Developing a Mobile Healthcare Application - MyHealth

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Abstract

MyHealth targets common mobile healthcare problems like medication forgetfulness and basic health knowledge gaps. This mobile application gives medication reminders, health lessons and appointment scheduling. It employs user centric design principles in combination with modern technology for user engagement & health management. System architecture, user interface design and development process are discussed with regard to healthcare accessibility and patient compliance impact.

Keywords: Mobile healthcare, Health education, Appointment scheduling, Reminder

1. Introduction

With the speed of life today, managing healthcare effectively can be a challenge, especially for those with chronic conditions or busy lifestyles. Traditional methods of healthcare management fail to address issues like medication adherence and reliable health information access [1]. The "MyHealth" mobile application fills this need by combining medication reminders, educational content and appointment scheduling functions.

With the introduction of smartphones and mobile internet, mobile applications are an essential tool in many sectors including healthcare [2]. Mobile health (mHealth) applications can provide personalised and accessible healthcare solutions that are indispensable for modern health management. These applications can help patients interact with healthcare providers in real time & increase patient engagement [3].

Patients, caregivers and professionals can use MyHealth application to have access to important health management tools at all times [4]. MyHealth stemmed from addressing common healthcare challenges like medication non- adherence, which is estimated to contribute to major health problems and increased healthcare costs globally [5]. Also, through educational content, MyHealth aims to inform users about health and decision making.

This article describes the conceptualization, design and development phases of MyHealth application and how it can change personal healthcare management [7]. The study also looks at the existing mobile healthcare applications landscape to identify gaps and propose solutions to which MyHealth hopes to contribute. Through user-centric design principles & advanced technology MyHealth aims to improve healthcare accessibility, patient compliance and health outcomes.

2. Literature Review

2.1. *Further Elaboration on Existing Systems Analysis*

Mobile applications are well studied for improving healthcare delivery and patient outcomes [6], [12]. For example, use of mHealth solutions has been linked with better medication adherence and management of chronic diseases. Existing applications like Medisafe and WebMD give insight into user preferences and feature effectiveness.

Medisafe, a medication management app, has reminders and a visual pillbox. Similarly, WebMD combines medication tracking with health journal features to document symptoms and health progress. These applications stress that user-friendly interfaces and personalized reminders are key to adhesion promotion. Also, applications like HealthTap and WebMD provide libraries of health information so users can get solid medical advice and information [11], [13].

2.2. *Benefits of using "MyHealth" Application*

Several benefits of the MyHealth application are aimed at the existing systems:

- Comprehensive Health Management: Many existing apps handle only medication reminders - MyHealth handles medication management, health education and appointment scheduling all in one place.
- User-Centric Design: MyHealth focused on user experience and making the application simple to use. This user-centric design approach drives user engagement & compliance [8], [9].
- Health Education: MyHealth has educational content That gives users knowledge to make sound health decisions.
- Integrated Appointment Scheduling: MyHealth makes booking & managing appointments for healthcare easy.

2.3. *Weaknesses in current Existing Systems*

Table 1. Literature on Existing Systems

Feature	Medi safeapp	Doctor on demand app	WebMD app	MyHealth
Medication Reminders	Yes, customizable reminders	No	Yes	Yes, with a countdown ntimer
Health Education	Yes, in-depth information on a dozen conditions	No	Yes	Yes, preventive measures and self-care resources
Appoint ment Scheduling	No, but you can add appointment reminder manually	Yes	Yes	Yes, easy and streamlined scheduling
User Interface (UI) & UX	Intuitive, easy to use[	Simple, user-friendly for all ages	Informative, content-heavy	Simple, user-friendlyfor all ages

There are many benefits of existing mHealth applications as shown in Table 1, however there are some limitation as stated below.

Lack of Comprehensive Features: Many existing apps either do not offer medication reminders, appointment scheduling, or health education, requiring users to use multiple apps for complete healthcare management.

User Experience Issue: an app like "WebMD" app has a content-heavy and a little overwhelming interface, which can be challenging for users to navigate and use efficiently.

2.4. *Addressing Existing System weaknesses*

All-in-One Healthcare Management: Integrates medication reminders, health education, and appointment scheduling into a single app, providing users with a comprehensive tool for managing their health.

Enhanced User Experience: Features a simple and intuitive user interface, making it easy for users of all ages to navigate and use the app effectively.

3. Methodology

Iterative development in Agile methodology was followed, allowing flexibility and continuous improvement based on user feedback [10]. The development process involved key phases such as:

Requirement Analysis: Determining the functional and non- functional requirements of an application and documenting them.

Design: Wireframes and prototypes for the user interface.

Development: Build the application in Android Studio & Firebase with focus on modularity.

Testing: conduct strict tests such as unit tests, integration tests & user acceptance testing (UAT) to ensure application reliability and performance.

4. Synthesis

4.1. *Use Case Diagram*

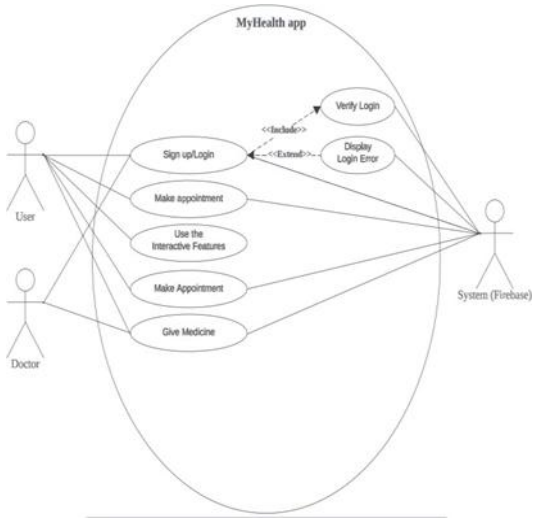

Fig. 1. Use Case Diagram

A use case diagram for "MyHealth," in Fig. 1 shows exactly how a User interacts with a Doctor and also with the System (using firebase as a backend). The User has several choices to engage in such actions as registering / signing in, scheduling appointments, utilizing interactive features, and also getting medication from a Doctor. The

Doctor may make appointments and offer medication to the User. The System is responsible for confirming the User's login and displaying any login errors. The MyHealth app diagram displays the most crucial functions as well as interactions.

4.2. *Activity Diagram*

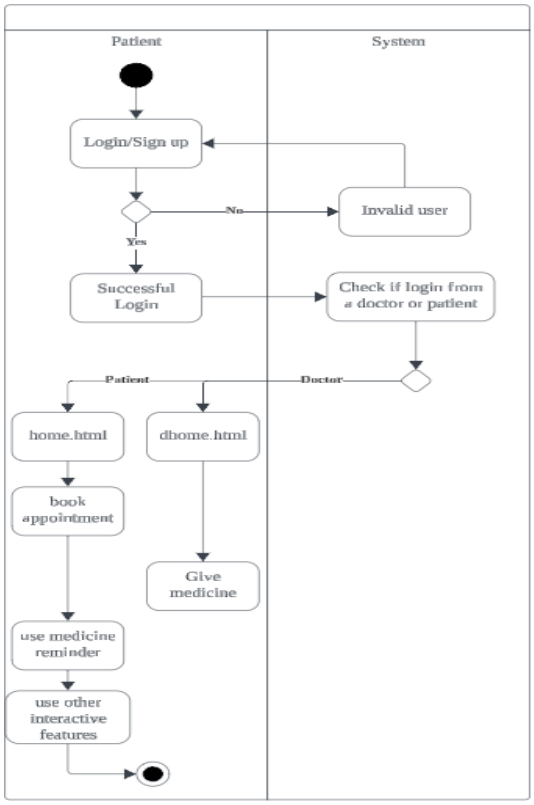

Fig. 2. Activity Diagram

This activity diagram (Fig. 2) visualize the user interactions. The screen displays the login / sign up procedure, where a patient can use the home page, appointment booking, medicine reminder along with other interactive options after logging in successfully. The user is verified as either a patient or a dcotor by the system and an invalid user is marked as a such. Doctors can give medicine to patients via the system. The flow shows the primary features of “MyHealth” app including user authentication, access to patient-specific tools, and the ability for doctors to deliver care remotely.

“MyHealth” application moves through its user flow and important characteristics within this flowchart. The process begins with a login / sign-up stage where the user's login is checked. The system then verifies if the person is a doctor or a patient in case the login is correct. The system will take the user to either the doctor page, or the patient page based upon their type. the patient can make an appointment, interact with interactive features, set a reminder for medicine, and schedule a meeting. The doctor then delivers medicine to the patient.

5. Implementation

The following shows the user interfaces for “MyHealth” app.

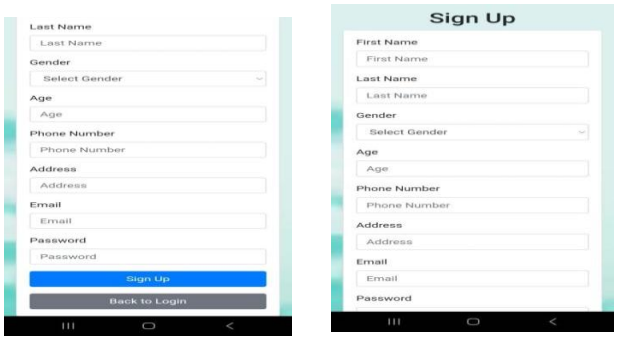

Fig. 3. Sign up

Fig. 3 shows the signup page for the users, the user will need to enter their first name, last name, gender, age, phone number, address, email, and password. And then they can go back to the login page by clicking the “back to login” button.

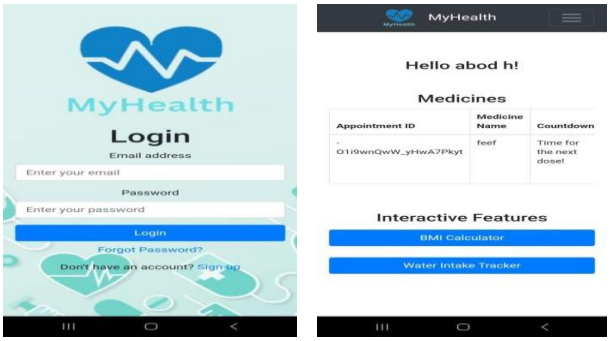

Fig. 4. Login and Home page

Fig. 4 shows the login screen for the MyHealth app is simple and clean. It displays the app logo & app name at the top. Users type in an email address along with a password to sign. The Fig. 4 also shows the home page of MyHealth app, it shows the medicine table with the appointment ID and the medicine name and the countdown until when to take the next dose of the medicine. There are also some interactive features like a BMI Calculator and water intake tracker.

6. Conclusion

MyHealth is an important step forward in mobile healthcare - manage medications, get health education & book appointments. By combining user-centered design principles and modern technology the application aims at improving healthcare accessibility and patient compliance. Future work includes expanding the application's features, integrating it with wearable devices and conducting extensive user trials to collect feedback and improve.

MyHealth project illustrates how common healthcare problems can be solved using innovative solutions and how mobile applications can improve healthcare delivery and patient outcomes.

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