International Journal of Research in Engineering, Science and Management
Volume-2, Issue-5, May-2019
www.ijresm.com | ISSN (Online): 2581-5792

Patient-Doctor Connecting Android System (MED-HELP)

K. M. Apoorva[1], K. Harika[2], K. M. Ankitha[3], M. Dinesh[4], D. Aradhana[5]
[1,2,3,4]*Student, Dept. of Computer Science and Engg., Ballari Institute of Tech. and Management, Ballari, India*
[5]*Professor, Dept. of Computer Science and Engg., Ballari Institute of Tech. and Management, Ballari, India*

***Abstract*: MED-HELP is a comprehensive record-keeping system for your personal medical information. In the present scenario, the medical history of a patient is recorded records are lost. The medical history holds immense value to both patients and doctors. Keeping track of medical records can be difficult if your health information is in multiple places or in a format (such as paper) that is difficult to use. This challenge gets harder when working with several doctors to address several health concerns. on paper and stored in various files. Over the years, these Your doctor and other health care providers maintain their own medical records about you. But many patients see advantages in also maintaining their own personal health records to record past appointments, test results, prescriptions, and more. Therefore, it's the perfect replacement for unreliable paper records or various electronic systems that hold bits and pieces of your medical history.**

***Keywords*: Doctor, patient, Authentication, Booking Appointment, Posting Query, Consultation time.**

1. Introduction

The "MED-HELP" is android based application. This is aimed to provide easier and a smart integration between the patient and the doctor. This is secured due to login authentication of Admin, Doctor and Patient. It provides the information according to the authority given to an individual.

This application includes three modules that are Admin, Doctor and Patient. Each module will be given with unique login id and password after which they are allowed to access the information accordingly.

The first is Admin module. Admin is the head i.e., the person has the authority to upload the data, view the data, update the data, authenticate particular doctor or patient and etc.

The second is Doctor Module. The Doctor has to first register and then login. Doctor has whole medical records of his patients in the database under him, he can view the records, upload the data, update the data and also track the data accordingly.

The third is Patient module. This module provides facility to the Patient to register. After the registration patient may actually choose between the various tasks he can perform, i.e the patient can view his records, analyze between previous and new records, and get suggestions from the application on medications, diet and checkups with the analysis of his input.

A. Overview of the existing system

In existing system, the medical history of a patient is recorded records are lost. The medical history holds immense value to both patients and doctors. Keeping track of medical records can be difficult if your health information is in multiple places or in a format (such as paper) that is difficult to use. This challenge gets harder when working with several doctors to address several health concerns. on paper and stored in various files.

1) Limitations of the existing system

Paper 1: This paper proposes a smart under-five health care system architecture using the Internet of Things (IoT) concept. Under five clinics provide preventive, primitive, curative, referral and educational services in a package tailored for under-five children only. The functions of the clinic include provision of treatment for illnesses, growth monitoring, preventive care, family planning and health education. However, the scope of this work includes the first three functions. The primary killers of children are pneumonia, diarrhea, malaria, measles, HIV / AIDS and malnutrition

Paper 2: This paper proposes a secure architecture for medical records retrieval and maintenance. In order to increase speediness, precision and hospital penetration, such architecture is based on ubiquitous computing relying mainly on the intensive use of NFC-capable devices including passive electronic read and write NFC tags. Experimental practical evaluation reveals that the architecture is partly functional covering an important system module: medication delivery. Although the low average communication delay, it is necessary to extend the experimentation specially related to wireless communications peculiarities, as interference.

Paper 3: The paper proposes a cloud based personal health record system that allows constant monitoring capability by supporting dynamic creation of clinical document architecture (CDA) document from a mobile device. HL7 Clinical Document Architecture (CDA) is a document standard that specifies the structure and semantics of "clinical documents" for the purpose of interoperability and exchange of data between healthcare providers and patients. Since the system uses various architectures both hardware and software the simplicity of the system is lost and it is not user friendly.

B. Overview of the proposed system

The proposed system consists of three modules they are admin, doctor and patient modules. Admin module authenticates user. Doctor module can accept or reject the patient's appointments and can answer to a query posted by patient. Patient module can request for appointments and post query to the doctor to get suggestions on medication, diet and so on.

1) Advantages of the proposed system

- The "MED-HELP" is android based application. This is aimed to provide easier and smart integration between the patient and doctor.
- The "MED-HELP" is secured due to login authentication of admin, doctor and patient.
- The system is readily available for all the end-users i.e., either patients or doctors.
- The system handles confidential data.
- Unauthorized person will not be able to access the details
- The system doesn't include any complex architectures so it is simple and flexible.

2. Literature survey

Paper 1: Smart Under-Five Health Care System Tawachi NYASULU University of Leeds, Woodhouse Lane, Leeds, LS2 9JT, United Kingdom – IEEE paper.

In order to create a smart under-five health care system, the following main components are proposed smart under-five clinic booth, cloud infrastructure, application server and child health monitoring application. Each smart under-five clinic booth would be connected via a communication link to the cloud-based storage. The application server will also have connectivity to the cloud storage for manipulation of data. It consists of a lightweight, portable, collapsible booth that can be easily transported on a bicycle or motorcycle. The length by breadth by height size of the booth is 60cm by 60cm by 130cm. The inside height of the booth is120cm to allow for the standing position of a child up to 5 years. The growth monitoring sub component consists of a weighing scale, with position control technology, placed at the bottom of the booth to take accurate measurements of a child in a standing or sleeping position. Height measurement is realized through use of ultrasonic sensors placed on the top of the booth for a child in a standing position and on the side for a baby in a sleeping position. The algorithm in the embedded system computes the body mass index (BMI) and displays the weight, height and BMI on the panel. The relevant interpretation of the BMI is also displayed as under-weight, normal, or overweight. In the case of under-weight verdict, the audible alarm actuator is activated. Checking of vital signs is implemented through electronic measurement of body temperature, respiration rate, and pulse rate. These sensors are flexible to allow positioning of the sensors in an optimal position according to the child's position. The algorithm checks if the reading are within acceptable range and it displays the readings and any appropriate alerts as well as activating the audible alarm actuator.

Paper 2: A Secure Architecture Based on Ubiquitous Computing for Medical Records.

A. Architecture overview

To start with, it is important to point out that the architecture proposed in this work is designed for an Electronic Health Records (EHR) system, where the health institution handles the system maintenance. An overview of our proposed architecture is shown in Figure 1. In Step (1), a Receptionist retrieves the patient data and accomplishes the enrollment at the patient hospitalization. In this step, it takes place the binding between the patient and tag, which is attached to the patient bed. The Step (2) illustrates the storage of patient electronic health records in the server. Step (3) illustrates a tag attached to a patient bed. This tag stores a hash, which is used by the system to discover the patient identification. Afterward in Step (4), the hospital professional put his mobile NFCcapable device—a smartphone or a tablet—close to a tag so as to read the hash from it through NFC technology. Soon after, such hash is sent to the server in Step (5) using WiFi connection. The server, in turn, will check and recover the tag identification. It is important to emphasize that starting from Step (4) the mutual authentication mechanism is already working. It avoids the device impersonation even if an attacker device is present. The paper named "Smart Under-Five Health Care System Tawachi NYASULU University of Leeds", Woodhouse Lane, Leeds, LS2 9JT, United Kingdom focuses on to create a smart under-five health care system, the following main components are proposed smart under-five clinic booth, cloud infrastructure, application server and child health monitoring application. Each smart under-five clinic booth would be connected via a communication link to the cloud-based storage.

Paper 3: Empowering patients using cloud based personal health record system. Yeong-Tae Song, Sungchul Hong, Jinie Pak Dept. of Computer and Information Sciences Towson University, U.S.A.

They proposed a cloud based personal health record system that allows constant monitoring capability by supporting dynamic creation of clinical document architecture (CDA) document from a mobile device. The generated CDA document may be used to assess current health against major diseases through a clinical decision support system. We provide constant monitoring capability by using easy uploading module and decision support system. Our proposed system uses medical coding standards such as ICD-9-CM, SNOMED CT, etc. to achieve interoperability between different electronic health record systems. Unrecorded personal medical data such as noticeable symptoms, current medications, medical event (e.g. Bodily damage), etc. may be ignored easily and not be shared with clinicians, which results in serious disease later on. Once a patient is diagnosed with a disease, he or she needs to go through painful procedure to cure the disease. In the United States, about 100,000 patients died every year and more than 1.5 million are affected due to the medical errors. This large number can be significantly reduced by engaging information

technology in sharing medical data (e.g. personal medical history and supporting documents, medical treatment). For this reason, there have been growing interests in the design and development of appropriate PHR systems Thus, we propose a personal health record (PHR) system that allows an individual to monitor and share the data with the clinicians. In terms of the meaningful use, both EHR and PHR must be interoperable with each other via the compliance to all applicable medical standards such as ICD-9-CM, SNOMED CT, LOINC, and HL7.

3. Objectives

- To provide an option for the admin to upload data, view data and authenticate users.
- To store the patient records integrated with the doctor by providing data access to both.
- To provide an option for the patient to get suggestions on medications, further checkups etc.
- To provide an option to the doctor to track the previous records of the patient and analyze them.

4. Design

A. *Flowchart*

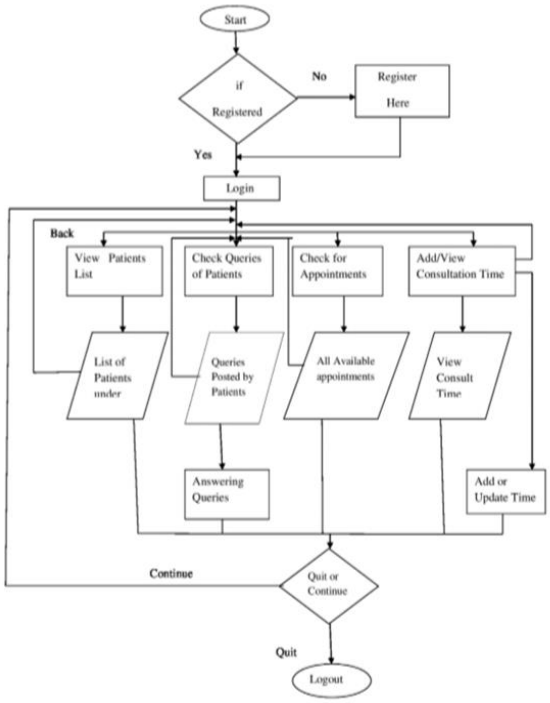

Fig. 1. Doctor flowchart

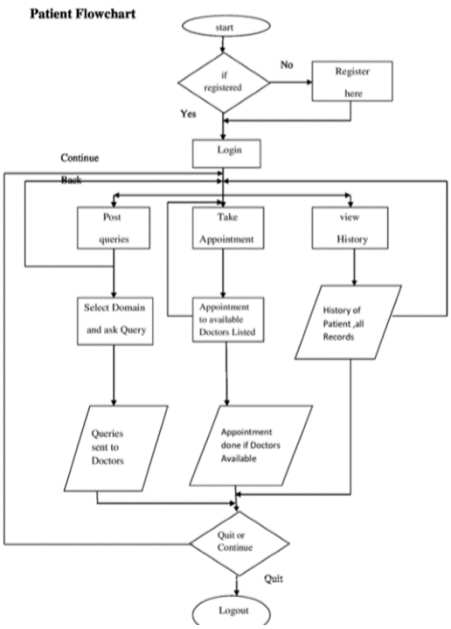

Fig. 2. Patient flowchart

B. *Class diagram*

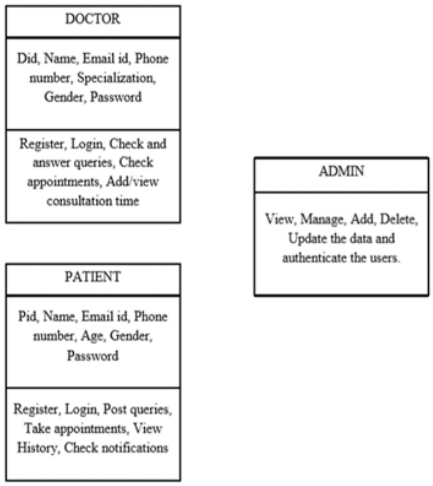

Fig. 3. Class diagram

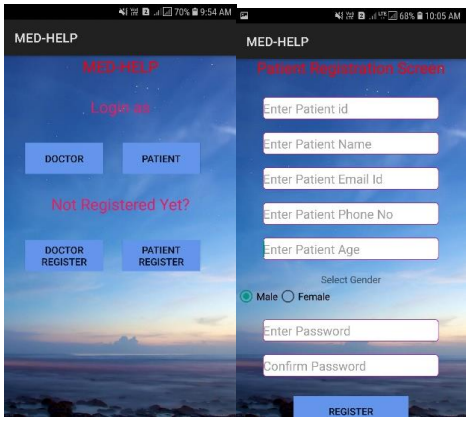

Fig. 4. Login as and Patient registration screen

International Journal of Research in Engineering, Science and Management
Volume-2, Issue-5, May-2019
www.ijresm.com | ISSN (Online): 2581-5792

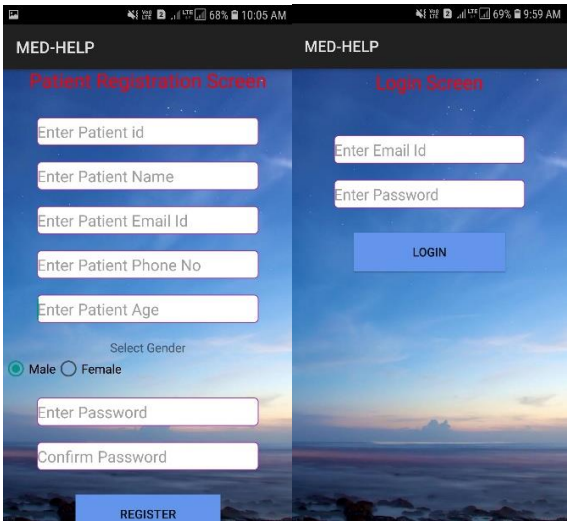

Fig. 5. patient registration screen and Login screen

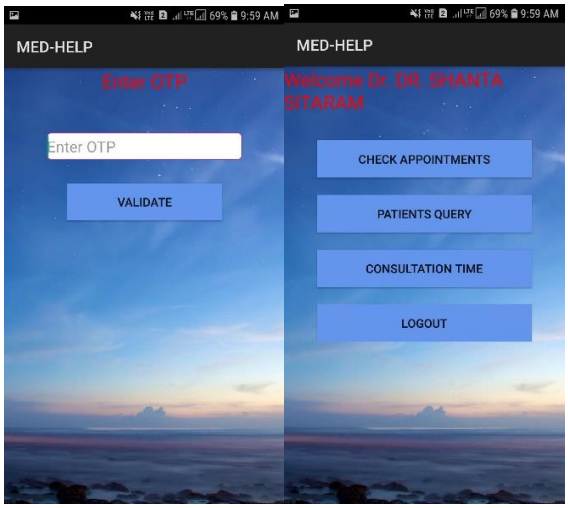

Fig. 6. Enter OTP and profile page

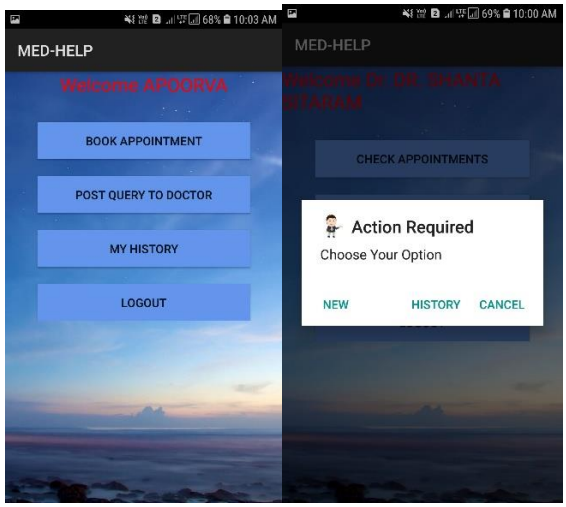

Fig. 7. Profile and action required

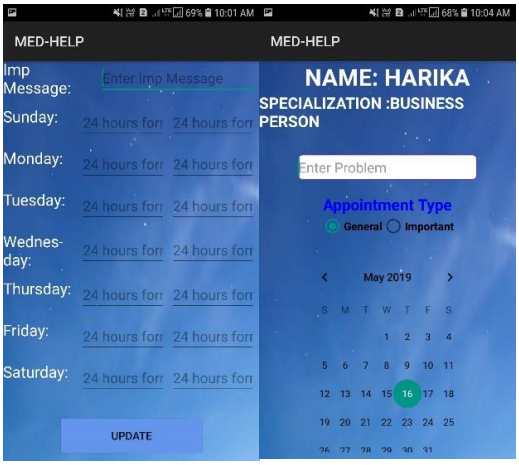

Fig. 8. Appointment type

Fig. 9. List of doctors and request appointment

5. Methodology

There are three main modules which include,

1. Admin module.
2. Doctor module.
3. Patient module.

Module 1: Admin

Admin has to login with username and password. The admin's homepage consists of user approvals and counter personnel details. In order to avoid fake and redundant entries, the admin has an "approval" option for approving genuine login of Doctors and Patients.

After login successful he has the option to upload the data, view the data, update the data and analyze it. Doctor and Patient have to register and the login. After login successful they have options on their own role.

Module 2: Doctor

The Doctor has to first login. After login successful he has the option to upload the records, view the records, update the records and analyze them according to the previous records of his patients. Doctor has whole medical records of his patients in the database under him, he can track the records of any

patient under him at any time and he also can,

- Add a new patient under him.
- Delete the records if patient dis-continues with the doctor.
- Update the records of patient.
- View and analyze the patient records.

Module 3: Patient

The Patient has to first login. After login successful, the patient may actually choose between the various tasks he can perform, i.e. the patient can add, update, delete or view his records, analyze between previous and new records. Patient can also get suggestions from the application on medications, further checkups, appointments with the doctor, diet to be followed and etc. all these by analyzing his inputs.

6. Conclusion

In the traditional patient record maintenance and tracking, the medical history of a patient is recorded on paper and stored in various files. Over the years, these records are lost. The medical history holds immense value to both patients and doctors. Hence MED-HELP is aimed to provide easier and a smart integration between the patient and the doctor. This is secured due to login authentication of Admin, Doctor and Patient. It provides the information according to the authority given to an individual.

References

[1] T. Nyasulu, "Smart under-five health care system," *2016 IST-Africa Week Conference*, Durban, 2016, pp. 1-8.
[2] S. E. Quincozes and J. F. Kazienko, "A secure architecture based on ubiquitous computing for medical records retrieval," *2016 8th Euro American Conference on Telematics and Information Systems (EATIS)*, Cartagena, 2016, pp. 1-8.
[3] M. Jin, H. Li, C. H. Schmid and B. C. Wallace, "Using Electronic Medical Records and Physician Data to Improve Information Retrieval for Evidence-Based Care," *2016 IEEE International Conference on Healthcare Informatics (ICHI)*, Chicago, IL, 2016, pp. 61-64.
[4] G. Demers, C. Kahn, P. Johansson, C. Buono, O. Chipara, W. Griswold, and T. Chan, “Secure scalable disaster electronic medical record and tracking system,” in *Prehosp Disaster Med.* Vol. 18, no. 8, pp. 498-501, October 2013.