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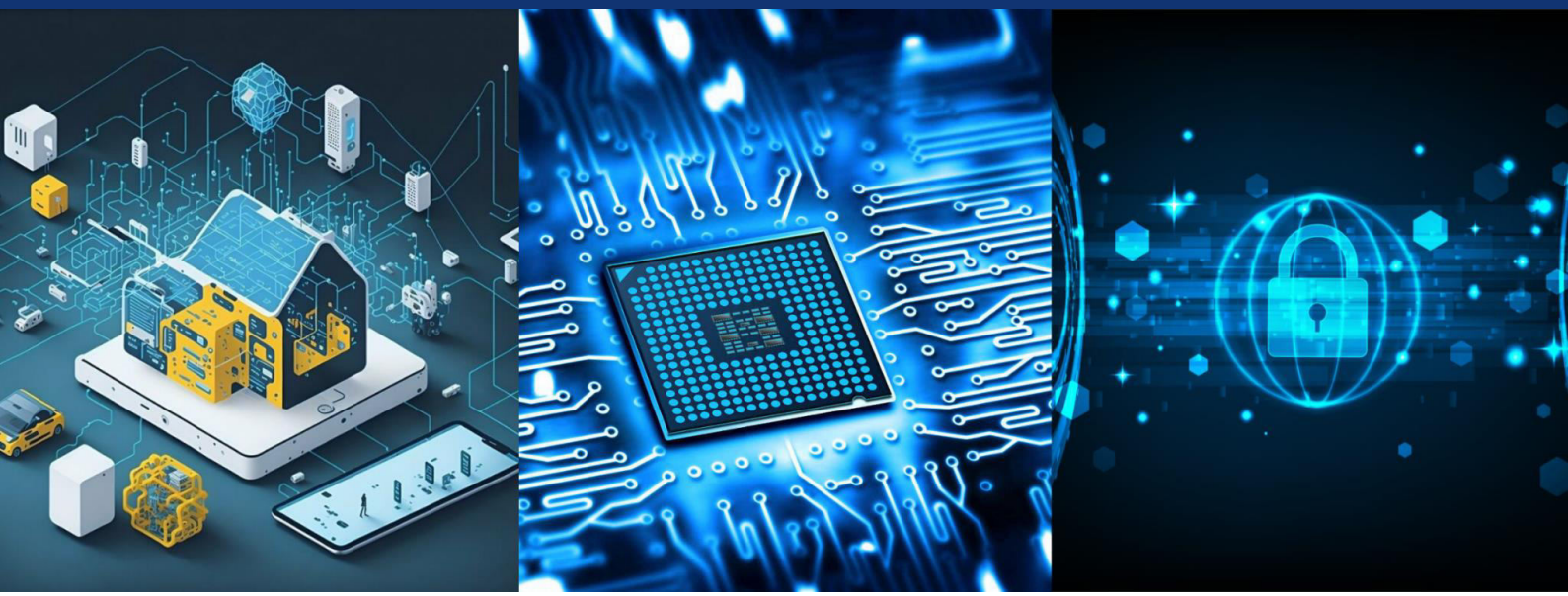

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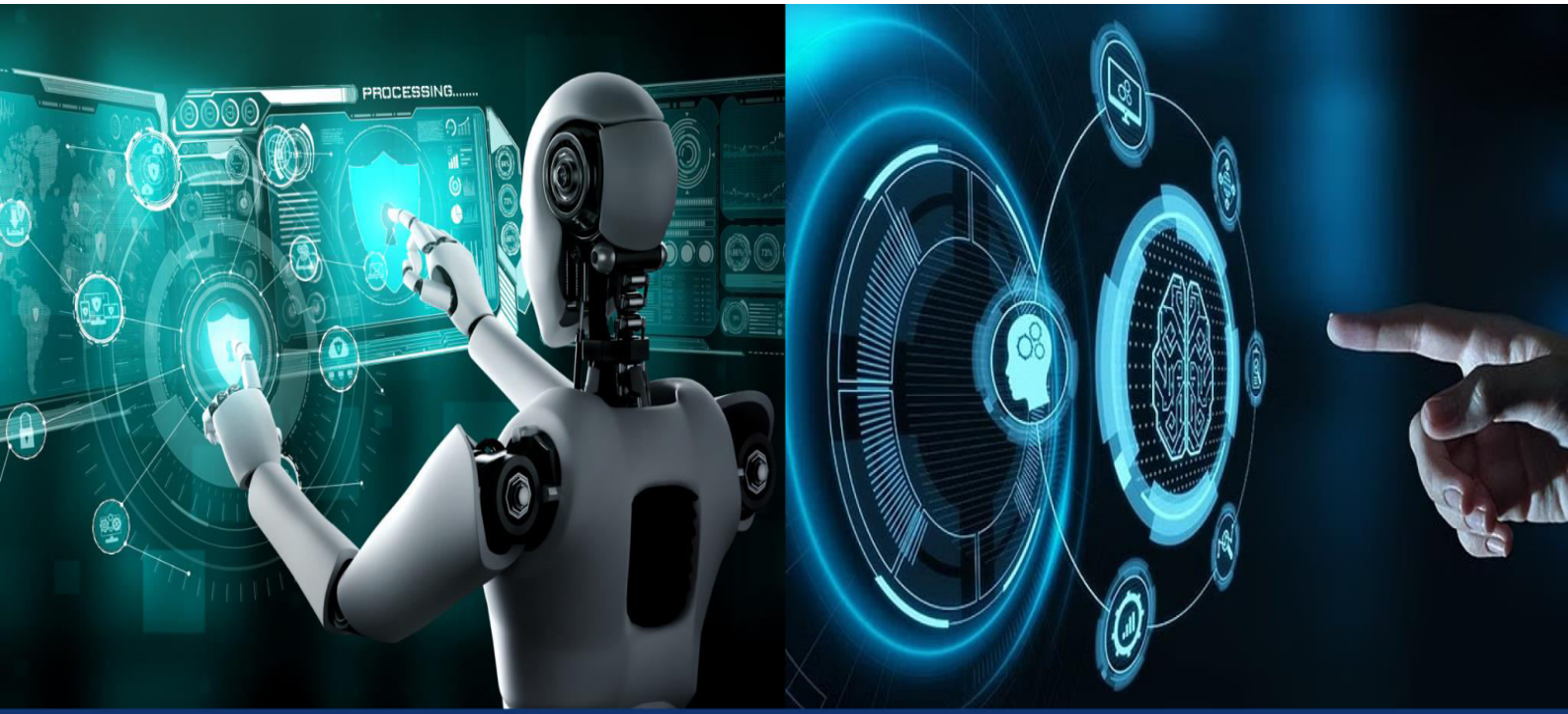

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Doctor Appointment Online Booking System

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ABSTRACT: In today's fast-paced world, managing healthcare and scheduling in-person medical visits has become increasingly challenging. This project aims to simplify the appointment booking process for patients, addressing the obstacles they encounter while making reservations with healthcare providers. The system comprises an Android application in which it serves as the user interface, and a website that functions as the server. The website hosts a database containing essential information about medical professionals, patients, and their scheduled appointments

KEYWORDS Appointment, online application, android, hospital, scheduling,, healthcare

I. INTRODUCTION

If anyone is unwell and wants to consult a doctor for a check-up, he or she needs to visit the hospital and wait until the doctor becomes available. The patient also queues while securing an appointment. If the doctor cancels the appointment due to emergency circumstances, then the patient will not be informed about the cancellation unless he or she visits the hospital. As mobile communication technology is progressing rapidly, therefore, one can make use of mobile applications to solve such issues and inconveniences for the patients. The project proposed in this paper is an Online Hospital Management Application that functions on an Android platform, which streamlines the process of scheduling an appointment with the doctor for users. The Android-based online doctor appointment application comprises two modules. One module is the application created for the patient, which features a login screen. The patient must register himself or herself prior to logging into the application. Once logged in, the patient can select a hospital and view the hospital's information. The patient has the option to choose a doctor from the roster of available doctors and can check the doctor's information. The patient can request an appointment for his or her desired day and time. The selected day and time slot will be reserved, and the patient will receive a notification verifying the successful addition of the appointment. The patient can view the location of the hospital on a map. Furthermore, the patient can reach out to the hospital and the doctor by making a phone call or may send an email to the doctor. There are many online scheduling tools accessible on the internet, some of which are feature-rich, easy to configure, and budget-friendly. For practitioners, online appointment booking and scheduling provide various significant advantages and services, including engaging the patient, making the patient feel welcomed, and securely storing patients' details for future use. Nevertheless, the most commendable and practical choice is that online appointment booking and scheduling is remarkably cost-effective. Both doctors and patients can access the portal using their unique IDs.

II. LITERATURE REVIEW

Here we introduce a communication system for interaction between doctors and patients. It features an outstanding management of various nodes through which doctors and patients communicate with one another. The patients are able to easily access the hospital server nodes. In this system, the patients can engage with the doctors regarding their symptoms. The doctors can identify and monitor their patients who are spread out geographically and provide necessary diagnoses. This proposes a new framework where patients can conveniently schedule their appointments online, and doctors can view and manage these appointments. In this system, patients make their appointments online based on the availability of the doctor and their own scheduling preferences. On the flip side, doctors can either lengthen or shorten their working hours based on the number of patients expected that day. Additionally, the estimated arrival times for patients are also calculated and communicated to the registered phone numbers. Any other details can also be created during installation, thereby eliminating the requirement for a technician to install the software.

2. 1 Waiting Time- Waiting time refers to a duration that one must endure until a specific action takes place, after that

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action has been requested or required (Fernandes et al, 1994). The waiting time for patients has been described as "the duration from the moment the patient entered the outpatient clinic to when the patient actually received his or her prescription" (Jamaiah, 2003). It is characterized as the total period from registration to the consultation with a physician. There are two types of waiting times; the first is the duration taken to meet with a physician, and the second pertains to the duration needed to acquire medication (Suriani, 2003).

2. 2 Patients' Appointment System - A system for patient appointments or an appointment schedule for healthcare centers has been in existence for a long time (Harper, 2003). The management of patient appointments date back to earlier works, which led to the development of simplified queuing models and relatively static scheduling conditions. Another initiative aimed to compute the waiting time between a patient and a doctor by employing mathematical queuing models to reduce waiting times (Gamlin, 2003). However, traditionally, the appointment system has regarded the doctor's time as more valuable than the patient's time (Wijewickrama, 2005). Thus, an appointment system was created to reduce the idle time of the doctor, but the current design of an appointment system is based on decisive factors relevant to both the patient and the doctor (Takakuwa, 2005).

2. 3 Managing Patients' Appointment System- As stated by Dexter (1999), managing a patient appointment system is a software application utilized to oversee and decrease patient waiting times in healthcare centers. Some healthcare facilities do not implement any appointment systems. Consequently, these locations exhibit a longer average waiting time for patients compared to those healthcare centers that adopt a patient appointment system.

2. 4 Online Booking System - An online system is also referred to as a web-based system. The web comprises pages generally known as web pages or websites, and a website is a computer program that operates a webserver, providing access to a collection of related web pages (Alex, 2000). A system is defined as a collection of independent components that collaborate to achieve a common goal.

2. 5 Existing Hospital Appointment Schemes- One application designed to manage patient appointment scheduling has utilized exponential enter arrival times. This model posits that exponential enter arrival times could not be directly validated by date and is constrained due to the characteristics of appointment scheduling (Rohleder, 2002). Since appointments are arranged for future dates, the precise model of call arrivals will only exert a limited effect on metrics associated with the interval between the call and the appointment time. For this reason, the challenge in creating an appointment system lies in designing an appropriate system that aligns with the healthcare procedural environment (Klassen, 2002). Therefore, the appointment provider within the healthcare center can allocate a patient to a suitable time slot on a specified day

III. SYSYEM ARCHITECTURE

The architecture is designed to enable users to utilize portable computer systems, desktop computer systems, and mobile phones as web browsers to access the booking system. Client-server architecture was implemented, and we adopted a thin client-server model. The medical appointment booking system comprises two components: the server-side and client-side, which operates within the browser. In the client approach, nearly all processing tasks were performed on demand at the server end, while the client's responsibility was to display data and information on the screen. In the thin client-server architecture, the web browser serves as the client. This architecture was chosen because it allows users to avoid the need to install any software on their PCs aside from a standard web browser, which typically comes with most PC operating systems and nearly all current standard mobile phones. Clients would also not need any high-performance PC; users can access the system using any PC with a web browser, including laptops/notebooks, mobile phones, and desktop PCs. The servers would necessitate higher configurations (in terms of hardware) due to the regular heavy load they would face.

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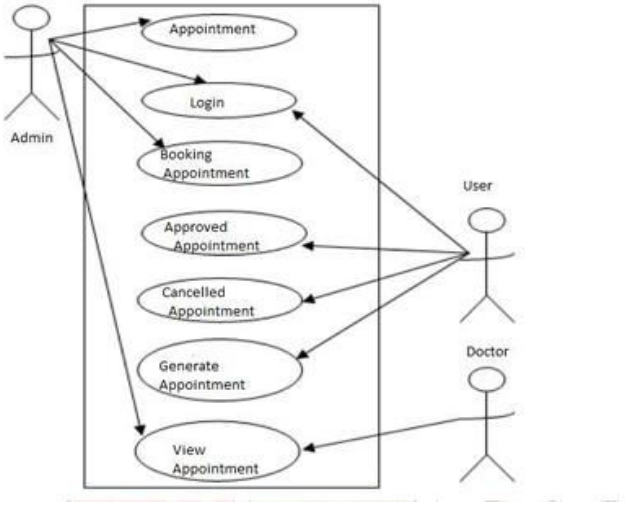

Figure 1. Depicts the medical appointment booking system architecture.

IV. PROPOSED SYSTEM

The suggested system comprises two panels: Doctor and Patient. Users must begin by downloading the application and installing it on their mobile devices. Once installed, this application will stay on the device permanently unless the user chooses to delete or uninstall it. The patient is required to register in the application for the first time. Upon registering, the patient will be provided with a username and password. The patient can utilize this username and password to log into the app each time they access it. After logging in, the patient will need to choose a filtration type. The filtration occurs based on two criteria: Area wise and Specialty wise. After selecting the filtration type, the list of doctors will be shown. The patient can choose any specific doctor and view their profile. Additionally, the patient can see the doctor's schedule and seek an appointment based on their convenience. The patient will subsequently send an appointment request. The doctor has the option to either accept or decline the appointment. The database will be updated accordingly, and the patient will receive a confirmation message. An additional feature of this system is that the patient will get a notification 2 hours prior to the scheduled appointment. This will be particularly useful if the patient tends to forget the appointment. The length of time a patient waits from their scheduled appointment to when they actually it receives the service is referred to as direct waiting time. Patients employ this method and waste a significant amount of time merely by standing in line at the registration desk to ensure that their appointment with a specific doctor has been successfully registered. The doctor aims to have some control over the volume of patient appointments on a daily basis and the variety of appointments scheduled for any particular a day. These factors can influence their income as well as their comfort levels in their practice. The hospital seeks to utilize its resources (staff and equipment) in the most efficient manner possible. Thus, the hospital does not want the doctor to experience long periods of "wasted time".

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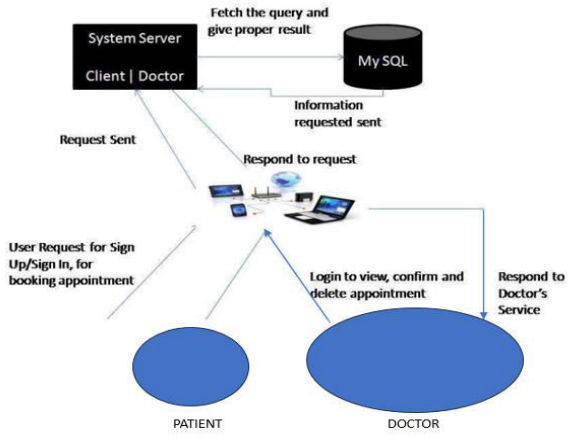

Fig 2. Proposed System

The suggested project is an advanced appointment booking system that offers patients or any user a simple method of scheduling a doctor's appointment online. This is a web-based application that addresses the challenge of managing and booking appointments according to the user's preferences or requirements. The process can often become quite laborious for the compounder or the doctor when manually assigning appointments to users based on their availability. Therefore, this project presents an efficient solution where users can see various available booking slots and choose their desired date and time. The times that have already been booked will be highlighted in yellow and will be unavailable for others during that timeframe. This system also provides users with the option to cancel their booking at any time. The application utilizes Asp. net as the front end and an SQL database as the back end.

V. DESIGN INTERFACE

The front-end design is simple and user-friendly. Once the application is opened, patients can register independently and then log in to the application. Patients have an ability to book appointments by selecting their preferred doctor, date, and time. Appointments are managed by the admin through a dedicated website. The admin is also responsible for registering doctors. Furthermore, the admin can retrieve details about doctors, review patient records, and assess feedback. The back-end configuration includes a server that operates as a centralized database. All information concerning registered doctors and patients, as well as appointment details, is stored on this server. Data is accessed and transferred through APIs linking the website and the Android application.

VI. CONCLUSION AND FUTURE SCOPE

The online booking system has been built using Android Studio for the application development, while the website has been constructed with HTML and PHP. The project tasks are organized into different modules. Data is shared and accessed through APIs that facilitate communication between the website and the Android app. The proposed system is efficient and offers an intuitive user interface. Plans for future development include adding admin and doctor modules to the Android application. This enhancement would allow doctors to sign up on the app and perform all functionalities within it. The admin will also have the capability to oversee the information of both patients and doctors directly via the app, rather than depending on the website. A fee or charge might be imposed on users or patients when booking an appointment to discourage unethical behavior. This is due to fact that numerous individuals sign up just for fun and have no actual intention of attending an appointment. Future enhancements may also focus on upgrading the patient module, which will include features for setting appointment reminders and storing appointment dates on the calendar.

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