (a) fetches prioritized patient queue and the last visit summary, and (b) uses location information received from mobile to fetch nearby Hospitals. The core application has a Restful API, which is leveraged by HTTP adapter to obtain information mentioned in previous point.

2) Authentication

CARE will provide a secure user-id/password based secured login mechanism to access its services. The details of this are not outlined here. The development team is expected to create authentication these keeping in mind the general practices followed by the mobile applications. To maintain focus on the primary objective, you may store user-id/password and role details in clear in the database and also enter data directly in to the table from the DB2 backend.

Note: In an enterprise environment, such an authentication is usually carried out by leveraging the corporate LDAP servers or by having a secure user registration mechanism with passwords stored as MD5 hash; or using Web Sphere LTPA token; or using a more comprehensive SSO mechanism. Hospital systems require even more strict security mechanisms such as one-time passwords or tokens.

3) Hospital Management Application

CARE assumes availability of an existing Hospital Management Application. Therefore, in order to develop and test, it will be essential to have a bare bone core application that CORE can extend to smart phones. It is suggested to create a minimal Restful API on top of a simplified database model. These are described in the following sub-sections:

4) Restful API

The API's will return the required data in JSON format from the relevant table(s)described in the section on database model.

5) Push Notification

Push notifications will be sent by constantly polling the hospital management application for emergency cases by using the Restful API. In absence of necessary prerequisite for notifications, the actual pushing of notification may be ignored.

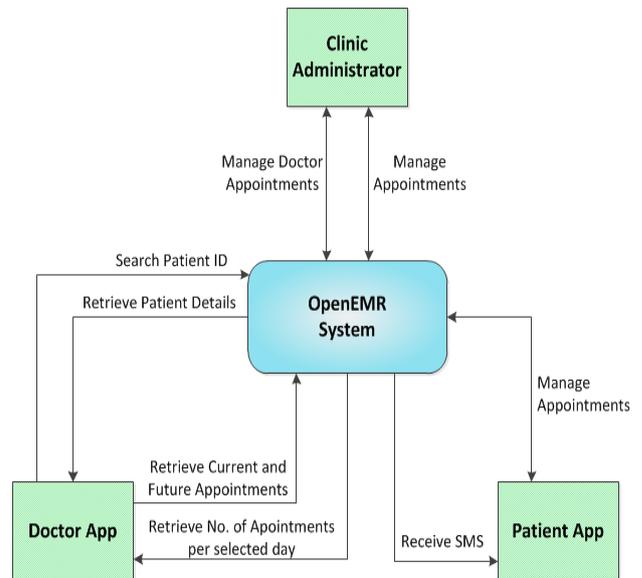


Fig. 1: System architecture

The CARE application uses geo location capability of a Smart phone and pulls all the patient records automatically moment the visiting doctor opens the app inside or near the hospital. It also displays the sequence in which patients need to be visited as per their medical condition and urgency. The app also provides push notifications for any medical emergency situation with all the required patient information. The server side component uses REST APIs to pull the required information. Providing a Mobile application is again a huge achievement.

The following figure illustrates the Use Case diagram for the system

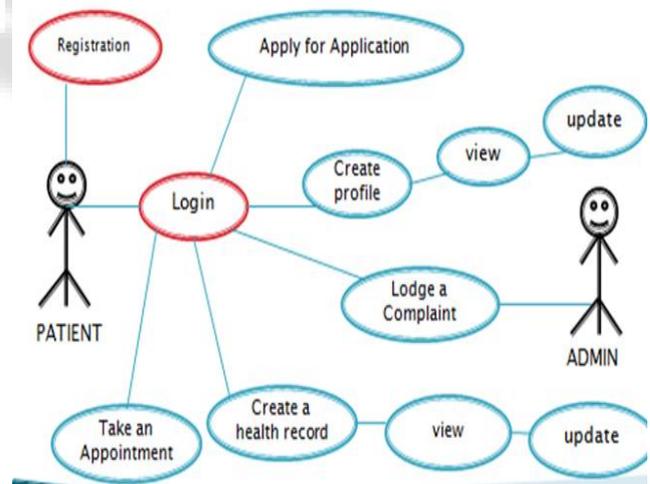


Fig. 2: Usecase Diagram

The above diagram depicts the sequence in which patient interacts with the system. First of all the patient needs to do registration after successful registration he will login into the system and take an appointment. He can also lodge complaint to admin, create health record,view, update.

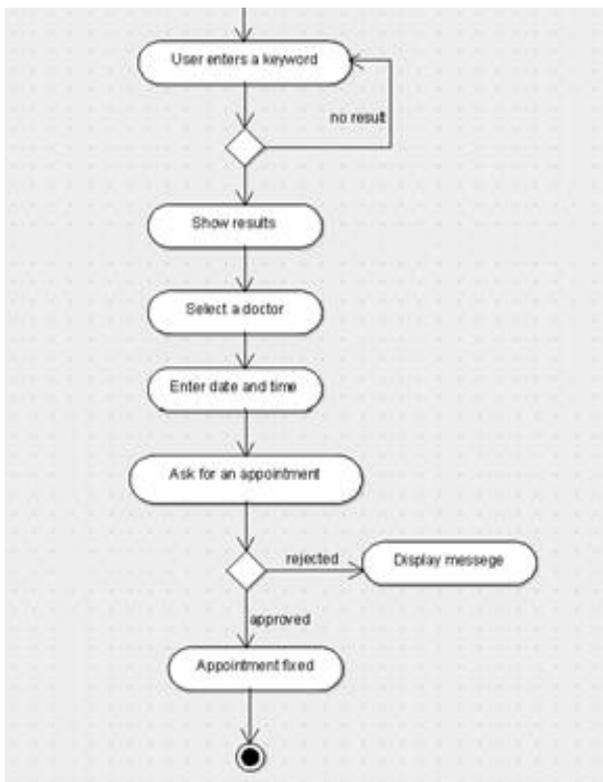


Fig. 3: Activity diagram

The above diagram shows the activities undertaken to take an appointment, first of all keyword is entered then system shows result. then the doctor needs to be selected. Then the request is given for taking appointment, then if the appointment is fixed then the system displays the message.

IV. CONCLUSION

This paper is undertaken to design android application to show real time advertisements using all open source technologies for the mutual benefit of the three entities involved in the process and they are- Doctor, Patient and Admin. By making use of smart phone capability of Geo-location, Restful API, Push notification the CARE application helps to manage the Patients in Queue by providing visiting doctors up-to-date information of patients. It also helps to provide facilities for emergency cases, so that their treatment can be done quickly.

REFERENCES

- [1] Patient Data Viewer: An Android Application for Healthcare by Samyuktha Challa Department of ECE BITS, Pilani- Hyderabad Campus Hyderabad, indiasamyuktha.challa@gmail.com 2009
- [2] Development of Mobile Phone Medical Application Software for Clinical Diagnosis K. Prahlad Rao, Mohammed Ahmed Hanash, Gafar Ahmed. International Journal of Innovative Science and Modern Engineering (IJISME) ISSN: 2319-6386, Volume-2 Issue-10, September 2014.