

WECARE: Medical Application

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Abstract - Hospitals are the essential part of our daily lives which provides medical facilities to the people suffering from various diseases. The hospitals have to mandatorily keep the details of their day-to-day activities and records of patients, doctors, nurses and other staffs. It is inefficient and a time consuming process. The proposed system is a new methodology which eases the access of the previous medical records by the users. It is done by using the unique identification number for each and every patient. By logging into the application using a unique-id, the patient can interact with the corresponding specialists. So the records of each patients and specialist (eg: scanning reports, other documents) will be saved into the database. At anytime from anywhere, the patient or the specialist can retrieve detailed information about the patient or specialist from this application by using their unique-id.

Key Words: Unique id, record access, emergency situations.

1. INTRODUCTION

WECARE application is beneficial to the hospital authorities and the patients. In some emergency situations the doctors have to check for the previous medical records of the patient to provide better and accurate treatment for the patient. The main aim of WECARE application is to provide the history of medical report of the particular user (patient) at any time without any service charge. Each and every users of WECARE have a unique identification number (eg : Aadhaar number in India). By using this unique number the patient and doctors can be sign up to the application. The patients and doctors have different login pages. At the time of first login of patient with their aadhaar number a QR code will generate. In the doctors profile there will a QR code scanner which will used to scan the patients QR code, so the doctors can easily access the patient details. Doctors are only capable to upload the new medical details to the patients profile, they can't modify or edit the previous medical reports that are once uploaded.

The patient's and doctor's details are stored in database. It also supports patient-doctor communication (chat room) and doctor -doctor communications [3]. When a doctor scans the QR code of patient the doctors are capable to access the medical reports of that particular patient and doctor can send the QR code to the another specialist for further reference. The uploaded prescribed list of medicines to the patient medical information will help to remind the patients to take medicines and also alerts the next checkup date to

the patient and doctor. Patients also get the details of doctor's attendance, so they can easily identify the leave of doctors which will reduce the patient's effort.

1.1 Objectives

The Medical field is widely used by each and every person. All are required to use the medical facility. The project mainly focuses on making each and every person life better with the help of technology. The project helps patients to clarify doubts, increase medical knowledge and get first care. App stores data into cloud storage which helps the patients and doctors for better health care facilities. As technology increases day to day life of a human being has become far simpler than expected. Since diseases and lack of health increases people are suffering from almost all disease. Our project focuses on improving the relationship between patient and doctor through the help of smart phone and websites. This project helps each and every person to make life simpler. Project has different phases to enhance the experience of users. It helps users to create a personal unique profile which create random IDs. Application has cloud storage which helps the admin to save the medical details of patients, that enhance the experience of doctor to provide efficient and much care to patients. The stored files can access from any where in the world by a simple click from the profiles. These data are secured by encryption technology. Everyone's life have equal importance, this project is an initiative to unify the medical system to ease the medical processes.

1.2 Literature Survey

Sudhir Shenai, M Aramudhan [1] opined that Healthcare information systems (HIS) majorly maintains three kinds of health & medical records such as personal Health Record (PHR), Electronic Medical Record (EMR), and Electronic Health Record (EHR). Normally, the records such as EMR and EHR are maintained by the Health care providers HIS. The PHR, which contains history of the health information about the individuals is normally maintained by the patients itself.

Prof.D.V.Chandran,Sayali Adarkar,Apurva Joshi,PreetiKajbaje [2], opined that healthcare system has become an inevitable part of every family. Getting efficient and quick healthcare becomes a necessity; therefore along with the generic approach there comes a need to adopt a parallel efficient and speedy approach known as Digital Medicine. It is an approach which can be adopted by hospitals to provide quick access to healthcare services provided by them. Such

as online video conferencing, emergency alarm with critical form of medical condition or accidents; uploading of medical reports with security measures necessary while consultation.

Phillip Olla & Caley Shimskey [3], opined there has been tremendous increase in both the different types of Mobile Health (mHealth) applications and the number of applications being created for both the clinical and consumer healthcare space. The adoption of mobile and wireless technologies in healthcare has the potential to transform health service delivery on a global perspective.

Nizar Zarka, Mohammad Moayad Mansour and Alaa Saleh [4], proposed a Mobile healthcare system based on Android and Web applications. The system provides assistance to patient’s, identifies and selects doctors based on the location and the specialties of the doctors. The system allows patients to make appointments with doctors and assigns reminders to take the prescribed medications and vaccinations. The results of testing the applications show a big saving of time and mobility of doctors and patients.

2. PROPOSED SYSTEM

WECARE application is beneficial to the hospital authorities and the patients. In some emergency situations the doctors have to check for the previous medical records of the patient to provide better and accurate treatment for the patient. The main aim of WECARE application is to provide the history of medical report of the particular user (patient) at any time without any service charge. WECARE application mainly developing using android studio (android language and java are the languages using). Each and every users of WECARE have a unique identification number (Aadhaar number can be considered). By using this unique number the patient and doctors can be sign up to the application. The patients and doctors have different login pages. At the time of first login of patient with their Aadhaar number a QR code (Quick Response Code) will generate for each of them. In the doctors profile there will a QR code scanner which will used to scan the patients QR code, so doctors can easily access the patient details. Doctors are only capable to upload the new medical details to the patients profile, they can’t modifier edit the previous medical reports that is once uploaded.

The patients and doctors history and details are stored in Amazon’s simple database. It also supports patient-doctors communication (chat) and doctor -doctor communications. When a doctor scans the QR code of patient the doctors are capable to access the medical reports of that particular patient and doctor can send the QR code to the another specialist for further reference. The uploaded prescribed list of medicines to the patient medical information will help to remind the patients to take medicines and also alerts the next checkup date to the patient and doctor. Patients also get the details of doctor’s attendance, so they can easily identify the leave of doctors which will reduce the patient’s effort.

2.1 Application’s different modules

The welcome page will contain logo of our application “WECARE” and also a user guide for first time users of this application. This description will get disappear once it has been viewed.

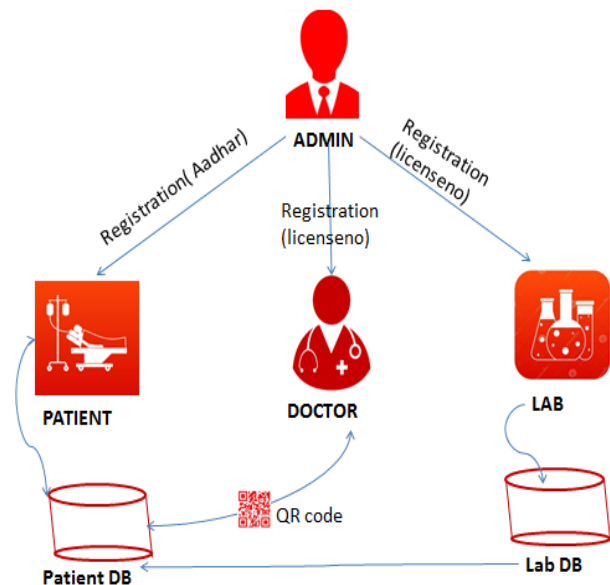


Fig-1: Over view of architecture

The homepage will contain three options to be chosen, in which the user can choose the appropriate option and have the access to their respective pages. User can login either as doctor, patient or laboratory officials. The registration of the users are done by the admin of the application (corresponding hospital authority).

2.1.1 Patient module

Once the user has chosen to make use of this application as a patient, they will reach on patient home page by using the Aadhaar (as user id) number and their date of birth (as password). While the admin registers the patient using their Aadhaar number, then the application automatically checks the UID of that persons Adhaar and uploads the other details to the profile.

Patient Login: The registered users can login using their respective user-ids and password. After login they are redirected to their respective profiles. For their first login, the users have to use the unique number as user ID (Aadhaar) and their date of birth as the password. Application facilitates to change the password after first login. During their first login, the application automatically generates the QR code of that user. The doctors can access the patients profile by reading the QR code using the QR code scanner in doctors profile.

Patient profile have list of previous medical records and prescription once the authorities uploaded. Medical records include the scanning details such as MRI, CT scan, ECG, X-ray etc. Patients can communicate with their corresponding specialist to clarify their doubts. It also contains a list of pages that provides different sub-modules such as:

- **Report:** This page mainly contains the reports which is uploaded by the laboratories. Reports include the patient’s previous medical history and the prescriptions provided by lab technician or doctors. The patient can only have the permission to read these reports. Once the report is uploaded, then no one can edit or modify it. This makes the access of patient’s medical history from anywhere at any time without any additional cost.
- **Alert:** It gives alert to the users about check-up date which is prescribed by the doctor. Application give automatic alerts to the patient about check-up date by checking the prescribed date.
- **Doctor:** The users can select their doctors according to user need like cardiology, neurology from the list that is enlisted on that page. Then the application will provide the users with the required specialist in their nearby area with the facilities to contact.

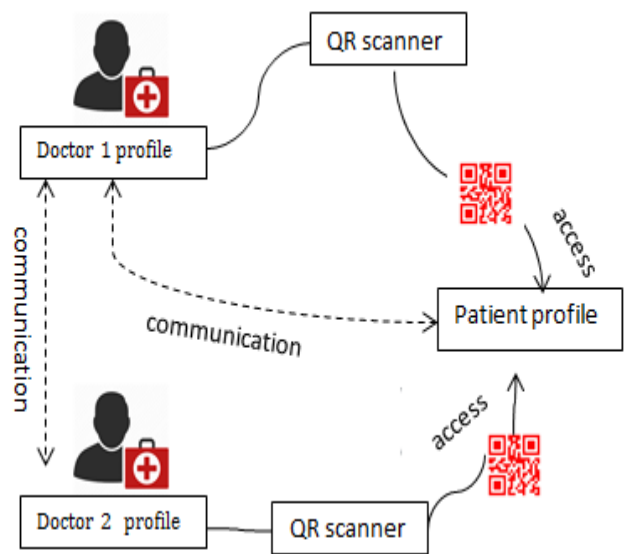


Fig -1: Doctor module

3.1.2 Doctor module

The Doctor module will only contain an option to login using their user-id and password that is provided explicitly by a team of medical authorities. The registration of doctors is done by a higher medical authority to reduce the risk of faking. After login they will redirected to their respective profiles.

Doctor Profile: Doctor Profile will contains basic verified information by medical authorities that include name, designation etc. and recent contact history of his/her patients. It also contains list of pages that provide different functionalities such as:

- **Scan Patient Profile:** The doctor can view all the details about the patient like all past medical history, prescriptions, scan reports etc. by entering the patient unique id on this page or by scanning the QR code of patients profile. After examining the patient, doctor can add prescriptions and relevant details to the patient’s medical history. They are capable of view it at any time.
- **Communication:** It contains chat history with patients and doctors. It also show messages from patients that wish to contact with those doctors.

3.1.3 Laboratory module

It contains a login page in which the lab technicians can login using their respective id and password provided by the admin. After login, the technicians can upload lab reports to the patients profile by using patient’s id. The lab technicians have the only ability to upload the scanning details and reports. Once they uploaded, then they can’t view the uploaded details from the patients profile.

3.1.4 Admin module

The admin home page is a webpage in which they are provided with a secret URL in which admins can login to their account. After login, they can add users to the application database like doctors, laboratory offices etc. The admins are provided with these secret URL in order to ensure that the application cannot be corrupted with false doctor and lab profiles. Profile authentication is done by the admin.

Patient, Doctor and Lab Signup: The unregistered users can register for the first time by providing certain basic information (Aadhaar number) and create new password to the application. It is done by admin. By using the Aadhaar number the user details can be accessed.

WECARE is a complete and critical healthcare relies upon the capacity of the healthcare providers to promptly access a patient’s test outcomes, earlier treatment notes, and current medicines. The medical records have comprised of information scattered among electronic and paper-based files in different areas, referenced utilizing conflicting identifiers. A great part of the data in these records has a tendency to be out of date, repetitive which doesn't help the

patient at the purpose of care. WECARE is to ease the access of medical records of patients for ensure better treatment by the healthcare providers. The sharing of medical record information of patients among the healthcare providers is absolutely essential for improving patient care, medical research, and public health. The sharing needs to be among providers with no preexisting relationship, fast, seamless, trust worthy, secured and access rights granted by patients. It also provides sharing of patient's medical records between the healthcare specialists for further references.

We-care is an application which is created in order to reduce the complexity in the communication, interaction and assistance in both patients and doctors life. This app is implemented on the basis that the user can use the application in a way that it simplifies the interactivity of the user and the patient. The application is made with the help of programming languages such as java, Kotlin, HTML, PHP, SQL and others.

The front end of the mobile application is done with java to implement the android. All the designing of the mobile application is done on android studio using CSS and other languages.. The designing is done with the help of Kotlin. Kotlin is used to design the application in such a way that it simplifies the look of an android application or mobile application layout for user friendliness. The cloud storage of the mobile application is done with the help of MariaDB. It stores every details that user enter to it. For web application, it is done using HTML and PHP. HTML is used to design the web pages as a front end. CSS is used to design the web pages to get better visual appearances. The web application stores the data on to the cloud storage. The connectivity between HTML web pages and DB is done using PHP. PHP is a scripting language that connects both web pages and database in order for the easiness of communication and data transfer for the mobile or web application. Both the web application and mobile application share same Data Base. It is done in order use same data on both the application at the same time..

3. CONCLUSIONS

WECARE is an application which is very useful and essential in medical field. Medical field in India is one of the most corrupted areas. The medical details of patient only can be viewed by the hospital authorities in existing system. We are allowed the patients to access their medical details. So it will ease the accessing of medical history at any time, from anywhere in the world. Patient have a unique ID, which the doctors or hospital authorities can be easily identified by scanning the QR code of patients profile which will help them in emergency situations. It also includes a chat page which makes patient to doctor or doctor to doctor communication. It will be very much secured application.

The doctors and patients can only access the needed information; other information will be confidential and maintained by the administrator. The sharing of medical record information of patients among the healthcare

providers is absolutely essential for improving patient care, medical research, and public health. The sharing needs to be among providers with no pre-existing relationship, fast, seamless, trust worthy, secured and access rights granted by patients. The proposed cloud computing framework WECARE is for sharing of medical records among the health care providers with no-pre-existing relationship on a global scale. WECARE also demands timely & selective sharing of relevant Details with the doctor and patient's. Thus sharing of various Health & Medical records among various stakeholders in a timely and selective manner is of utmost necessity for global quality healthcare treatment.

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