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Online Healthcare and OPD Management System

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ABSTRACT: Information and Communication Technology(ICT) has made a significant impact on the health-care industry all over the world. Its adoption and use resulted in e-healthcare which transformed the way of healthcare services. The proposed project App for Online OPD Management Hospital Management System is a solution for one of the major problems faced by many during the pandemic. During the pandemic, online booking appointments with doctors can be easily done at home. The main focus of the project is to study the flow of operations which are taking place in the hospitals such as appointment booking, taking emergency cases and checking nearby hospitals by developing a Web-App along with an automatic billing system pharmacy with privacy. Real-time data of all the parameters are extracted and displayed on the dashboard of the web app. Overall this project specializes in reducing manual work, getting appointments easily at home and following the lockdown rule at its best during the pandemic situation.

KEYWORDS: Health Care System, Web Application, Online Appointment system, privacy, OPD Management System

I. INTRODUCTION

The Online Appointment System is familiar to developed countries throughout the world. It is a system in health care that allows the user to book appointments with the doctor through the internet by utilizing a web browser and also the Health Care System which will help in the management of the records in the Hospital. Online doctor's appointments are becoming increasingly popular because of their speed and ease of use for customers. The idea of the project and explains the actual working of it.

The application has the facility to give a unique id for every patient and stores the details of every patient. Users can choose a doctor by selecting doctor type and doctor name. Anyone can book an appointment by entering their name and other details. The data can be retrieved easily. The interface is very user-friendly. The data is well protected for personal use and the data processing is very fast. Healthcare is designed for hospitals.

Combining mobile and web applications is intended to provide complete solutions for health care. Our project aims at business process automation i.e. we have tried to computerize various processes of the Doctor Appointment System. It will enable users to book their appointment online without having to visit the hospital physically. It will enable us to utilize resources in an efficient manner, for example, through virtual meetings. It will provide more security and make patient management easier. Medical history of a patient is always available when needed. The scope of the project is very broad in terms of other online doctor appointment systems[6-15].

II. RELATED WORK

In order to improve user experience in online appointment registration systems without violating user privacy and combining mobile and web applications is intended to provide complete solutions for health care with conjunctive keyword search (HSM) and attribute-based keyword search (OPS) are explored to achieve these goals. In this section, we survey the two techniques.

The [15] conversations about the time provide inspiration for this project. The waiting length for the type of care/services the patient is waiting for; the parameters utilized, and wherein the patient journey the measurement begins are all key variables in how waiting times are measured. We looked into how long people had to wait before and after using the services of multispecialty, rural hospitals in Gujarat, India. There has been a lot of research done in this area

[1-15]. [1] proposes an intelligent agent-based appointment system for patients, which includes a scheduling system. Appointments are scheduled by junior medical professionals according to priority level.[2] developed an Android application that uses an Alarm Ringing method to remind patients of their dosage timings so that they can keep fit and healthy. The software also allows them to search for doctors and hospitals, as well as find directions, so they can receive adequate treatment on time. [3] presented an android-based appointment management system that makes advantage of Google map and calendar APIs. Other appointment-based systems can be utilised with this appointment-based application. The mobile application accepts appointments by recording them on the phone calendar, which is synced with the Google calendar.The user receives an alert depending on the preset time and date for the appointment. [4] presented a Health Track system that uses a smartphone to interface with sensors for data gathering and sends the data to a central server for further analysis through the internet. Some online systems that are already operational have some flaws. To address these issues, an online patient appointment system based on Near Field Communication (NFC) and an Android-enabled mobile application is presented. This system operates by registering patients and arranging appointments using NFC technology, which allows nurses and doctors to access a patient's health records and reports. Disease Self Inspection and Hospital Registration Recommendation System (DSRRS) [6] is another fascinating project. For the communication interface between the reasoning service and the system, it employs the Representational State Transfer (REST) style. The sickness history of users is retrieved from their Personal Health Record (PHR) and supplied as an input to the reasoning service prior to reasoning. The input primarily consists of the user's information, sickness history, knowledge base (symptoms), and reasoning service output.[7] describes an android smartphone and tablet programme that can be downloaded for free from the Google Play store and offers a variety of features, including personnel medical records and the ability to track the location of the actual user in real time. The routing algorithm is used to determine the shortest distance to the destination building. An online database for the monitoring of patients with artificial hearts [8] is another investigation. This database is made up of a portable monitoring terminal that keeps continuous records of a patient's medical history. Other research has looked at handheld healthcare [9, 10, 11] and efficient appointment scheduling methods, including self-inspection [12-14].

III. PROPOSED SYSTEM

The Hospital Management System is designed for any hospital to replace their existing manual paper-based system. The new system is to control the information of patients. Room availability, staff and operating room schedules and patient invoices. These services are to be provided in an efficient, cost-effective manner, with the goal of reducing the time and resources currently required for such tasks.

- Define Doctor.
- Keeping patient care as the utmost priority
- Scheduling the appointment of a patient with a doctor and emergency property so that facilities provided by the hospital are utilized in an effective and efficient manner
- To computerize all patient details.
- Recording information related to the diagnosis given to Patients.
- Video Calling feature in between patient and Doctor.
- Keeping information about various diseases and medicines available to cure them.

IV. PSEUDO CODE

The steps a user goes through while using the application are :

Step 1: Start.

Step 2: User(patient, doctor) create an account by providing email id as user id, its own password and other details

Step 3: Log in with a credential and if the right user gets access to the website.

Step 4: After getting access, the patient can choose a doctor according to need and book an appointment as per time.

Step 5: Admin can create an account, update the account of doctors and check hospital status. control activities of the hospital.

Step 6: After creating an account the doctor is able to confirm appointments, join at the time and communicate with the patient and send a prescription.

Step 7: After appointment confirmation, the doctor can check the history of the patient.

Step 8: patient is also able to cancel appointments and notifications are received if canceled by the doctor.

Step 9: After all patient data is stored in a database for further use.
Step 10: The user can log out.
Step 11: stop.

V. DATA FLOW DIAGRAM

A data flow diagram (DFD) is a graphical representation of the flow of data through an information system, modeling its process aspects.A DFD is often used as a preliminary step to create an overview of the system , which can later be elaborated. DFDs can also be used for the visualization of data processing (structured design) A DFD shows what kind of information will be input to and output from the system ,where the data will come from and go to,and where the data will be stored. DFD level 0 describes only one process node that represents the function of the entire Hospital Management System. Represented functions are Login / Registration, Edit Update profile, Check Availability of Doctor for a specific time, If available Book An Appointment while Hospital Management System will update the records.
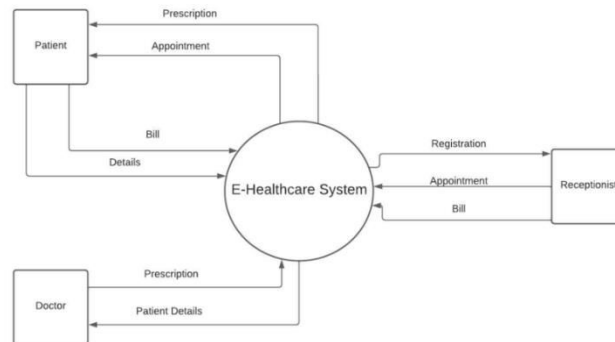Figure 5.1 shows the level O DFD -

Figure 5.1. Level O DFD

VI. SYSTEM ARCHITECTURE

A 2-tier architecture is explained here which is a modified form of 3-tier architecture proposed by. This model consists of 2-tier, first-tier, patients who can access appointment information with a web browser through the Internet. The 2-tier connects with the first tier for information exchange using web services. The 2-tier uses a web server to connect to the Internet and handles the HTTP requests exclusively for the static contents, such as static HTML files and images. It responds to users` requests with HTTP protocol, such as sending back an HTML page. If the HTTP request is related to the patient scheduling service, the webserver delegates the dynamic response to another server-side application on the application server to process the request.

The resulting response from the application server is converted to HTML format through the web server and displayed on a standardized HTML web page. User login and registration requests are processed by the portal server at the second level. The application server is the component that manages the complete end-to-end schedule tracking and scheduling service. Key functions of the application server include scheduling appointments by multiple physicians, tracking centralized and integrated patient appointments, searching for available appointments, rescheduling appointments, and confirming and cancelling appointments.
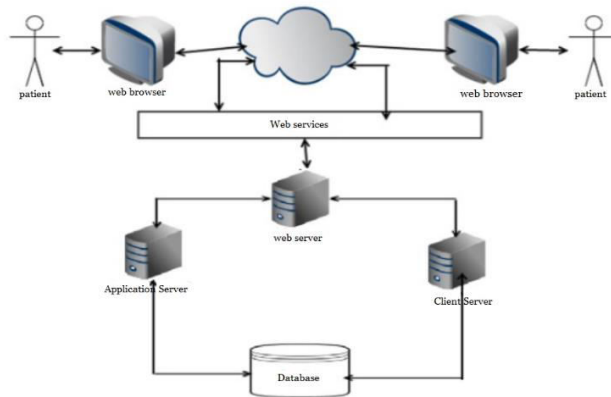Figure 6.1. shows System Architecture Diagram -

Figure 6.1. System Architecture

VII. RESULT

The project for Online OPD Management Hospital Management System was successfully tested on a local machine. After installing the web-app on your mobile or tablet the first step is to register successfully on the login page. After registration on app the patient can view nearby hospitals or any hospital of his/her liking according to their requirements. After choosing a specific hospital, the next step is to request an appointment.

Figure 7.1 shows the list of Hospitals that a patient can choose from and Figure 7.2 shows the Appointment form one has to fill before taking an Appointment.
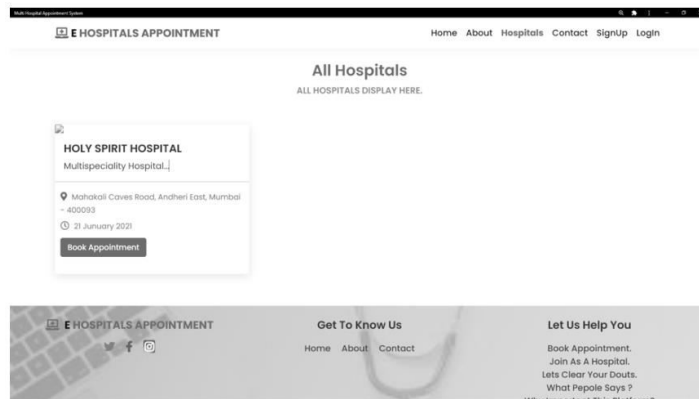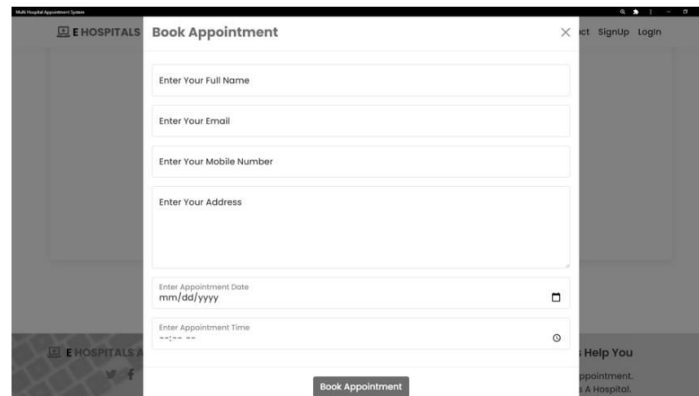

Figure 7.1. List of Hospitals

Figure 7.2. Book Appointment

The request is now further proceeded on receptionist desktop.The task for receptionist is to arrange appointments for patients according to doctor's schedule or as per patients request. After the receptionist confirms the appointment the

patient will visit the doctor. The doctor will diagnose patients and prescribe medicine according to their physical condition. If the patient has previously visited any hospital or has gone under some tests or has gone under some treatment his history can be seen at the doctor's dashboard. The doctor's dashboard contains a list of patients visited on a daily basis. The list shows the time, date on which the appointments are scheduled. The last and most important module is the admin console. The task for the admin is to monitor all the functions of various departments. Also, the admin is required for the verification of the doctors, hospitals for validating their certificates. The profiles of hospitals or doctors only can be seen after they are verified by the admin. Admin also necessary for supervising the appointment events, pharmaceutical medicinal requirements, billing events in each department, workings of doctors , receptionist, pharmacist, etc

VIII. CONCLUSION AND FUTURE WORK

One of the biggest reasons that online appointment scheduling is getting more popular day by day is that it helps the patient to make the appointment with their doctor, clinic or hospital in an easier way. They can make an appointment with another doctor other than theirs, with nothing more than a click. Since we are entering details of the patients electronically in the" Hospital Management System", data will be secured. Using this application, it is possible to retrieve a patient's history with a single click. Thus processing information will be faster. It guarantees accurate maintenance of Patient details. Additionally, Our scheme has a slightly lower computational cost compared with other schemes through performance evaluation.

In future work, we will focus on improving and increasing the feasibility and practicality of the proposed protocol.

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