Online video conference with Twilio and Chat bot

A PROJECT REPORT

Submitted by

Kanakiya Vishruti Maheshbhai

191290107033

In partial fulfilment for the award of the degree of

BACHELOR OF ENGINEERING

in

COMPUTER ENGINEERING

Gyanmanjari Institute of Technology

Gujarat Technological University, Ahmedabad

May, 2023

Gyanmanjari Institute of Technology

Sidsar Road, near Iskcon Eleven, Bhavnagar

CERTIFICATE

This is to certify that the project report submitted along with the project entitled **Online video conference with Twilio and Chat bot** been carried out by **Kanakiya Vishruti Maheshbhai (191290107033)** under my guidance in fulfilment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Prof. Neelam Agrawal
Internal Guide

Mr. Amit J. Maru
Head of the Department

Company Certificate

Gyanmanjari Institute of Technology

Sidsar Road, near Iskcon Eleven, Bhavnagar

DECLARATION

We hereby declare that the Internship report submitted along with the Internship entitled **Online video conference with Twilio and Chat bot** Submitted in partial fulfilment for the degree of Bachelor of Engineering in Computer Engineering to Gujarat Technological University, Ahmedabad, is a bonafide record of the original project work carried out by me/us at IT Path Solutions Pvt. Ltd. under the supervision of Prof. Neelam Agrawal and Mr. Nikunj Ganatra and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the student — Sign of student

Kanakiya Vishruti Maheshbhai

ACKNOWLEDGMENT

I am heartily thankful to all faculty members of the Computer Engineering from Gyanmanjari Institute of Technology for doing this project. It is our pleasure to take this opportunity to thank all people who helped us directly or indirectly. To prefer this project would have been impossible without their guidance.

They all encouraged and trusted our ideas. They were always available for us to give guidance about the project. The disruption of the project and the excellent advice given by them helped to make this project complete.

We are thankful for their pristine and enlightening guidance throughout the semester.

We are incredibly thankful to our internal guide of the project, Prof. Neelam Agrawal, for his encouragement, guidance, understanding, and lots of support and trust. Without his help, this project would not be a success.

Finally, we thank all persons who directly or indirectly supported us in this project.

Kanakiya Vishruti Maheshbhai

ABSTRACT

Our Project is an Online video conference with Twilio and Chatbot, a website that is used for online Doctors and patients who can communicate via chatbot or video calling functionality. A system makes simple communication between patients and Doctors online. Patients can send requests to Doctor for Appointment when the other side doctor can accept or reject the patient's request.

If Any case doctor is not able to answer the patient, then the patient can send a video call request and other hand side doctor dashboard notify with the patient video call request.

Doctor starts the video call then virtual interface provide between Twilio and the application that provide video calling functionality sending the link between doctor and the patient after the discussion both leave the call and the virtual interface remove automatically.

List of Figures

List of Tables

List of Abbreviations

ERD	Entity Relationship Diagram
ERP	Enterprise Resource Planning
GUI	Graphical User Interface
SDLC	Software Development Life Cycle
SWOT	Strength, Weakness, Opportunities and Threats

Table of Contents

CHAPTER 1: COMPANY PROFILE

Company Details:

IT Path Solutions is one of the pioneers & awarded offshore web & mobile app development companies based in USA, UK, and India. We strongly believe to deliver top-notch end-to-end app development services to clients across the globe. We specialize in providing various web and mobile application development solutions for Enterprises, Startups and Agencies.

IT Path Solutions is the Top Software & Mobile App Development Company based in India with offices in USA, France & UK. We are providing end-to-end IT outsourcing services for startups & enterprises. IT Path Solutions is a cutting-edge Software outsourcing company, Web development, mobile app development and IoT solutions, AR/VR solutions.

IT Path Solutions is committed to offering innovative IT solutions that help us create paradigm shifts in the market by our best solutions and services that take the industry towards a better future. We have a pool of talented resources in every aspect of software development that enabled us to proudly deliver 5000+ successful projects that served 700+ happy clients in a wide range of industries across the globe.

Our Referral Partner program is designed for our client network who are just being proud and happy recommending us while helping others too. With the ever-evolving adoption of newer and newer devices, businesses need to have a web presence that provides a seamless user

experience on all devices. We provide responsive web services that will enable you to serve your customers irrespective of the devices they are using without compromising on functionality and user experience.

Services Provided by the Company:

- UX/UI Design
- Graphic Designing
- Business Intelligence
- Mobile App Development
- Software Development
- Quality Analysis
- Digital Marketing

- Android Development
- iOS Development
- Cross-platform Development
- Web Development
- IOT Development
- AI & ML Development
- AR/VR Development

Different Products:

Over the years, IT Path Solution has worked on many projects. Mostly based on web and mobile applications development. Some of these projects are

- Doctor Consultation
- Online Tutor Application
- Taxi Booking
- Property Listing Application
- Attire Selection Solution
- Shipment Tracking Solution
- Vehicle Navigation Solution
- Daily Workout App and Guidance Solution

Contact Details:

- Address: 801, 8th Floor, Binori B Square 1, Nr. Neptune House, Iskcon, Ambli Brts Road, Ahmedabad, Gujarat 380058
- Phone: 7929602093
- Email: enquiry@itpathsolutions.com

CHAPTER 2: INTRODUCTION TO PROJECT

Project Profile:

Project title	Online video conference with Twilio and Chat bot
Aim of project	Video Call – Video calling with video mute/unmute, audio mute/unmute, screenshot, recording using Twilio. Chatbot – Implementing custom chatbot without using any third party plugin.
Frontend	React.JS
Backend	Node.JS
Database	My SQL
Tools	VS Code, Twilio, Camera, Headphone with Microphone
Internal Project Guide	Prof. Neelam Agrawal
External Project Guide	Mr. Nikunj Ganatra
Project Duration	3 Months

Project Summary:

Our Project is Online video conference with Twilio and Chatbot, a website that is used for online Doctor and patient can communicate via chat bot or video calling functionality.

A system makes simple communication between patient and Doctor via online. Patient can send request to Doctor for Appointment when other side doctor can accept and reject the patient request.

If Any case doctor is not able to answer the patient, then patient can send video call request and other hand side doctor dashboard notify the patient via video call request.

Doctor start the videocall then virtual interface provide between Twilio and application that provide video calling functionality sending the link between doctor and patient after the discussion both are leave the call and virtual interface remove automatically.

Purpose:

Online video conference with Twilio and Chat main propose is if patient cannot visit hospital, then patient can communicate with doctor through the website. Patient can able to send message to doctor. Doctor can add the patient in his profile or account.

Doctor can Accept and reject the Patients request. Patient can able to send the message also patient can send the request of video call to doctor. If Any case doctor is not able to answer the patient, then patient can send video call request and other hand side doctor dashboard notify with the patient videocall request.

During the call Patient or Doctor will have these features, Audio Control (like Mute, unmute), Video Control (like enable disable camera), Screenshot of Current Screen frame, Screen Recording. A/V controls are there for individual privacy concerns. Screen recording and Screenshot will be downloaded right after the call is disconnected.

Objective:

- Reduce waiting time in queues.
- User friendly services and Time saving
- More personal one to one meet with doctor
- Easy to access chat-bot with questions
- Patient Can easily communicate with Doctor using Chat bot and video calling functionality

Scope:

We are focusing on the scope for Doctor and Patient specifically to Dentist. It will provide an easy user interface along with optimized resources that are needed for the system

This same system can also be implemented in other areas which use online services for their communication. Some examples can be ‘Customer and Support’, ‘Client and Developer’, ‘Student and Teacher/Faculty’. As the domain area varies the system can have different features than others.

Technology Review:

- Visual Studio Code –

  Visual Studio Code comprises a source code editor with powerful developing tools, like IntelliSense code completion and debugging. Visual Studio Code has a lightning-fast source code editor that is suitable for daily usage. It supports various languages, VS Code helps you

be instantly productive with syntax highlighting, bracket-matching, auto-indentation, box-selection, snippets, and more. It is Integrated with build and scripting tools to perform common tasks making workflows faster.

- Table Plus –

  Table Plus is an on-premise database management solution that helps businesses manage multiple relational databases that include MySQL, Postgres, SQLite, Redis, Amazon Redshift and more. Table Plus is compatible with iOS devices. Table Plus allows users to query, edit and save their databases through a native app and encrypts connections via libssh and TLS security features. Users can take snapshots of their databases with multi- tab and multi-window views and keep track of changes made in the database with a code review feature. Table Plus also offers a built-in SQL editor that allows users to highlight syntax, split results into tabs, split panes horizontally and more.

- Twilio –

  Twilio is a customer engagement platform used by hundreds of thousands of businesses and more than ten million developers worldwide to build unique, personalized experiences for their customers. Twilio provides a telephony infrastructure web service in the cloud, allowing web developers to integrate phone calls, text messages and IP voice communications into their web, mobile and traditional phone application.

Scheduling:

A Gantt chart, commonly used in project management, is one of the most popular and useful ways of showing activities (tasks or events) displayed against time.

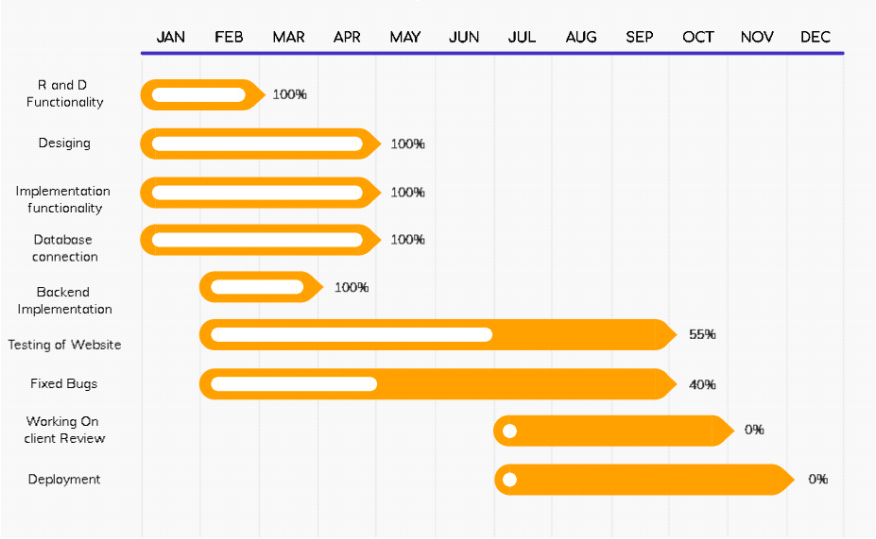

Fig 2.1 Gantt chart/ Timeline

CHAPTER 3: SYSTEM ANALYSIS

Study of Current System:

- In Other Website Cannot provide the video calling functionality using third party platform like Twilio.
- Patient can send a message via chatbot and send requests to doctor for video calling functionality
- Doctor Can add and remove the Patient and Admin can add and remove the doctor
- We are focusing on the scope for Doctors and Patients specifically Dentists. It will provide an easy user interface along with optimized resources that are needed for the system

Problem and Weakness of the Current System:

While there are different types of reviews and research-based systems present for doing research they have many limitations which cannot be ignored.

- Lack of personalization: Many healthcare applications are designed to provide a one-size-fits-all solution. However, patients have different needs and preferences, and doctors have different approaches to care. A lack of personalization can make it difficult for doctors to provide tailored care to their patients.
- Limited communication: Many healthcare applications provide limited communication channels, such as chat or messaging. While these channels can be useful for quick questions or reminders, they may not be suitable for more complex discussions or consultations. This can lead to misunderstandings or missed opportunities for diagnosis or treatment.
- Security concerns: Healthcare applications often deal with sensitive patient information, such as medical records, test results, and prescriptions. If these applications are not properly secured, they can become targets for cyberattacks and data breaches, which can compromise patient privacy and safety.
- Lack of human touch: Healthcare applications can provide a convenient and efficient way for patients to access care, but they may lack the human touch that is important for building trust and empathy between doctors and patients.

Requirement of New System:

We Discuss other platforms and find the functionality that not provided by others that are the functionality of the application and based on that we create the website is Online video conference with Twilio and Chatbot.

- The new system should prioritize the user's needs and preferences, including both doctors and patients. The system should be easy to use, intuitive, and personalized to each user's requirements. User-centered design can help reduce errors, improve efficiency, and enhance the user experience, which can lead to better health outcomes.

- The new system must ensure the security and privacy of patient data. This can be achieved through advanced encryption technologies, multi-factor authentication, access controls, and other security features. The system should also comply with industry-standard security regulations, such as HIPAA, to ensure patient data is protected from unauthorized access and cyber threats.

- This can help reduce the administrative burden on doctors and staff and enable them to provide more efficient and effective care to patients. Additionally, the new system should support interoperability, which allows data to be exchanged easily between different healthcare systems and providers, improving the coordination of care and patient outcomes.

Hardware and Software Requirement:

Hardware Requirements:

Intel(R) Core (TM) i5-4570 CPU @ 3.20GHz 3.20 GHz

Storage: 8.00 GB

Screen Resolution: 1920P or 1080P

Software Requirements:

Language: JavaScript, React JS

Libraries: Toastyfy, Swiper JS

Database Management System: MySQL

Version Control: Git and GitHub

Third Party API: Twilio

List of Main Modules:

Following are the main module of Online video conference with Twilio and Chatbot:

- Patient Module
- Twilio Module
- Videocall Module
- Chat bot module
- Admin control module
- Doctor Handle Patient module

Features of New System:

Here are some possible features that a new healthcare system could have:

- The new system could offer telemedicine capabilities, allowing doctors to provide remote consultations and care to patients. This can improve access to care, reduce wait times, and increase patient convenience.
- The new system could facilitate real-time communication between doctors, nurses, and other healthcare professionals, improving care coordination and reducing errors. The system could include features such as secure messaging, voice and video calls, and file sharing, allowing healthcare professionals to collaborate and share information seamlessly.
- The new system could include features that engage and empower patients in their own care, such as patient portals, educational resources, and personalized health goals. This can improve patient satisfaction, adherence to treatment plans, and overall health outcomes.

CHAPTER 4: SYSTEM DESIGN

Class Diagram:

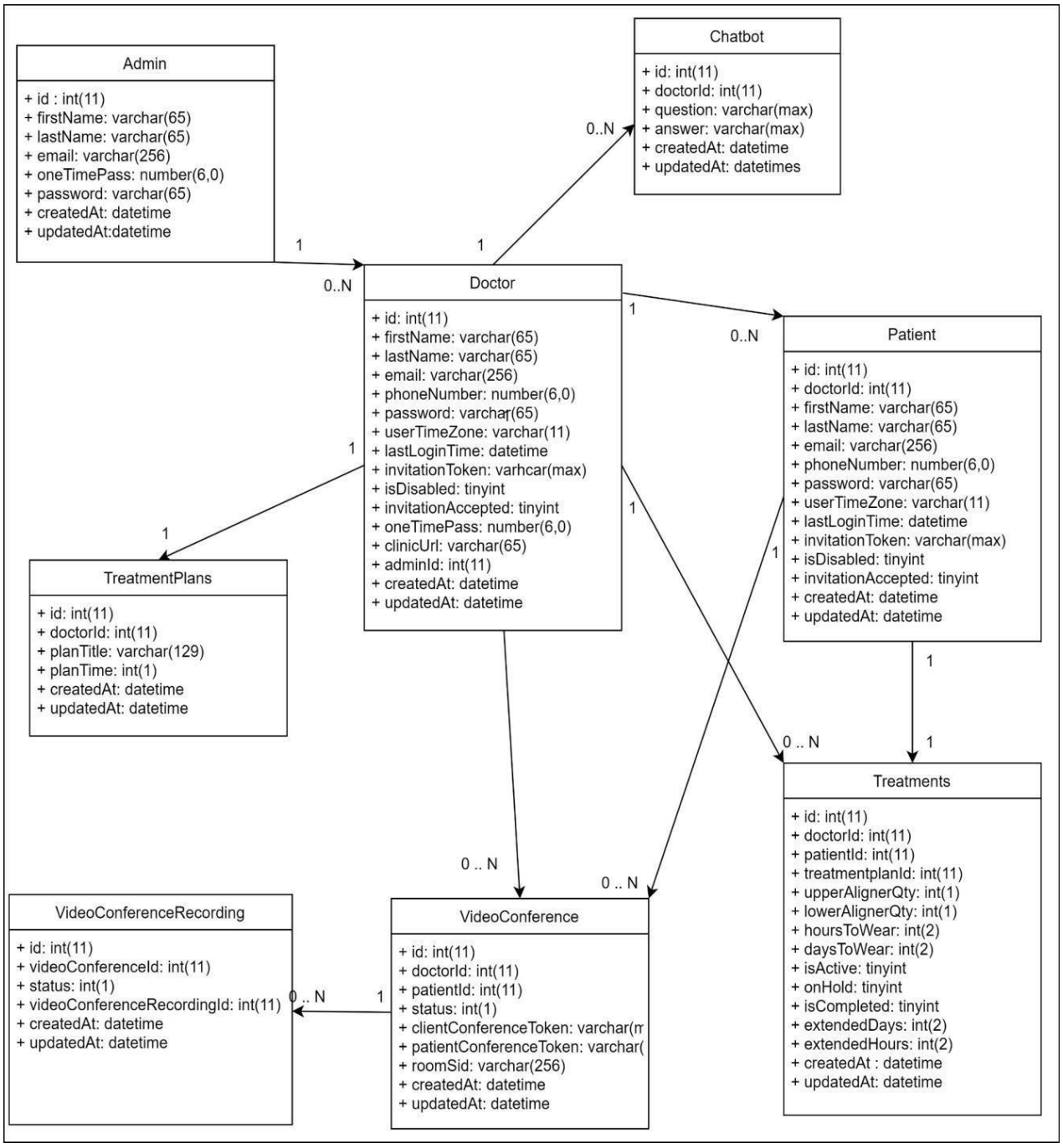

Fig 4.1 Class Diagram of whole System

Data Dictionary:

Admin Table -

Column	Type	Nullable	Default	Constraint
id	int(11)	No		Primary Key
firstName	varchar(65)	No		
lastName	varchar(65)	No		
email	varchar(256)	No		
oneTimePass	number(6,0)	Yes		
password	varchar(65)	No		
createdAt	datetime	no	Sysdate()	
updatedAt	datetime	no	Sysdate()	

Table 4.1 Admin Table

Chatbot Table -

Column	Type	Nullable	Default	Constraint
id	Int(11)	No		Primary Key
doctorId	Int(11)	Yes	null	Foreign Key (Doctor)
question	varchar(max)	No		
answer	varchar(max)	No		
createdAt	datetime	No	Sysdate()	
updatedAt	datetime	No	Sysdate()	

Table 4.2 Chatbot Table

Doctor Table -

Column	Type	Nullable	Default	Constraint
Id	int(11)	No		Primary Key
firstName	varchar(65)	No		
lastName	varchar(65)	No		
email	varchar(256)	No		
phoneNumber	number(11)	Yes		
password	varchar(65)	No		
userTimeZone	varchar(11)	No		
lastLoginTime	datetime	No		
invitationToken	varchar(max)	Yes		
isDisabled	tinyint	No	0	
invitationAccepted	tinyint	No	0	
oneTimePassword	number(6,0)	Yes		
clinicUrl	varchar(129)	No		
adminId	Int(11)	No		Foreign Key (Admin)
createdAt	datetime	No	Sysdate()	

Table 4.3 Doctor Table

Patient Table -

Column	Type	Nullable	Default	Constraint
id	int(11)	No		Primary Key Foreign Key (Doctor)
doctorId	int(11)	No		
firstName	varchar(65)	No		
lastName	varchar(65)	No		
email	varchar(256)	No		
phoneNumber	number(11,0)	No		
password	varchar(65)	No		
userTimeZone	varhcar(11)	No		
lastLoginTime	datetime	No		
invitationToken	varchar(max)	Yes		
isDisabled	tinyint	No	0	
invitationAccepted	tinyint	No	0	
oneTimePassword	number(6,0)	Yes		
createdAt	datetime	No	Sysdate()	
updatedAt	datetime	No	Sysdate()	

Table 4.4 Patient Table

TreatmentPlans Table -

Column	Type	Nullable	Default	Constraint
id	int(11)	No		Primary Key
doctorId	int(11)	No		ForeignKey (Doctor)
planTitle	varchar(129)	No		
planTime	int(1)	No	0	
createdAt	datetime	No	Sysdate()	
updatedAt	datetime	No	Sysdate()	

Table 4.5 Treatment Plans Table

VideoConferencesRecording Table -

Column	Type	Nullable	Default	Constraint
id	int (11)	No		Primary Key
videoconference	int (11)	Yes	null	Foreign Key (VideoConferences)
status	int (1)	Yes	null	
videoConferenceRecordingId	Int (11)	Yes	null	
created at	datetime	No	Sysdate ()	
updated at	datetime	No	Sysdate ()	

Table 4.6 Video Conference Recording Table

Treatment Table -

Sr. No	Field Name	Data Type	Constraints	Description
1.	id	UUID	Primary Key	Stores UUID for each transaction.
2.	payment_event_id	CharField	Not Null, Unique	Stored the payment event id on stripe.
2.	stripe_transaction_id	CharField	Unique	Stores the stripe transaction id
3.	transaction_mode	CharField		Stores the stripe transaction mode.
4.	stripe_transaction_event	CharField		Stores the type of transaction which has been done during the transaction. (ex : checkout.session)
5.	stripe_transaction_status	CharField		Stores the transaction status which is initiated by the user.
6.	transaction_invoice	CharField		Stores the invoice of stripe transaction.
7.	customer_id	CharField		Stores the customer id, whose credential has been used. (Customer id will be created after customer created event is fired).
8.	amount_total	IntegerField	Not Null	Stores the amount for which the subscription has been made.
9.	subscription_id	CharField		Stores the subscription id for transactions which have been made for transactions which have been made.
10.	payment_status	CharField	Not Null	Stored the payment status for the transaction.
11.	customer_name	CharField	Not Null	Stores the name of the customer whose credentials has been used for the payment.

12.	customer_email	CharField	Not Null	Stores the email id of the customer whose credentials has been used for the payment.
13.	payment_method_type	CharField	Not Null	Stores the payment method type which has been used. (ex “card”)
14.	transaction_type	CharField		Stores the transaction type or action event type.
16.	transaction_date	DateTimeField	Not Null	Stores the date and time of the transaction.
17.	transaction_json_dump	JSONField		Stored the JsonResponsedata which was returned by stripe webhook.

Table 4.7 Treatment Table

VideoConference Table -

Column	**Type**	**Nullable**	**Default**	**Constraint**
id	int(11)	No		Primary Key
doctorId	int(11)	Yes	null	ForiegnKey (Doctor)
patientId	int(11)	Yes	null	ForiegnKey (Patient)
status	int(1)	Yes	null	
clientConferenceToken	varchar(max)	Yes	null	
patientConferenceToken	varchar(max)	Yes	null	
roomSid	varchar(256)	Yes	null	
createdAt	datetime	No		
updatedAt	datetime	No		

Table 4.8 VideoConference Table

Entity Relationship Diagram:

An entity relationship diagram (ERD), also known as an entity relationship model,is a graphical representation that depicts relationships among database tables and its fields. It shows how different entities in the database are connected and dependent on each other. It also shows us different attributes present in each entity.

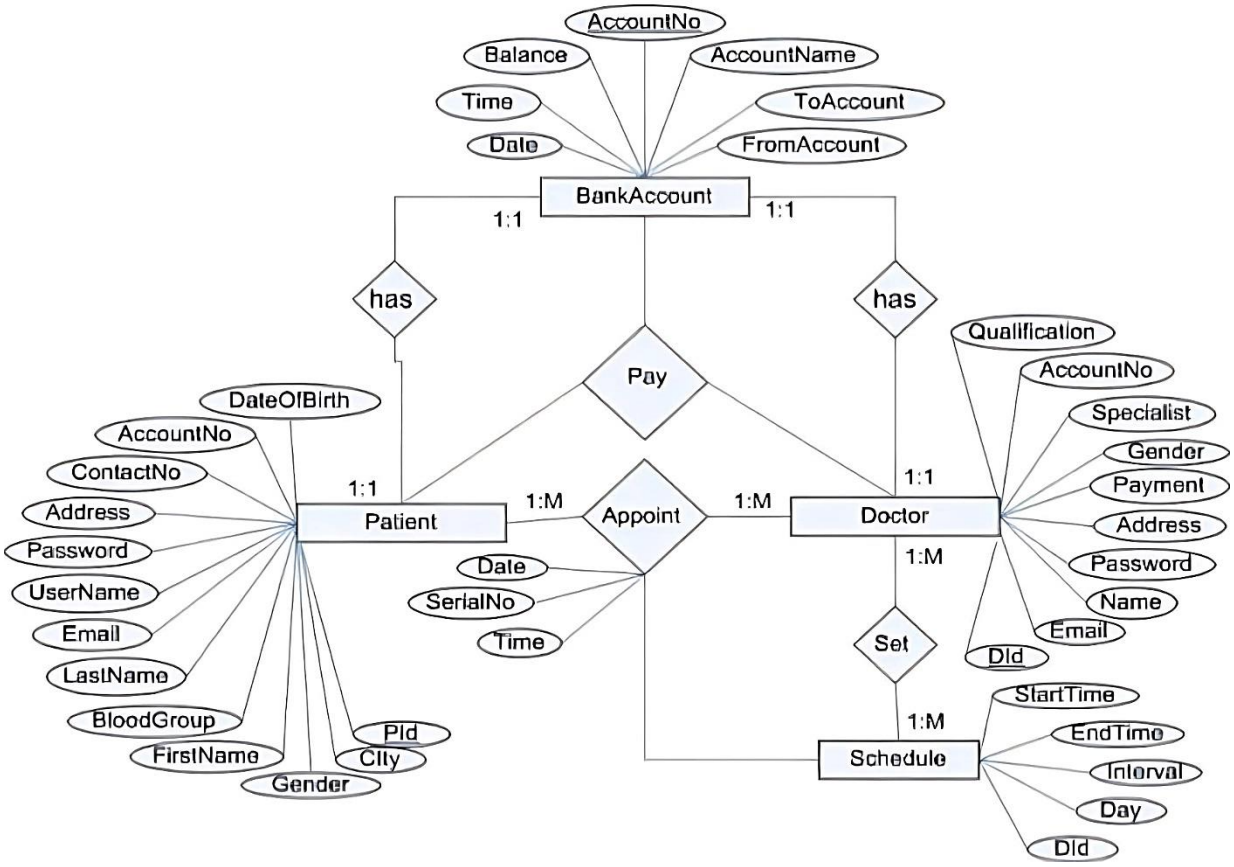

Fig 4.3 ERD Doctor Patient and billing module

Use Case Diagram:

Admin -

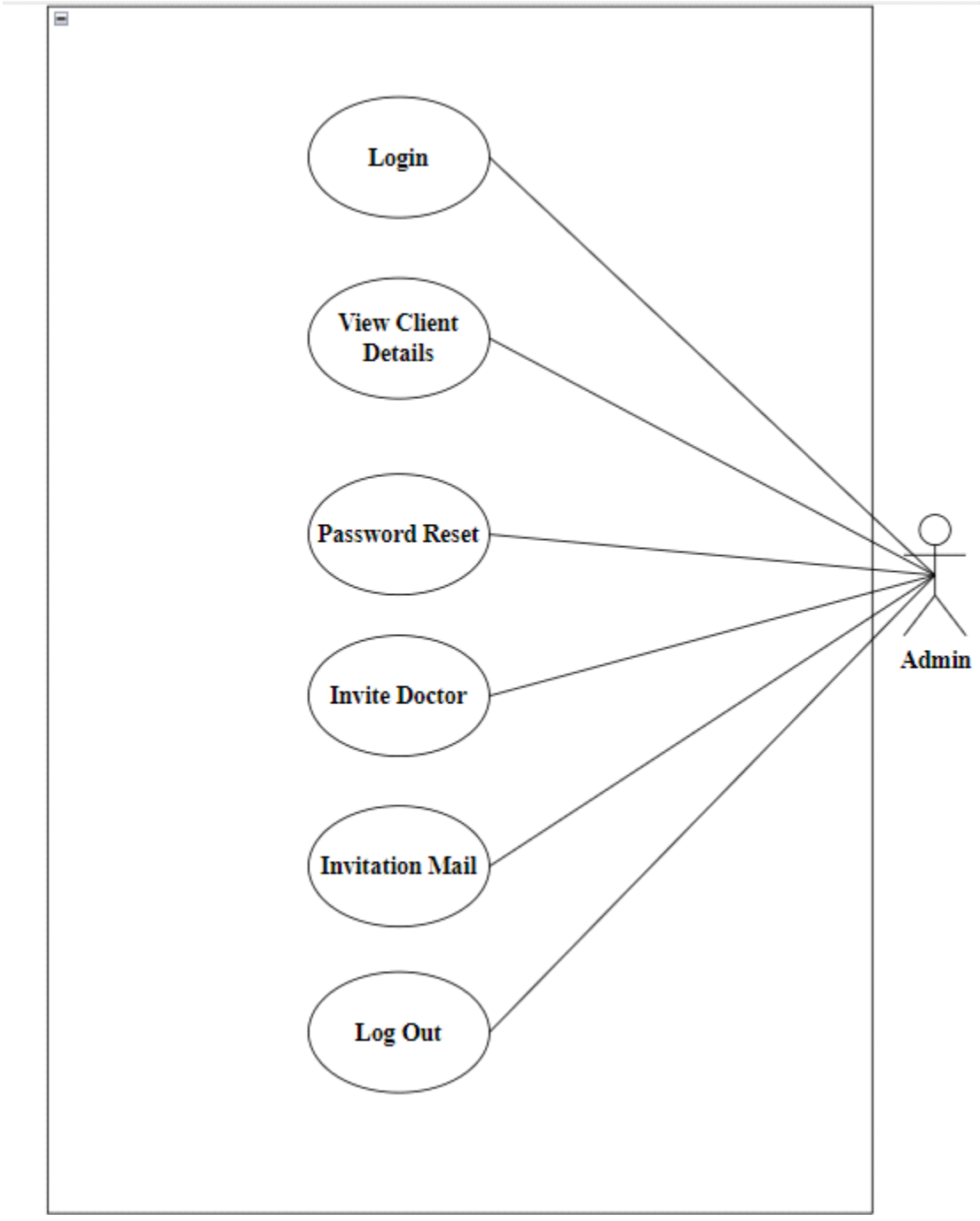

Fig 4.4 Admin

Doctor -

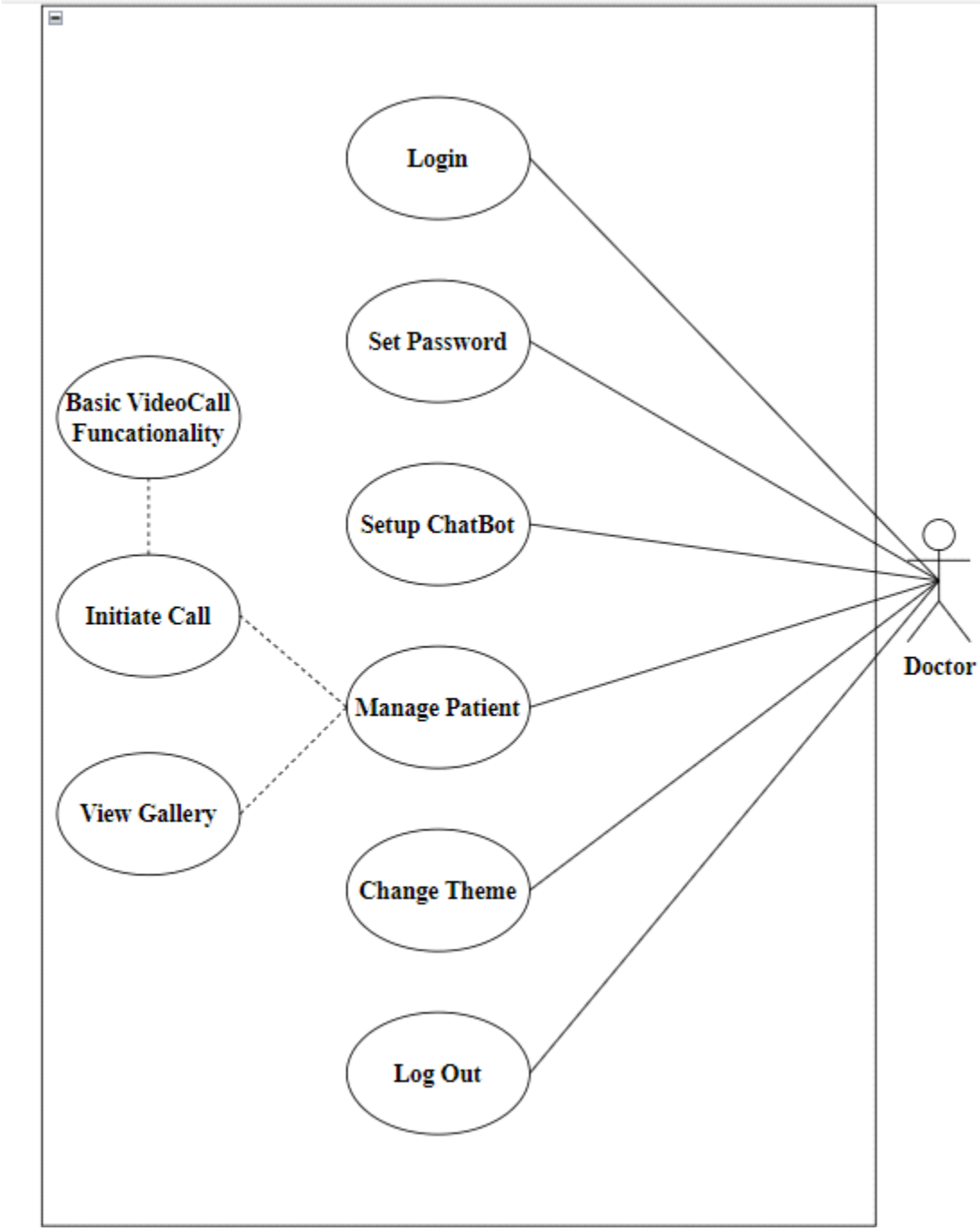

Fig 4.5 Doctor

Patient -

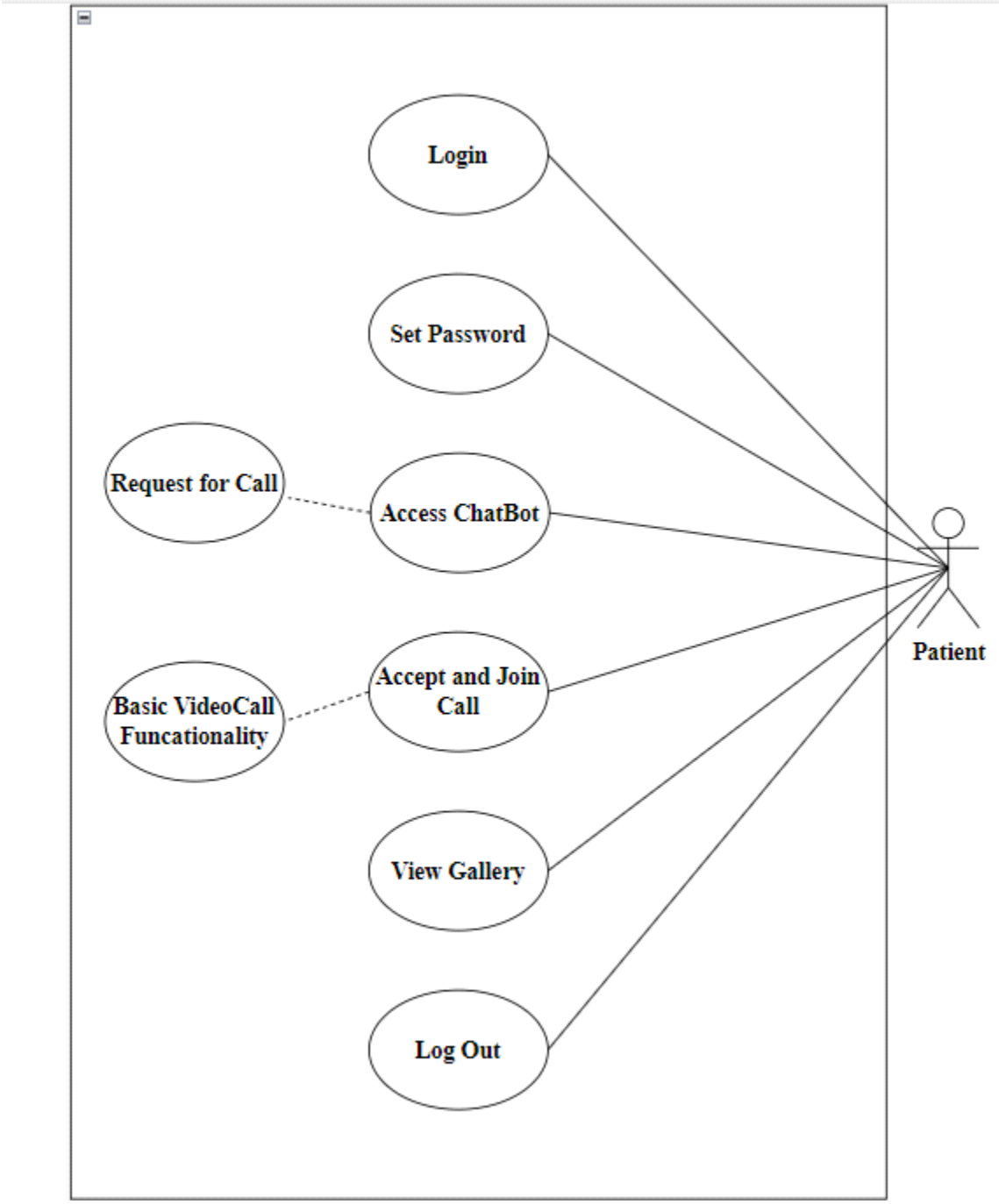

Fig 4.6 Patient

Activity Diagram:

Admin -

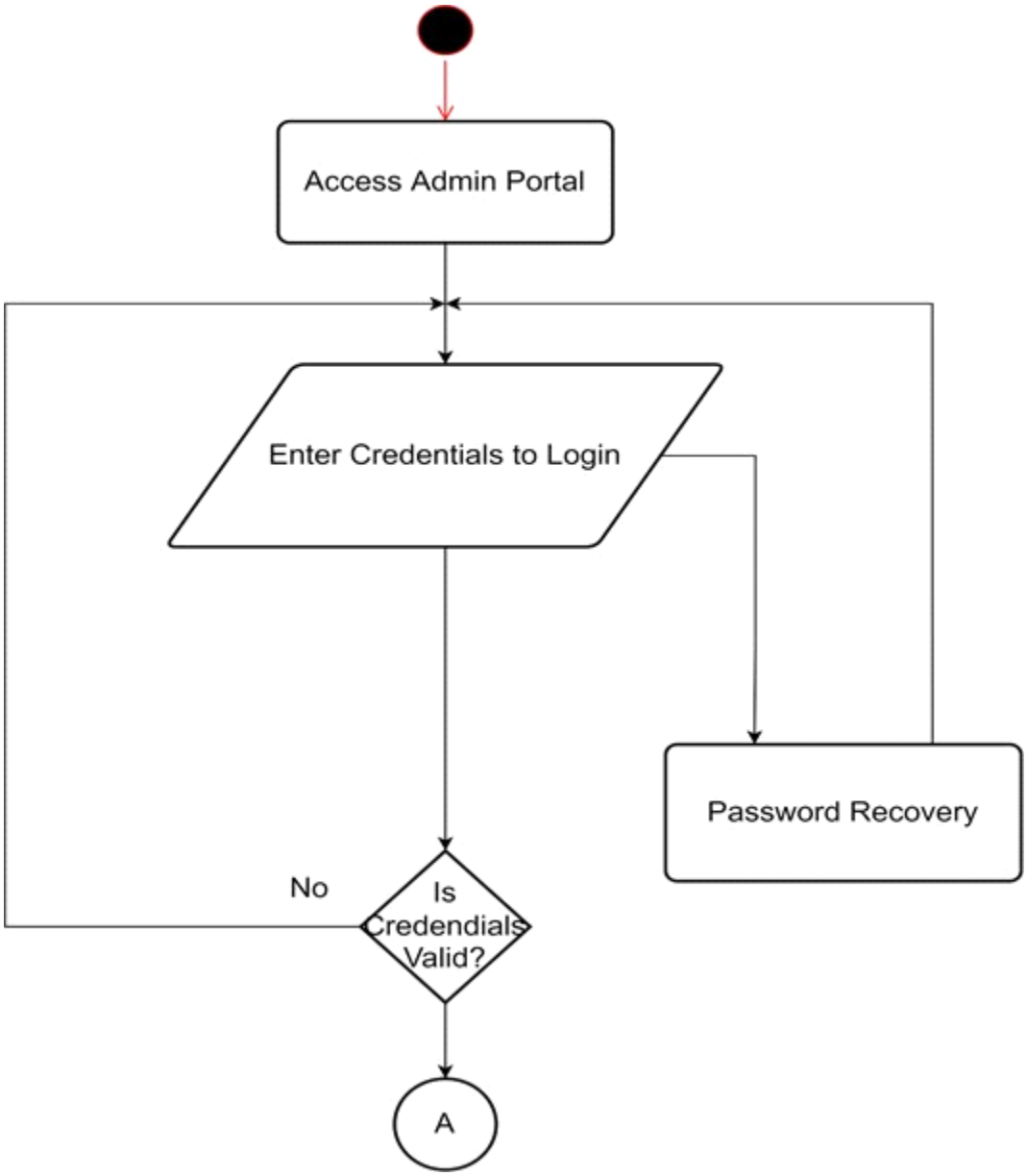

Fig 4.7 Admin

Admin Dashboard -

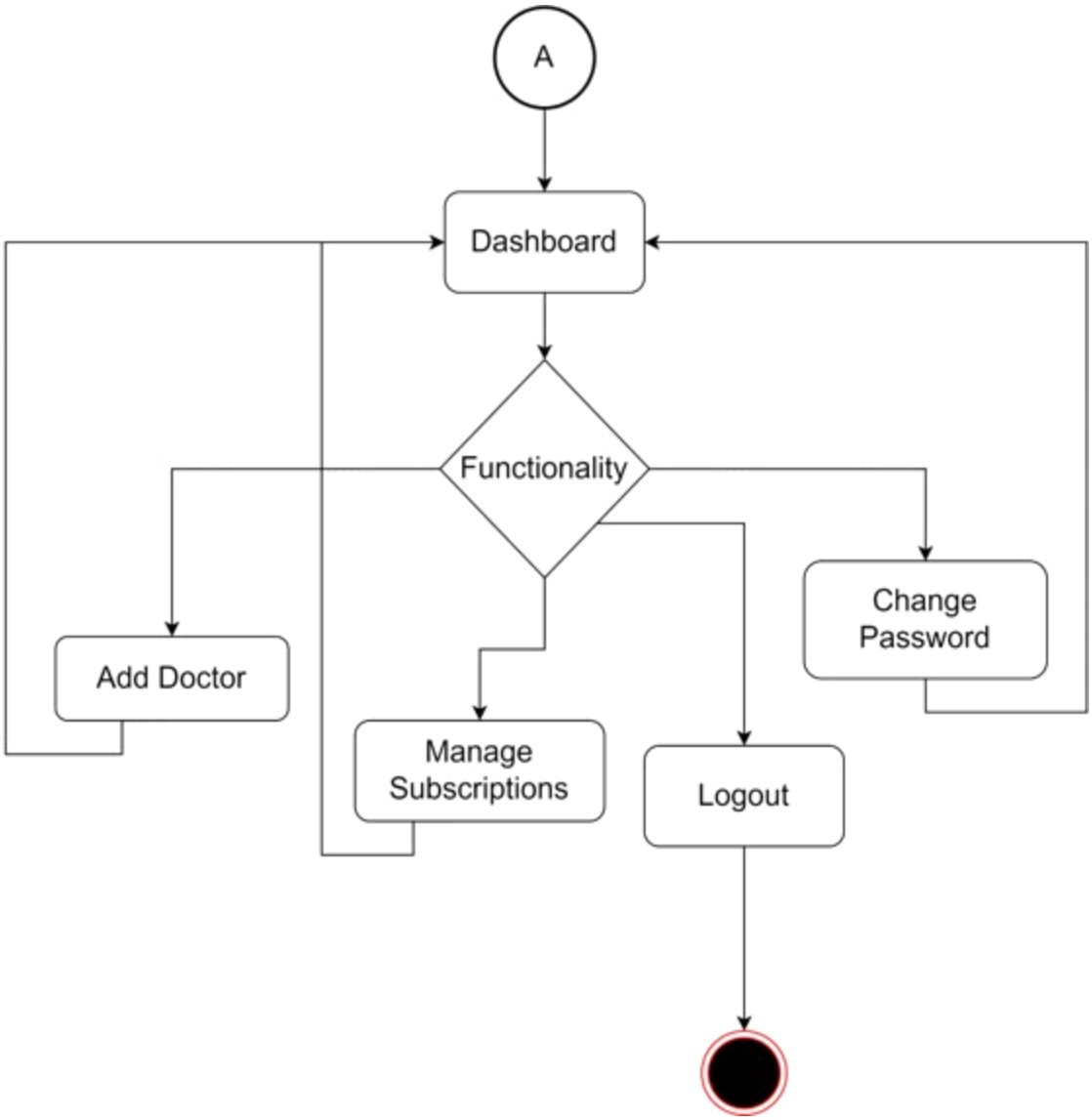

Fig 4.8 Admin Dashboard

Doctor / Patient Login –

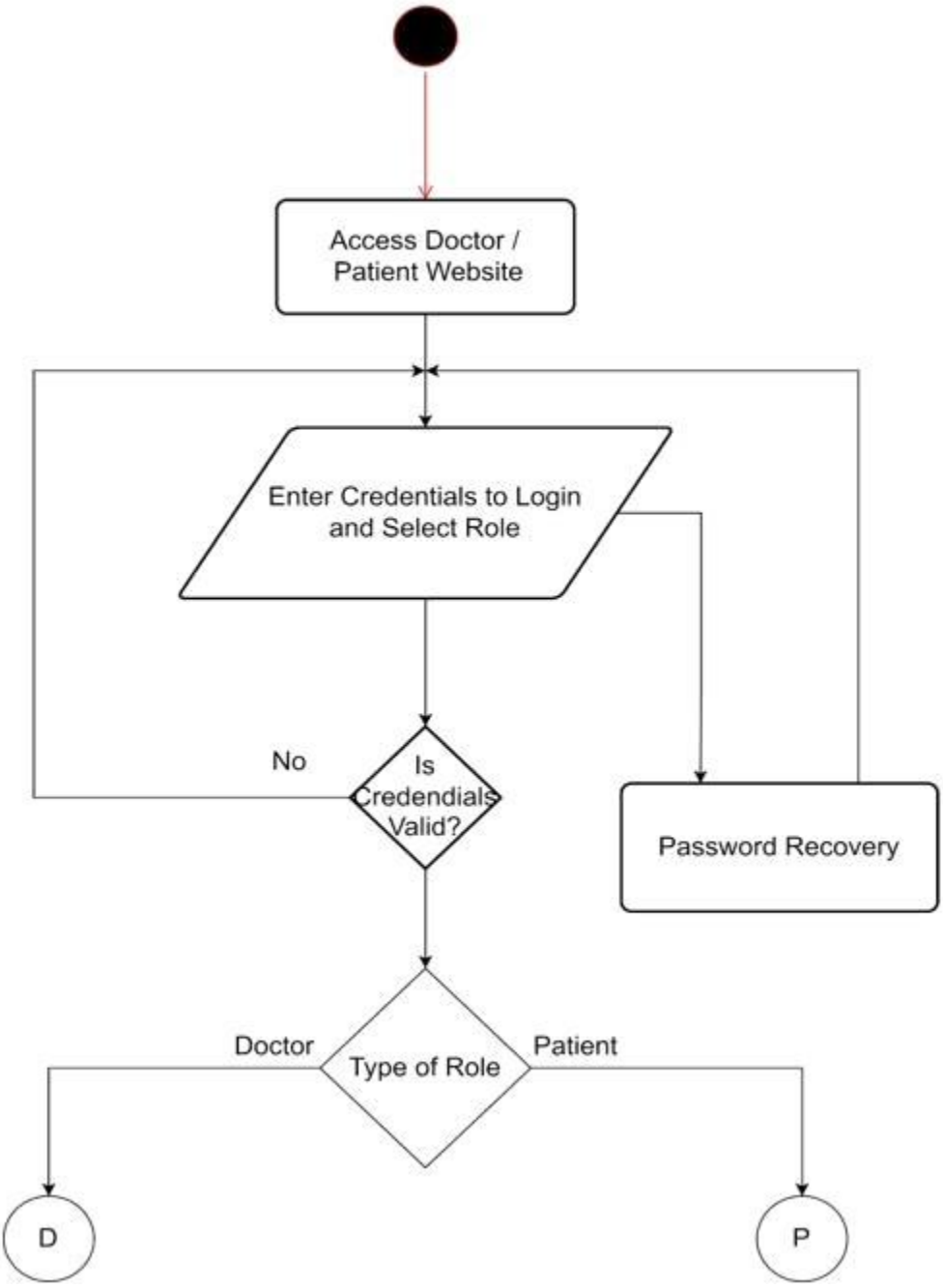

Fig 4.9 Doctor and Patient Login

Doctor Dashboard -

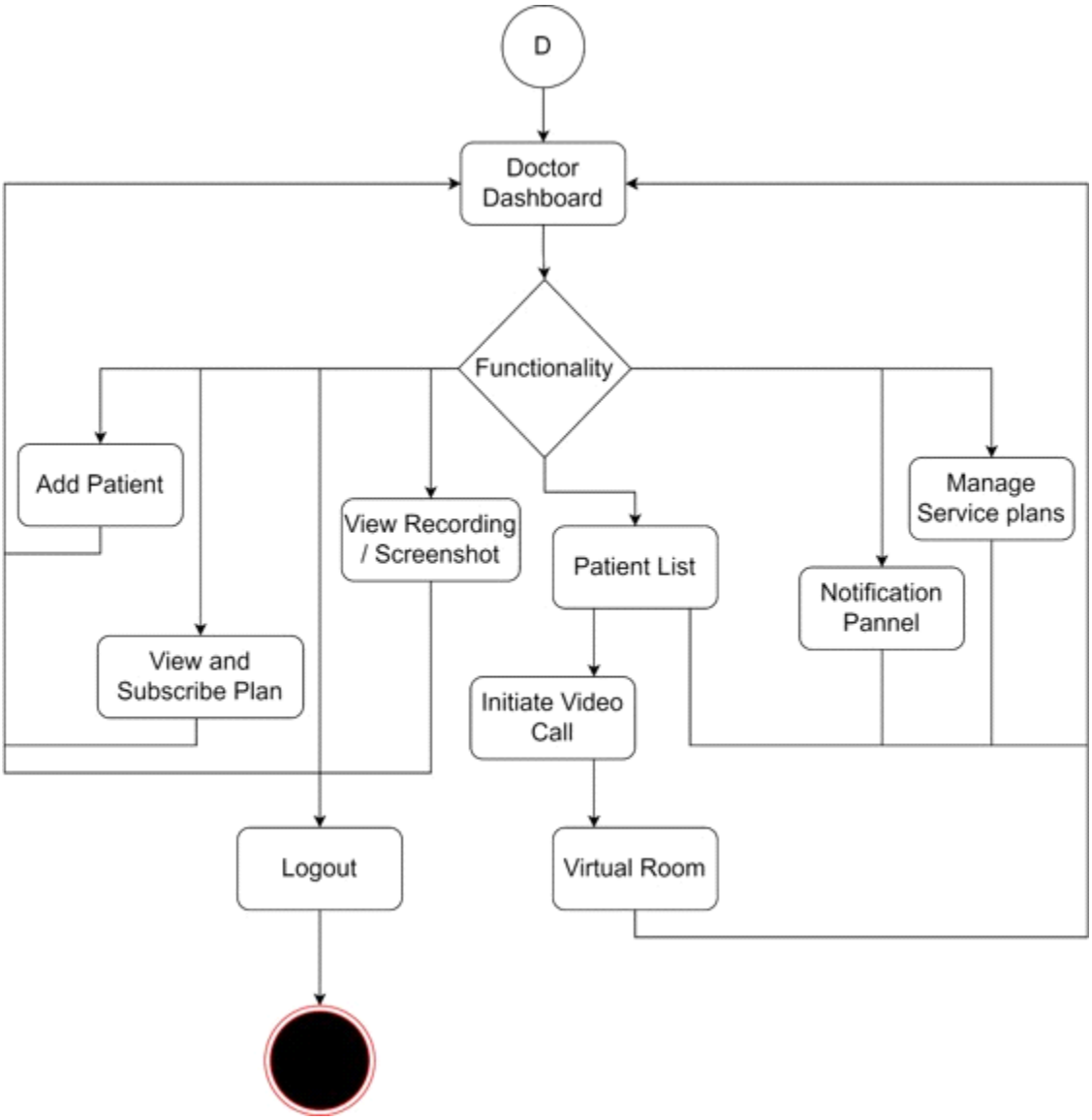

Fig 4.10 Doctor Dashboard

Patient Dashboard -

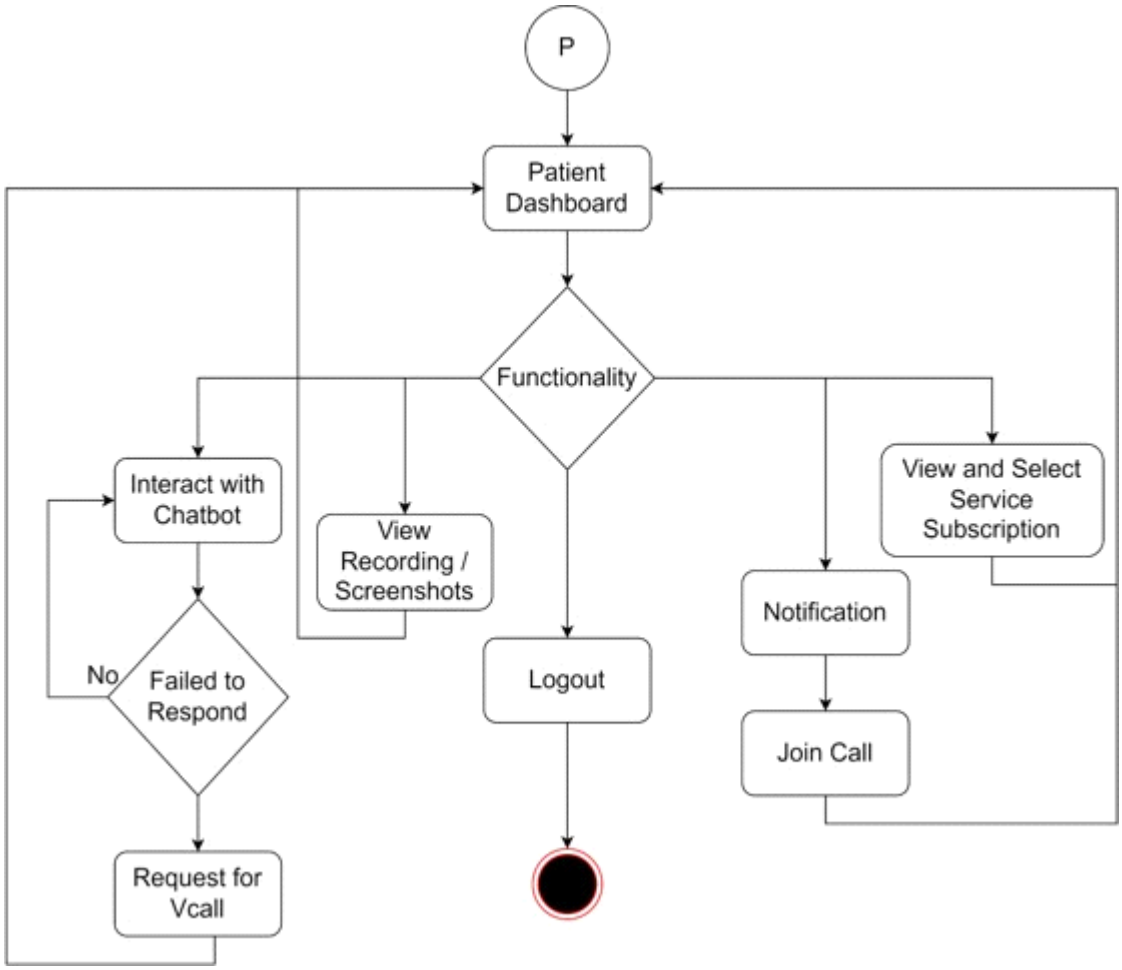

Fig 4.11 Patient Dashboard

Graphical User Interface -

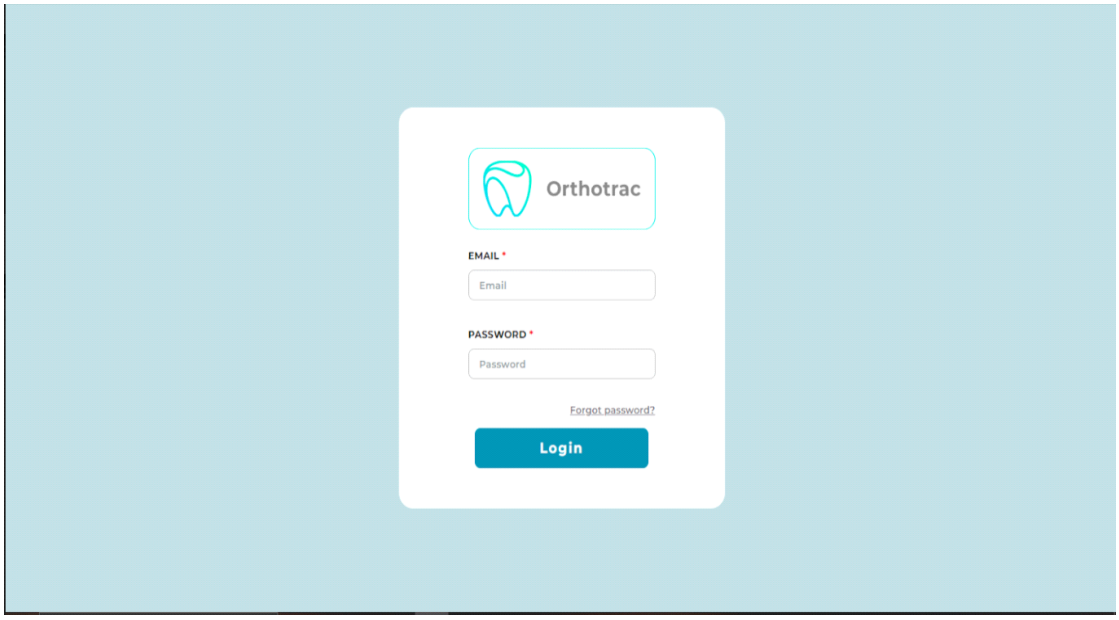

Fig 4.12 Login

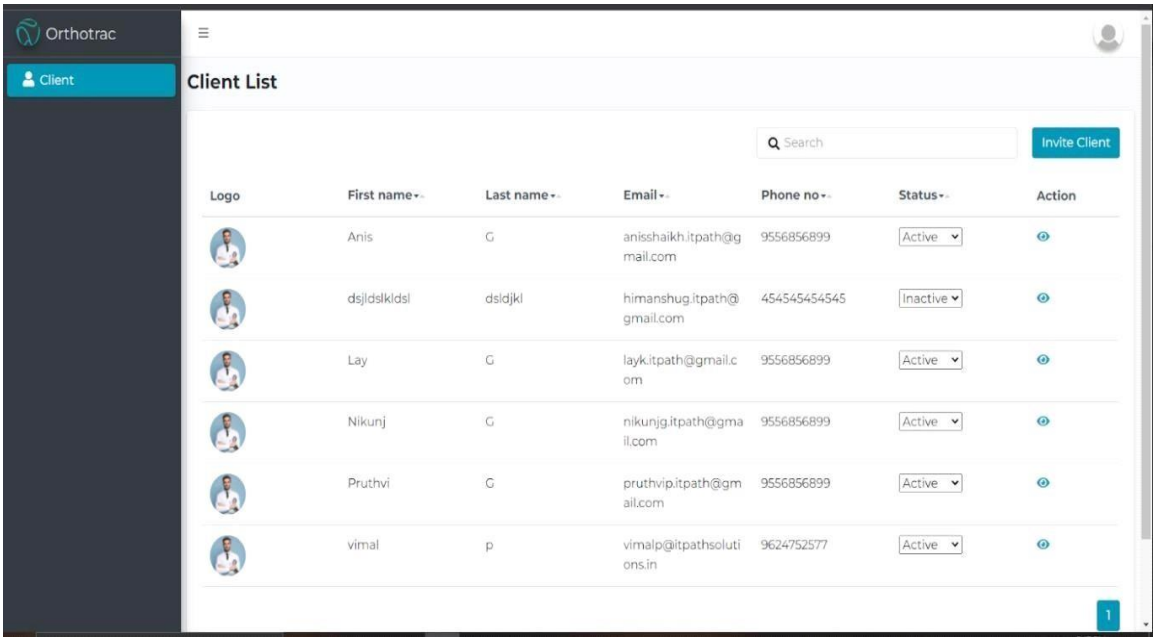

Fig 4.13 Admin Dashboard

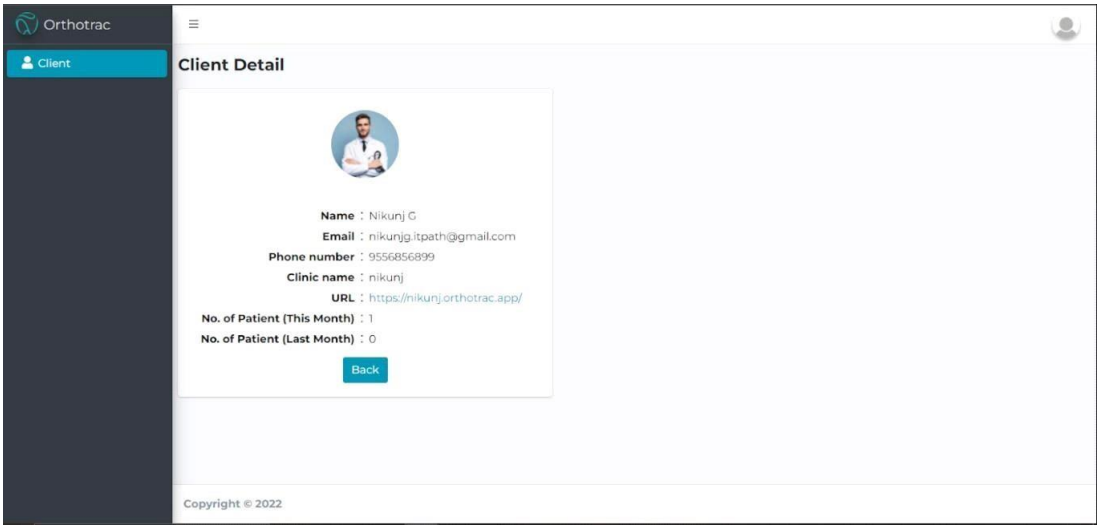

Fig 4.14 Admin View Client Details

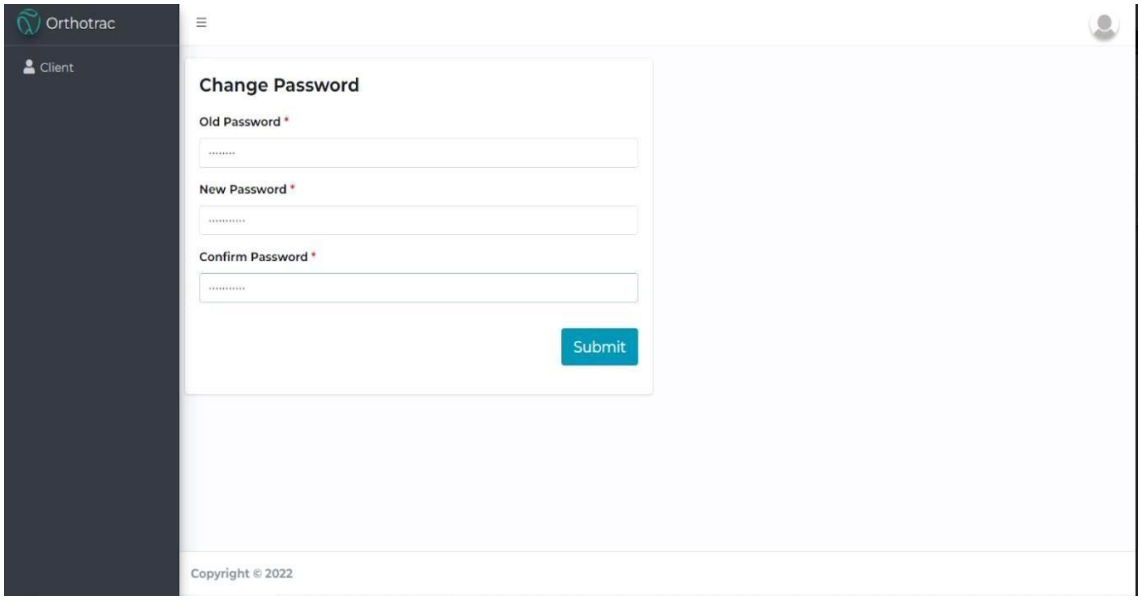

Fig 4.15 Reset Password

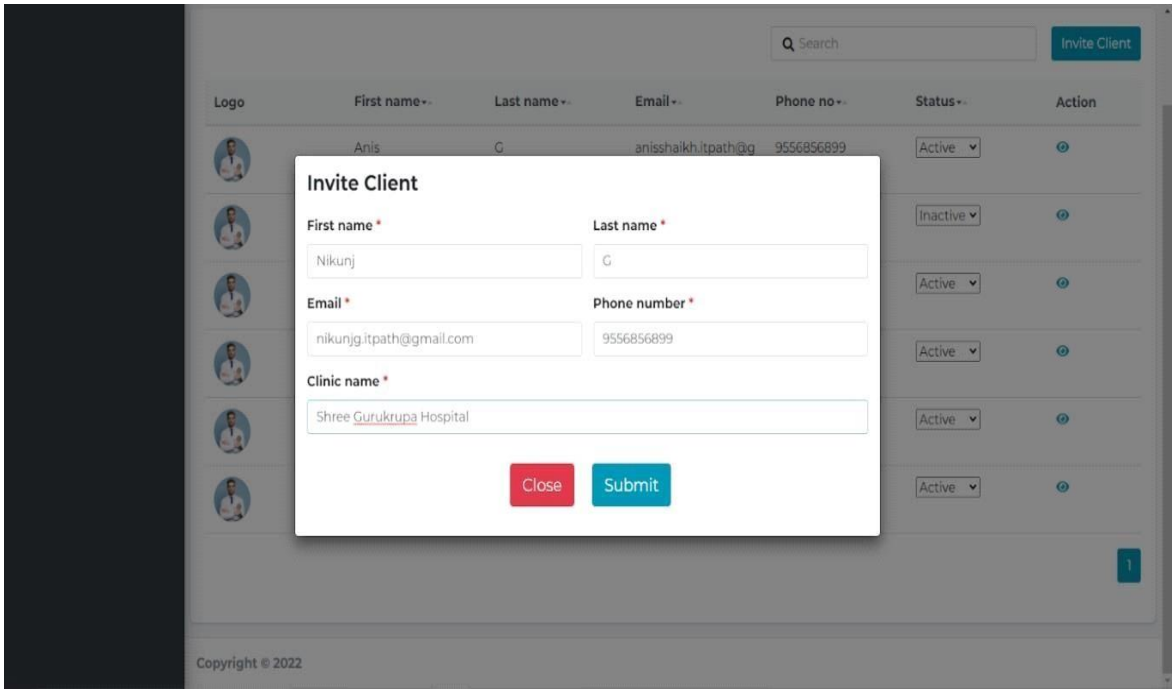

Fig 4.16 Invited Doctor

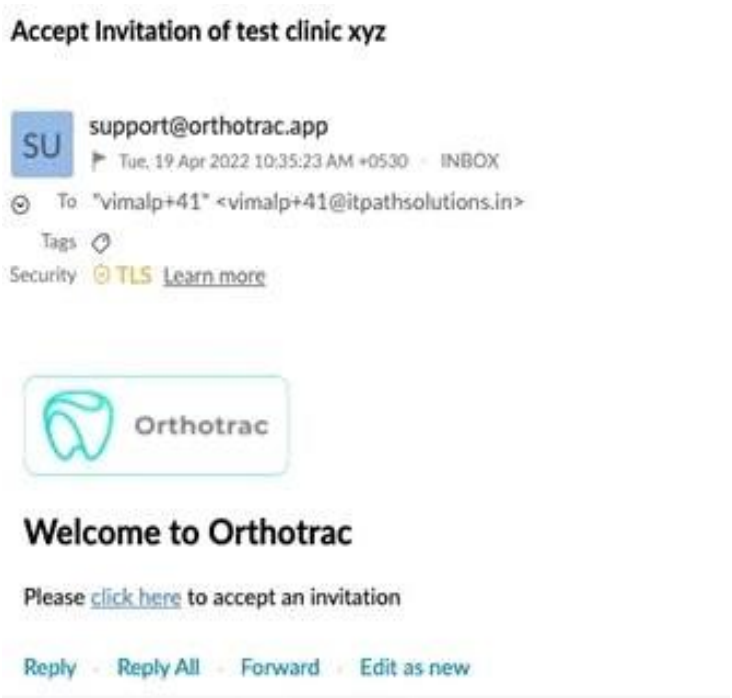

Fig 4.17 Invitation Mail

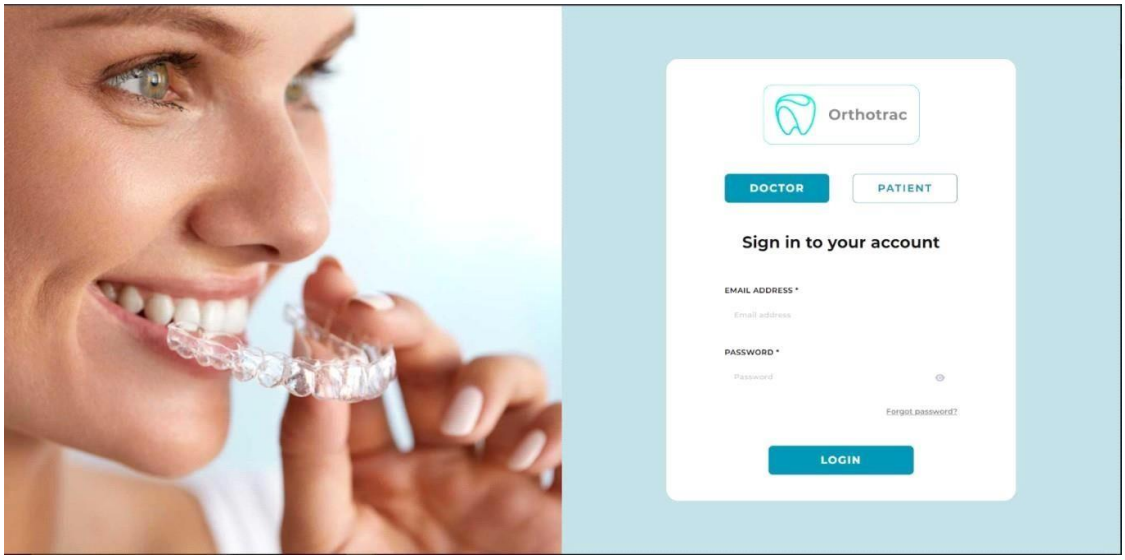

Fig 4.18 Doctor/patient Login

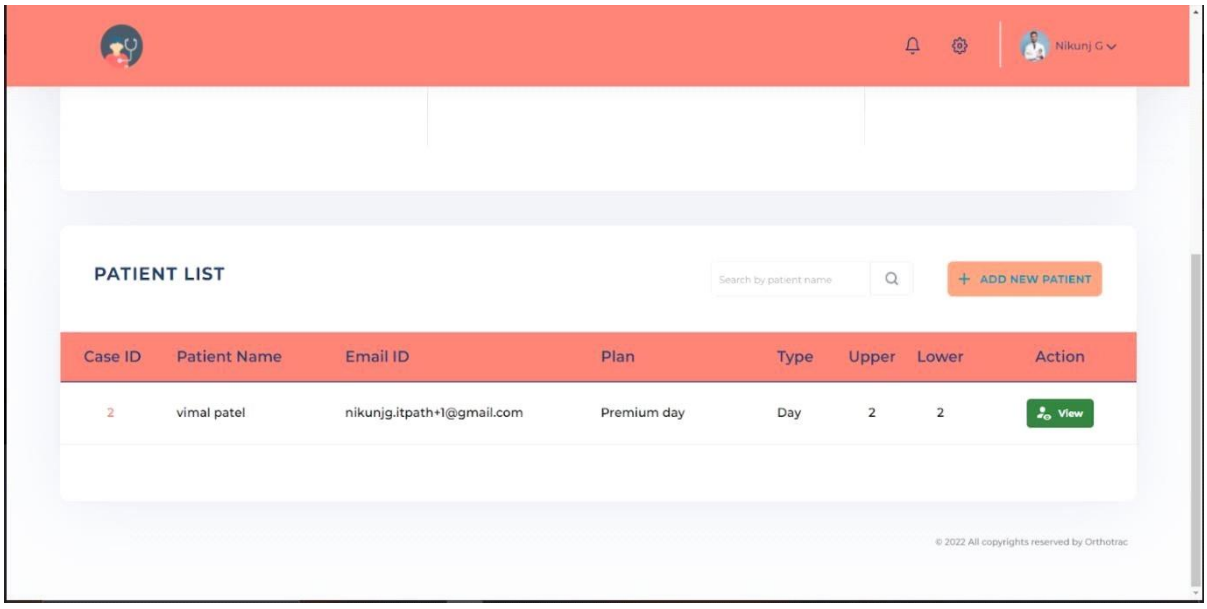

Fig 4.19 Doctor Dashboard

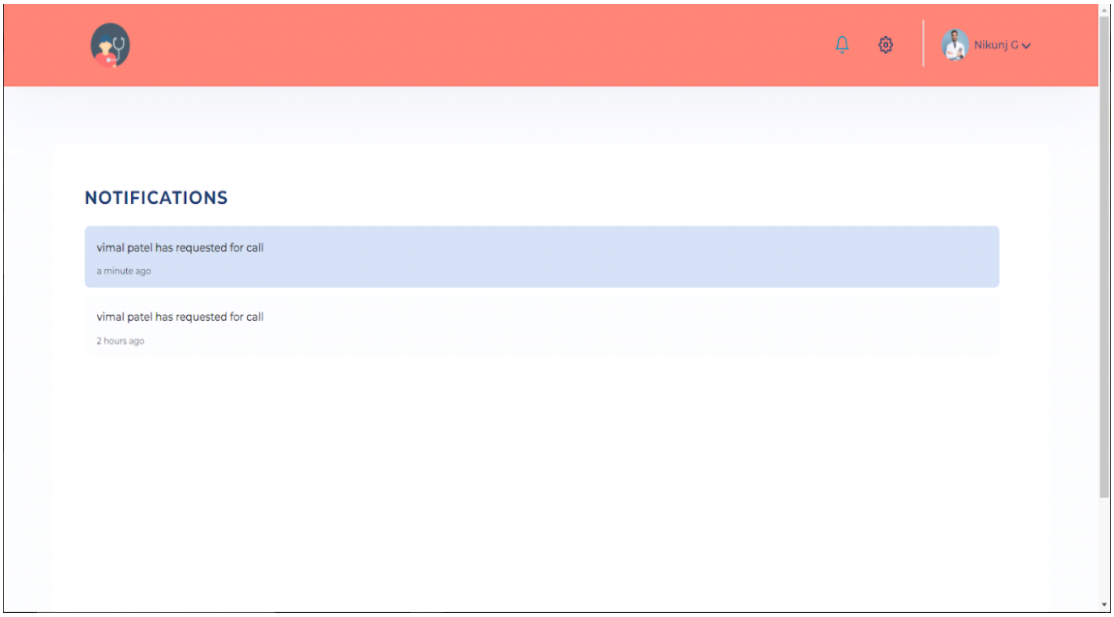

Fig 4.20 Notification Area

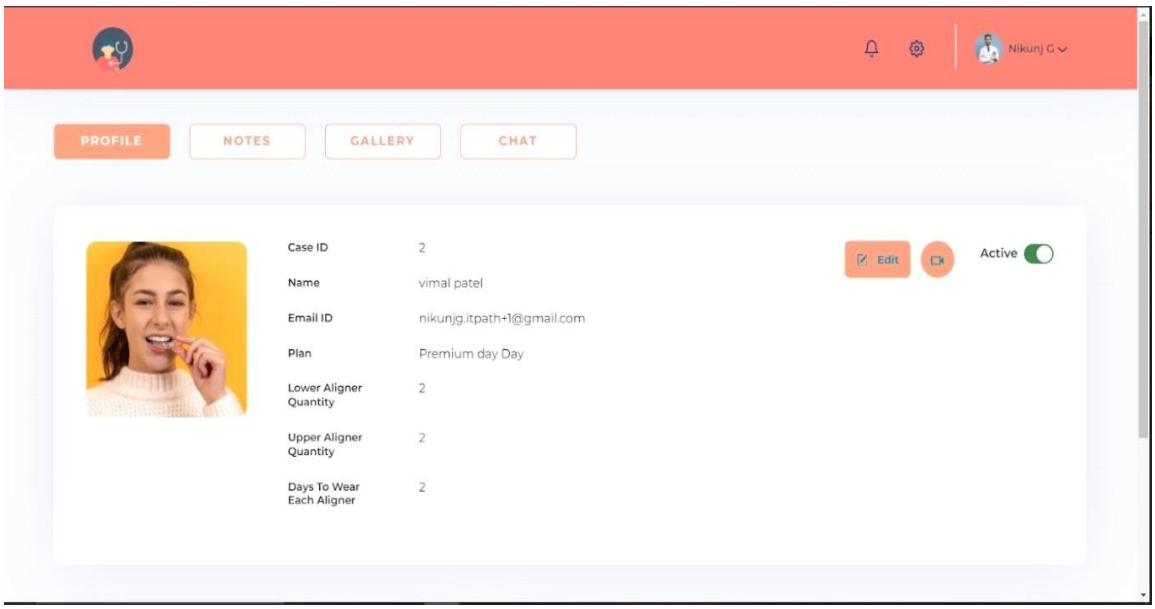

Fig 4.21 View Patient Details/call

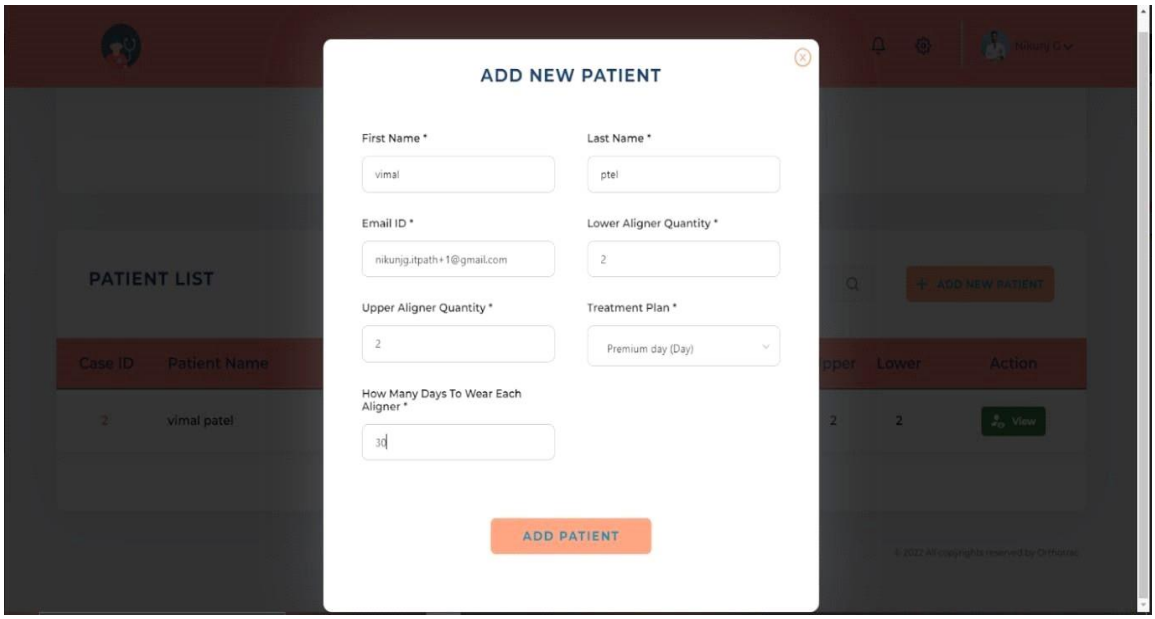

Fig 4.22 Add New patient

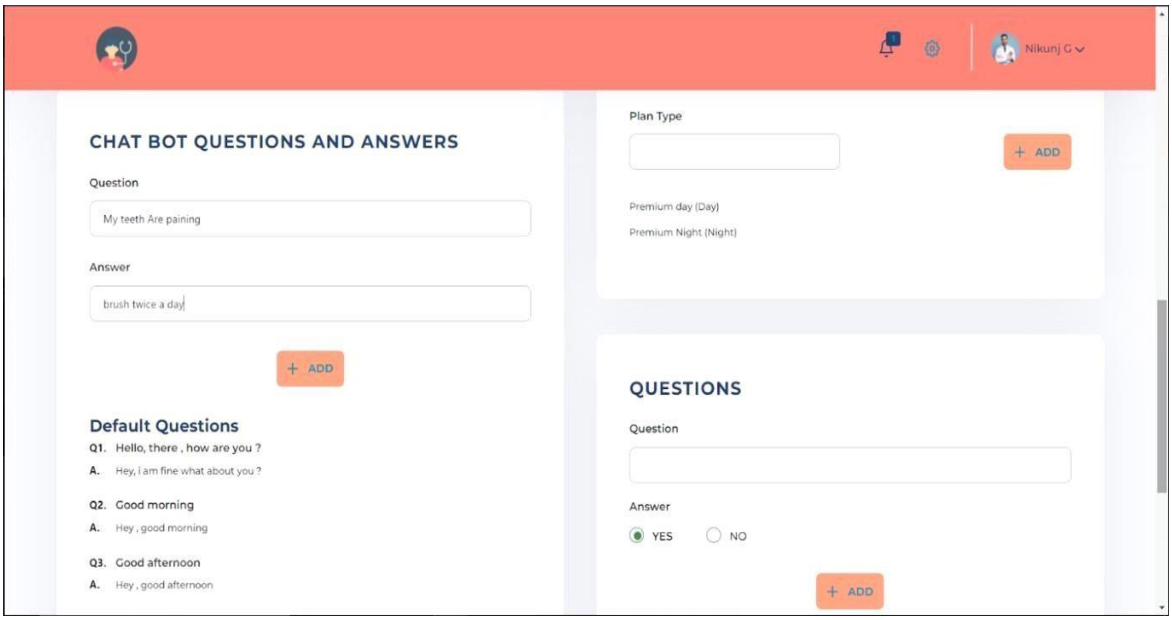

Fig 4.23 Add Chatbot Question

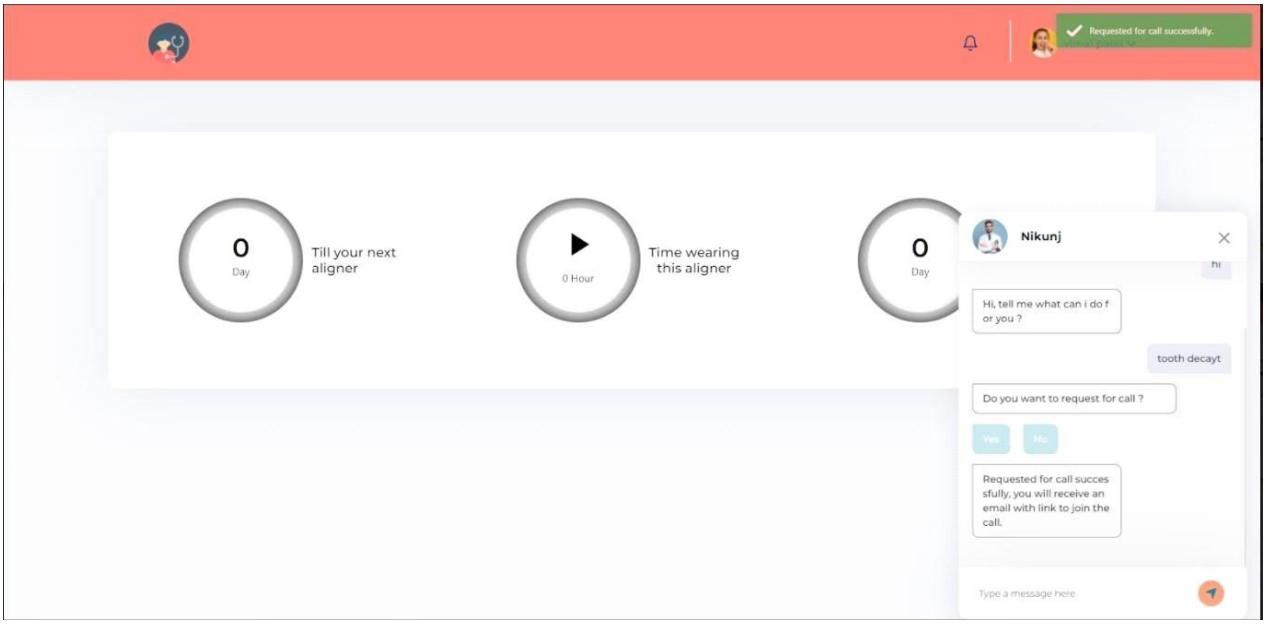

Fig 4.24 Patient Dashboard

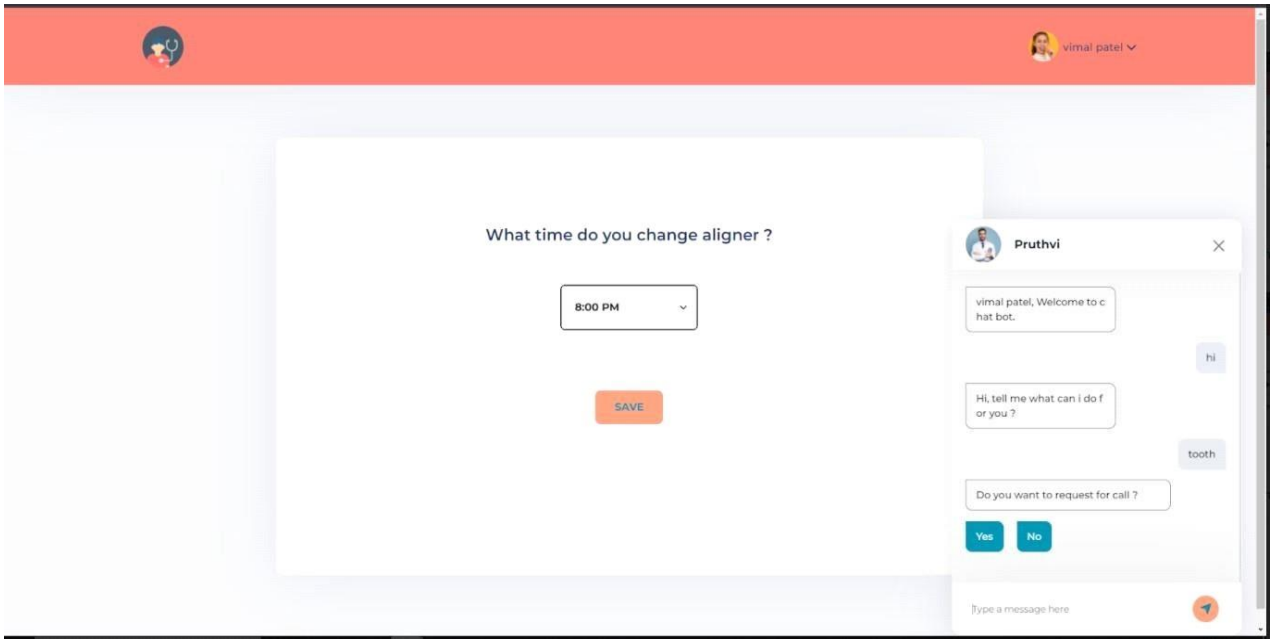

Fig 4.25 Treatment Time

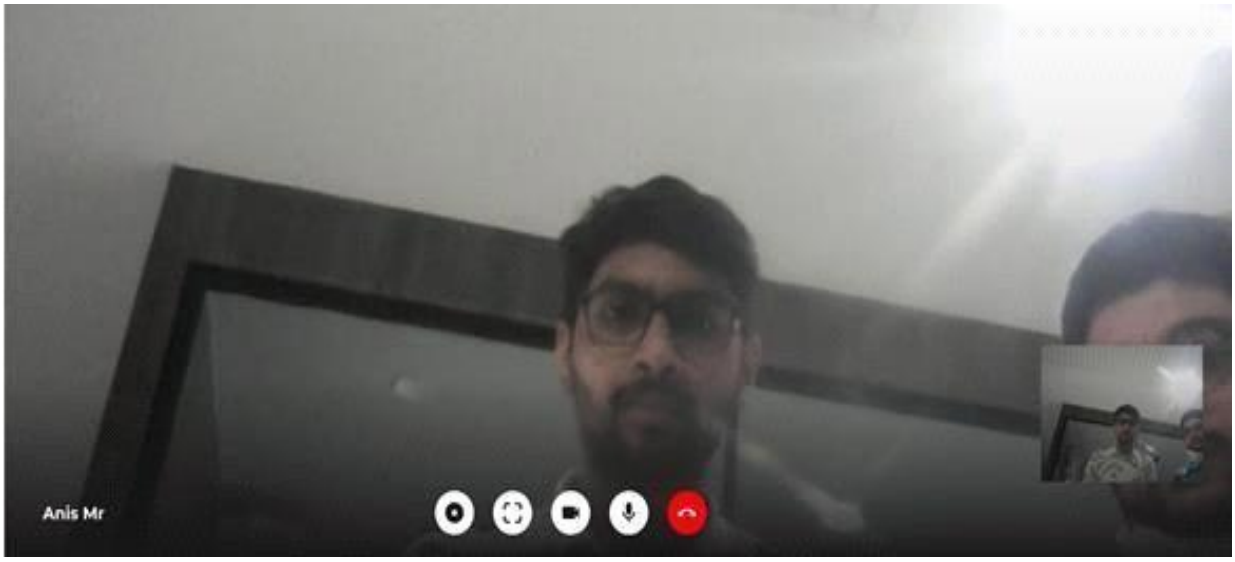

Fig 4.26 Video Calling Functionality

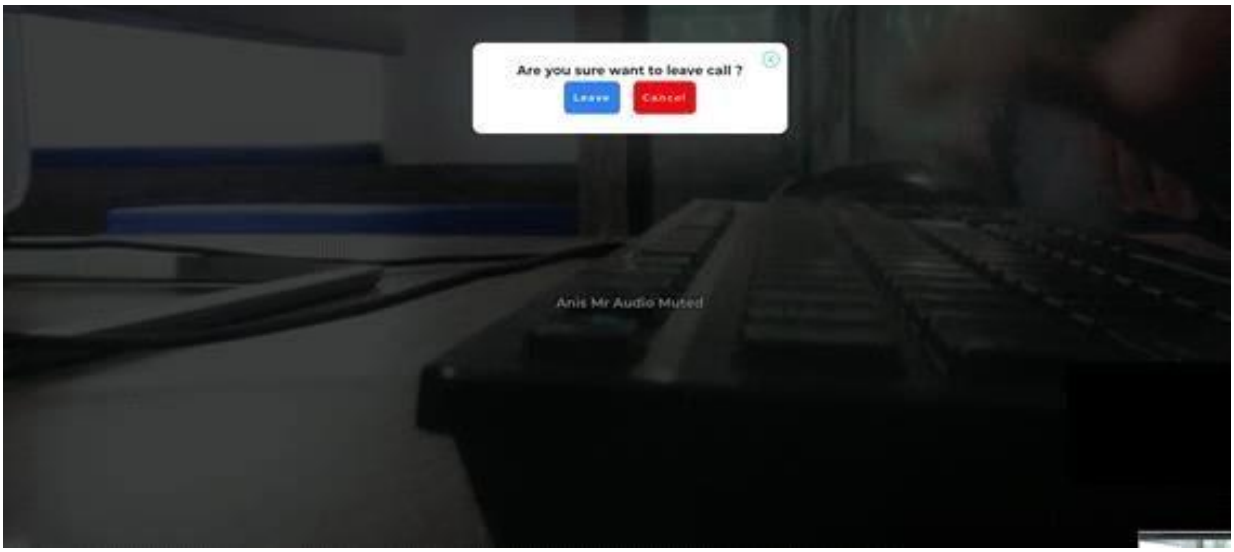

Fig 4.27 Leave Call

CHAPTER 5: TESTING

Testing Plan and Strategy:

System testing is a type of software testing that is conducted to evaluate the complete system or software application under test. The purpose of system testing is to ensure that the system functions as intended and meets the specified requirements.

During system testing, the entire system is tested as a whole, including its various components and subsystems. The testing can be performed in different environments such as development, staging, or production, depending on the type of system being tested.

Unit Testing: This is a testing strategy that focuses on testing individual units of code in isolation from the rest of the system. The goal is to identify and fix defects early in the development process.

Integration Testing: This strategy involves testing the interaction between different modules or components of the software. The goal is to ensure that the integrated system works as expected and that the individual components work together as intended

System Testing: This strategy tests the entire system as a whole, including its interfaces with other systems. The goal is to ensure that the system meets the specified requirements and that it functions as intended.

Test Approach: Multiple test approaches like unit testing, integration testing, system testing and end to end testing were done on different phases of development.

Integration Testing: This strategy involves testing the interaction between different modules or components of the software. The goal is to ensure that the integrated system works as expected and that the individual components work together as intended.

Test Result and Analysis

Admin Test Case -

TestCase ID	TestField	Values Entered	Expected Output	Actual Output	Status
TC_Admin1	Admin Login	Correct	Login Success	Login Success	Pass
TC_Admin2	Admin Login	Invalid	Invalid Password	Invalid Password	Pass
TC_Admin3	Get Doctors list on dashboard	-	List of Doctor	List of Doctor	Pass
TC_Admin4	Change Password	Correct	Password Change	Password Change	Pass
TC_Admin5	Chang e Password	Invalid	Invalid Password	Invalid Password	Pass
TC_Admin6	Add Doctor	Correct	Send Confirmation Mail	Send Confirmation Mail	Pass
TC_Admin7	Add Doctor	Invalid	Prompt to Fill required	Prompt to Fill Required	Pass
TC_Admin8	See Doctor Detail	-	Get Doctor Information	Got Doctor Information	Pass
TC_Admin9	Logout	-	Redirect to Login Page	Redirect to Login Page	Pass

Table 5.1 Admin Test Case

Doctor Test Case -

TestCase ID	TestField	Values Entered	Expected Output	Actual Output	Status
TC_Doctor1	Doctor Login	Correct	Login Success	Login Success	Pass
TC_Doctor2	Doctor Login	Invalid	Show Invalid Credentials Toastr	Show Invalid Credentials Toastr	Pass
TC_Doctor3	Add Patient	Correct	Send Confirmation Mail	Send Confirmation mail	Pass
TC_Doctor4	Add Patient	Invalid	Prompt to Fill required	Prompt to Fill Required	Pass
TC_Doctor5	Patient Profile	-	Get Patient Information	Got Patient Information	Pass
TC_Doctor6	Check Notification	Notification Exist	Show Notification	Show Notification	Pass
TC_Doctor7	Get Notification Count on bell	-	Get Notification Count	Got Notification Count	Pass
TC_Doctor8	Join Call	-	Call Start	Call Started	Pass
TC_Doctor9	Add Chatbot Question	Correct	Add Question to List	Question Added to list	Pass
TC_Doctor10	Gallery	No Video or Photo	Blank Gallery	Blank Gallery	Pass
TC_Doctor11	Gallery	Either Video or Images or both	Show Video or Images	Show Video or Images	Pass
TC_Doctor12	Screen Shot	-	Take screenshot	Taken Screenshot	Pass

Table 5.2 Doctor Test Case

Patient Testcase -

TestCase ID	TestField	Values Entered	Expected Output	Actual Output	Status
TC_Patient1	Patient Login	Correct	Login Success	Login Success	Pass
TC_Patient2	Patient Login	Invalid	Show Invalid Credentials Toastr	Show Invalid Credentials Toastr	Pass
TC_Patient3	Open Chatbot	-	Chatbot Opens	Chatbot Open	Pass
TC_Patient4	Chatbot Question	Blank	No Activity	No Activity	Pass
TC_Patient5	Chatbot Question	Question with Answer	Show answer	Show answer	Pass
TC_Patient6	Chatbot Question	Question without Question	Ask for Video Call Request	Prompted for Video Call Request	Pass
TC_Patient7	Check Notification	Notification Exist	Show Notification	Show Notification	Pass
TC_Patient8	Get Notification Count on bell	-	Get Notification Count	Got Notification Count	Pass

Table 5.3 Patient Testcase

CHAPTER 6: CONCLUSION

Benefits:

A chatbot website allows patients to interact with a doctor and receive medical advice anytime, anywhere. Patients can get instant access to medical information without having to wait for an appointment or travel toa clinic.

Chatbots can handle routine inquiries and administrative tasks, freeing up doctors to focus on more complex cases. This can lead to time and cost savings for both doctors and patients.

Chatbots can be programmed to provide personalized medical advice based on a patient's symptoms, medical history, and other factors. This can help patients receive more targeted and effective treatment.

Chatbots can provide patients with interactive and engaging experiences, which can help to improve patient engagement and compliance with treatment plans.

Limitations:

There are also some limitations and challenges that need to be considered, including:

Some patients may prefer to communicate with a human healthcare provider rather than a chatbot, and they may not feel comfortable discussing personal health issues with a machine.

Online consultations may not allow healthcare providers to conduct a physical examination of the patient, which can limit the accuracy of diagnosis and treatment.

Online healthcare services may lack the personal connection and rapport that can be established through face-to-face interactions between patients and healthcare providers.

Future Enhancement:

Online video conference with Twilio and Chat main propose is if patient cannot visit hospital, then patient can communicate with doctor through the website.

Patient can able to send message to doctor. Doctor can add the patient in his profile or account.

Doctor can Accept and reject the Patients request. Patient can able to send the message also patient can send the request of video call to doctor.

If Any case doctor are not able to answer the patient then patient can send video call request and other hand side doctor dashboard notify with the patient videocall request.

CHAPTER 7: REFERENCES

- **https://reactjs.org/docs/getting-started.html**
- **https://nodejs.org/en/docs/**
- **https://www.twilio.com/**
- **https://tableplus.com/**
- **https://stackoverflow.com/**