

Development of an Electronic Patient Medical Record (e-PMR) App for Doctors Using Smart Phones

Rajesh R Mane¹, R.V.Kulkarni, Pallavi M Dessai³

^{1&3}*Department of Computer Science, Vivekanand College
Kolhapur, India*

²*Computer Science Department, CSIBER
Kolhapur, India*

Abstract— The e-PMR app is designed to run on smart phones. As doctors find very difficult to handle computers but are friendly with smart phones. The app will help doctors to see their daily appointments, store information related to patient medical record. The app will reduce paper work and protect environment as it will share pathology and radiology lab reports. It will also help communicate with patients and doctors. It will also help in reducing the cost of care and help diagnose the patient fast.

Keywords— e-PMR, app, smart phones, doctors, patient, record.

I. INTRODUCTION

In today's technological world, the healthcare industry is looking for computer applications which will provide them with fastest and proper care to the patients. Traditional work of doctors, taking notes on papers is outdated. Doctors have become smart with use of computers, laptops and mobile phones at the time of treatment to the patients. So hospitals are using technology. All though adoption to it is very costly. On the other hand several hospitals have shifted to complete healthcare information system which will benefit patients and hospitals.

As doctors are having tight schedule based on the discussions and survey with doctors they suggested for a basic patient medical record app which would help them reduce time of waiting for patients, quick access to medical history and test results. At the time of emergency they would be able to communicate irrespective of location of patient. The app is somewhat related to EMR Electronic Medical Record which is a collection of data of a patient in electronic format for medical care.

It helps the doctors as well as hospital staff to provide better care & service for patient as it has all the information about the patient past visit, medications, and lab reports etc.

Mobile application development is the process by which application software is developed for low-power handheld devices, such as personal digital assistants, enterprise digital assistants or mobile phones. These applications can be pre-installed on phones during manufacturing, downloaded by customers from various mobile software distribution platforms, or delivered as web applications using server-side or client-side processing (e.g. JavaScript) to provide an "application-like" experience within a web browser. As part of the development process, mobile user interface (UI) design is also an essential in the creation of mobile apps. Mobile UI

considers constraints and contexts, screen, input and mobility as outlines for design^[7].

II. REVIEW OF LITERATURE

The lack of specificity and validity of the app content has a risk of potentially endangering patient safety. Therefore, there is a need to set up regulatory guidelines to improve the quality and validity of information disseminated by the smart phone applications. Also, encouraging the involvement of health-care agencies in developing apps aimed at healthcare professionals and general audience would ensure that valid and relevant information reaches the consumers^[1]. Looking at this balance of arguments it can be concluded that the new smart phones market model will help the mHealth market to reach a new level. The market will develop from a trial market to a global market, which is about to realize its full potential.

In our new report on the mHealth market, we will analyze in detail the impact of the new market model, the business opportunities for mHealth app publishers, and how the market will look like in 2015. The report will be published at the end of October 2010^[2].

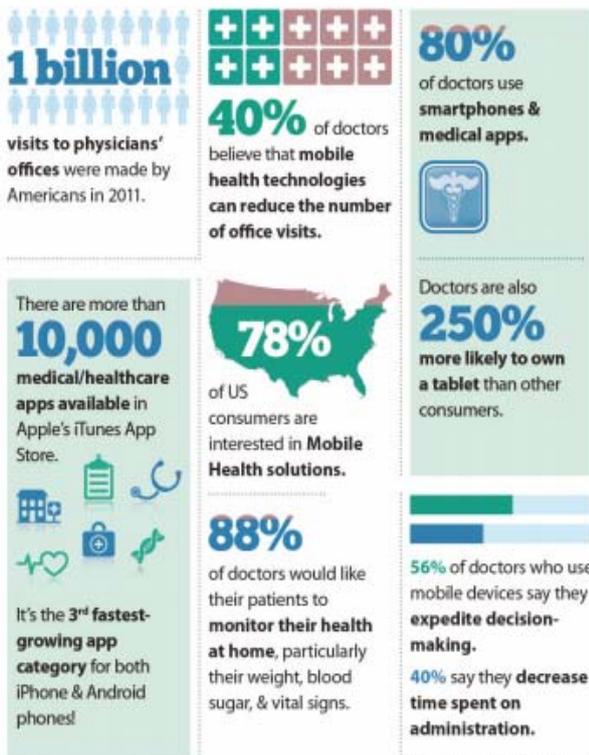
Smart phone, both iPhones and Androids, have changed the way medicine is practiced on many levels. The smart phones are used to run apps, which are special software programs for various purposes, such as the following: Functions in 1) Image Viewing 2) Diagnostics 3) Remote Monitors and 4) Microscope

One thing that should be noted is that Smart phones have optic abilities, which are used to take photos of skin lesions, (Dermatoscope), etc. That power is sure to increase also, and the probable development of algorithms to interpret, or diagnose the lesions, which will also increase in accuracy^[3].

In the increasing development of mobile health care system yields the largest growth among mobile users. The study on mobile healthcare system that describes some issues and facts are focused in related areas. Mobile healthcare alert system that delivers the proper timing and emergency case alerts. The mobility devices that enhance the computation based on the ubiquitous nature. Emergency alerts based on Smart phones are considered in MANETs which provides the advantageous issues related to power consuming, portability and flexibility. The technology based mobile home care and patient monitoring system that made cost efficient and quality based on articular patients

which reduces transportations related to patients. Multimedia based healthcare system that supports real time interactive application offers message transformation and easy of use and cost effectiveness. A dynamic integration related to multimedia medical data provides the framework which is low overhead and rich multimedia support. The wireless medium develops a wireless emergency healthcare system for an environment that integrates with several technologies such as RFID, GSM, and GPS. Monitors the location based rapid search for patients and performance related issues are focused. The privacy related issues are focused which provides the authenticated usage by cryptographic mechanism and provable data security. The strong privacy preserving schemes are analyzed which provides the efficient ehealth system by providing privacy and security^[4].

mHealth addresses some of healthcare industry's biggest concerns. It has the potential to tackle issues like the billions of dollars being spent annually in inappropriate or wasteful care, or the shortage of primary care physicians in India. So it should come as no surprise that mHealth is attracting the attention of not only the healthcare community, but also the investor community. Patients and Physicians alike are increasingly turning to mobile devices to help monitor, track and manage healthcare outcomes. There are 20,000 plus mHealth applications in the major app stores today, and by 2015, it is projected that there will be 500 million mHealth app users worldwide. The smart phone penetration in India is increasing with 40 percent consumers accessing internet daily through smart phones; 34 percent of these users log in for more than half an hour each day^[5].



III. E-PMR FUNCTIONS

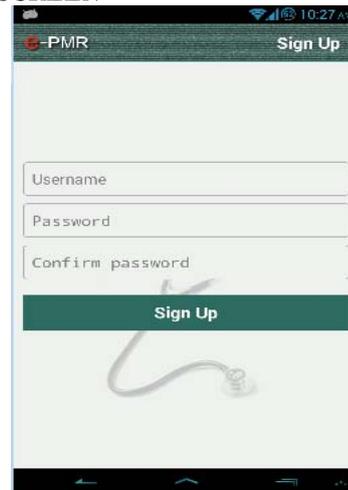
1. Provides a view of medical information.
2. Provides a means to easily navigate to the details of patient medical records.
3. Provides access to different types of media for medical records including:
 - a) Text-based documents
 - b) Images
 - c) Scanned documents
 - d) Photographs
4. Captures user entered data.
5. Provides a way to communicate through messages.
6. Schedule daily Appointments.
7. Get data at any time.
8. Provides summary of patient records for quick reference.
9. Search facility.
10. Reduce time required to capture, review, and manage patient information.

REQUIREMENTS

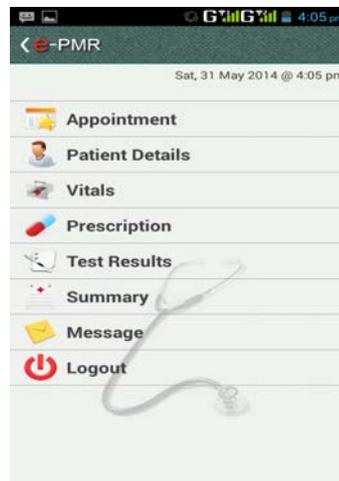
Operating System : Android 2.2 and above
Minimum Requirement: Any Android Smartphone

IV. APPS SCREEN DESIGN

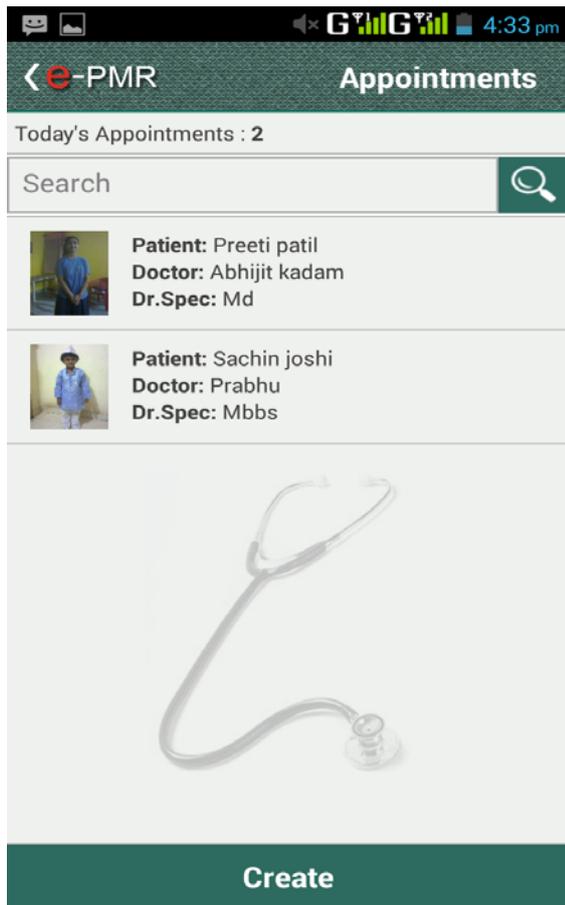
1. SIGN UP SCREEN



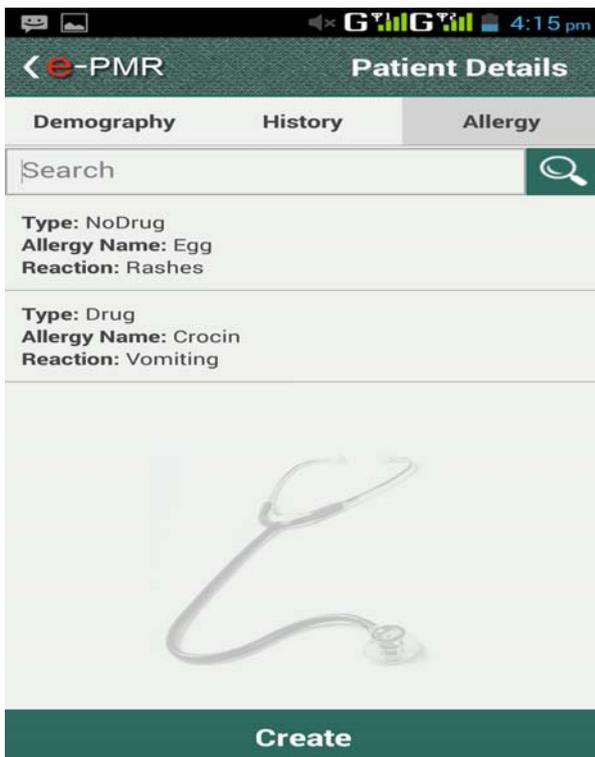
2. MAIN PAGE



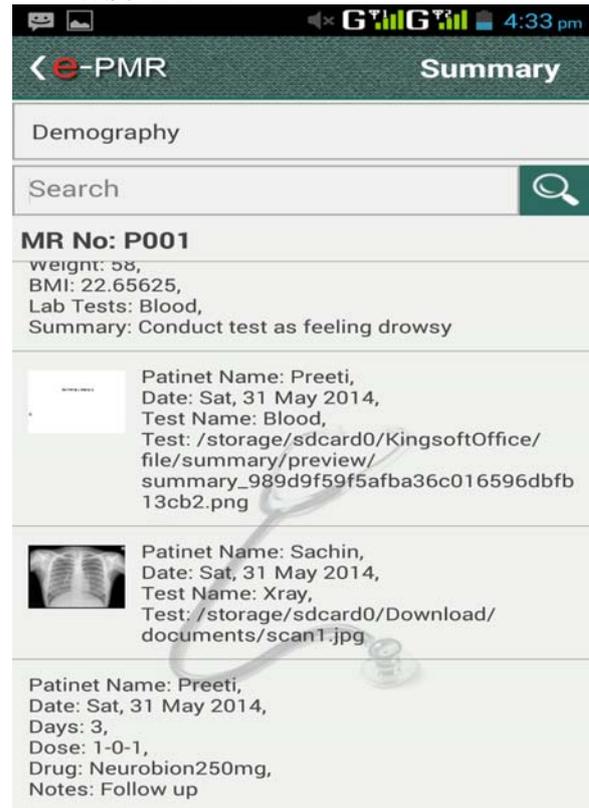
3. APPOINTMENT



4. PATIENT DETAILS



5. SUMMARY



V.CONCLUSIONS

Electronic medical record systems lie at the center of any computerized health information system. Evidence has increasingly shown that current systems are not delivering sufficiently safe, high quality, efficient and cost effective healthcare. Doctors are mobile literate considering this factor Mobile app has been developed for them using ANDROID so that less work is for doctors and with the help of this app doctors would be able to provide fast care to patient's .That is fast Inpatient EMR is available to them which they can access anywhere. It can be named as "EMR on the GO" also while travelling doctors would be able to see the records anywhere and anytime. Main concern is the consistent use of standards, security, confidentiality and access rights to EMR, data quality and interoperability.

REFERENCES

- [1] Divyanshu Dubey, Amod Amritphale, Ambarish PandeyJ. "Smart Phone Applications as a Source of Information on Stroke", J Stroke, May2014,16(2):86-90,http://j-stroke.org
- [2] Ralf-Gordon Jahns" Will smart phone apps become the killer application of the mHealth market?", http://research2guidance.com/will-smartphone-apps-become-the-killer-application-of-the-mhealth-market/,19 October 2010
- [3] http://internetmedicine.com/i-smartphone/
- [4] K. Kiran Reddy P.lalith Samanth Reddy Dr.P.Bhaskara Reddy," Study on Mobile Healthcare System"; International Journal of Advanced Research in Computer Science and Software Engineering; Volume 4, Issue 3, March 2014 ISSN: 2277 128X
- [5] Dr.Ruchi Dass mHealth Advisor, Healthforehttp://ehealth.eletonline.com/2012/03/ring-of-healthcare/#sthash.NeFJ4s8j.dpuf
- [6] www.passbrains.com.
- [7] http://en.wikipedia.org/wiki/Mobile_application_development.