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Medicus: A Doctor Appointment Booking System

[1] Mohamed Khalid; [2] Shalini Singh; [3] Kritika Singh; [4] Janani Jeevitha; [5] G. Paavai Anand

Department of Computer Science and Engineering, SRM Institute of Science and Technology
Chennai, Tamil Nadu,India

Abstract - Traditional booking system requires us to go to the hospital to book an appointment with the doctor which consumes time. Moreover, it becomes difficult for senior citizens to personally go to the hospital to book an appointment for themselves. In order to overcome this problem, a mobile application is developed which includes an online appointment booking system. The online appointment booking system is an on-the-go appointment booking system which helps patients schedule an appointment with their preferred doctor. The main idea of this work is to provide ease and comfort to patients and it also resolves the problems that the patients face while making an appointment. To enhance doctor-patient interaction, an online chat feature has been introduced. The location based navigation system will help locate the clinic or hospital and for emergency numbers and quick remedies, an offline help feature has been introduced.

***Keywords*—Healthcare, Android, Appointment, Mobile application, patient, booking system.**

1. INTRODUCTION

We are very well aware of the issues and difficulties faced in visiting a hospital to book an appointment for check-up. This consumes a lot of time and often forms long queues at the reception. Most of the time our preferred doctors are pre booked and getting an appointment with them seems almost impossible. It also becomes very difficult for senior citizens to personally visit a hospital or clinic to book an appointment for themselves. In the midst of technological revolution, it is only sane that an application be developed for booking an appointment with a doctor of our choice. This will help overcome the difficulties faced. The system will bridge the gap between the two ends, patient and doctor to provide fast and adequate medical services. This has to be done to change the way hospital services are offered by adapting e-Health technologies in order to achieve to national vision of applying information communication technologies(ICT) in the health sector. To enhance the scheduling of patients according to their priorities and to improvise the workflow of the system, the health sector recommends the use of mobile appointment system. For the better interaction there is chat feature introduced where a general practitioner will be present for any queries. This system also features offline help which includes quick remedies and emergency numbers, which will help user in emergency cases. Sometimes it is difficult to locate the clinic or hospital, so this additional location tracking feature helps to locate the clinic or hospital.

2. LITERATURE REVIEW

In this section we review the literature on the use of mobile technology in appointment booking for patients by the hospital. The main objective is to reduce waiting time and provide quality medical services to the patients. The paper-based appointment booking system requires patients to visit the hospital, fill up forms and wait for their appointment to be approved by the physician. The mobile appointment booking system is through an android application that enables patients to enter their details and book an appointment with their desired doctor and visit the hospital on the day of appointment.

Kyambille and Kalegele's[1] application will display the list of specialties and available slots and will also notify the patients on cancellations and postponed slots. This application also proposes a location based navigation system which will ease the process of locating the clinic/hospital. This system lacks the ability of one-to-one interaction with the doctor through an online chat feature which will help the patients get quick remedies from a physician for minor illnesses. The absence of an offline help feature which provides first aid tips, quick home remedies for minor illnesses and emergency numbers, appears as one of the drawbacks.

The system proposed by Shafaq Malik and Nargis Bibi [2] is a prototype of a scheduling algorithm in which a specified amount of time has been allotted for each patient and if that patient fails to show up or is attended to in less than the specified time, then it can be utilized by the doctor for the next patient. This is really helpful as it falls in line with the main aim that is to minimize wastage of time.

The proposal of Ms. Priyanka Patil and Ms. Rohini Temkar [3] is of a web based appointment booking system which implement cloud storage facility, which stores the patient data and appointment schedules. They have also proposed a separate mobile application solely developed for doctors to keep track of their appointments. This idea of having

separate application for the doctors can be refined by implementing the patient and doctor portals in a single application through authentication system and user filtering. Enhancing patient scheduling techniques significantly improves the healthcare system as it reduces overall waiting patient time in an efficient and feasible manner. Ms. G. Magheshwarand E. Grace Mary [4] focus on different types of scheduling techniques improvised for the betterment of the clinic and hospital management system.

A web based appointment booking system was proposed by Adebayo Peter Idowu and Olajide Olusegun Adeosun [5] which enables users to login and book appointment with their doctor through a website. The main drawback of websites are their lack of speed and efficiency. A mobile application is a significant upgrade to websites as these are portable, user-friendly and comparatively faster. The location based navigation system and an online chat feature helps facilitate patient activities.

N.V. Chaudhari and Akshay Phadnis, [6] proposed an Android application that provides a portal for doctor and patient to book and manage the appointments accordingly. It focuses on saving the precise time of the patient and increase the reachability between doctors and patients and provide efficient measures to ease the process. Through the connection between mobile terminals and specific service, both doctors and patients are able to obtain required data to achieve a better interaction.

A mobile application is considered to be a significant upgrade to websites as these are much faster and user friendly. The patient and doctor portals can be integrated into one single application as this eases the development process.

3. PROPOSED SYSTEM

The proposed system is an online doctor appointment booking system that uses Android mobile technology. It consists of two portals[Fig:3], doctor and patient, wherein the users are supposed to download the application from Google Play Store. The application remains installed in the user's device until deleted voluntarily. The details of a particular patient will be entered by himself on the very first time of use[Fig:4]. On completion of registration the patients will be directed to the login page. The login credentials will be checked from the database to ensure user authentication. Once logged in, a patient portal[Fig:6] will be displayed wherein they will be able to view their profile, appointments and doctors[Fig:7] based on the preferred specialty[Fig:5]. All the required data has been stored in the database and fetched when the user requests for the same. User can view the selected doctor's details[Fig:8], schedule and the location[Fig:9] of the clinic or hospital he/she is currently practicing. Google Maps API will be used to view the location of a clinic. This system enables the user to select the available time slot for booking an appointment. To enhance doctor-patient communication, this system introduces an online chat feature through which the user can interact with the doctor regarding minor illnesses. Here, a major role is played by the database. The message which the patient/ doctor types is stored in the database and will be simultaneously fetched and viewed at both the ends. The introduction of an offline help[Fig:10] feature will give the users access to first aid tips, home remedies regarding minor illnesses and emergency contact numbers.

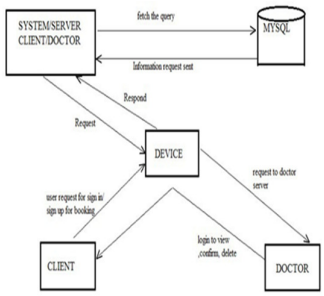

Fig:1 System Architecture

Figure 1 depicts the functioning of the application. Here, we use MySQL database for storing the details. It is a relational database which provides a server to host the database. User will be prompted for registration upon first time, the details entered by the user will be stored in the database. The device must be connected to the internet throughout the session. Once the user has registered and logged in, they will be able to view the doctor details upon request by which the data will be fetched and displayed. After selecting and booking a time slot, the appointments will be updated in the doctor schedule.

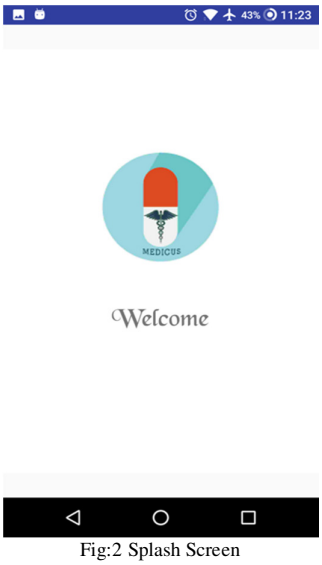

Fig:2 Splash Screen

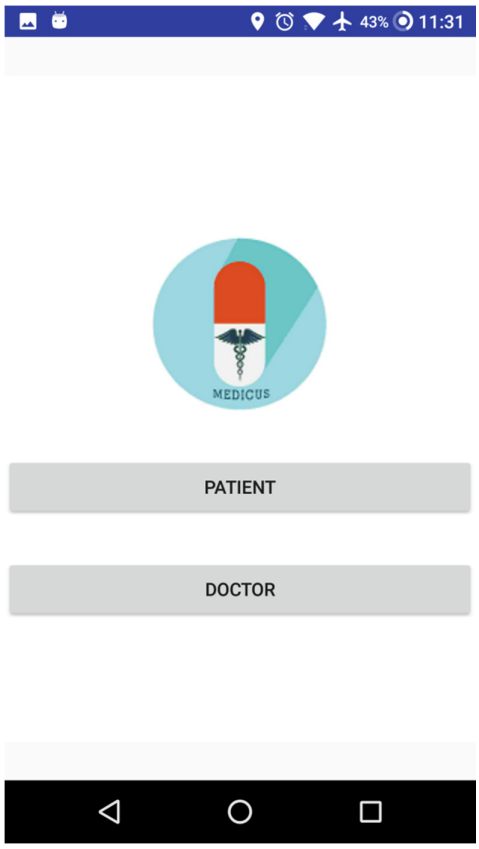

Fig:3 Portal Selection

Fig:4 Doctor Registration

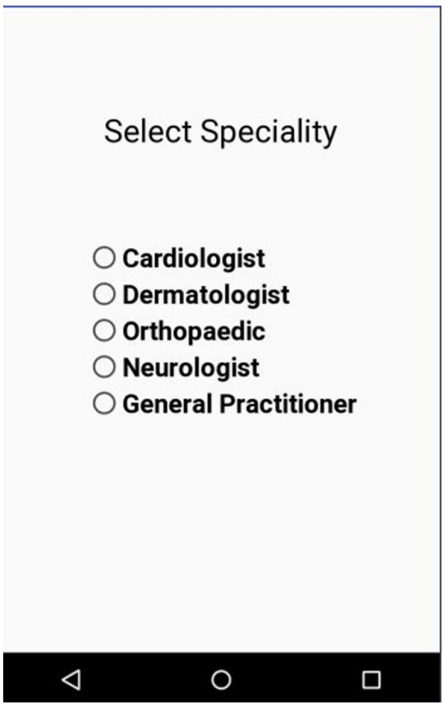

Fig:5 Select Speciality

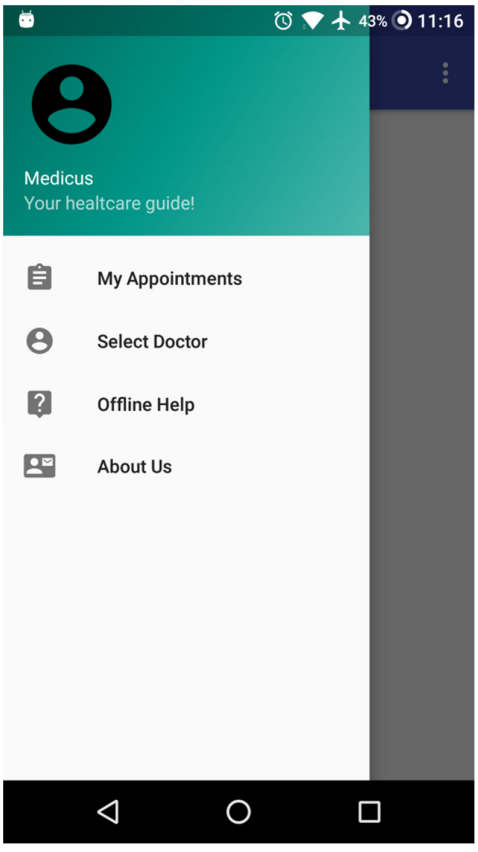

Fig:6 Patient Portal

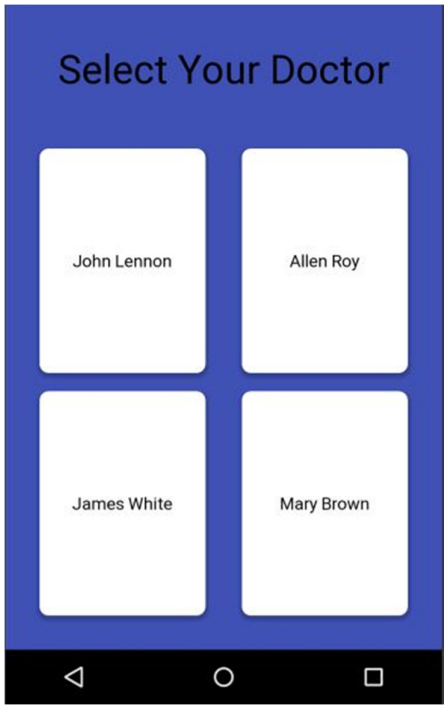

Fig:7 Select Doctor

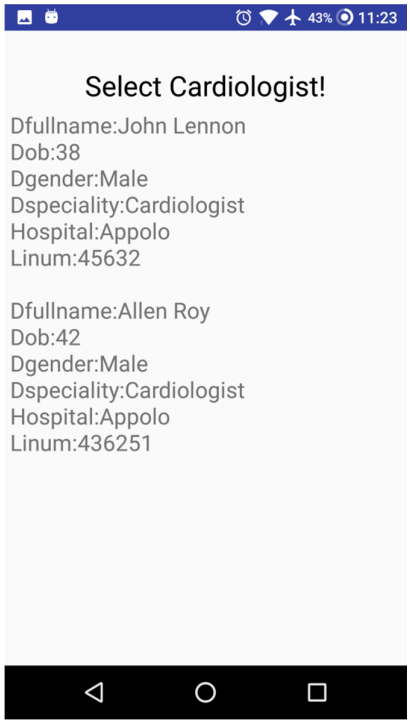

Fig:8 Doctor Details

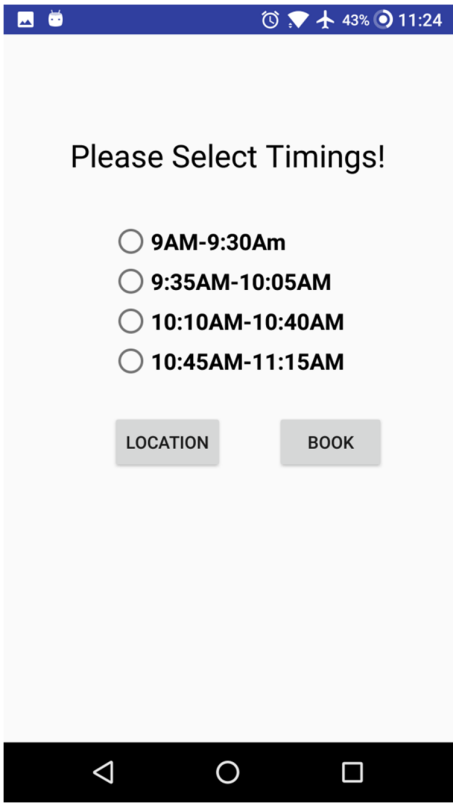

Fig:9 Select Timings

Fig:10 Offline Help

4. CONCLUSION AND FUTURE SCOPE

Convenience and simplicity are the two major highlights of this application. With the elimination of long queues that the patients stand in, it provides a way for them to book appointments of their choice in a convenient manner. The interface of this application simplifies the task for both the patients and the doctors. Both of which are also given timely reminders via SMS or emails about the booked appointments. The system itself provides and additional quick view of their appointment at the Homepage of the application. These are the few steps that indirectly aim at reducing the number of appointments missed and patients' no-show up for the same. It also provides a facility wherein the patients are informed via SMS or email if their appointments were affected due to some urgent needs of the service provider at a different place or in situations that might result to the absence of the requested service.

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Authors –

Mohamed Khalid: Currently pursuing his B.Tech in Computer Science and Engineering from SRM Institute of Science and Technology, Chennai.

Kritika Singh: Currently pursuing her B.Tech in Computer Science and Engineering from SRM Institute of Science and Technology, Chennai.

Janani Jeevitha .S: Currently pursuing her B.Tech in Computer Science and Engineering from SRM Institute of Science and Technology, Chennai.

Shalini Singh: Currently pursuing her B.Tech in Computer Science and Engineering from SRM Institute of Science and Technology, Chennai.

G Paavai Anand obtained her B.E Degree from Periyar University. She obtained her M.E and Ph.D degrees from Anna University, Chennai in the year 2012 and 2017 respectively. She currently works with SRM Institute of Science and Technology.