



Smart E-Healthcare System

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Abstract : Health care services (web-based) are demanding tools that are very delicate and face vast challenges in the forms of concepts, tools, and implementation that will increase in the years to come. This is due to demographic changes, such as an aging population and a lack of labour plus ever-growing technical tools. For this E-Health care is viewed as an important way to meet these challenges. The term 'E-Healthcare' is defined as the application of information, communication, and sensing technologies across the entire range of functions and processes constituting the practice and delivery of healthcare services. E-Health care is enabled through integrated applications in the healthcare terrain and includes technologies that are related to computing, communication, and sensing. In our work, we have developed a smart E-Healthcare system. It is a smart system where patients can consult with doctors staying at home. Django Framework, SQLite, HTML, CSS, and Bootstrap4 are used for the web part of the system. The model is featured with real-time online Doctor-Patient interaction through chat and the prescription is sent through mail.

IndexTerms - Python, Django, SQLite, CSS, HTML, E-mail, Online chat, Prescription.

I. INTRODUCTION

The E-HealthCare system is end-user support and online consultation project. It might have happened so many times that you or someone of yours need a doctor's help immediately, but they are not available due to some reason. E-HealthCare is a web-based application that allows patients to get instant guidance on their health issues through an intelligent healthcare application online. This system also aims to connect patients to available doctors for consultation through online chat and also allows doctors to email prescriptions.

II. RELATED WORKS

A comprehensive study of the available literature presents a catalog of previous studies to address this issue. The authors showed in the paper [1] that medical chat-bots functioning depends on Natural language processing that helps users to submit their problems about their health. Paper [6] uses custom trained speech-to-text model and applies NLP to the acquired text to provide the patient with a prescription and it also focuses on predicting the medication of various symptoms using neural networks.

The objective of paper [4] is a smart system where patients can consult with doctors from home. Paper [5] provides an efficient way of storing information electronically, a faster communication mechanism between patients and doctors, and also ensures better security for the users.

Amaechi James et al. in paper [13] provides easy and fast access to stored data as needed by different users with security against unauthorized access. Paper [16] describes an idea of such a web-based platform that eliminates the need for paper prescriptions in Hospitals that proposes E-Medical Management which will increase the efficiency of patient management, schedule management of the doctors, and give universal access to patient data anywhere in the hospital.

R. Bhardwaj et al. in their paper [18] discuss the potential of utilizing machine learning technologies in healthcare and outlines various industry initiatives using machine learning initiatives in the healthcare sector. Paper [20] uses an efficient way to store all the data and information about the patient and it also has video calling and prescription features. Menal Dahiya in their paper [8] addresses the design and implementation of a Chatbot system. In paper [9] using speech recognition and natural language processing an electronic prescription is generated.

Ruchit et al. in paper [2] provide the facilities like instant appointment booking with the generation of unique patient IDs which will identify any patient worldwide. Paper [15] medical chatbot system is created that is used to diagnose the disease and provide some details about the disease before consulting a doctor.

III. PROPOSED SOLUTION

In our project, we have developed a Smart E-Healthcare system. It is a smart Telemedicine system where patients can consult with doctors staying at home. Django Framework, SQLite, HTML, CSS, and Bootstrap4 are used for the web part of the system. Python programming language will be used for the backend. The model is featured with real-time online Doctor-Patient interaction through chat and the prescription is sent through mail. The goal of this application is to provide health care through the form of an electronic method. Technical analysis is concerned with determining how feasible a system is from a technical perspective. Current tools are more than enough for system development.

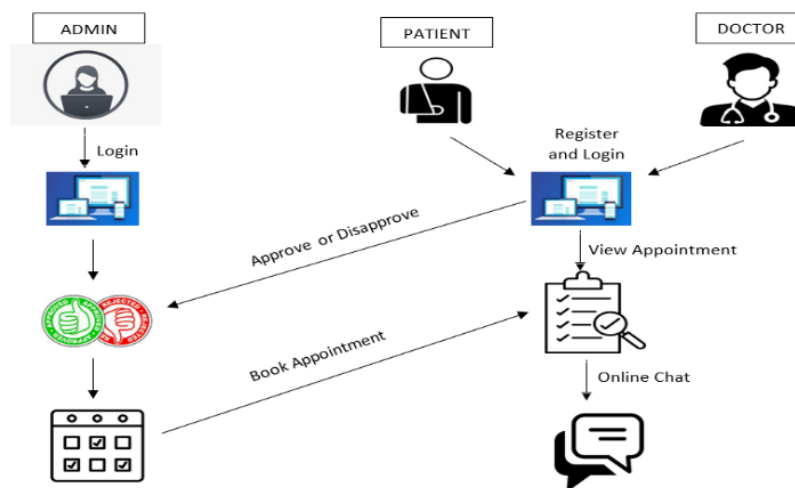


Figure 1: Block Diagram

IV. REQUIREMENT ANALYSIS

4.1 Functional requirement

- Create a new and valid account.
- Valid the login credentials.
- Patients should choose symptoms for disease prediction.
- Display the list of doctors.
- A doctor should manage an appointment.
- Patients must take an appointment to consult with the doctor in real.
- The doctor must have to enter a valid email for sending a prescription.

4.2 Non-Functional requirement

- The system should be easy to use, user friendly in operation.
- The system should perform with efficient throughput and response time.

V. MODULES

5.1 Home Page

Login and registration page. The registration form contains the First name, last name, username, password, Mobile number, Address, and E-mail ID of the user.

Once the doctor or patient is registered, the admin decides whether to accept or reject the request from the doctor or patient. If the request is accepted by the admin, then the doctor and patient can log in to the website and view the details.



Figure 2: Home Page

5.2 Booking Appointment

Here, the admin can able to book appointments. The appointment form contains patient and doctor details. Admin selects the Date and Time of the appointment based on the patient's requirement and the availability of the doctor.

After clicking on the 'Book Appointment' button, a confirmation email will be generated. The patient and doctor will receive a confirmation E-mail that contains details of the appointment date, appointment time, and meeting ID.

The Appointment details will be automatically updated on the website. When doctors and patients login into the website they can view the appointment details.

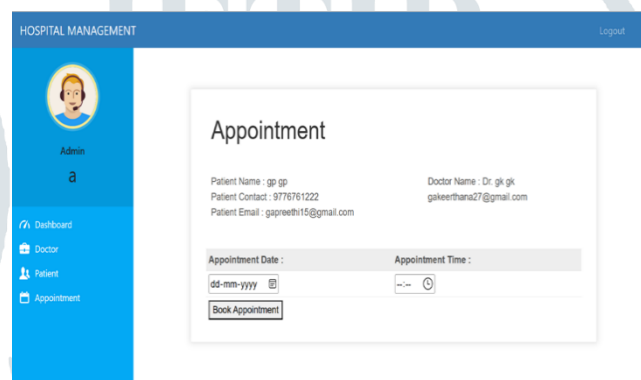


Figure 3: Booking Appointment

5.3 Online Chat

This module implements real-time messaging between doctors and patients.

At the time of the appointment, the doctor and patient can log in to the website and join the chat by entering the required details. The online chat page contains the Room ID (meeting ID) and User name.

After clicking on the 'Submit' button, the patient and doctor enter into a real-time chat application. The messages between doctor and patient will be saved.

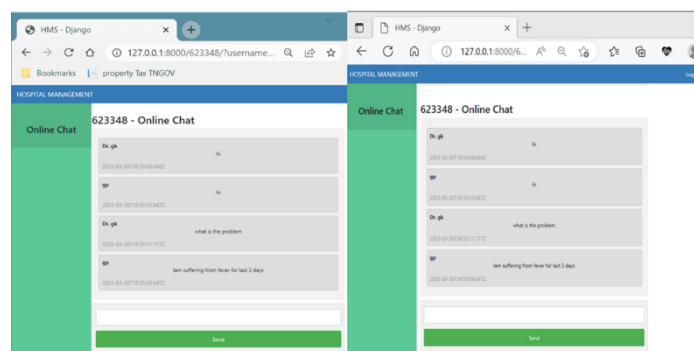


Figure 4: Online Chat

5.4 Generating Prescription

After consulting with the patient, the doctor generates the prescription. The prescription form contains the patient's and doctor's details. The doctor types the details of the medicines.

After clicking on the 'generate prescription' button, an email will be generated. The patient will receive an E-mail containing a prescription.

Prescription Date: May 11, 2023

Patient Name : gp gp Doctor Name : Dr. gk
 Patient Contact : 9776761222
 Patient Address : chennai
 Patient Email : gapreethi15@gmail.com

Medicine

*****This is System generated prescription*****

Figure 5: Generating Prescription

VI. CONCLUSION

The system will prove helpful for online consultation between doctor and patient through scheduling an appointment and provide a chat room for real-time communication between doctor and patient and also allows a doctor to send online prescriptions to email as per the patient's need.

This application accelerates the important transformation of our healthcare systems and sustains access, affordability, and quality for all shortly.

VII. FUTURE SCOPE

- None of the payments is integrated, integration is different payment methods will enhance the system.
- Making a mobile app for the user.

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