Online OPD Appointment & Hospital Information System

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Abstract – *"Online OPD appointment & Hospital Information System" was designed & developed for finding doctors, booking appointments & consult online with them, and maintaining a proper & reliable health care system. The main idea of this web application is to provide better consultation or prescription by the professional's doctors & to provide ease and comfort to patients by finding nearby hospitals or doctors or while taking appointments from doctors, & solve patient queries and provide satisfaction to them, by providing proper consultation by the doctors. This web application provides the best services to patients by maintaining all details of patients, doctors, appointments details and Hospitals information.*

Key Words: *Online Booking Appointment & schedules, web application, Find nearby Doctors & hospitals, hospital information system, consult online, healthcare, patient query/problem resolve, patient satisfaction.*

1. INTRODUCTION

Meeting to doctor physically or taking appointments by standing in line or doing formalities at the hospital is a very time-consuming & painful process. If an emergency occurs then you could be waiting for long hours until the doctor comes. So you have to skip a whole day if you got sick on a particularly busy day. By seeing an online doctor or online consultation with a doctor you will get better relief physically, or also time-saving by consulting online with a professionals doctor anywhere, anytime.

If a person is ill or wants to visit a doctor for a checkup, he or she visits the hospital takes an appointment, completes formalities by paying a fee, or waits for their number, sometimes the doctor is not available as an emergency occurs, so the patient will wait too long until their number comes. If the appointment is canceled by the doctor because of an emergency reason, the patient does not know about the cancellation of the appointment until he or she visits or contacts the hospital. In today's world of online interaction, & the strong growth of popularity of the internet, a need arises for a flexible, strengthened, and easily integrated "Online OPD Appointment & Hospital Information System" this system can overcome this problem, it is time-saving, reliable and helpful for the patients.

This application has worked in three modules patient, doctor & Hospital. Online OPD appointment & Hospital Information system provides registration & login for hospital, patient & doctor. This web application will help patients for finding doctors & hospitals nearby patient location and show all nearby doctors & hospitals lists or categories to patients, so that patients can choose a hospital or doctor as per the convenience & type of problem patient is facing, and book the appointment with doctor & consult with them by providing basic details of patient along with previous medical history or problem by specifying problem description, or having with option sending a photo to doctor if the patient has any type of allergy problem or skin related problem at the time of booking appointment. Patients can also view the status of an appointment whether it is pending or approved by a doctor. Patients can also view the nearby doctor's profile page by knowing the consulting fee, timing & doctor contact details & specialization. Patients can also view the ratings of other patients for knowing the doctor or hospital service whether it is good or bad.

Online OPD Appointment & Hospital Information System will help doctors in their work. Doctors can register them by specifying their necessary details along with specialization & consulting fees. Doctors can also fill in their clinic details by specifying a doctor's photo or clinic logo at the time of doctor profile creation. Doctors can also review details whether all details provide correctly or not & once submit the details, the doctor profile is created successfully. After successful creation of the profile, the doctor can redirect to the doctor dashboard where a doctor can see the patient's appointments along with medical issues, status, & timing of schedule. Once the appointment is accepted by the doctor, the doctor can see the complete details of the patient along with the patient medical history. Patients can also consult online with doctors by video calling, Phone call, or chat system & get the proper prescription or consultation by a doctor. The system manages the booking slots online. Patients are allowed to book empty slots online & those slots are booked in their names. The system manages the appointment data for multiple doctors on various dates, times & locations. Each time a patient visits a doctor his or her medical entry is stored in the database. Next time a patient logs in he or she may view his or her entire medical history as & when needed. At the same time, a doctor may view a patient's previous medical history while the patient

visits him. By using this application we can provide fast, time-saving, reliable & accurate services to patients by fulfilling patient convenience & satisfaction.

1.1 Objective & Motivation

The main objective of the Online OPD appointment & Hospital Information system was to create a unique & useful system with exceptional quality & services that differentiate it from other systems. The purpose of the Online OPD appointment & Hospital Information System is to override the problems that occurred in the practicing manual system & will be able to eliminate & reduce the hardships faced by the existing system. The system manages the details of doctors, appointments, patients, booking & medicine. It manages all the information about doctors, tests & medicine. The system is built at the administrative end & thus only the administrator is guaranteed the access. The purpose is to build a web application to reduce the manual work of managing the doctor, appointments, tests & patient information. It tracks all the details about the patient, their booking & medicine. Provides the searching facilities based on various factors such as a doctor, patient, booking, medicine. The system also manages the appointment details & medicine details of patients & tracks all information on appointments, tests, and bookings. Manage the information of appointments & shows the information & description of the doctor or patient. It deals with monitoring the information & transactions of booking. Editing, adding, & updating of records is improved which results in proper resource management of doctor, hospital & patient data. Manage the information of booking & integration of all records of medicine.

The flexibility of the Online OPD appointment & Hospital Information system in healthcare includes:

- To create a Web-based online OPD appointment & Hospital Information system
- To manage all patient-related information
- To provide emergency information in a critical situation.
- Scheduling a patient's treatment, services, & appointments
- The convenience of online doctor visits
- Receive attention from your online doctor & get a consultation with them
- Avoid contact with other sick patients
- Online doctor visits can be more reliable & convenient & can be available anywhere, anytime
- An online doctor that writes prescriptions are available & store in a database for future use
- Time–saving
- Monetary Savings
- 24 hours convenience
- It is user-friendly
- Centralized Information System

1.2 Research gap/existing system

As in some of the existing systems, the System UI is simple or does not have some more additional functionality or features. As some system is related to the individual hospital, not includes all the hospitals or shows all nearby hospitals or nearby doctors as per our location. Finding or searching the nearby doctors or hospitals, & on basis of that categories are shown to patients as per the location, this feature is not available in some existing systems. Video calling & chatting with doctors by getting proper consultation or prescription for the satisfaction of patients, this feature is also not available in some existing systems. Appointment booking or scheduling is simple only getting the basic details of patients or data security is less, not having additional features of getting images from the patient at the time of appointment whether the patient has an allergy or skin-related problem. Database handling & maintaining & reliable working of the system or user-friendliness of the system is also a problem in some existing systems. Online OPD Appointment & Hospital Information system overcomes these features.

2. Literature Survey

Literature Review				
Sr. no	Paper Published Title	Year	Method	Remark
1)	Developing an Online Patient Appointment Scheduling System Based On Web Services Architecture	2012	To enable the establishment of patient-centered primary health care, an integrated online patient appointment scheduling approach based on Web-Services architecture is proposed in this paper.	Better Performance with additional features & better UI.
2)	Advanced Facilitation For Hospital Appointment System	2017	An appointment system allows individuals to conveniently and securely	Improvement needed having additional functionality or features & security.

			book their appointments through calling and decrease total waiting time.	
3)	A Doctor Appointment Application System	2017	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.	Perform Better get the proper details from patient including patient current problem or previous history at time of appointment.
4)	Online OPD Management & Hospital Management System	2021	To make software in which all hospitals, doctors, their data registered in web-app will be filled in web-app. This data will further be displayed at admin dashboard of respective hospitals.	Having additional features better UI & Performance.

3. Proposed Methodology

"Online OPD appointment & Hospital Information System" was designed & developed in MERN stack MongoDB, Express, React, Node. It is a web application, this provides a registration & login for both doctors & a patient having an OTP verification feature, the verification code is sent via SMS to the user. Doctors can register by giving their necessary personal details like degree, email, WhatsApp number, specialization & consulting fee, by providing clinic details, location & timing, along with a doctor profile photo or clinic logo. After successful re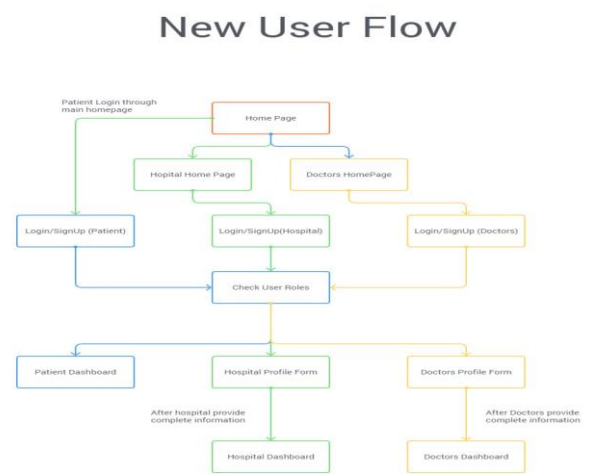gistration, the doctor can log in with the necessary credentials. After login, on the doctor's dashboard doctor can view the booking request by patients & if the doctor accepts the patient requests the status will be shown as booking confirmed to the patient, if not showing status shown as pending/waiting to the patient. A doctor can also view the feedback given by the patient. After patients must be registered & login in, on the patient dashboard patient can search the nearby doctors & hospitals, the nearby doctors & hospitals categories are shown to patients from that categories patients can select or book appointments as per their convenience & the type of problem patient is facing. The search results will show the list of doctors matching the patient's required criteria & he or she can select one & book an appointment with the doctor by providing his details for whom he or she take appointment by specifying his problem, or if any previous medical history with appointment schedule time. After getting an appointment request accepted by the doctor, the doctor can view appointment details of patients along with patient's details & medical problems, so the doctor treats the patient by giving a prescription or by consulting online, the patient can also video call or chat with a doctor for proper consultation or satisfaction.

3.1 Working flow of New User

On the main Homepage, patients log in through the main homepage, in which the patient login or signup option is available. It contains another sub homepage for hospitals & doctors having a login or signup page. After login, check user roles whether the user is from a hospital, patient, or doctor. After that, the user is redirected to their respective page if a user is a patient it is redirected to the patient dashboard or the user is from the hospital or doctor will redirect to their respective hospital or doctor profile page. After the hospital provides complete information, will redirect to the hospital dashboard, or after the doctor provides complete information will redirect to the doctor's dashboard, as shown in fig 1 given below.

Fig -1: New User Flow diagram

4. RESULT

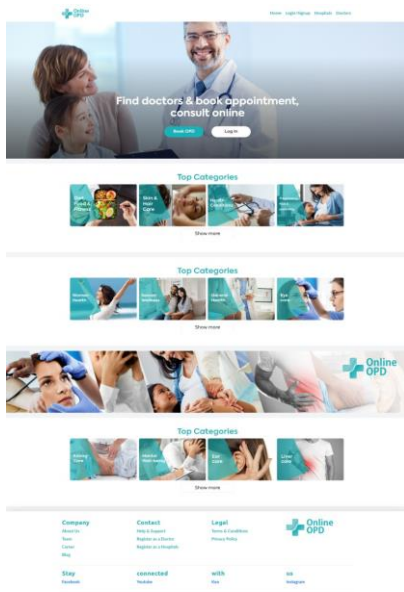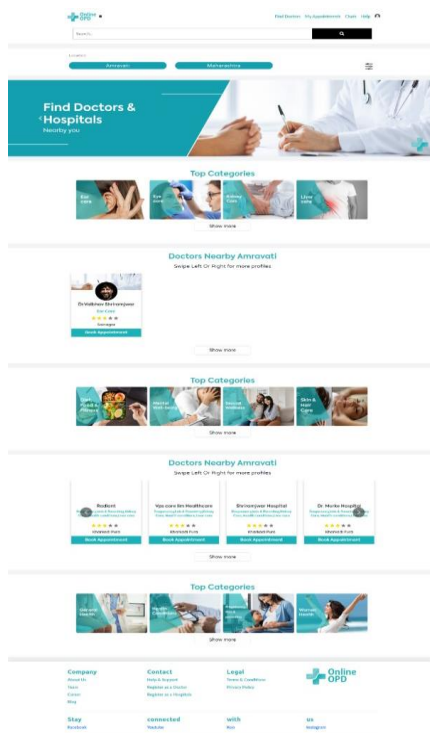**Fig -1:** Main Homepage of web application in which user login/signup

Fig: -2: Patient Dashboard where the patient can search nearby doctors & hospitals list is shown to the patient from which patient chooses hospital or book appointment with doctors as per convenience or problem facing by patient
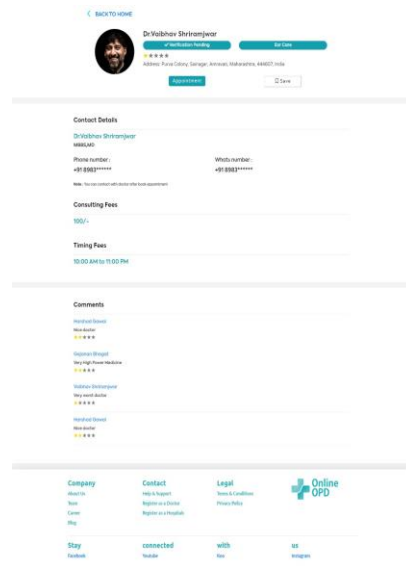

Fig: -3: Patients view the Nearby Doctor Profile Page for getting the necessary details of doctors having consulting fees & Timing details mentioned
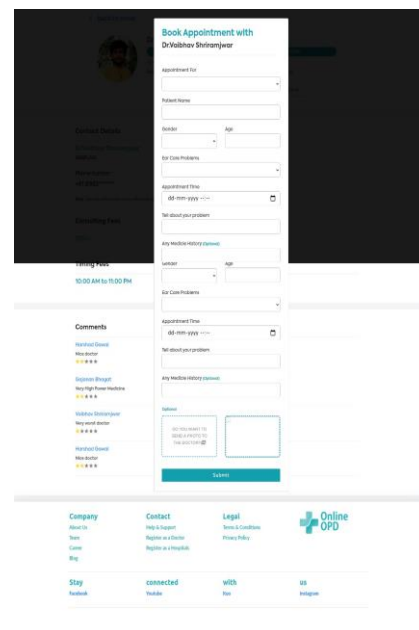

Fig: -4: Patient Book Appointment Page where the patient fills in necessary information by selecting an appointment time with the doctor
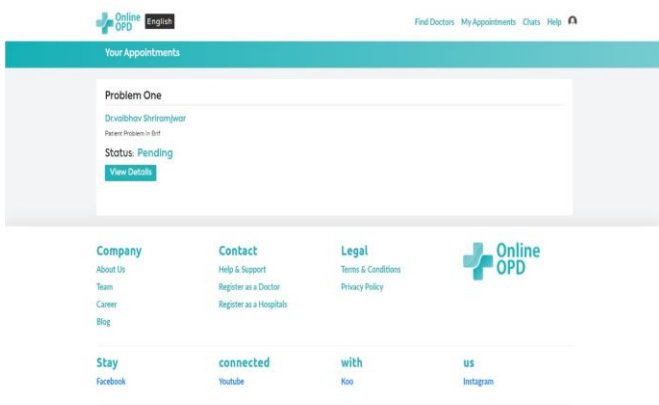
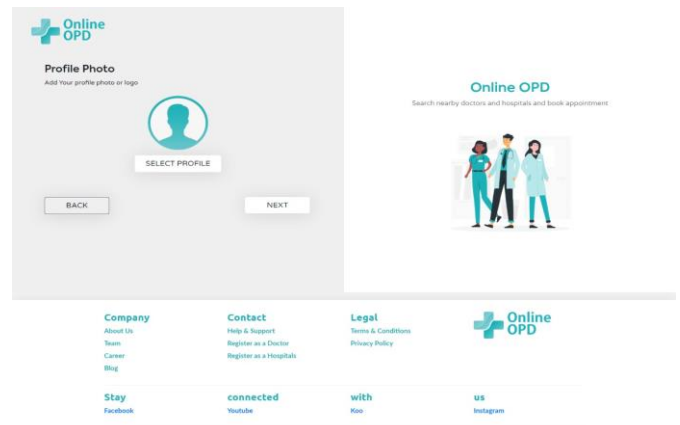**Fig: -5:** Appointment Status/details Page showing appointment pending or accepted
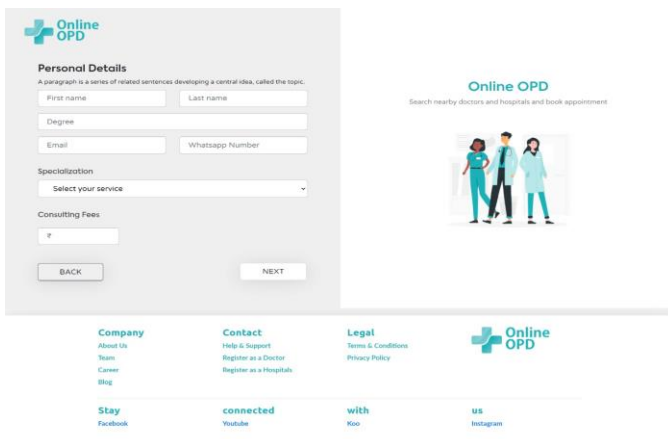

Fig: -6: Doctor necessary details filling page

Fig: -7: Doctor Clinic details filling page

Fig: -8: Doctor Add profile/Clinic logo page

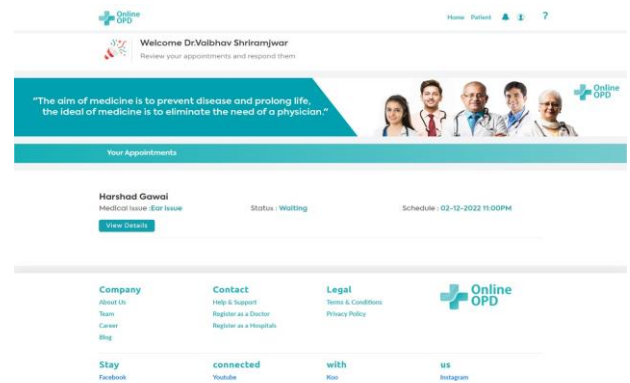**Fig: -9:** Doctor Profile Review details & submit page

Fig: -10: The Doctor Dashboard page has patient appointment details/schedule
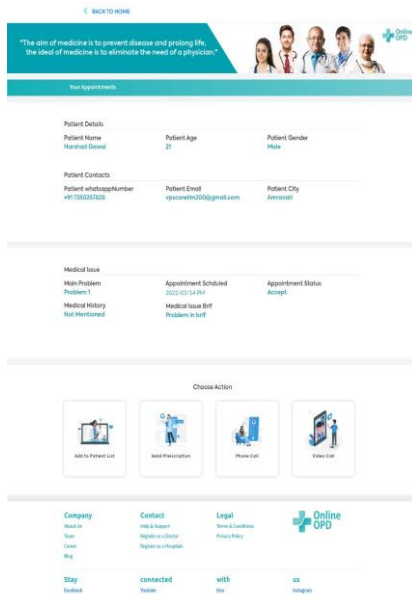
Fig: -11: Doctor View the patient appointment details page as the appointment is accepted by the doctor

5. CONCLUSION

Curing sick people to get better health is a rare privilege that only doctors and a few other professionals have. It gives great fulfillment or happiness to see your patients regain their health, you want to make the process of receiving treatment easy or convenient for them.

The core reason for the establishment of an Online OPD appointment & hospital information system is to make the appointment process easy or online for patients in a convenient, fair, & timely manner. To give patients all advanced facilities & fulfill patient satisfaction. Get the proper medical prescription & guidance from the best doctors. The effective and personalized way of handling all the hospital, doctors & patient information & management process.

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