Design and Implementation of "Novus"- A Doctor Appointment System

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ABSTRACT

Many of them have been currently dealing with a variety of health issues. The majority of individuals have no idea who the best doctor for their concerns is, and they have no direct contact with a doctor to consult regarding their health issues. My doctor is a web-based application in which the administrator allows both doctors and patients to register and log in. Doctors can enroll by providing required information such as schedules, categories, and so on. The doctor can log in using their username and password after completing the registration process. The doctor may view the patient's request and, if an appointment is available, will notify the patient. In addition, he has access to the patient's remarks. After logging in and registering, the patient can choose a doctor by specifying his location and the nature of his or her ailment. Then it displays a list of physicians who fit the patient's condition, and he may choose the doctor of his choice. After that, it is transmitted to the online controller, who provides notice to the doctor, who accepts the request, and the controller provides notice to the patient for their booking time, and it states the booking is confirmed.

Keywords : Online Appointment System(OAS), Healthcare, Scheduling

I. INTRODUCTION

If anybody is ill and wants to visit a doctor for checkup, 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. There is much work in the literature in this regard [1]. An

intelligent agent based appointment system has been proposed in [1] in which a scheduling system is provided for patients. The junior medical staff schedules appointment according to the priority level. [2] proposed an Android application that is used to remind the patients of their dosage timings through Alarm Ringing system so that they can stay fit and healthy. Searching doctors and hospitals alongwith navigation details are also available in the app so they can get proper treatment on time. [3] proposed an android based appointment management system which uses application programming interfaces (APIs) from Google map and calendar. This appointment based application can be used with other appointment based systems. The mobile application accepts appointments by saving the record of the appointment on the phone calendar which is synchronized with the Google calendar. The user gets an alert based on preset specified time before the appointment time and date. [4] proposed a Health Track system that communicates with sensors via smart phone for data collection, and stores data concurrently to the central server for further analysis via the internet. Some online systems that are already functional still have some drawbacks. To overcome these drawbacks an online patient appointment system is proposed using Near Field Communication (NFC) technique and Android enabled mobile application. This system works by registration and scheduling appointments based on NFC that accesses patient's health records and reports to alert nurses and doctors.

There is another interesting work which is Disease Selfinspection and Hospital Registration Recommendation System (DSRRS) [6]. It uses Representational State Transfer (REST) style for communication interface between reasoning service and the system. Before reasoning users disease history is retrieved from Personal Health Record (PHR) and passed as an input to reasoning service. Mainly the input contains User's information, disease history,

Knowledge base (symptoms) and output of reasoning service. [7] described an android smart phones and tablets application that is freely downloadable from Google play store and it provides various functionalities including personnel medical records, to trace position of actual user in real-time. Routing algorithm is used to find minimum distance for destination building. Another study consists of an online database for the monitoring of patient with artificial heart [8]. This database consists of monitoring terminal that is portable and keeps continuous record of a patient including history. There are other studies which involve handheld healthcare [9] and efficient algorithms for appointment scheduling including selfinspection [10]. 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 "Novus" 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. The second module is the admin module that is designed on the website. The admin views all details of doctors and all appointments by the admin. The admin can add doctor, view patient's details and doctor's details and can view appointments also.

All the doctors of the specific clinic are registered by the admin. Doctors cannot register themselves. Rest of the paper is organized as follows. Section II explains the design interface and the tools which have been used. Section III discusses the implementation and screenshots. Section IV concludes the paper.

II. LITERATURE REVIEW

Digvijay et al. [1] the hospital management to design software that is easy for the user to grasp and do basic and rapid tasks. It comprises the gathering of patient and doctor information. The system saves all data and retrieves it when needed. The hospital management system may be accessed by an administrator using a user name and password, and the data is safe for any usage. The hospital management system is required to hold patient information, doctor information, and staff information, among other things. As a result of these projects, the work becomes easier and saves a lot of time.

Shafaq Malik and colleagues [2] If we want to see a doctor for a checkup, we need to wait until the doctor is available and then make an appointment. As mobile technology advances, it is becoming easier to arrange an appointment with a doctor. The mobile application accepts appointments by preserving appointment records that are connected to a calendar. The user receives alerts based on the time established before the appointment. This programme is simple and user-friendly. The admin will manage the doctor's and patients' information here.

IrinSherly.S and others .al[3] A patient can immediately access the website or web application and connect to the doctor via the online software system using the online appointment fixing and scheduling system. The patient can schedule their appointment at a time that is convenient for them. The patient can select their preferred doctor and schedule an appointment. Online appointment reservation and scheduling systems can save time for patients, doctors, and office employees. Rather of visiting to the hospital, it is simple to do simply utilising computers and setting an appointment.

Tufailmaryam[4] demonstrates Medical appointments were obtained by attending the hospital and standing in line until our time came. It might irritate the patients at times. The advent of online appointment systems provided convenient and timely access to health-care services. We can get emergency healthcare appointments with this clever software. People may select from a variety of physicians and hospitals in the area. We can quickly get this appointment using our phones, and we can save time by using this clever programme.

Khamisi Kalegele and Godphrey G. Kyambille [5] Formal paraphrase A smartphone application is used to schedule appointments. This includes time saved for If the mobile-based application is used, there will be no time wasted. The mobile-based programme enables for patient scheduling 24 hours a day, seven days a week. Rather of waiting for a long period, patience might be arrived at a set time for seeing the doctor.

Many patients would miss doctor visits, according to Adebayo Peter Idowu et al. [6], wasting patient time. In today's fast-paced environment, we may schedule a doctor's appointment using an online booking system. You may pick your own doctor using this app, and you can also learn more about doctors and hospitals. This allows the patient to control their own appointments. They will be notified of their appointment by SMS/E-MAIL prior to the date. This sort of function will eliminate appointment waste. We may readily schedule appointments in emergency situations. It saves both the patient and the doctor time.

According to Nazia S and EktaSarda [7], an online appointment system is one in which a patient may quickly browse a website and make their appointments. This allows the patient to provide extra information to the doctor when they come, while also allowing the doctor time to prepare the relevant

material. In this way, an online appointment system may benefit both employees and patients. The goal of creating online appointment scheduling is to make it easier for patients and doctors to schedule appointments. It is easier to go through the Internet, visit a website, and book an appointment than to travel to the hospital and wait in line for a long period.

According to S. Sri Gowthem and K.P. Kaliyamurthie[8], the patient registration method in most health care facilities is carried out using paper appointments, and when patients arrive at health care, they must wait in line for a lengthy period. A smart appointment reservation system for patients may be completed entirely through an online scheduling software, which details about the hospital and patient information on a single site and provides a simple method for patients to make appointments at their leisure.

Sonal G. Shelwante and others .al[9] This is a smart health doctor appointment system that incorporates patient registration. The suggested job is a simple booking framework that allows patients to book a physical exam online. We may now get online appointments with a simple click in this day and age. The user can participate in this by first registering. Later, they may log in using their user id and password. Regular checkups with specialists provide a direct line of communication for minor difficulties. It is now quite simple to schedule medical appointments online, which saves time and lowers human effort. In the status tab, the patient may read their status notification.

Akinode et al .al[10] One of the most significant sectors is health care. Many of them were now dealing with various forms of health issues. In hospitals, appointments are made by having patients wait in line. In certain hospitals, doctor appointments are becoming a major concern in emergency situations. There have been several breakthroughs in several fields in recent years. There is also progress in online medical appointments. We may arrange a reputable surgeon for our health concerns using this

online appointment system. It is also more valuable to patients in emergency situations. Doctors might also be ready to solve their patients' concerns with the use of online appointments. Doctors can also save time by using this method. And he can notify his daily routine.

III. PROPOSED METHOD

The user firstly downloads the application and installs it in their mobile device. Once installed, this application will remain into the device, permanently until the user deletes it or uninstall it. After this installation when user clicks on the App icon, the first thing that will appear on the screen is splash screen that contains the application logo.

The patient will have register in the application on first use. After the registration, the patient will get the user id and password. If user forgets the password there is option will recover the user information which they used for signing. After logged in menu screen will be visible , it containing different option like search doctor, ambulance booking, my doctor, wish list, feedback, FAQ, emergency call. Patient can select any particular doctor and view his/her profile by clicking available doctor or by using their name or hospital name.

By clicking the "Book appointment button", the patient is able to send a request for appointment to the doctor. After confirmation from doctor they will be notified by call or Message. By clicking the "Ambulance booking button" user will be able to pre-booking of ambulance which is nearby to the user or directly contact to ambulance driver to get ambulance as early as possible.

In the proposed system the doctors and patients are brought to one place which is handled by admin and the admin allows patients to register and search for the doctors basing on the location the list of doctors will be shown and patient can book by selecting the time slots and the admin will confirm the booking so everything is computerized an done very fast which

will save time. Here my doctor proposed system is divided into 3-types.

1. Patient registration system
2. Doctor
3. Administration

A. Patient Registration System

The patient needs to register and log in after entering he can search for the doctor by giving the location, the reason or problem. Basing on the doctor availability the admin will confirm the booking request and will send to mail that the booking is confirmed.

Fig 1: Systematic Architect

Figure 1: In this user can select the doctor and book the appointment by login and registration according to their choice.

B. Doctor

Doctor need to be registered by giving the necessary details like timing, fees etc. After registering he need to log in. He can view the patient request forwarded from admin and he can accept and he can also view the feedback given by patients.
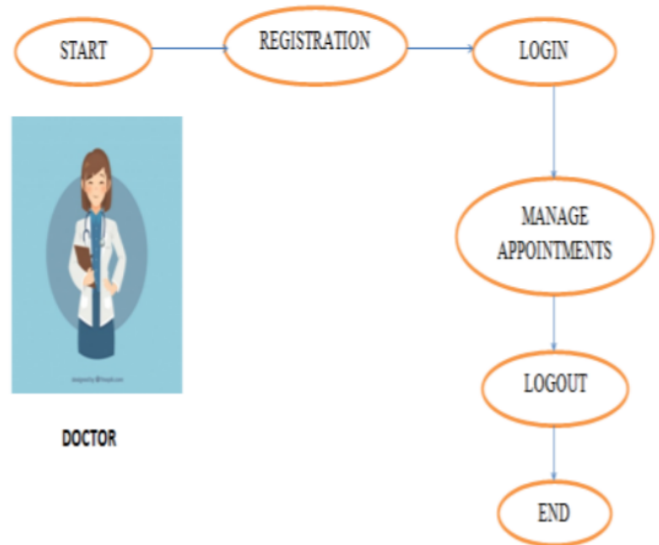

Fig 2: Doctor Schedule System

Figure 2: Provides the doctor's login by giving username and password and adjust their appointments according to their convenience.

C. Administration

Admin can view the registered doctors and patients. He can also view the patient's request and doctors requests and he will confirm the patients and doctors requests.
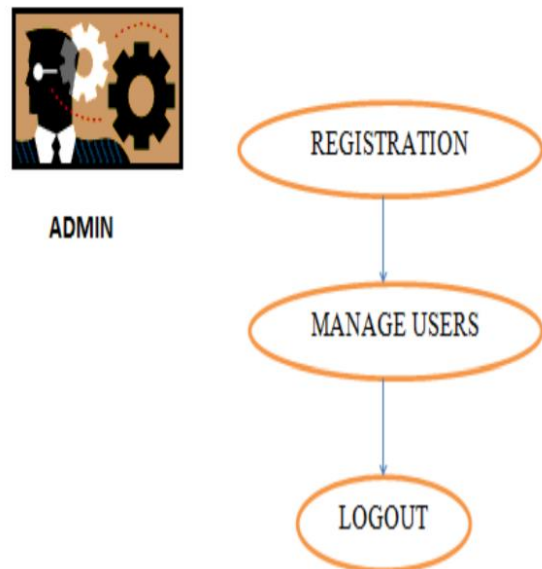

Figure 3. Admin Control

Figure 3: Shows that the admin will control the application for managing the details and appointments of the patients and the doctors.

IV. CONCLUSION

This is an application that overcomes the issue of managing and booking appointments according to user's choice or demands. Here the user can select good doctors by viewing their details and reviews. 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. With this application the doctor can alert his own schedule. Hospitals can easily manage their registration and appointment process and monitor the flow of patients to the doctor And with this application the time can be saved to both doctor and patient.

V. REFERENCES

[1] Digvijay H. Gadhari,Yadnyesh P. Kadam,Prof. Parineeta Suman,"Hospital Management System" ,IJREAM, Vol-01, Issue 11, FEB 2016.

[2] Shafaq Malik,Nargis Bibi,Sehrish Khan,Razia Sultana, Sadaf Abdul Rauf,"Mr.Doc: A Doctor Appointment Application System". International Journal of Computer Science and Information Security, 14(12):452-460 December 2016.

[3] Irin Sherly. S , Mahalakshmi. A , Menaka. D , Sujatha. R," Online Appointment Reservation and Scheduling for Healthcare- A Detailed Study", International Journal of Innovative Research in Computer and Communication Engineering , Vol. 4, Issue 2, February 2016.

[4] Maryam Tufail ,"Online Polyclinic Appointment and Database Management System ",Master's thesis 43 pages, appendices 1 page ,August 2018.

[5] Godphrey G. Kyambille, Khamisi Kalegele, "Enhancing Patient Appointments Scheduling that Uses Mobile Technology", IJCSIS, Vol. 13, No. 11, November 2015.

[6] Adebayo Peter Idowu, Olajide Olusegun Adeosun, and Kehinde Oladipo Williams, "Dependable Online Appointment Booking System For Nhis Outpatient In Nigerian Teaching Hospitals" IJCSIT Vol 6, No 4, August 2014.

[7] Nazia S, EktaSarda," Online Appointment Scheduling System for Hospitals–An Analytical Study" ,IJIET, Vol. 4 Issue 1 August 2014.

[8] S. Sri Gowthem ,K.P. Kaliyamurthie," Smart Appointment Reservation System",IJIRSET, Vol.4,Issue 6, June 2015.

[9] Sonal G. Shelwante , Anshuli Thakare, Karishma Sakharkar , Akshta Birelliwar , Karuna Borkar," Smart Health Doctor Appointment System",IJRESM, Volume-2, Issue-2, February-2019.

[10] Akinode, John Lekan , Oloruntoba S.A ," Design and Implementation of a Patient Appointment and Scheduling System", IARJSET, Vol. 4, Issue 12, December 2017.

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