Doctor Appointment Online Booking System

Ms.Sanjeevani P.Avhale, Ms.Wrushali R. Ajabe, Ms pallavi A. Chinchole, Ms Puja T. Changade

Prof. N.K.Bhil

Computer science Anuradha Engineering College , Chikhali.

Sant Gadge Baba Amravti University,India

Abstract: The proposed project is smart appointment booking system that provides patients or any user and easy way of booking a doctor's appointment online. This is a web based application that overcomes the issue of managing and booking appointments according to user's choice or demands. The task sometime become very tedious for the compounder or doctor himself in manually allotting appointments for the users as per their availability. Hence this project offers an effective solution where user can view various booking slots available select the preferred date and time. The already booked space will be marked yellow and will not be available for anyone else for the specified time. This system also allows users to cancel their booking anytime. The system provides an additional feature of calculating monthly earnings of doctor. Doctor has to just feed the system regularly with daily earnings and the system automatically generates a report of total amount earned at the end of the month. The application uses Asp.net as a front-end and sql database as the back-end.

keyword - *Appointment, online application, android, hospital, scheduling, track, healthcare*

1.INTRODUCTION

If anybody is ill and wants to visit a doctor for check-up, he or she needs to visit the hospital and waits until the doctor is available. The patient also waits in a queue while getting appointment. If the doctor cancels the appointment for some emergency reasons then the patient is not able to know about the cancelation of the appointment unless or until he or she visits the hospital. As the mobile communication technology is developing rapidly, therefore, one can use the mobile's applications to overcome such problems and inconvenience for the patients.

The proposed work in this paper is an Online Hospital Management Application that uses an android platform that makes the task of making an appointment from the doctor easy and reliable for the users. Android based online doctor appointment application contains two modules. One module is the application designed for the patient that contains a login screen. The patient has to register himself before logging in to the application. After logging in, the patient can select a hospital and can view the hospital details. The patient has the option of selecting a doctor from the list of doctors and can view the doctor's details. The patient can request for an appointment on his/her preferred day/time. The selected day/time slot will be reserved and patient will receive the notification of the successfully added appointment. The patient can view the location of the hospital on map. In addition, the patient can contact to the hospital and the doctor by making a call or may send an email to the doctor. There are considerable online scheduling tools in the internet, a few of which are trait loaded, simple to setup and economical For practitioners, online appointment reservation and scheduling delivers a lot of merit added benefits and services, like captivating the patient, composing the patient to feel welcomed, and being capable to save patients' details safely for future information. But the most admirable and useful preference is that online appointment reservation and scheduling is remarkably in expensive .Both doctors and patients can access the portal through their unique ID's.

2. LITRATURE REVIEW

Here we present an interaction system for doctor and patient communication. It has an exceptional administration of several nodes through which doctors and patients interact with each other. The patients can easily access the hospital server nodes. Here the patients are allowed to interact with the doctors about their symptoms. The doctors can list and track their patients who are geographically dispersed and provide diagnosis on the needful. Proposing a new system from where the patients can easily book their

appointments online and the doctors can view and manage them. Here the patients book their appointments online depending on the doctor's availability and their time feasibility. The doctors on the other hand can either extend or reduce their working hours depending on the number of patients arriving for that day. In addition, the approximate time of arrival for the patients is also approximately calculated and notified to the

registered number. Any other information can also be fabricated at installation and hence removes the need for a technician install the software.

2.1 Waiting Time

Waiting time simply means a period of time which one must wait in order for a specific action to occur, after that action is requested or mandated (Fernandes et al., 1994). Patients' waiting time has been defined as "the length of time from when the patient entered the outpatient clinic to the time the patient actually received his or her prescription" (Jamaiah, 2003). It is defined as the total time from registration until consultation with a doctor. There were two waiting times, the first is time taken to see a physician and the second is time to obtain medicine (Suriani, 2003).

2.2 Patients' Appointment System

A patient appointment system or appointment schedule for health care center started long time ago (Harper, 2003). Management of patients' appointments has earlier works and has developed simplified queuing models and fairly static scheduling conditions. Another attempt was made to calculate the waiting time between patient and doctor using the mathematical queuing models to minimize waiting time (Gamlin, 2003). However; traditionally the appointment system has considered that the doctor time is more important than patient time (Wijewickrama, 2005). So an appointment system was designed to minimize the doctor idle time but current designing of an appointment system is based on decisive factors with respect to both the patient and doctor (Takakuwa, 2005).

2.3 Managing Patients' Appointment system

According to Dexter (1999), managing patient appointment system is a computer application used to manage and reduce the patient waiting time in the health care center. Some health care centers do not use any appointment system. So it has a longer average patients' waiting time than the health care center that adopts the patients' appointment system.

2.4 Online Booking System

An online system is also known as a web based system. A web is made up of page that is commonly known as web page or web site, and a web site is a computer program that runs a webserver that provides access to a group of related web pages (Alex, 2000). A system is a set of in dependent components working together to achieve a common objective.

2.5 Existing Hospital Appointment Schemes

One application developed to manage patients' appointment scheduling has used exponential enter arrival times. This model assumes that the exponential enter arrival times could not be directly validated by date, and it is limited due to the nature of the appointment scheduling (Rohleder, 2002). Since appointments are scheduled in the future, the exact model of call arrivals will only have limited impact on measures related to the time between the call and the appointment time. For this reason, the challenge for making appointment system is designing a suitable system based on the health care procedure environment (Klassen, 2002). Hence, the appointment provider in the health care center can schedule a patient into an appropriate time slot

on a given day.

3. SYSTEM ARCHITECTURE

The architecture is structured to allow users to make use of portable computer system, desktop computer system, and mobile phone as web browser to access the booking system. Client-server architecture was used and we used thin client-server. The medical appointment booking system has two components namely: the server-side and client-side that run on the browser. In the client

approach almost all the processing work was done on demand at the server end and the client task was to display data and information on the screen. While in thin client-server architecture, the web browser is the client. This architecture was used because with it users will not be required to install any software on their PCs expect a standard web browser, which often come, with most PC operating system and almost all the current standard mobile phone. Clients would also not require any powerful PC; users can use any PC with a web browser such as laptop/notebook, mobile phone, and desktop PC. The servers would require higher configuration (in terms of hardware) because it would be regularly subjected to heavy load.
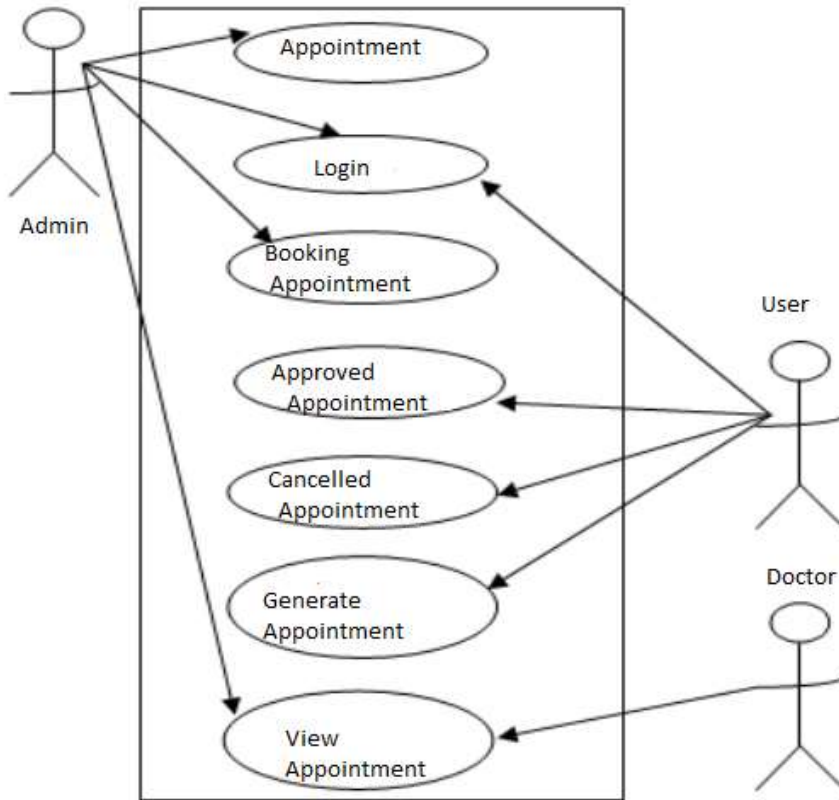

Figure 1.depicts the medical appointment booking system architecture.

4. PROPOSED SYSTEM

The proposed system consists of two panels: Doctor and Patient. The users will first have to download the application and install it in their mobile devices. Once installed, this application will remain into the device permanently until the user deletes it or uninstalls it. The patient will have to register into the application for the first time. On registering, the patient will receive a username and password. The patient can use this username and password for logging into the app each time he uses it. After logging in, the patient will have to select a filtration type. The filtration is done on two bases: Area wise and Specialty wise. After selecting the filtration type, the doctors list will be displayed. The patient can select any particular doctor and view his profile. Also the patient can view the doctor‟s schedule and look for an appointment according to his convenience. The patient will then send a request for appointment. The doctor can either accept the appointment or reject it. The database will get updated accordingly and the patient will get a confirmation message. The add-on to this system is that the patient will receive a notification 2 hours before the actual appointment. This will be very useful in case the patient tends to forget the appointment.

The duration a patient waits from the given time of their schedule to the time that they must actually receive the service is known as direct waiting time. The patients use this technique and waste much waiting time just by standing in queue at the registration counter to make sure a successful registration of the appointment has been made with a certain doctor.

The Doctor desires to have some charge over the insanity in the count of patient appointments in a day and the mix of appointments on any given day. These aspects can change their income as well as their carrier comfort levels. The hospital desires to use its resources (staff and apparatus) in the maximum potent way. Therefore the hospital doesn't desire for the doctor to have long cycle of "wasted time".
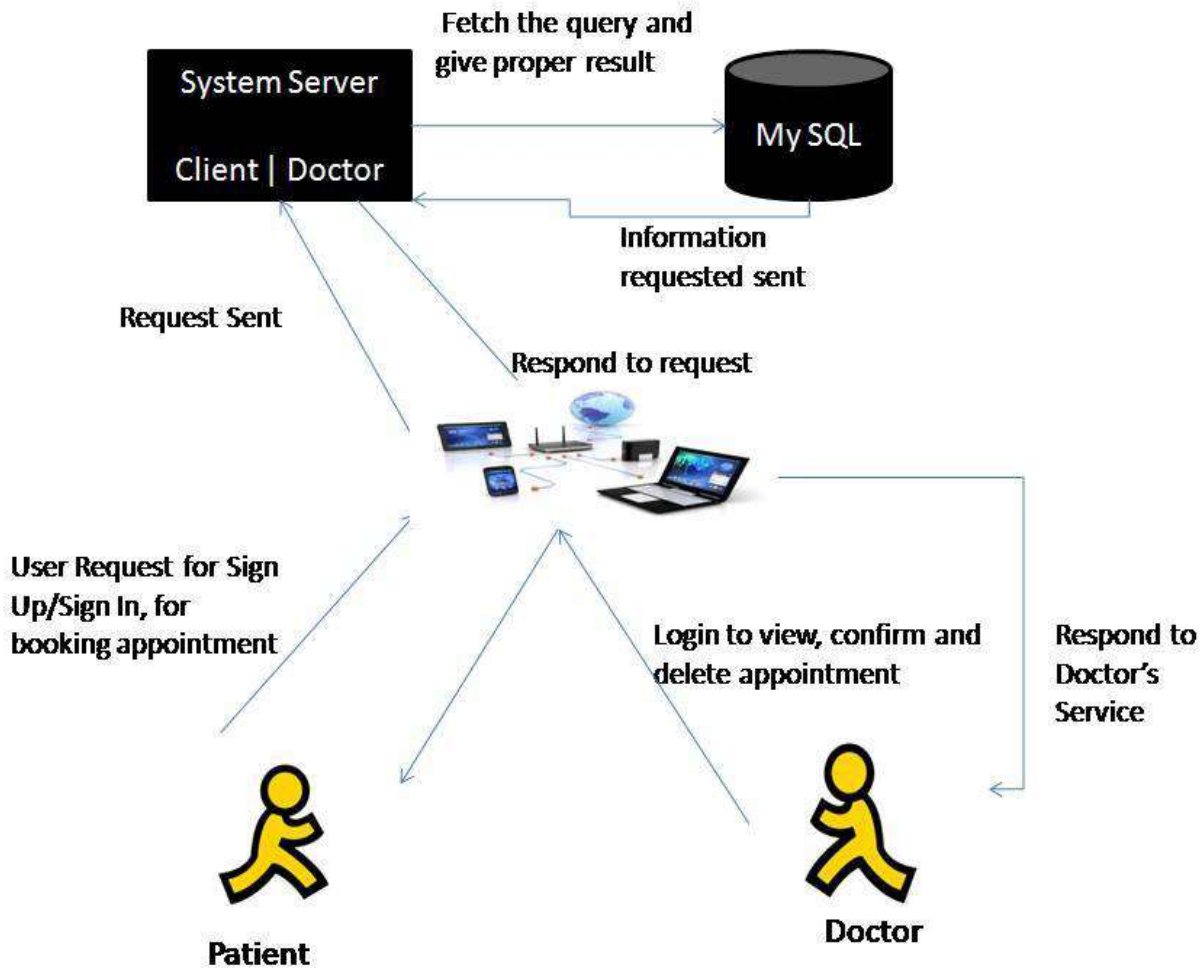

Fig 2. Proposed System

The proposed project is a smart appointment booking system that provides patients or any user an easy way of booking a doctor's appointment online. This is a web based application that overcomes the issue of managing and booking appointments according to user's choice or demands. The task sometimes becomes very tedious for the compounder or doctor himself in manually allotting appointments for the users as per their availability. Hence this project offers an effective solution where users can view various booking slots available and select the preferred date and time. The already booked space will be marked yellow and will not be

available for anyone else for the specified time. This system also allows users to cancel their booking anytime. The application uses Asp.net as a front-end and sql database as the back-end.

5. PROJECT WORKING

The user will firstly downloads the application and install it in their mobile devices. Once installed, this application will remain into the device permanently until the user deletes it or uninstalls it. The patient will have to register in the application on first use. After registration, the patient will receive a username and password. For sign up, the user has to fill the given fields that are username, email, password and then the user clicks on the register button to register itself and then all the information provided by the user is saved in the database located on the server. The login page screen is shown


Screenshot 1:Login Page

If we forgot our email or username password then we go to forgot password option .And then following screen will be displayed. Here, we have to enter our mobile number on which our OTP will come. When OTP comes on your mobile then it will be your new password and with the help of this password we can register login page. It shown below

Screenshot 2: Forgot Password

After logging in, the login page screen is displayed dashboard .Dashboard containing specialists of doctors like Cardiologists, Family physicians, neurologists, ophthalmologists.
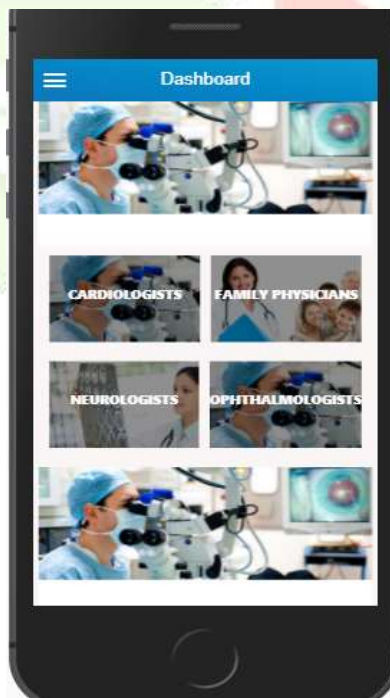
Screenshot 3: Dashboard contains Specialists

If the patient selects the specialist option then he/she can view a list of that types list of doctors. Then the patient selects the particular doctor. Here we select the family physician and then he can view the list of family physician doctors. details as shown below
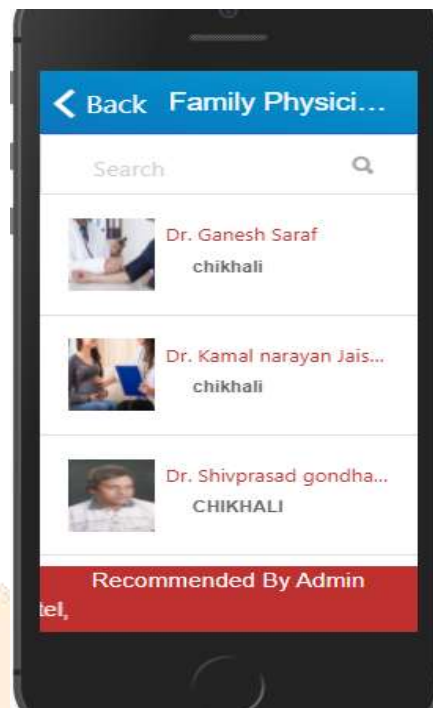
Screenshot 4: Select a specialist

Here we select one of doctor from the list of doctors for view details about doctor. In following screenshot we can see image and information about the particular doctor. The patient can select any particular doctor and view his profile by clicking on the available doctors or by selecting the doctor's option from the menu screen. The list of the available doctors is displayed as shown

Screenshot 5: Details about Doctor

In following screenshot there is applications or facility available of that particular doctor is shown. For this doctor there is location, book online, call taxi, customer review and book now this are applications. As shown below
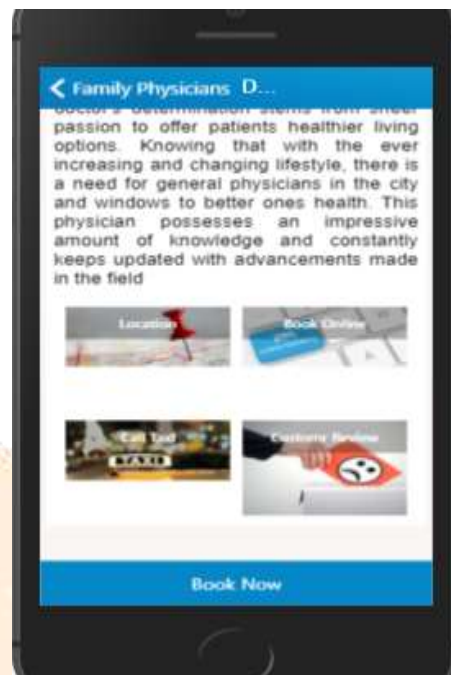


Screenshot 6: Applications

When we click on button location then there is open a map of that location. From this we get easy way to search doctor location. And in this location map there is direction will also show. As shown below

Screenshot 7: Location Map

It is a customer review from this we can guess which doctor is better. It is type of feedback and we can also add comment to click on add comment button for this doctor in it. As shown below
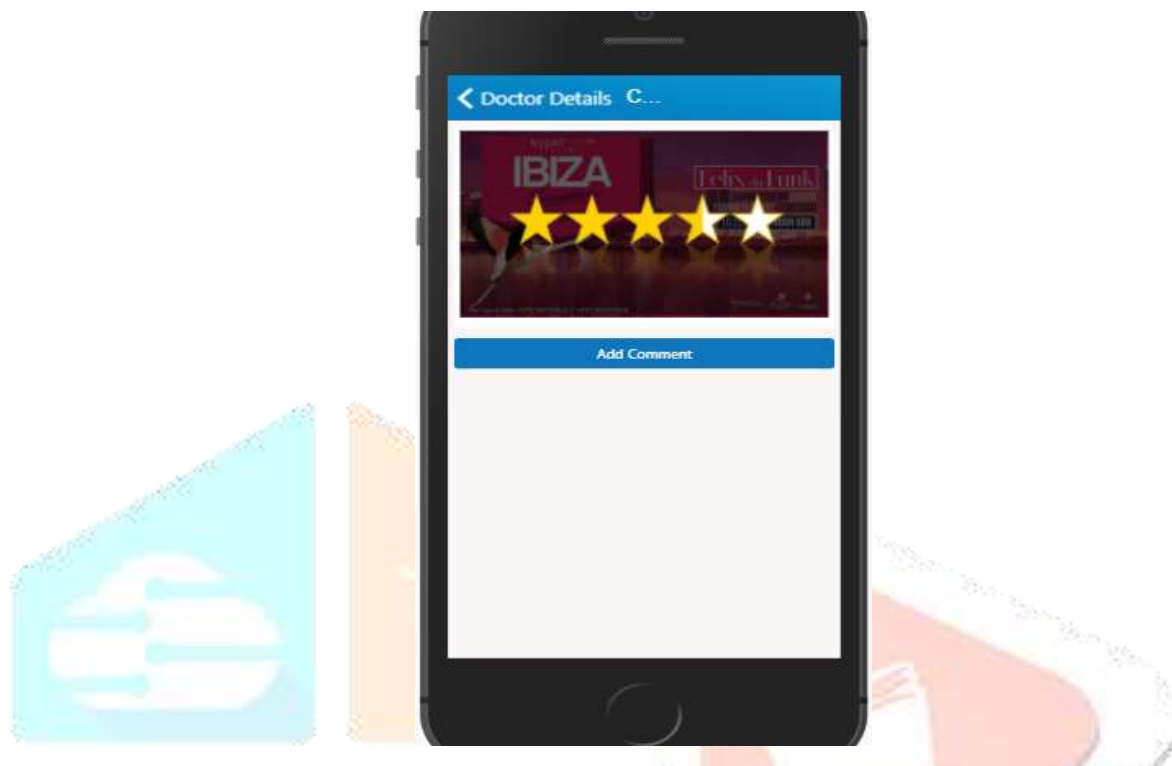
Screenshot 8: Feedback for doctor or customer review

6. CONCLUSION

   With the development of web based NHIS medical appointment booking system, patients are able to book and manage their own appointment with ease. They will be reminded of their appointments via SMS/email that will be promptly sent to them before their appointment date. The system itself also provides a quick view of their appointment at the Home page. These functions could indirectly help to reduce the number of missed medical appointments and patients no-show up for their appointment. Patients would be notified via SMS/email if their appointment were affected, when there is urgent needs of the service provider at other place or in case of any situation that can result to the absence of the service provider. International Journal of Patients could also track and monitor their own appointment record with this system.

   However, the display of bio-data such as X-rays and laboratory results are not included in the system due to technical constrain. The system will not be able to diagnose or prescribe drug for usage. The system is mainly designed to facilitate appointment booking between the patient and the health personnel. In compensation, additional modules such as Announcement, Medical case record and block/unblock schedule will further enhance the usability and functionality of the system and allow a flexible management of patients appointment. The system delegates some administrative work to the patients by allowing them to manage their own appointment and personal profiles. Time will not be wasted on converting paper-based appointment record into electronic-based. The system further

helps to reduces healthcare personnel workload by allowing them to generate medical reports easily. They could now maximize their competence and allocate more time to maximize service quality.

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