Ann. For. Res. 66(1): 3143-3150, 2023
ISSN: 18448135, 20652445

ANNALS OF FOREST RESEARCH
www.e-afr.org

ENHANCING THE HEALTHCARE SYSTEM THROUGH MOBILE-BASED DOCTOR'S APPOINTMENT BOOKING APPLICATION

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Abstract
People are having a lot of difficulties right now in the medical field, both financially and psychologically particularly when waiting in line for appointments with a doctor, which causes hospitals to be quite busy. We came up with the novel idea of an online appointment booking platform to address this issue. Patients may now book an appointment online.
Easy Book App is a web-based mobile application created for hospital organizations to manage the appointment-booking procedure. Our app works by giving patients the freedom to select their appointment times depending on the times that are most convenient for them. Also, it sends them a message or alert to be ready before two slots in the line to see a doctor, reducing patient wait times. Options to reschedule and cancel appointments are offered to this patient as well.
Options to reschedule and cancel the appointment are offered to this patient in addition at any moment. On the other side, doctors utilize our app to view patient information and the number of people waiting in line. The best features of our software include showing users the closest hospitals and clinics in their area. Also, it provides real-time updates so that he or she may keep track of their slot number. In other words, our solution improves the ecology between medical professionals and patients so that they may converse more effectively and conveniently. This application can transform difficult appointment procedures, allowing them to operate more successfully, efficiently, and financially.
Keywords: Appointment, online booking, mobile application, medical, session, slot number.

Introduction:

All sorts of businesses, from large multinational corporations to tiny service-based firms, depend on appointments and scheduling for daily operations. Although the method of scheduling appointments has changed over time, moving from taking phone appointments and noting them in a paper appointment book to using an electronic calendar like those that are provided by Google

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or Microsoft Outlook, the task itself still necessitates a sizable amount of time and effort for organizations that continue to rely on these antiquated and ineffective methods.

Easy Book" is a medical appointment in which a patient meets with a doctor to receive treatment for a symptom or condition. Medical Services personnel will be more accommodating if you schedule an appointment so that they are aware of any scheduling constraints.

Patients who intend to attend for a specific reason should include some basic information about that reason (for example, stomach aches, headaches, travel evaluations, pregnancy screenings, and medication refills). Patients can make appointments with their preferred doctor at their preferred clinic or hospital at any time of day or night, relieving pressure on the front desk and phone system

Literature of Review:

Srividya Bhat, Nandini S. Sidnal, Ravi S. Malashetty, Sunilkumar. S. Manvi (2011) Using the Java platform, the paperwork integrates accessing remote healthcare services in a multi-agent environment to improve service quality. This creates a framework for scheduling meetings between patients and relevant clinicians in an efficient manner for routine and emergency services.

A. Venkat Ramana, S. Sushma Raj (2012): The authors created the embedded-based device to help patients find the doctor's cabin more simply. Outside of the consultant's room, the device displays the patient's name and token number. Outpatients who want to see a specific doctor have a tough time finding their doctor's cabin.

Dr. Sandesh Kumar Sharma, Dr. Sudhinder Singh Chowhan (2013): This study looked into a number of factors that lead to effective hospital management and sequential hospital operations. The study established reliable and valid scales and characteristics that influence hospital efficacy and revealed the difference between optimal and actual outpatient performance observed by patients.

Fatma Poni Mardiah, Mursyid Hasan Basri (2013): This study aims to provide a study of the major causes of patients' length of time for medical treatment in an outpatient clinic at one of Indonesia's public hospitals, as well as recommendations on the best strategy for improving the appointment system to maximize the effectiveness and efficiency of resources and capacity.

Priyanka Patil, Sruthi Kunhiraman, Rohini Temkar (2013): This paper offers a proposal for a web-based platform to allow the development of online, cloud computing, and Android applications for hospitals and medical systems. This controls the schedules of doctors, keeps patient records, and so on.

Yeo Symey, Suresh Sankaranarayanan, Siti Nurafifah binti Sait (2013): This is a description of a patient management system. It is an Android application that lowers patient wait times for appointments and collects patient data. It outlines the usual patient flow through outpatient services till the consultation.

Ayanthi Saranga Jayawardena (2014): In this article, researchers describe a computer-based electronic information system for creating and maintaining a patient database for data analysis and facilitating evidence-based decision making. Some goals include having correctly preserved

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hospital health statistics, a paperless hospital information system, and reducing expenses while improving the quality and timeliness of the hospital information system.

Aswar Nandkeshav R, Kale Kalpana M, Rewatkar Mangesh P, Jain Akanksha, Barure Balaji S (2014): This discusses how improving patient satisfaction with health care services by lowering waiting time, attending to patients on time, and using a sympathetic approach can generate a positive image of the hospital in people's minds and promote hospital image building in the community.

Dr. Nirmalya Manna, Dr. Md Samsuzzaman, Dr. Saikat Das (2014): The author conducted a time-motion research to determine the time spent at various service delivery points in the OPD and to assess recipients' perceptions of the total time spent in the OPD. Time Motion studies are essential for proper time management in various healthcare delivery systems, and subsequent corrective actions can be done as needed.

Objective:

To make it easier for people with hectic schedules to plan an online appointment with any expert doctors according to their needs and find the best hospitals and doctors in their area. It provides improved time management by assisting doctors in keeping track of their waiting patients and will help hospitals and clinics to deliver quality healthcare through improved administration and management

The proposed system:

We uncovered a patient dilemma in existing applications, where app owners exploit patient information for their own profit, putting the patient's safety at risk. There are booking and scheduling appointment functions in the present app, however, they are inefficient in terms of informing patients about the queue of patients ahead of them and alerting them before their turn to see the doctor. The app user frequently has difficulties because the applications does not provide up-to-date hospital hours.

The main issue that patients confront here is that some of the doctors are phony and are only there to deceive and steal people’s hard-earned money in the guise of fees. In extreme

circumstances, doctors are concerned about the hefty costs charged by app owners to patients. Furthermore, patients have expressed dissatisfaction with the online test results, which they claim are inaccurate and delivered late. To resolve all of these concerns "easy book" is a secure and simple-to-use tool for online appointment booking and scheduling.

In this section, we address the patient's health issues by referring them to the nearest hospital and specialist doctor for their illness. This will be accomplished by including geo-maps in our application, which will provide a path from the user's location to a specific hospital.

Ultimately, the main purpose of our application is to make the best use of the time spent waiting in vain for an appointment or consulting a doctor in person. In addition, our application tracks the remaining patients in the queue to see a doctor and notifies them about their forthcoming

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appointment session time when two patients are left in the queue. In an emergency, the emergency button will help track the patient's location and dispatch an ambulance prom This will be accomplished by including geo maps into our program, which will provide a path from the user's location to a specific hospital.

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Additional features of our application include the ability for patients to cancel and reschedule appointments using our application, as well as live appointment slot changes being notified to patients. Our program, on the other hand, assists doctors in keeping track of how many patients have enrolled and their payment information. They will also be given all of the information on the patients as well as their schedules. Furthermore, doctors can utilize our program to refer patients for tests, give medication, and recommend other doctors. The best part is that they may keep the patient’s medical history documents online.

Aside from the benefits that patients and doctors receive, the app also benefits private hospitals, clinics, and other organizations that are registered members of our program. It assists companies in running a seamless and timely managed administrative work, such as patient tracking and appointment scheduling. As a result of our app, health companies may provide excellent customer service.

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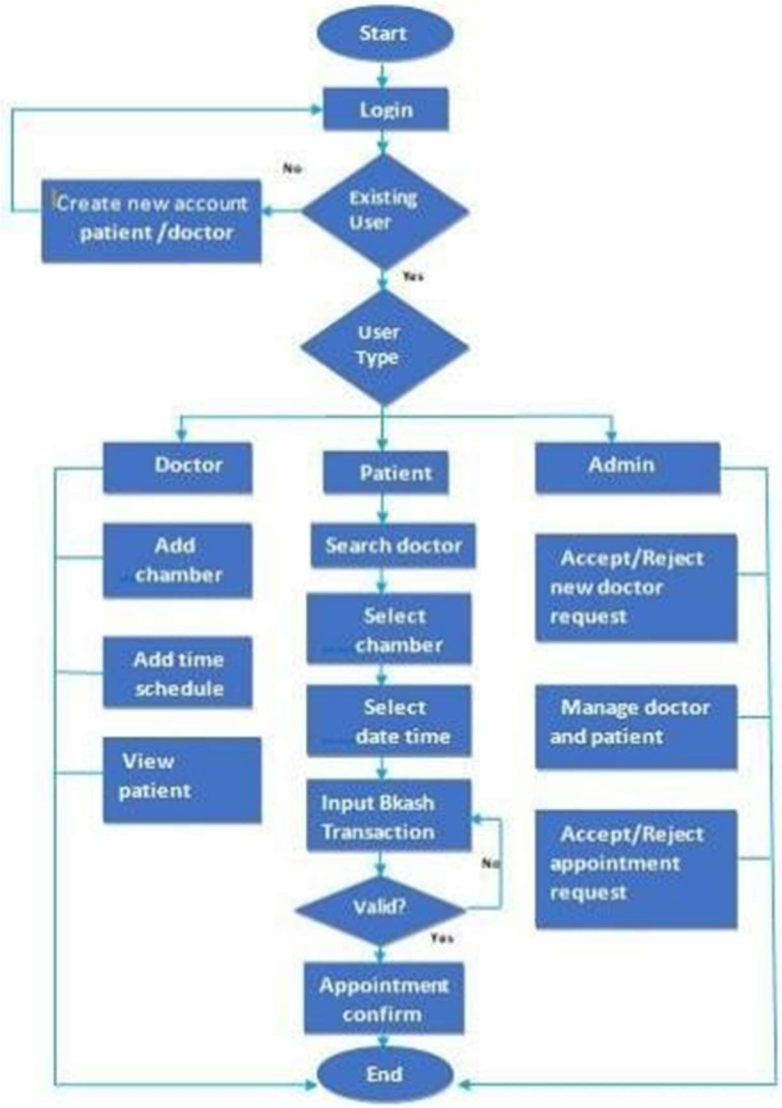

Fig.1 Flowchart of Appointment of the online booking system Implementation:

1. We must first engage with private clinics and hospitals, followed by doctors, personnel, and hospital management teams. Physicians and hospital personnel are registered on our application there.
2. All registrations are correctly stored in our database.
3. Finally, based on the origin of clinics or large private hospitals, we assign a unique admin login number to doctors or Senior Hospital Management. Only Doctors or Senior Hospital Management are authorized to log in here.
4. On the other hand, it is available to the public, where patients can go online and register for appointments with doctors using our program.
5. The patient is assigned a unique slot number for that available day to schedule an appointment with the doctor.
6. All patient registrations and transactions completed using our app for appointments are saved in our database.

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7. Our application has proprietary technology that alerts the patient 10 minutes before his or her scheduled appointment time.
8. On the other hand, the staff on the opposite side has been given the ability to update the slots once a patient has treatment from the doctor and leaves. The staff updates the slot number, and the next patient slot number arrives to meet with the doctor.
9. The number of patients who have registered for appointments, as well as all registration and transaction details, will be sent to the doctor or senior hospital management. They will be kept up to date on everything.

Benefits of the Application

- At peak hours in a hospital, staff employees are often distracted by all of the appointment booking chores, which can lead to overwhelm. As a result, employees may inadvertently double-book appointments or fail to make an appointment, reducing a company's efficiency. As a result, online scheduling software boosts employee efficiency while decreasing their workload.
- Booking systems are used by health organizations to save costs, save time, enhance profits, and improve staff efficiency. As a result, our application is being used more frequently as more service-based businesses adopt online appointment booking systems.
- Patients can arrange appointments using any device, including their mobile phone, iPhone, laptop, or desktop.
- Geo-mapping tools are available to help you find the closest hospital and medical facilities. Using location-based data, such as names, addresses, sales figures, demographic data, etc., is a process of making a map.
- Demand for 5G/4G Internet connections is rising. The goal of 5G is to deliver a 100x increase in traffic capacity and network efficiency. Above 4G, 5G has less latency.
- Small clinics and private hospitals will become more well-known to the general public and be able to keep better track of patients who have registered using our app. Finally, we assist patients by providing them with a single point of contact for making appointments at any hospital in their area

Limitation of the Application and scope for further improvements

- These days, every hospital has a patient consultation app. The primary drawback in this situation is that the user must download each app individually in order to make a hospital appointment. Patients can use our one application to make a reservation at any hospital that is closest to them.
- Needs internet connectivity for our application to be used by the general public
- Lack of knowledge of using a smartphone can be a major drawback.

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Conclusion

We did research and discovered that there are 250 health applications accessible in India, but only 22 of them offer the related service of scheduling doctor appointments. According to a recent literature review, India has a low health literacy rate, which means that the majority of the population cannot access and use healthcare information to receive treatment for their medical conditions.

So, we have suggested a concept for the creation of an all-in-one application that focuses on giving all the health care information, from the nearest hospital to the user that is nearby to the health services offered by a hospital. As technology advances, we streamline and speed up the appointment-making procedure for users using a 24/7 online application. Instead of standing in line for a long time, users may relax anywhere and schedule an appointment whenever it suits them. Our project's major objective is to minimize the time patients squander waiting for their appointment and save that time. Instead, patients would be informed of their appointment time a few minutes prior and asked to arrive at the doctor's office at that time.

Although there is already some free online scheduling software available, it is likely that it will have limited capabilities and run slowly. Our software is totally devoted to providing services to customers and guarantees free services with a richness of features. For this reason, a standardized and reliable platform for arranging doctor consultations is offered.

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