CP-III Project Report on

SMART TALK

at

U. V. Patel College Of Engineering

Internal Guide :

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U.V.PATEL COLLEGE OF ENGINEERING

Ganpat University
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U.V. Patel College of Engineering
NAAC A Grade Accredited University

07/12/2024

C E R T I F I C A T E

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. Goswami Kenil** student of **B.Tech. Semester VII (Information Technology)** has completed his full semester **Capstone Project-III** work titled "**SMART TALK**" satisfactorily in partial fulfilment of the requirement of Bachelor of Technology degree of Information Technology of Ganpat University, Ganpat Vidyanagar, Mehsana in the year 2024.

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Prof. Rakesh D Vanzara

Dr. Devang Pandya,

Head,InformationTechnology

U.V.PATEL COLLEGE OF ENGINEERING

07/12/2024

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This is to certify that **Mr. Haji Mo. Husen** student of **B.Tech. Semester VII (Computer Engineering)** has completed his full semester **Capstone Project-III** work titled "**SMART TALK**" satisfactorily in partial fulfilment of the requirement of Bachelor of Technology degree of Computer Engineering of Ganpat University, Ganpat Vidyanagar, Mehsana in the year 2024.

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ABSTRACT

Smart Talk is an advanced real-time chat application developed to elevate the communication experience through its innovative features. It offers instant messaging capabilities that enable users to engage in conversations without delays, ensuring a fluid and real-time exchange of information. The application incorporates robust security measures, including secure authentication protocols, to protect user data and ensure privacy. Smart Talk supports multimedia communication, allowing users to send and receive images, videos, and other files, thereby enriching interactions with diverse content. Additionally, the platform facilitates group chats, enabling users to communicate effectively within teams or communities.

To enhance usability and management, Smart Talk includes an admin panel that provides comprehensive insights into the application's activity. The admin panel displays key metrics such as the number of users, messages, and groups. It also features graphical representations of user activity over the last seven days and supports CRUD operations for managing users. The dashboard includes cards summarizing the total number of users, students, professors, groups, messages, and new users. This functionality ensures efficient monitoring and control of the application.

Smart Talk leverages cutting-edge technologies to deliver a seamless, secure, and interactive user experience across various devices, making it a versatile solution for personal and professional communication needs. The application uses HTML, Tailwind CSS, and React.js for the frontend, while the backend is powered by Node.js, Express.js, MongoDB Atlas, Socket.io, JWT tokens, and Axios.

INDEX

Table of Contents **Page No**

List of Tables

List of figures

CHAPTER-1: INTRODUCTION

Introduction:

Smart Talk is an advanced real-time chat application designed to provide seamless communication with a focus on security and user experience. It allows users to engage in instant messaging, share multimedia content, and participate in group chats. Built using modern technologies like React.js, Node.js, and MongoDB, Smart Talk ensures high performance and scalability. The app incorporates secure authentication with JWT and OTP verification to protect user data. With features such as emoji support, Google sign-in, and multimedia sharing, Smart Talk is ideal for both personal and professional use. Its responsive design guarantees accessibility across devices. Smart Talk aims to deliver a secure, reliable, and engaging communication experience, making it the go-to platform for modern digital communication.

1.1 Project Overview:

Smart Talk is an advanced real-time chat platform designed to provide a seamless and secure communication experience. The platform enables users to engage in instant messaging, participate in group chats, and share multimedia content like images, videos, and documents. With its user-friendly interface and interactive features, Smart Talk is ideal for both personal and professional communication. The platform offers secure user authentication through JWT and OTP, ensuring privacy and data protection. Smart Talk supports cross-platform compatibility, making it accessible on both mobile and desktop devices, ensuring users can stay connected anytime, anywhere.

1.2 Project Background:

In today's fast-paced world, effective and secure communication is crucial for personal and professional interactions. Traditional messaging platforms may lack essential features such as multimedia sharing, real-time messaging, and strong security measures. Many existing apps also fail to provide an efficient and engaging experience, leaving users with limited options for secure and interactive communication. Furthermore, security concerns around user data are increasingly important. **Smart Talk** aims to address these challenges by integrating real-time messaging, multimedia support, and strong security features, ensuring an optimized and engaging communication experience.

1.3 Purpose:

The purpose of **Smart Talk** is to create a comprehensive platform for real-time communication that offers instant messaging, multimedia sharing, group chats, and robust security features. The platform aims to improve the user experience by providing secure, fast, and interactive messaging solutions that are easy to use and accessible across multiple devices. With advanced features such as emoji support, Google sign-in, and multimedia capabilities, **Smart Talk** seeks to enhance both personal and professional communication, ensuring users have a reliable tool for seamless, secure conversations.

1.3.1 Problem statement:

The project addresses the problem of inefficient and insecure communication platforms. Existing messaging apps often lack essential features like secure authentication, multimedia support, and real-time interaction, leading to frustration for users. **Smart Talk** solves this problem by offering a secure, user-friendly platform with instant messaging, multimedia sharing, and robust security, ensuring a seamless communication experience for users both personally and professionally.

1.3.2 Project Aim:

The aim of the **Smart Talk** project is to develop a real-time messaging platform that combines speed, security, and ease of use. The platform is designed to offer seamless communication, including instant messaging, multimedia sharing, and group chat capabilities, all while maintaining a high standard of data security. **Smart Talk** aims to enhance communication experiences by providing a secure and interactive environment for users across devices.

1.3.3 Project Objectives:

- ➢ To create a user-friendly real-time chat platform that allows users to send instant messages, share multimedia, and participate in group chats.
- ➢ To provide secure and encrypted messaging using JWT-based authentication and OTP verification.
- ➢ To enhance the user experience with features like emoji integration, multimedia sharing, and easy-to-use interfaces.
- ➢ To improve communication efficiency with real-time messaging, ensuring instant interaction among users.
- ➢ To provide users with a scalable and cross-platform solution that works seamlessly across devices.
- ➢ To foster a reliable and secure communication space for both personal and professional use.

1.4 Project Scope:

- ➢ Developing a real-time messaging platform that supports individual and group chats.
- ➢ Enabling multimedia support, including images, videos, and file sharing.
- ➢ Ensuring cross-platform compatibility for mobile and desktop devices.
- ➢ Integrating Google sign-in for easy user authentication and interaction.
- ➢ Ensuring the privacy of user data with end-to-end encryption and secure communication channels.

1.5 Impact, Significance and Contributions :

1.5.1 Impact:

- ➢ **Convenience: Smart Talk** simplifies the process of staying connected by offering real-time messaging, multimedia sharing, and secure communication in one platform.
- ➢ **Time Savings:** The app reduces the time spent on communication by offering instant messaging with real-time updates, making it easy for users to stay in touch.

➢ **Data Security:** With robust security features like JWT and OTP authentication, Smart Talk ensures that all user data is protected, promoting a safe communication environment.

1.5.2 Significance:

➢ **Enhanced Communication**: **Smart Talk** provides a convenient and user-friendly platform that connects users for real-time communication, enhancing both personal and professional interactions.

➢ **Streamlined Experience**: The platform simplifies the process of instant messaging, multimedia sharing, and group chat management, saving time for users while ensuring an efficient communication experience.

➢ **Trust and Transparency**: By offering features such as secure authentication and encrypted messaging, **Smart Talk** enhances trust between users, ensuring privacy and security while communicating.

➢ **Global Accessibility**: Regardless of the user's location, **Smart Talk** makes it easy for individuals to stay connected, supporting both local and global communication.

➢ **Improved Communication Quality**: With features like emoji integration, group chats, and multimedia sharing, **Smart Talk** significantly enhances the quality and engagement of communication, making it more interactive.

➢ **Seamless User Experience**: The app's intuitive interface ensures that users, whether for professional or personal purposes, can access and use the platform with ease, improving their overall communication experience.

1.5.3 Contribution:

➢ **Empowering Users**: **Smart Talk** connects users directly through a secure and interactive platform, empowering them to communicate more effectively and efficiently.

➢ **Innovation in Communication**: **Smart Talk** introduces innovative features like real-time messaging, multimedia support, and emoji integration, setting a new standard for interactive .

➢ **Digital Transformation**: By combining modern web technologies, secure authentication, and multimedia sharing, **Smart Talk** helps shift traditional communication methods to a more digital, streamlined approach, improving the way people connect and interact globally.

CHAPTER-2: FEASIBILITY STUDY

2.1 Technical Feasibility:

- Smart Talk uses widely established technologies like React.js, TypeScript, Node.js, Express.js, MongoDB Atlas, and Socket.io, ensuring strong performance and scalability for real-time messaging and multimedia support.

2.2 Operational Feasibility:

- The platform simplifies communication with real-time messaging, multimedia sharing, and group chat features, enhancing user engagement. Secure authentication and flexible scheduling make it a reliable choice for users.

2.3 Economic Feasibility:

- Costs include development, hosting, and maintenance, which are scalable. Revenue can be generated through partnerships, premium features, and paid subscriptions for enhanced functionality.

2.4 Legal Feasibility:

- Smart Talk must comply with data protection laws and secure user data through encryption. Clear terms and conditions should be established for service use, payments, and dispute resolution.

CHAPTER-3: LITERATURE REVIEW

3.1 All Smart Talk

Smart Talk is a cutting-edge real-time chat application designed for seamless communication. The app offers a range of features like instant messaging, secure authentication, group chats, and multimedia sharing. With a user-friendly interface, users can easily communicate, share images and videos, and manage their profiles. The platform is built to cater to both personal and professional communication needs, ensuring fast, reliable, and secure interactions.

Technologies used:

➢ Frontend:- HTML, Tailwind CSS, React.js
➢ Programming language: JavaScript, TypeScript
➢ Backend: Node.js, Express.js
➢ Database: MongoDB Atlas
➢ Other Technologies**:** Socket.io, JWT Authentication, Axios

Key Features:

1. **Real-Time Messaging**

➢ Instant messaging with real-time updates powered by Socket.io.
➢ Seamless and fast communication for personal and group chats.

2. **Secure User Authentication**

➢ Secure login with JWT authentication and Google Sign-In.
➢ Ensures data protection and privacy for all users.

3. **Multimedia Sharing**

➢ Supports the sharing of images, videos, and other multimedia files.
➢ Enhances the chat experience for users with multimedia needs.

4. **Group Chat Functionality**

➢ Create and manage group chats with multiple users.
➢ Collaboration made easy with shared communication spaces.

5. **User Profile Management**

➢ Users can easily update and manage their personal profiles.
➢ Customizable profile settings for a personalized experience.

Limitations:-

1 Limited Range of Features

- ➢ Currently, Smart Talk focuses mainly on text and multimedia messaging.
- ➢ While the app supports essential communication features, it may not cater to users seeking more advanced features like video calling or file-sharing beyond images and videos, which could limit its appeal.

2 Limited Device Compatibility

- ➢ Smart Talk is optimized for mobile and desktop devices but may not yet fully support other platforms such as tablets or smart TVs.
- ➢ This limitation could restrict the app's reach and usability on a wider range of devices.

3 Regional Availability

- ➢ The platform's services are currently limited to specific regions or countries.
- ➢ Users outside these areas may not be able to use the app, limiting its global reach and customer base.

4 Dependence on Internet Connectivity

- ➢ Smart Talk requires a stable internet connection for real-time messaging, which may affect user experience in areas with unreliable internet access.
- ➢ This limitation could reduce the platform's effectiveness in regions with low internet penetration or unstable connectivity.

3.2 WhatsApp

WhatsApp, launched in 2009, is a globally recognized messaging platform that facilitates real-time text, voice, and video communication. Widely used for both personal and professional interactions, it provides a simple, secure, and reliable way to stay connected with contacts worldwide.

Technologies used:

- ➢ Programming languages: Java (Android), Swift (iOS), JavaScript (Web)
- ➢ Frameworks: Signal Protocol for encryption, Web Sockets for real-time Communication
- ➢ Database: SQLite, proprietary databases for message storage and syncing
- ➢ Other technologies: Multimedia compression algorithms, push notifications, AI for potential chatbot integrations

Key Feature:-

1. Secure Real-Time Messaging:

- ➢ Provides real-time messaging with end-to-end encryption to ensure secure communication. Uses the Signal Protocol for advanced privacy and data protection.

2. Multimedia Support:

- ➢ Users can send images, videos, voice messages, and documents, with efficient compression technology to optimize data usage and transfer speed.

3. User-Friendly Interface:

➢ An intuitive and simple design focused on ease of use, making it accessible across diverse user demographics.

4. Cross-Platform Compatibility:

➢ Available on iOS, Android, and Web, allowing users to seamlessly sync and use WhatsApp across devices.

5. Group Communication and Broadcast Messages:

➢ Offers group chat features, broadcast messaging, and community group management tools for collaborative interactions.

Limitation:-

1. Privacy and Metadata Concerns:

➢ While messages are encrypted, metadata (such as who you chat with and when) is not, which raises privacy concerns among users.

2. Limited Customization Options:

➢ Compared to some messaging apps, WhatsApp offers limited options for themes, font sizes, and other user interface customization.

3. No Cloud Storage:

➢ Media and messages are not stored in the cloud (other than backups), which can lead to data loss if backups aren't regularly created.

4. Dependence on Mobile Number:

➢ Requires a phone number for account setup, which may not be ideal for users who prefer other authentication methods.

3.3 Telegram

Telegram, launched in 2013, is a cloud-based messaging app known for its focus on speed, security, and privacy. It offers versatile messaging options and multimedia sharing, supporting both personal and professional communication needs across the globe.

Technologies used:

➢ Programming languages: C++, Java (Android), Swift (iOS), JavaScript (Web)

➢ Protocols and Frameworks**:** MTProto encryption protocol for secure messaging

➢ Database: Proprietary distributed database for cloud-based storage

➢ Other Technologies: AI-powered spam filtering, multimedia compression, cloud storage, bots with custom APIs

Key Features

1. Cloud-Based Messaging and Syncing:

➢ Provides cloud-based storage, allowing users to access messages and media across devices without worrying about backups.

2. Enhanced Security Options:

➢ Offers end-to-end encryption for "Secret Chats" and utilizes the MTProto protocol for standard chats, which focuses on both speed and security.

3. Customizable User Interface and Themes:

➢ Allows users to personalize the interface with custom themes, colors, and night mode options, catering to a range of user preferences.

4. Large Group Chats and Channels:

➢ Supports large groups with up to 200,000 members, channels for broadcasting to unlimited audiences, and communities with enhanced moderation tools.

Limitations

1. Limited End-to-End Encryption

➢ End-to-end encryption is only available in "Secret Chats," whereas regular chats are encrypted server-to-client, which some users find less secure.

2. High Storage Usage on Devices:

➢ The app stores data locally, which can consume significant storage space if not manually managed by the user.

3. Privacy Concerns Due to Cloud-Based Storage:

➢ Messages are stored on Telegram's servers (except in Secret Chats), raising privacy concerns among users who prefer fully encrypted solutions.

4. Occasional Spam Issues:

➢ Due to its open platform and public channels, Telegram can sometimes experience spam issues, although it has AI-powered filters to mitigate this.

3.4 Slack:-

Slack, launched in 2013, is a collaboration and messaging platform designed for team communication and project management. Known for its organized channels and powerful integrations, Slack supports real-time messaging, file sharing, and productivity tools, making it popular for both small teams and large organizations.

Technologies used in Slack:

➢ Programming languages: JavaScript, PHP, Java
➢ Frameworks: Electron (desktop app), React (frontend)
➢ Database: MySQL, Redis for caching, and other proprietary databases
➢ Other technologies: **:** WebSocket for real-time messaging, OAuth for integrations, AWS for cloud infrastructure

Key Features:-

1. Channel-Based Messaging and Organization:

➢ Communication is organized into channels that can be public, private, or based on specific projects, enabling easy access and visibility of relevant information.

2. Direct Messaging and Threaded Conversations:

➢ Supports direct messaging and threaded conversations, keeping discussions organized and reducing clutter in channels.

3. Extensive App Integrations:

➢ Offers integrations with over 2,400 apps, including Google Workspace, Microsoft Office, Trello, and Salesforce, allowing teams to centralize notifications and streamline

workflows.

4. **Searchable Message and File Archive:**

➢ Enables search through all messages and files, making it easy to locate past information and conversations, even across long projects and teams.

5. **Advanced Security Features:**

➢ Provides security options like single sign-on (SSO), two-factor authentication, and compliance with enterprise-grade security standards, including SOC 2 and GDPR.

Limitations

1. **Limited Free Plan Features:**

➢ The free plan restricts message history access to the last 90 days and limits storage and search functionality, which may not suffice for some teams.

2. **High Cost for Larger Teams:**

➢ Slack's pricing can be expensive for large teams, especially when scaling up to enterprise-level features and storage requirements.

3. **Notification Overload:**

➢ Users may experience notification fatigue due to constant updates and alerts, especially in larger or very active channels.

3.5 Microsoft Teams

Microsoft Teams, introduced in 2017, is a collaborative communication platform integrated within the Microsoft 365 suite. It is designed to facilitate team-based collaboration, combining chat, video conferencing, file sharing, and app integration to support productivity and project management for both remote and in-office teams.

Technologies used by Justdial:

➢ Programming languages: C#, JavaScript, TypeScript
➢ Web development frameworks: React (for UI), ASP.NET Core (backend)
➢ Databases: SQL Server, Cosmos DB
➢ Other Technologies: Azure for cloud services, WebRTC for video/audio calls, and Microsoft Graph API for app integration

Key Features:

1. **Integrated Channels and Teams Structure:**

➢ Organizes communication within Teams and channels, allowing members to create focused spaces for specific projects or departments, ensuring information is accessible and organized.

2. **Real-Time Chat and Collaboration:**

➢ Offers real-time chat, file sharing, and document collaboration, with integrated editing tools for Word, Excel, and PowerPoint, allowing team members to work simultaneously on files directly within Teams.

3. **Video Conferencing and Webinars:**

➢ Provides high-quality video and audio conferencing for one-on-one meetings, team calls, and webinars, with features like screen sharing, breakout rooms, and live captions.

4. **Comprehensive Microsoft 365 Integration:**

➢ Seamlessly integrates with Microsoft 365 apps (e.g., Outlook, OneNote, SharePoint), enabling a cohesive experience across productivity tools and promoting centralized data management.

Limitations:

1. **High Resource Usage:**

➢ Microsoft Teams can be demanding on system resources, particularly during video calls, which may impact performance on older devices.

2. **Learning Curve for New Users:**

➢ Due to its vast array of features, new users may find it challenging to navigate and fully utilize the platform, especially those unfamiliar with Microsoft 365 products.

3. **Limited Customization Options:**

➢ Teams offers limited customization for the user interface, which may not meet the specific preferences or branding needs of some organizations.

CHAPTER 4 – SOFTWARE AND HARDWARE REQUIREMENT

4.1. Minimum Hardware Requirements:

- Processor: Dual-core processor with a minimum clock speed of 1.5 GHz.
- RAM: 2 GB of RAM or higher.
- Storage: 16 GB of available storage space or more.
- Connectivity: Stable internet connection with a minimum download speed of 2 Mbps.
- Screen Resolution: Minimum resolution of 1024x768

4.2. Minimum Software Requirements:

4.2.1. Web Browser:

- Google Chrome 80+
- Mozilla Firefox 75+
- Safari 13+
- Microsoft Edge 80+

4.2.2. Operating System:

- Windows 10 or later
- macOS 10.13 (High Sierra) or later
- Linux (with a modern desktop environment like GNOME or KDE)
- Mobile: iOS 13+ or Android 9.0+

4.2.3. Internet Connection:

- Stable internet connection with at least 5 Mbps download speed.

CHAPTER-5: SOFTWARE REQUIREMENT SPECIFICATIONS (SRS)

5.1 Functional Requirements:

5.1.1 User Registration and Authentication Module:

5.1.1.1 User Registration:

➢ ***Input***: Users enter their name, email, password, and confirm password.
➢ ***Process***: Input validation checks for completeness and correct email format.
➢ ***Output***: Account creation if input is valid, with email verification for added security.

5.1.1.2 User Authentication:

➢ ***Input***: Users provide their registered email and password.
➢ ***Process***: (1) Input validation checks the provided credentials.
(2)Security measures include account lockout after repeated failed login attempts.
➢ ***Output***:(1) Successful login grants access to the user's account and real-time messaging features.(2)Account lockout notification if login attempts exceed the security threshold.

5.1.2 Chat and Messaging Module:

5.1.2.1 Message Composition and Sending::

➢ ***Input***: User types and sends a text message, image, video, or document.
➢ ***Process***: The system supports sending various multimedia types over real-time messaging channels.
➢ ***Output***: Message is instantly delivered to the recipient(s), with notifications and read receipts.

5.1.2.2 Group Chats::

➢ ***Input***: User selects participants to create a new group chat or joins an existing one.
➢ ***Process***: The system enables group chat creation with features like role management (admin, member).

5.1.2.3 Search and Filter:

➢ ***Input***:User enters search criteria to find specific chats or messages.
➢ ***Process***:System filters chats based on keywords, date, or participant.
➢ ***Output***:Users receive relevant search results to locate messages or chats quickly.

5.1.3 Profile Management Module:

5.1.3.1 User Profiles

➢ ***Input***: User requests to view or edit their profile details.
➢ ***Output***: The system displays profile information, including the user’s profile photo, bio, status, and contact info.

5.1.3.2 Profile Customization::

➢ ***Input***: User updates profile picture, status, or other information.

➢ ***Process***:The system allows users to edit and save profile information.

➢ ***Output***: Profile changes are reflected across the platform in real-time.

5.1.4 Real-Time Notifications:

5.1.4.1 Message and Activity Notifications:

➢ ***Process***: The system generates notifications for new messages, read receipts, typing indicators, and group invitations.

➢ ***Output***: Users receive instant notifications, enhancing real-time engagement.

5.1.4.2 Reminder Notifications::

➢ ***Process***: System sends reminders for unread messages or pending chats.

➢ ***Output***: Users are kept updated about their conversations and notifications.

5.1.5 Rating and Reviews:

5.1.5.1 Rating System:

➢ ***Input***: Users rate chat experiences or the app's overall functionality.

➢ ***Process***: Users can leave feedback to improve app features

➢ ***Output***: Ratings and feedback help maintain app quality and enhance user experience.

5.1.6 Admin Panel:

5.1.6.1 Database Management:

➢ ***Process***: The admin manages databases of user accounts, chat history, and multimedia files.

➢ ***Output***: Ensures efficient data management and retrieval for a seamless user experience.

5.1.6.2 User Management:

➢ ***Process***: The admin oversees user accounts, ensuring compliance with platform policies.

➢ ***Output***: Effective user account management and enhanced platform security.

5.2 Non-Functional Requirements:

5.2.1 Performance Requirements:

➢ Response Time: **Response Time:** Smart Talk should load quickly, with pages loading within 3 seconds.

➢ Scalability: **:** The system should scale to accommodate increasing users and messages without performance lags.

➢ Concurrency: The platform should support multiple concurrent users seamlessly.

5.2.2 Security Requirements:

- Data Encryption: End-to-end encryption ensures message and multimedia confidentiality..
- Authentication: Secure JWT-based authentication prevents unauthorized access
- Data Protection: Regular updates and security checks protect user data.
- Secure Payment Processing: Stripe integration should comply with PCI DSS for secure transactions.Accessibility: The website should be accessible to every type of user.

5.2.3 Usability Requirements:

- User-Friendly Interface: Smart Talk's interface is designed to be intuitive and easy for users.Fault Tolerance: The system should gracefully handle errors and failures, ensuring that users do not experience service disruptions.
- Accessibility: Ensures accessible features for diverse users, including mobile responsiveness.
- Mobile Responsiveness: Compatible with multiple devices, including smartphones, tablets, and desktops.
- Help and Support: Users can access help resources, FAQs, and contact support.

5.2.4 Reliability Requirements:

- System Uptime: Smart Talk should maintain high availability with minimal downtime.
- Fault Tolerance: The system should handle errors without service disruption.
- Data Integrity: All data is kept accurate and protected from loss.

5.2.5 Efficiency:

- Smart Talk is optimized to minimize server load and conserve resources, ensuring smooth operation as the user base grows.

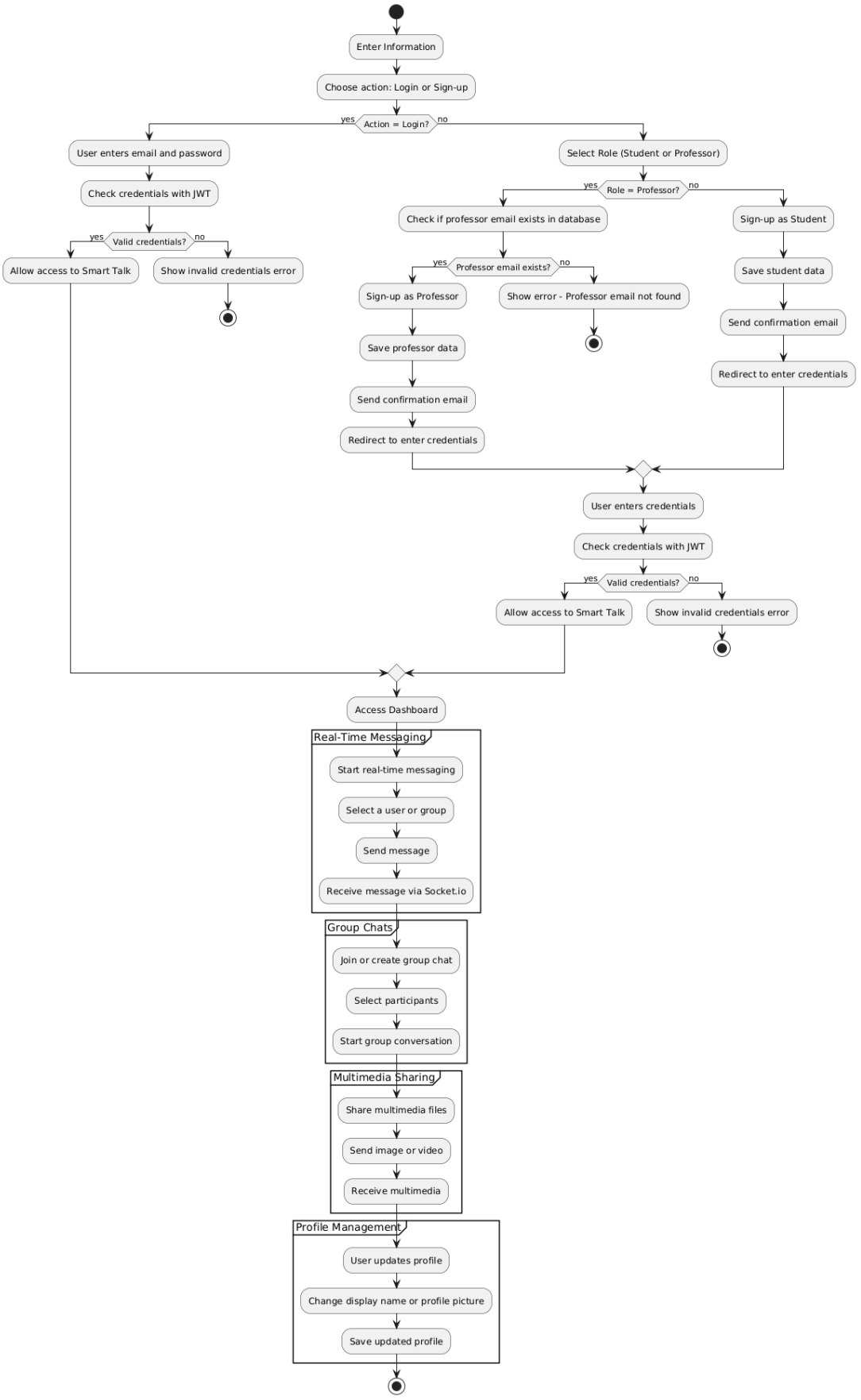
5.2.6 Economic:

- Development: Resource management is efficient to control development and long-term maintenance costs.
- **Cost Management:** Ongoing costs are minimized by using scalable, reliable technologies like MongoDB Atlas and Socket.io.

5.2.7 Software and Hardware Requirements:

- Processor: Dual-core processor or higher.
- RAM: 4 GB RAM or higher for optimal performance.
- **Storage:** Sufficient storage space to handle chat and multimedia data.
- Operating System**:** Compatible with modern web browsers (Google Chrome, Firefox, Safari, Edge).
- Internet Connection: Stable connection for smooth, real-time communication on Smart Talk.

CHAPTER-6 : PROCESS MODEL



[Fig 6.1 Process Model]

CHAPTER-7 : PROJECT PLAN

Week 1-2:

- Define project scope and requirements for SMART TALK platform.
- Research existing chat applications and identify essential features, such as real-time messaging, group chat, multimedia sharing, and authentication.

Week 3:

- Set up development environment with necessary tools (React.js, Tailwind CSS, Node.js, MongoDB).
- Establish project structure and version control.

Weeks 4-5 :

- Develop frontend interface with React and Tailwind CSS.
- Implement user registration, authentication, and profile management.
- Design database schema in MongoDB to store user, chat, and group data.

Week 6:

- Build backend infrastructure with Node.js and Express.
- Create API endpoints for user management, chat, and group functionalities.
- Integrate frontend and backend for real-time messaging with Socket.io.

Week 7:

- Add multimedia sharing, notifications, and emoji support.
- Implement group chat and encryption for secure communication
- Test user experience and platform navigation.

Weeks 8-9:

- Finalize frontend design and backend stability.
- Conduct thorough testing and optimize for performance and security.
- Prepare Stripe integration for secure payment processing.

Week 10:

- Develop and enhance the admin panel.
- Implement features for managing users, groups, and chats.
- Add moderation tools, including message and user activity logs.
- Provide analytics for monitoring platform performance and user engagement.
- Document user guides, technical specifications, and admin panel functionality.
- Optimize platform performance and security measures.

Week 11:

- ➢ Deploy SMART TALK to production.
- ➢ Monitor platform performance, address feedback, and fix any post-deployment bugs.

Week 12:

- ➢ Gather user and stakeholder feedback on usability and functionality
- ➢ Refine features based on reviews to enhance user experience.

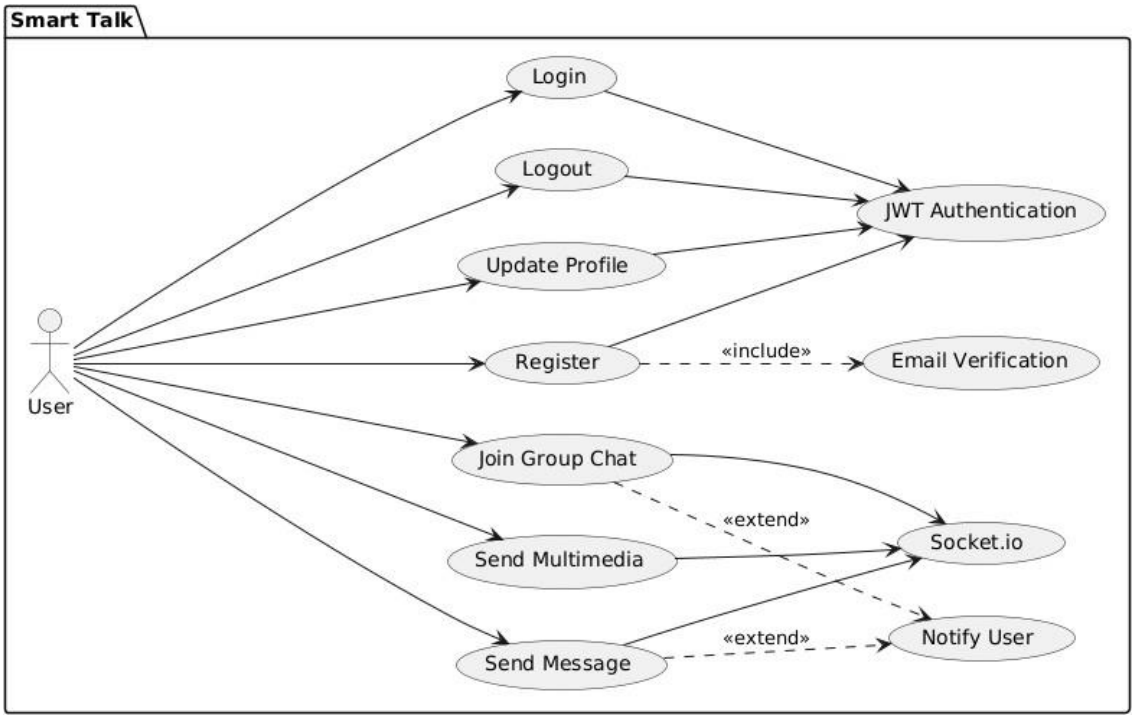
Week 13:

- ➢ Continue monitoring, provide ongoing maintenance, and plan future updates based on user feedback and trends.

CHAPTER-8 : SYSTEM DESIGN

8.1 Use Case Diagram

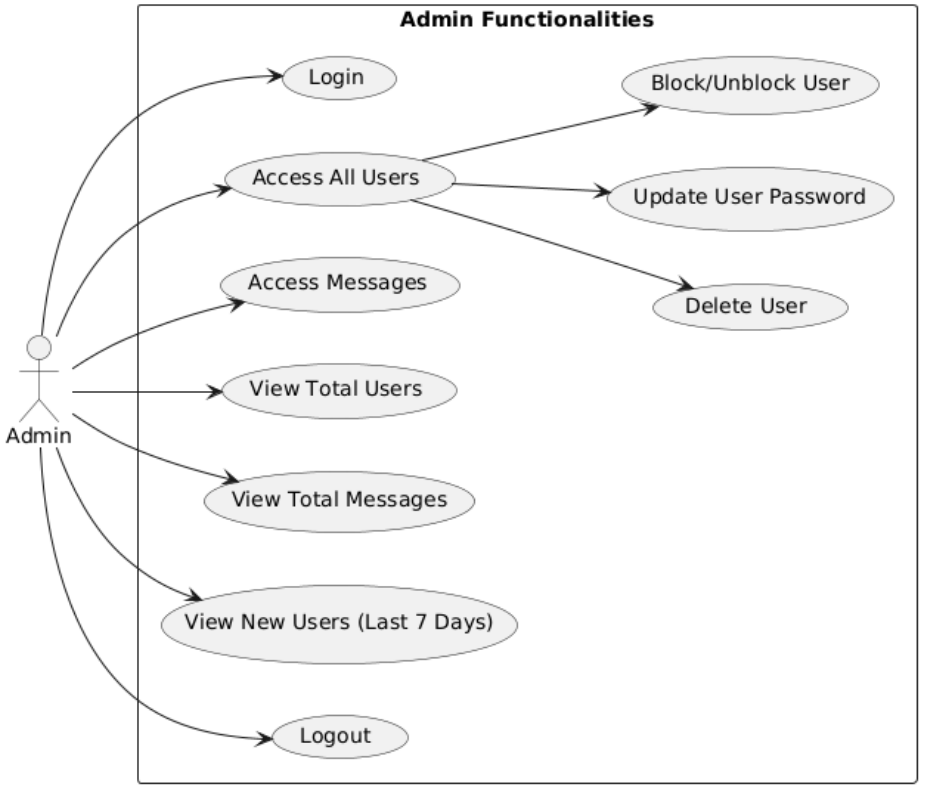
8.1.1 User Use case:-



[Fig 8.1.1 User Use case]

This use case diagram illustrates how users interact with the Smart Talk platform. It shows that users can perform actions such as registering, logging in, sending messages, joining group chats, updating profiles, and sending multimedia. These actions represent the primary functionalities available to users on the platform, supporting secure and engaging real-time communication. The diagram also highlights core features like secure authentication, real-time messaging with Socket.io, and multimedia sharing. This visual provides an overview of the main features and user interactions, capturing the seamless and dynamic communication experience that Smart Talk aims to deliver.

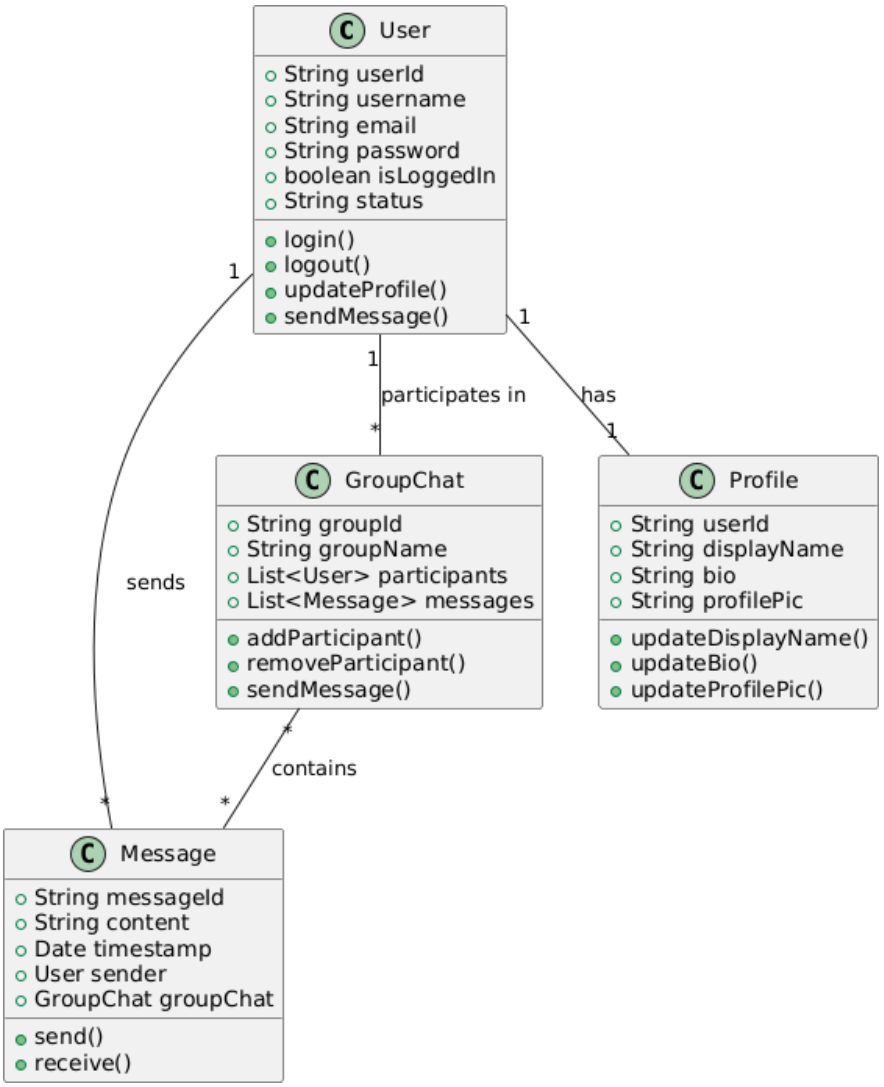
8.1.2 Admin Usecase



[Fig 8.1.2 Admin Use case]

The admin use case diagram illustrates the various interactions and functionalities available to the admin on the Smart Talk platform. It highlights the admin's ability to securely log into the admin panel and manage users by performing actions such as deleting accounts, updating passwords, and blocking or unblocking users. Additionally, the admin can monitor all messages exchanged on the platform, with detailed sender and receiver information, ensuring oversight and moderation. The admin dashboard provides valuable insights, including the total number of users, total messages sent, and statistics on new users. It also features a graphical representation of new users over the past seven days, helping the admin track platform growth and engagement. Furthermore, the admin can monitor group chats to ensure compliance and track activity. Finally, the admin can securely log out of the admin panel, maintaining platform security. This use case diagram underscores the comprehensive and secure administrative capabilities designed to enhance platform management and governance.

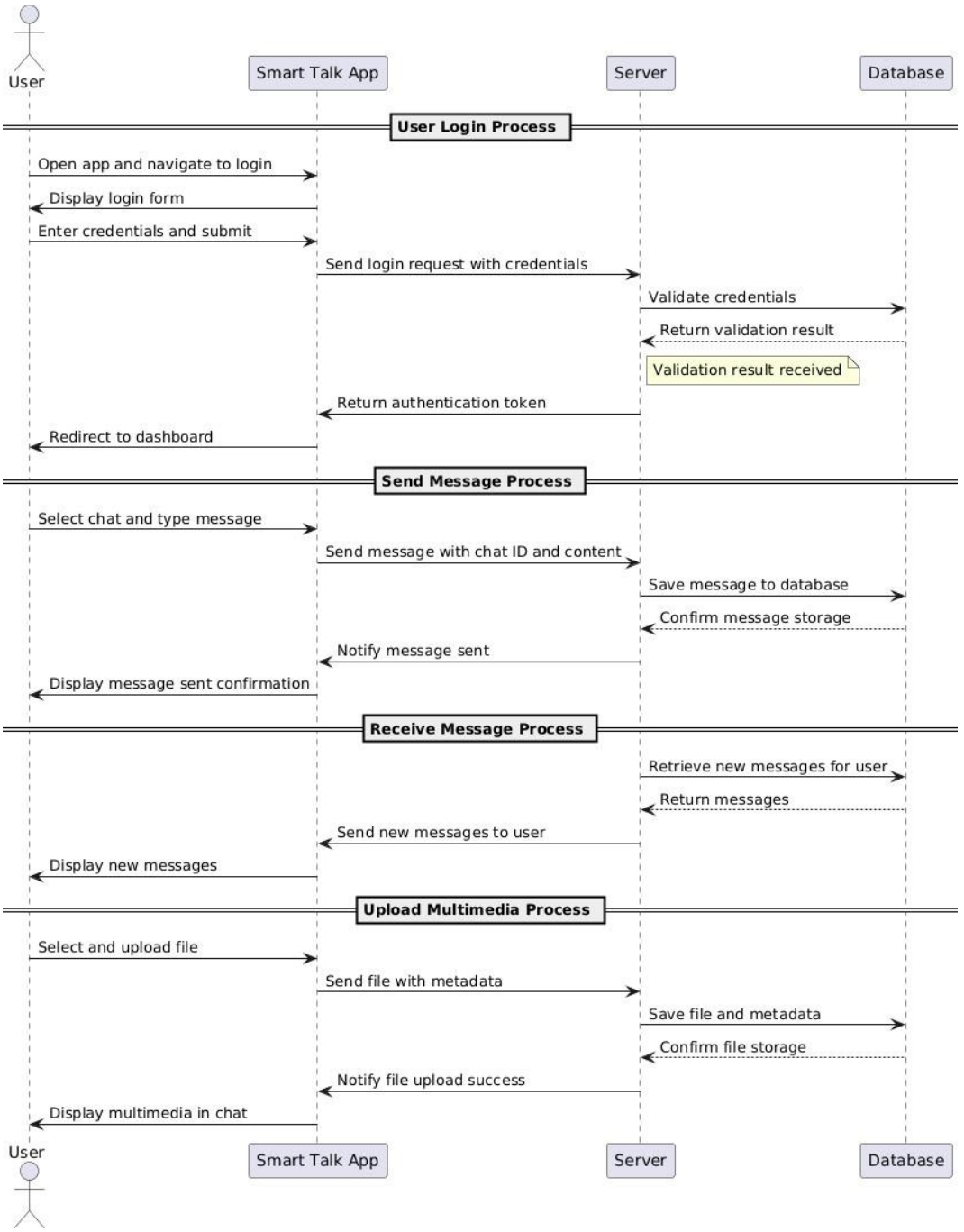
8.2 Class Diagram



[Fig 8.2 Class Diagram]

The class diagram in Smart Talk defines the major components of the system and their relationships. It outlines the User class for managing user information and authentication, the Message class for handling real-time message exchanges, and the Group class for supporting group chat functionalities. Additionally, it includes the Profile class for user profile management and the Media class for handling multimedia content like images and videos. This diagram visually represents the core entities and their interactions, showcasing the essential features and data flow within the Smart Talk platform to facilitate secure, seamless communication.

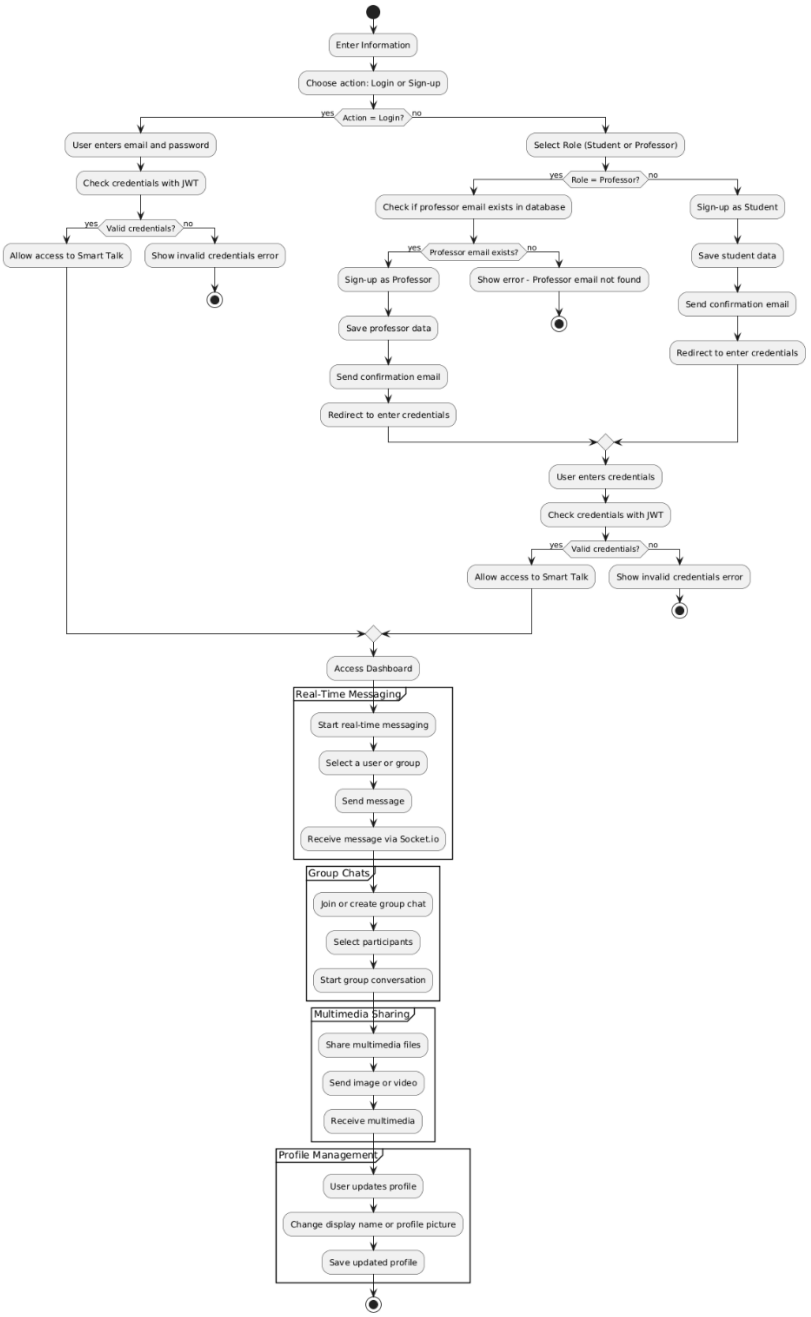
8.3 Sequence Diagram



[Fig 8.3 Sequence Diagram]

The sequence diagram for Smart Talk illustrates the dynamic process of a User initiating a real-time chat. The User logs in through the Authentication System, which validates credentials and grants access. Once authenticated, the User can initiate a chat session through Socket.io, where messages are exchanged in real time. If multimedia files are shared, the Media Handler processes the content, ensuring efficient delivery. The Database records chat history and profile updates, and upon logout, the Authentication System securely ends the session. This visual representation highlights the step-by-step interactions that ensure seamless, secure, and efficient communication on the Smart Talk platform.

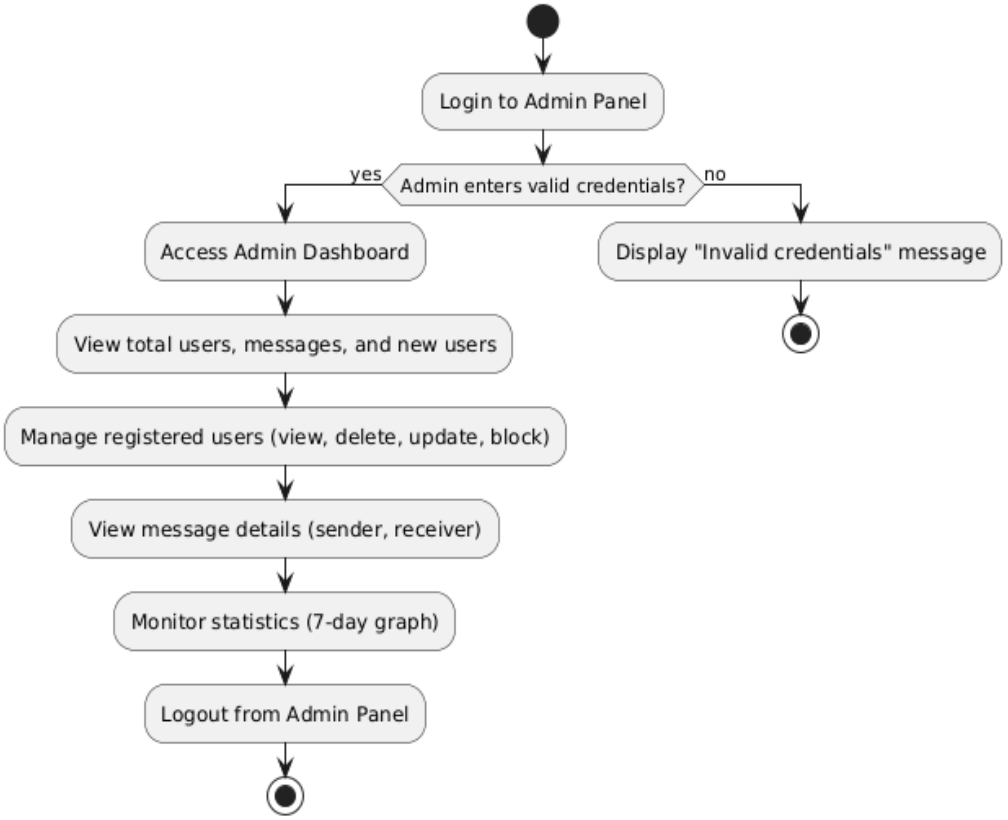
8.4 Activity Diagram



[Fig 8.4 Activity Diagram]

The activity diagram for Smart Talk outlines a streamlined flow for user interactions on the platform. It begins with a User logging into the application, where the Authentication System verifies credentials. Once logged in, the user can start messaging, participate in group chats, and share multimedia. Each message or media file is processed in real time by Socket.io to ensure smooth communication. The Media Handler manages multimedia uploads, while the Database saves chat histories and updates profile changes. The flow concludes when the user logs out, and the Authentication System securely ends the session. This diagram captures the seamless coordination between the user, real-time messaging components, and data management within Smart Talk.

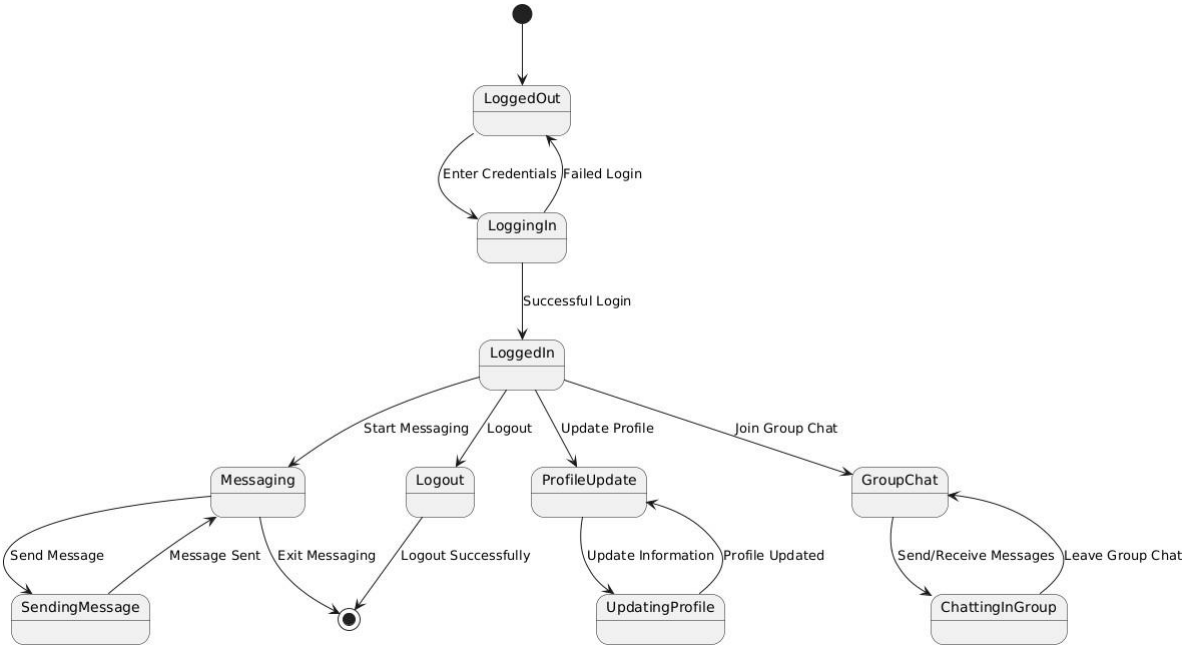
8.5 Activity Diagram for Admin



[Fig 8.5 Activity Diagram for Admin panel]

The Admin Activity Diagram for Smart Talk outlines the key actions available to the admin for managing the platform. It starts with the admin logging into the admin panel, where the Authentication System verifies credentials. Once logged in, the admin can access the Admin Dashboard to view platform statistics, including user activity and message data. The admin can manage registered users, perform tasks like updating or blocking accounts, and monitor message details for compliance. After completing tasks, the admin can log out, and the Authentication System securely terminates the session. This flow highlights the admin's ability to efficiently oversee platform operations while ensuring data security.

8.6 State Diagram

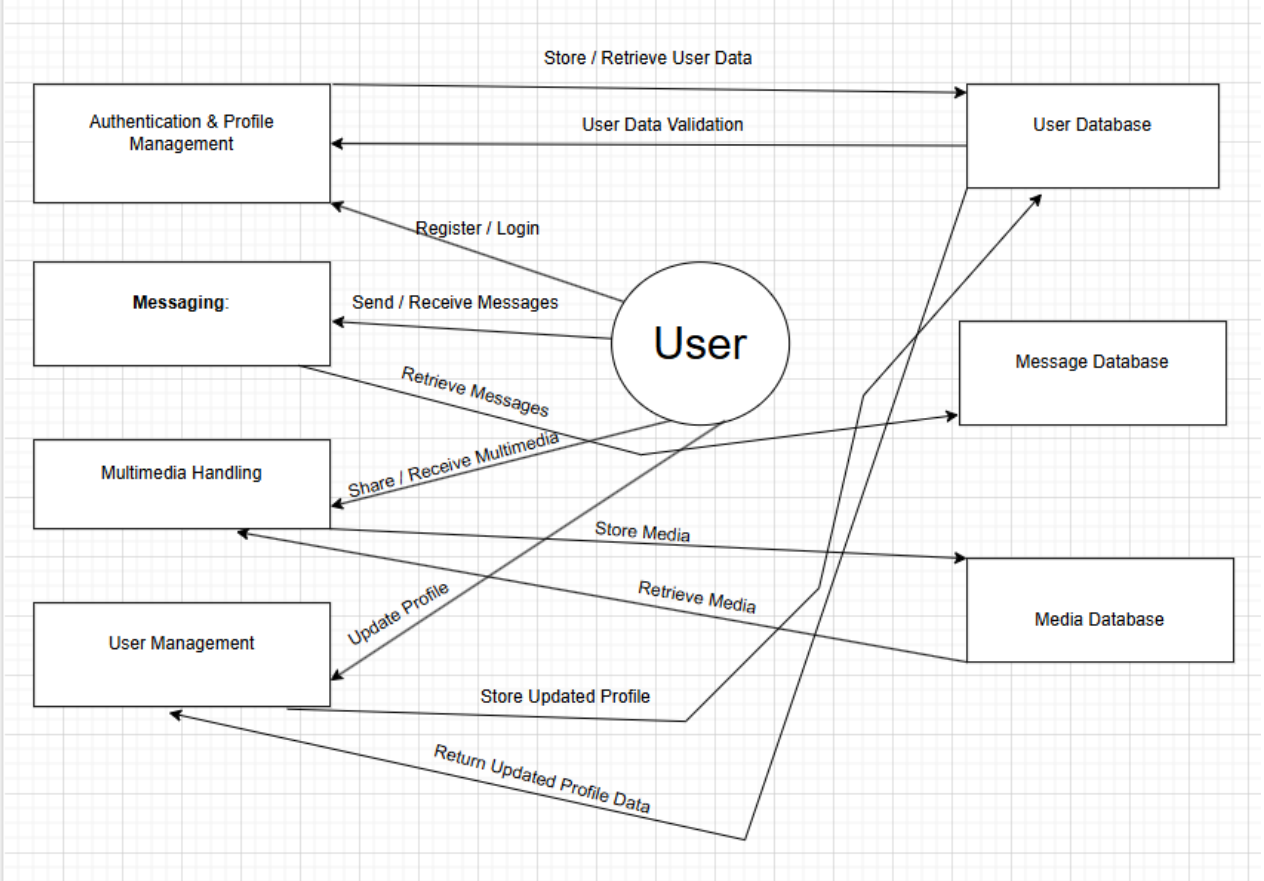


[Fig 8.6 State Diagram]

In the state diagram for Smart Talk, entities like the User and the System transition through various states to support dynamic communication. For example, a User moves from "Logged Out" to "Logging In" and then to "Logged In." Once logged in, the user can enter states like "Messaging," "Updating Profile," or "In Group Chat." During messaging, states such as "Sending Message" and "Receiving Message" ensure real-time interactions. The System manages these transitions, handling actions like authentication, message delivery, and media processing, to provide a secure, responsive, and seamless communication experience on the Smart Talk platform. This diagram illustrates the platform's ability to adapt to user actions and manage real-time chat processes efficiently.

8.7 Data Flow Diagram

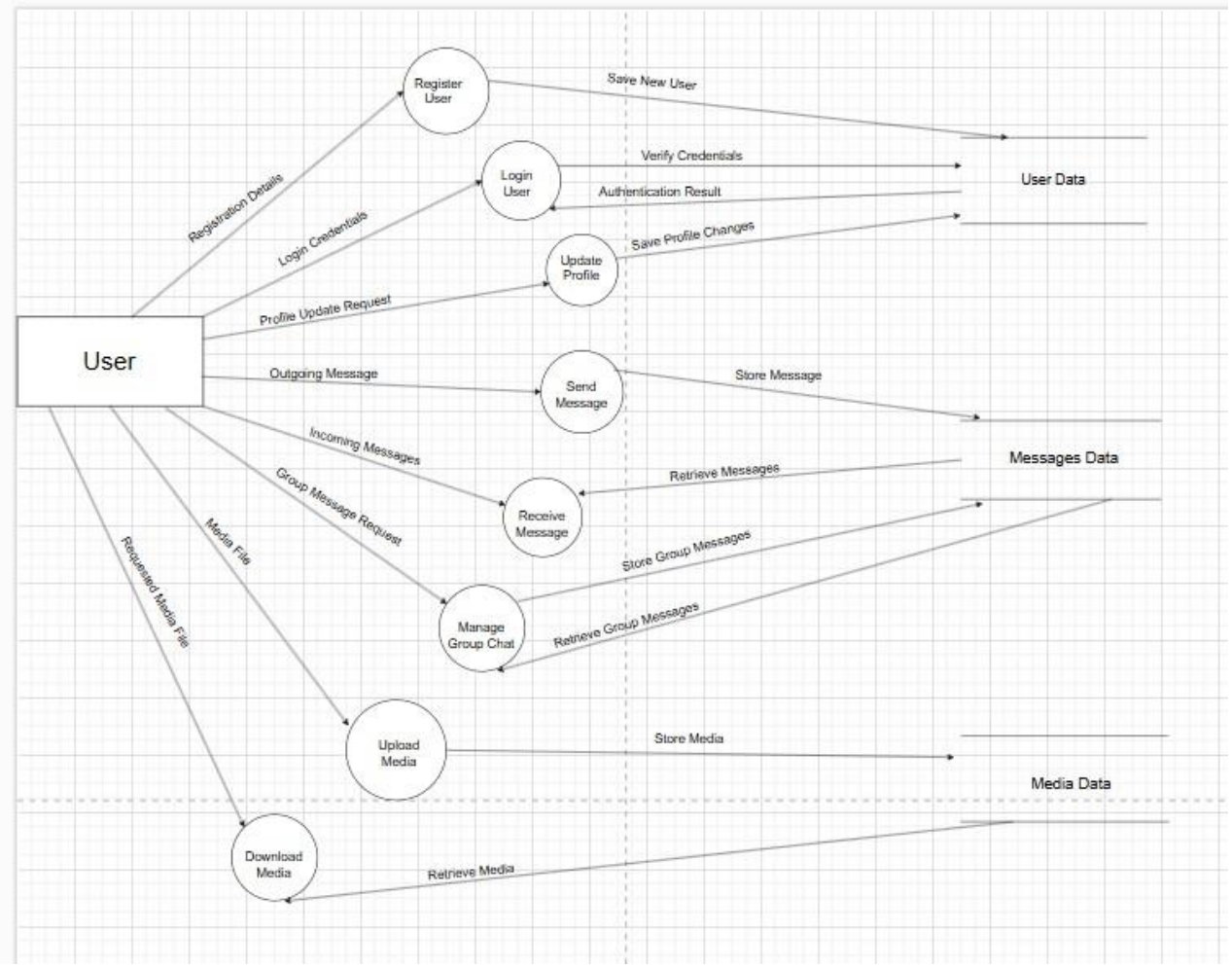
8.7.1 DFD-Level-0



[Fig 8.7.1 DFD Level-0]

The DFD Level 0 for Smart Talk represents the high-level data flow among Users, Admin, and External APIs within the platform. Users engage with Smart Talk by sending messages, sharing multimedia, and participating in group chats, while the Admin manages accounts and ensures security protocols. The system processes user data through core functionalities such as Authentication (using JWT tokens and Google sign-in), Real-Time Messaging (enabled by Socket.io), Group Management, and Notifications for message receipts and status updates. External APIs facilitate additional features like OTP verification and secure payments. Smart Talk's DFD Level 0 illustrates a streamlined, secure interaction between these entities, emphasizing the platform's focus on efficient, real-time communication and seamless user experience.

8.7.2 DFD-Level-1



[Fig 8.7.2 DFD Level-1]

At DFD Level 1 for Smart Talk, the system's core functions are further broken down into specific processes, providing a detailed view of how user interactions are managed. The primary entities—Users, Admin, and External APIs—continue to supply inputs, while Smart Talk refines these inputs across key functionalities. Processes such as User Authentication (managing JWT and OTP verification), Real-Time Messaging (with data exchange for individual and group chats), Multimedia Sharing, and Notification Management (including message status and read receipts) illustrate the depth of interaction within the platform. External APIs facilitate additional functions like Google Sign-In and Secure Payment Integration. This level offers a closer look at Smart Talk's internal operations, detailing how data flows through each process to ensure secure, real-time communication and an intuitive user experience across devices.

8.8 Planned Data Dictionary

8.8.1 Data Dictionary: Channel Model

Data Element	Data Type	Description	Data Length	Constraints
name	VARCHAR	The name of the channel.	255 characters	Required, Unique
members	TEXT (JSON or Comma-separated)	List of user IDs (references to the Users table) who are members of the channel.	N/A	Required, at least 1 member
admin	INT (Foreign Key)	The ID of the user who is the admin of the channel.	N/A	Required, Foreign Key references Users(id)
messages	TEXT (JSON or Comma-separated)	List of message IDs (references to the Messages table).	N/A	Optional, Foreign Key references Messages(id)
createdAt	DATETIME	Timestamp when the channel was created.	N/A	Required, Default: CURRENT_TIMESTAMP
updatedAt	DATETIME	Timestamp when the channel was last updated.	N/A	Required, Default: CURRENT_TIMESTAMP (updated on save/update)

[Table 8.8.1 Data Dictionary: Channel Model]

8.8.2 Data Dictionary: Messages Model

Data Element	Data Type	Description	Data Length	Constraints
sender	INT	The ID of the user who sent the message (reference to the Users table).	N/A (Foreign Key to Users table)	Required, Foreign Key references Users(id)
recipient	INT	The ID of the user who is the recipient of the message (optional, reference to Users table).	N/A (Foreign Key to Users table)	Optional, Foreign Key references Users(id)
messageType	ENUM ('text', 'audio', 'file')	The type of the message (either text, audio, or file).	N/A	Required, Enum values: 'text', 'audio', 'file'
content	VARCHAR	The content of the message, used only when the messageType is 'text'.	1024 characters	Required when messageType is 'text'
audioUrl	VARCHAR	The URL of the audio file, used only when the messageType is 'audio'.	255 characters	Required when messageType is 'audio'
fileUrl	VARCHAR	The URL of the file, used only when the messageType is 'file'.	255 characters	Required when messageType is 'file'
timestamp	DATETIME	The timestamp when the message was created.	N/A	Required, Default: CURRENT_TIMESTAMP

[Table 8.8.2 Data Dictionary :Messages Model]

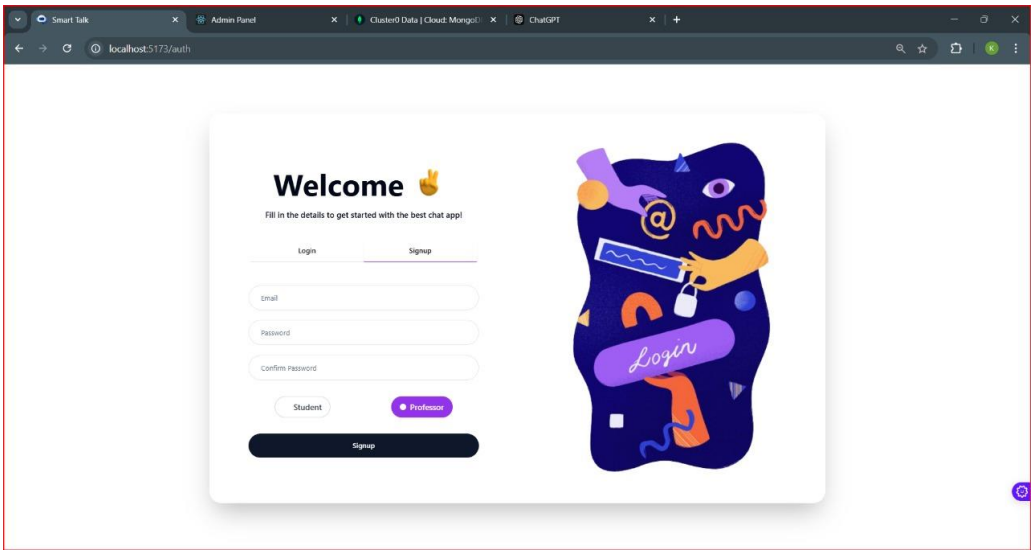
8.8.3 Data Dictionary: User Model

Data Element	Data Type	Description	Data Length	Constraints
email	VARCHAR	The email address of the user, used as a unique identifier for login and communication.	255 characters	Required, Unique
password	VARCHAR	The password for user authentication, hashed for security.	255 characters	Required
firstName	VARCHAR	The user's first name.	255 characters	Optional
lastName	VARCHAR	The user's last name.	255 characters	Optional
image	VARCHAR	The URL or path to the user's profile image.	255 characters	Optional
profileSetup	BOOLEAN	A flag indicating whether the user has completed their profile setup.	N/A	Default: `false`
color	INT	The color preference for the user interface (can be a color code or index).	N/A	Optional

[Table 8.8.3 Data Dictionary: User Model]

CHAPTER-9 : PROTOTYPE

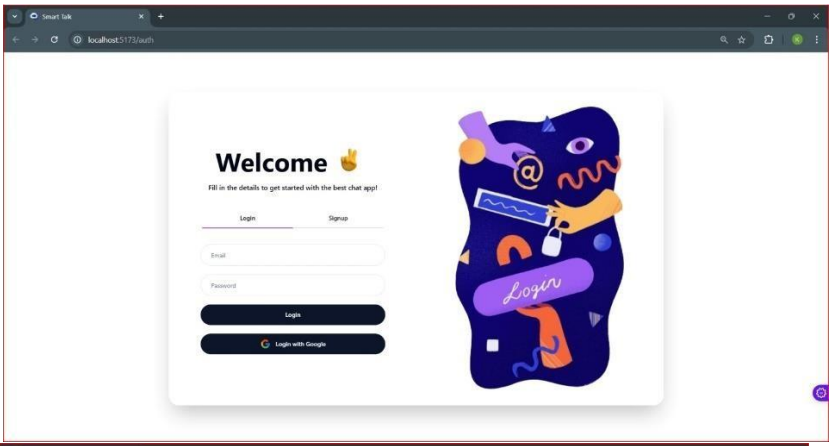
9.1 Prototype for Sign-up Page:

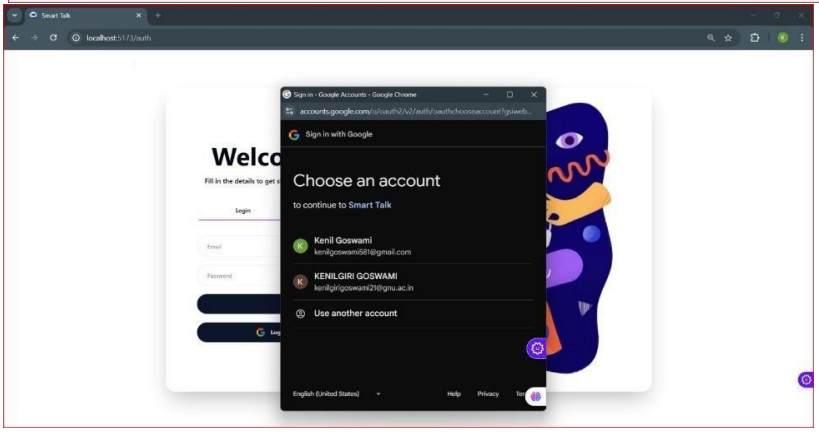


[Figure 9.1: Sign-up Page]

The signup page typically operates as the entry point for new users to join the platform. It captures essential information from users, such as email and password, and then redirects them to a verification or confirmation process to ensure the validity of the submitted data. After successful validation, users are usually redirected to their profile dashboard or homepage, signifying that the account creation process has been completed.

9.2 Prototype for Login Page:

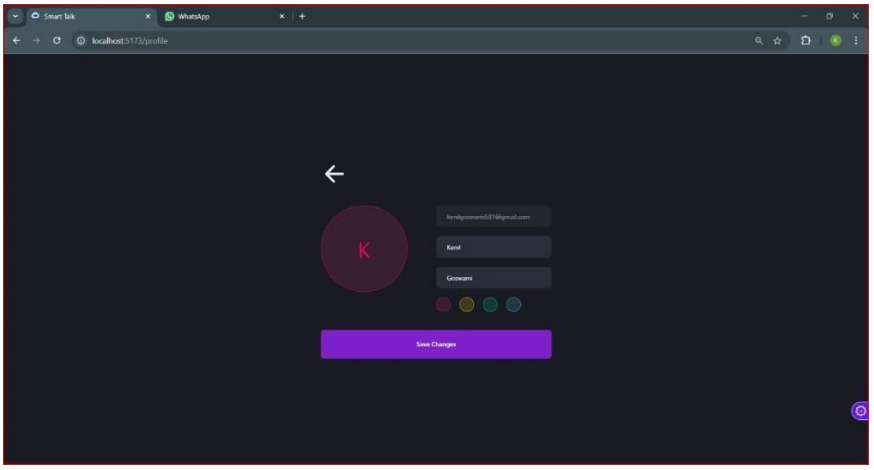




[Figure 9.2: Login Page]

The login page serves as the initial interaction point for returning users, prompting them to enter their registered credentials, such as email and password, to gain access to their accounts. Following submission, the system verifies the details, granting access upon successful authentication. Upon validation, users are redirected to their personal dashboard or the page they attempted to access before the login process, confirming their successful entry into the platform.

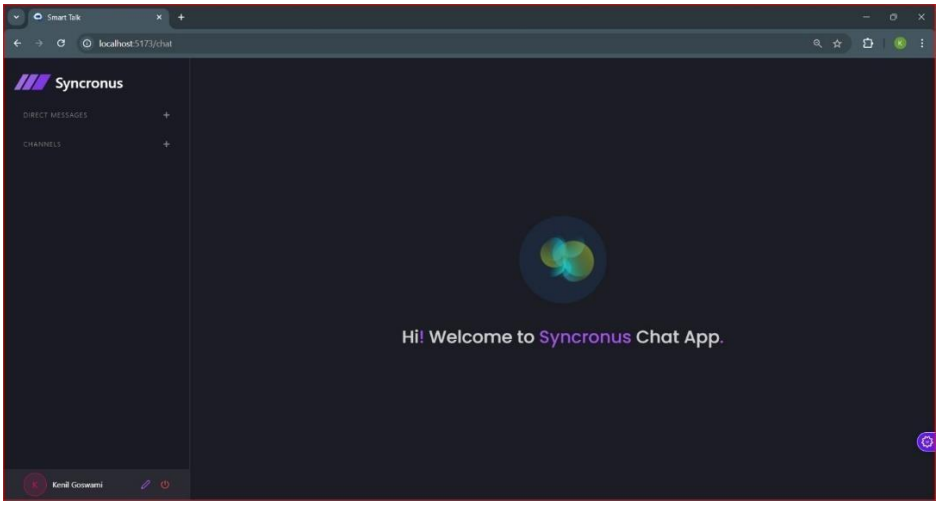
9.3 Prototype for User Profile:



[Figure 9.3: User Profile]

Fix It Pro's homepage serves as a hub of information for users. It showcases a variety of available services, offers glimpses of customer feedback through selected reviews, and provides insights into the team behind the platform. The presentation on the homepage is designed to engage users with essential service details, reviews, and an introduction to the platform, fostering trust and encouraging service exploration.

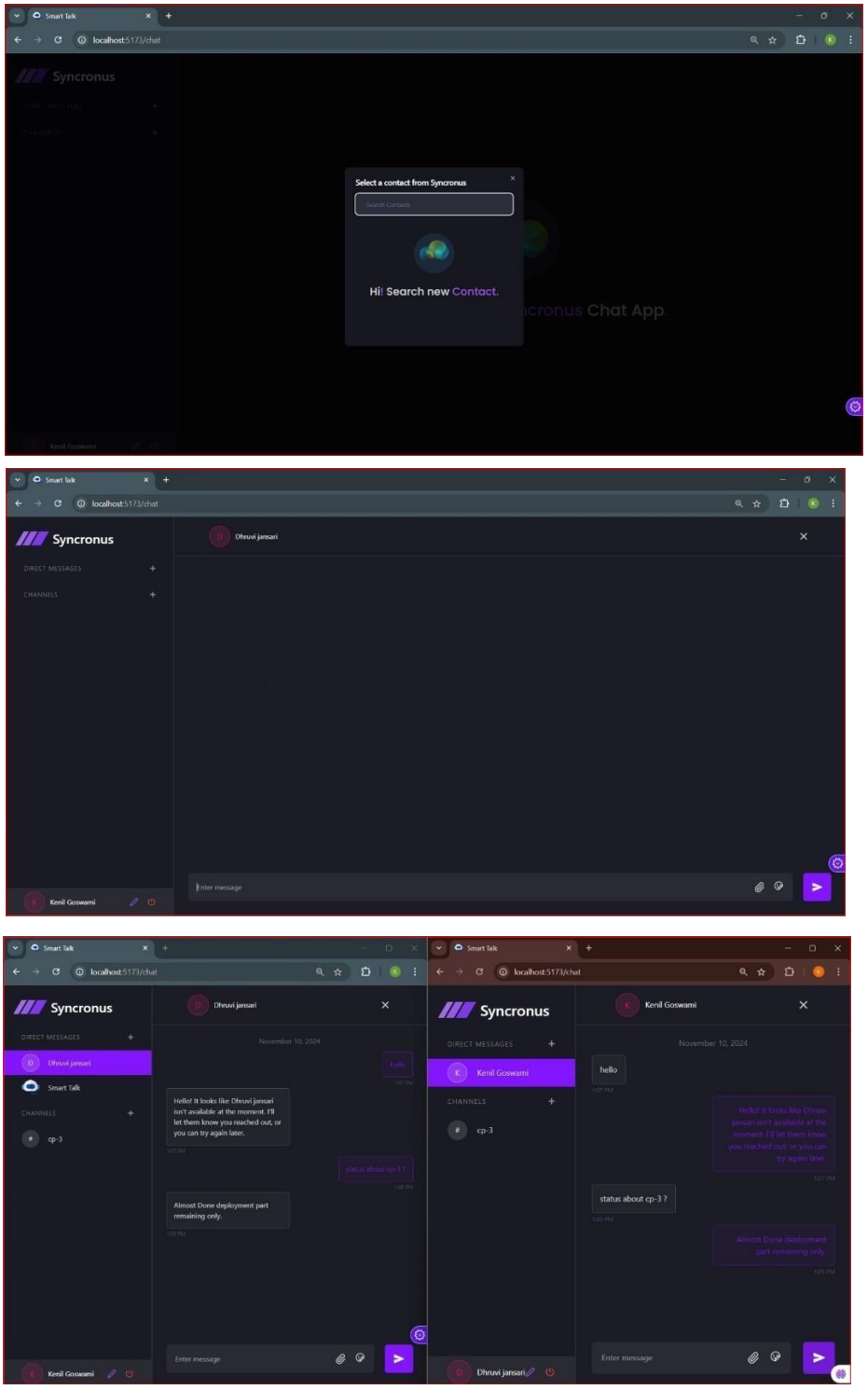
9.4 Prototype for Home page:



[Figure 9.4: Home page]

Fix It Pro's service selection page is a web interface where users can choose from various service categories like plumbing, electrical work, carpentry, and painting, along with specifying their location by selecting their state, district, and city. Once the user selects their preferences and clicks the "Search" button, the page dynamically populates worker cards based on the selected criteria. If no workers are available, a corresponding message or image is displayed.

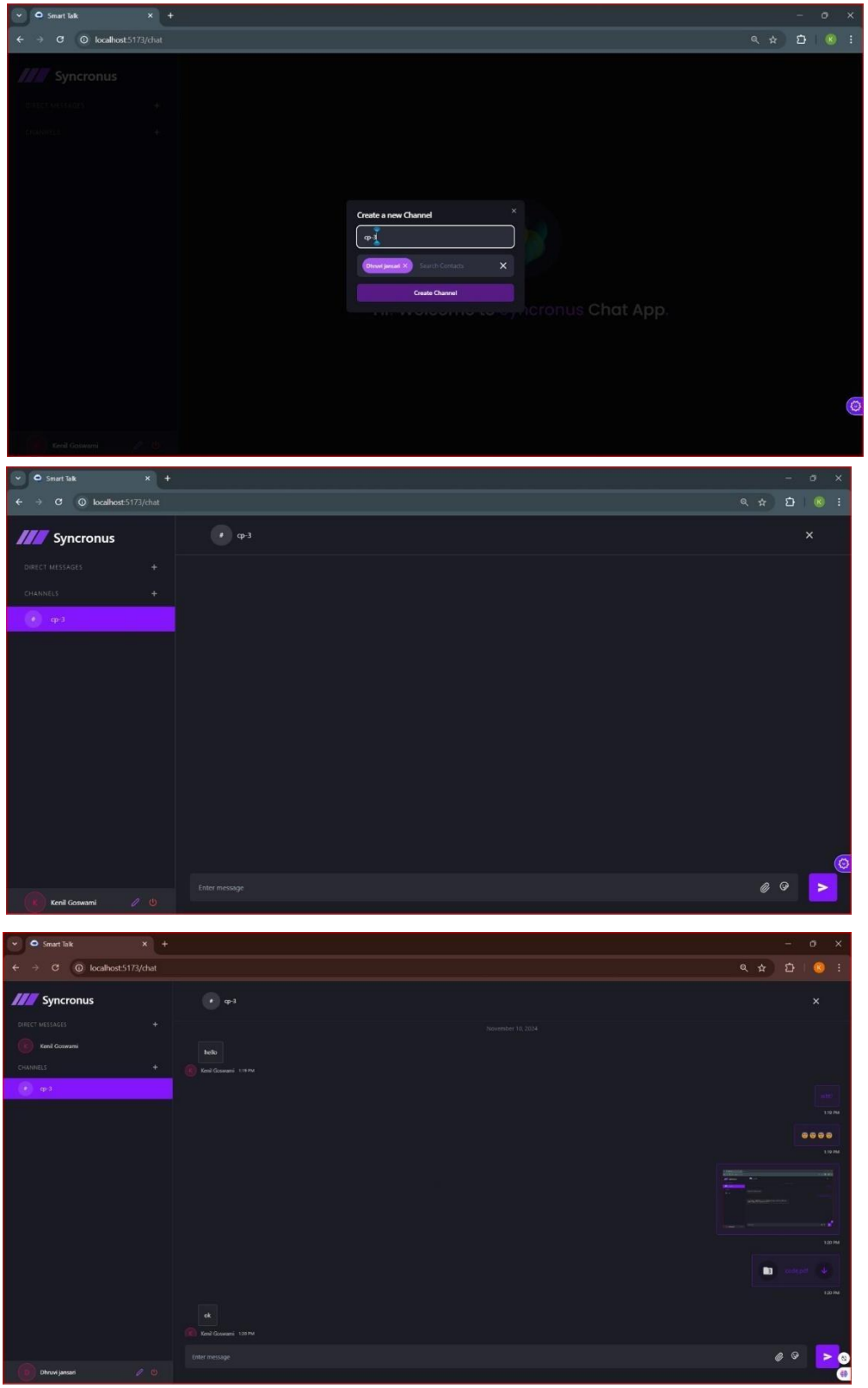
9.5 Prototype for Select Contact:



[Figure 9.5: Select Contact]

Uncover Fix It Pro's story, values, and mission – a platform connecting homeowners and local workers. Experience the simplicity and reliability that redefine home repair services. Join us as we reshape the future of hassle-free repairs.

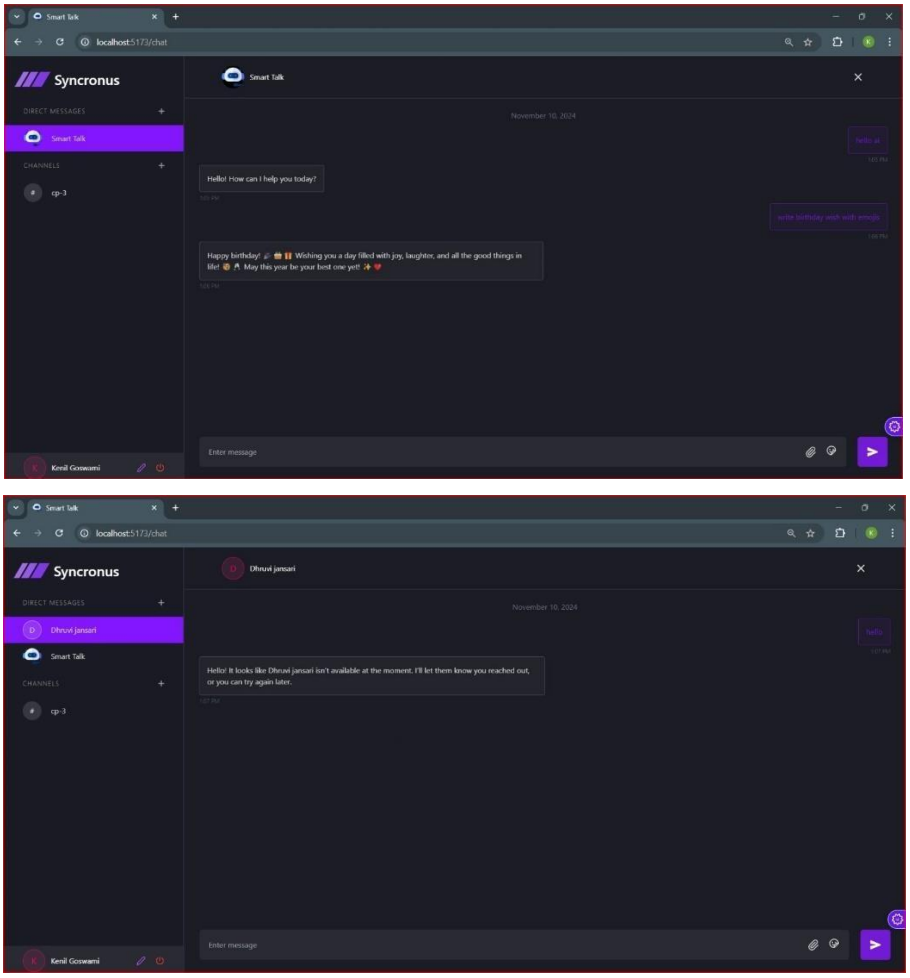
9.6 Prototype for Create Group Chat:



[Figure 9.6: Create Group Chat]

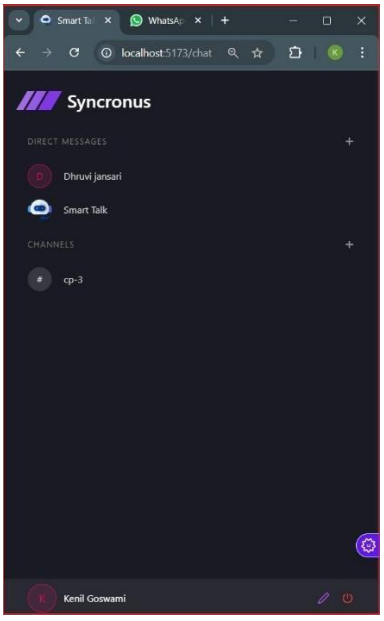
Connect with Fix It Pro effortlessly. Reach out for inquiries, assistance, or collaborations. Your feedback matters, and we're here to ensure a seamless experience. Let's make home repairs easier together.

9.7 Prototype for AI Chat:



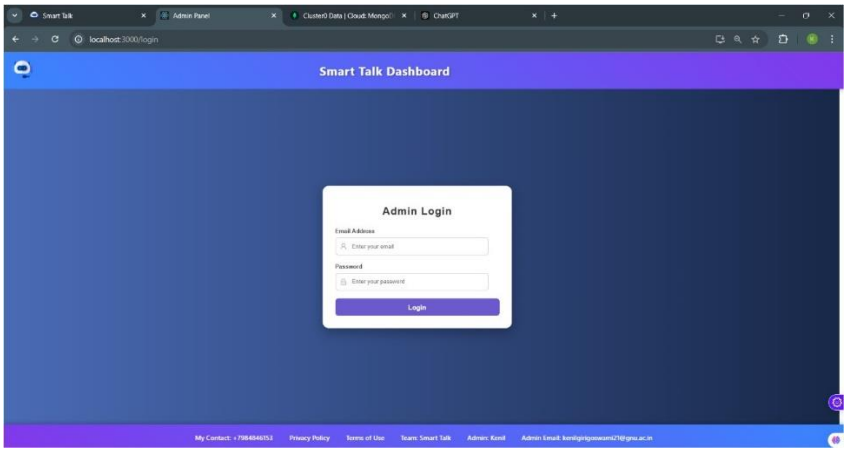
[Figure 9.7: AI Chat]

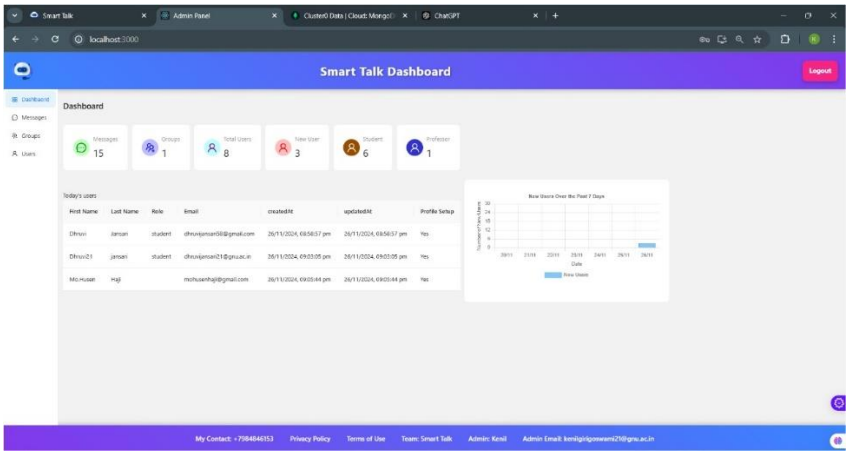
9.8 Prototype For Responsive Website

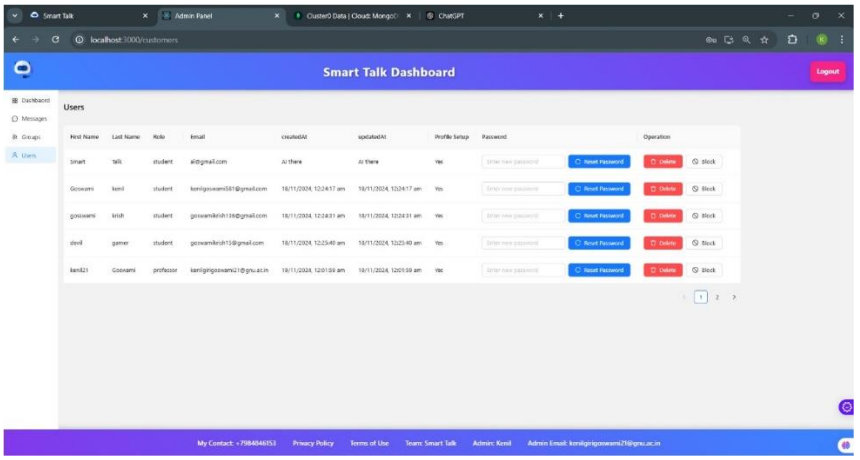


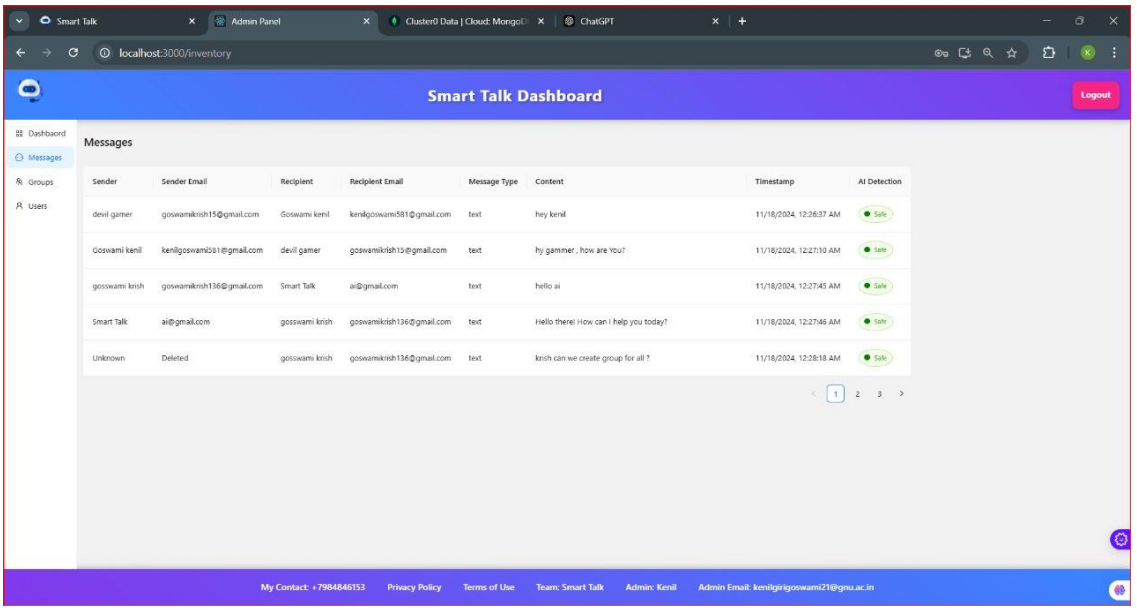
[Figure 9.7: Responsive Website]

9.9 Prototype Admin panel








Smart Talk
Admin Panel
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Smart Talk Dashboard
Logout
Dashboard
Messages
Groups
Users
Messages
Sender
Sender Email
Recipient
Recipient Email
Message Type
Content
Timestamp
AI Detection
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Goswami kenil
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goswamikrish136@gmail.com
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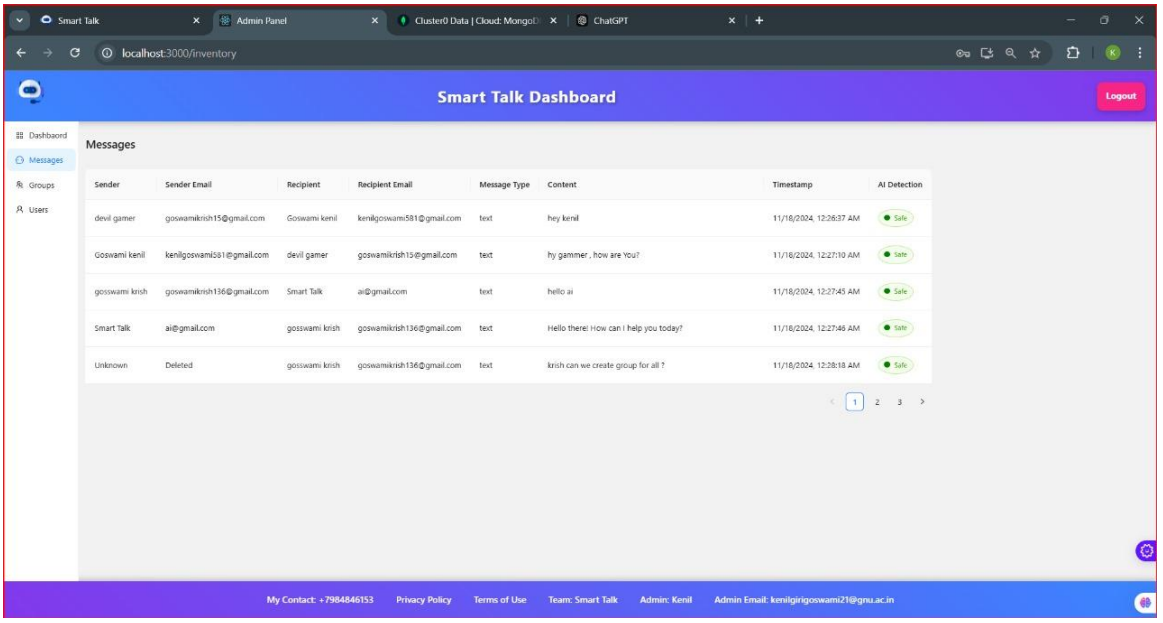
Terms of Use
Team: Smart Talk
Admin: Kenil
Admin Email: kenilgirigoswami21@gnu.ac.in


Smart Talk
Admin Panel
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Smart Talk Dashboard
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Messages
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Users
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Sender
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Recipient
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Content
Timestamp
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Hello there! How can I help you today?
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Unknown
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text
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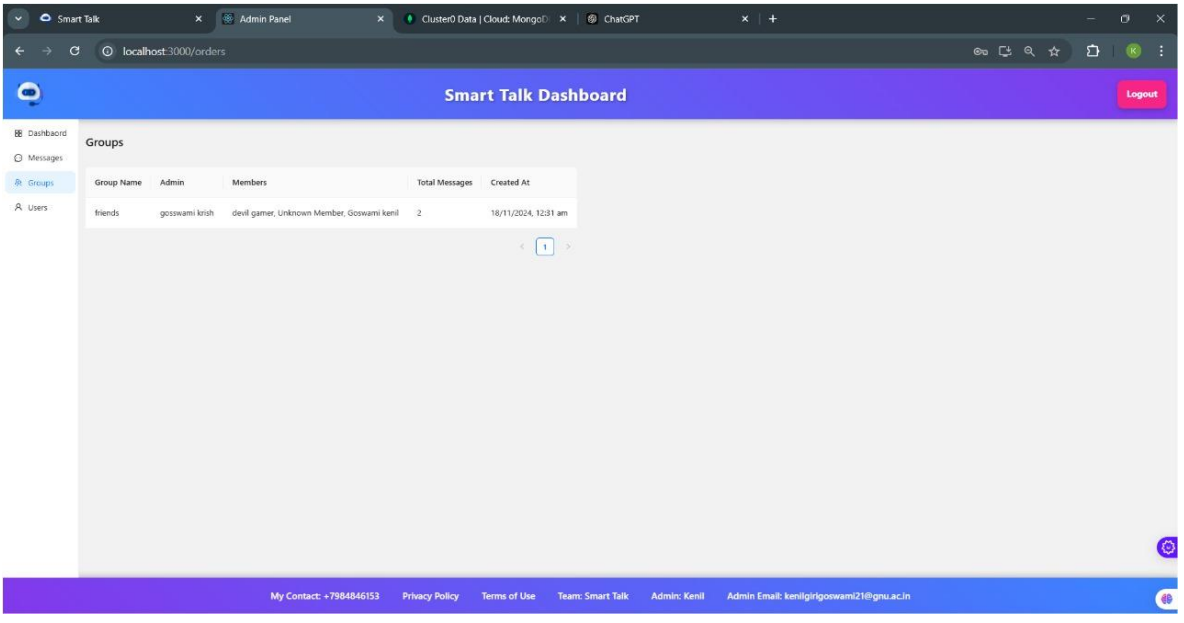
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Messages
Groups
Users
Groups
Group Name
Admin
Members
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18/11/2024, 12:31 am
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Privacy Policy
Terms of Use
Team: Smart Talk
Admin: Kenil
Admin Email: kenilgirigoswami21@gnu.ac.in

CHAPTER-10: IMPLEMENTATION DETAILS

10.1 User Registration:

10.1.1 Input Details:

- Collect user information such as name, email, mobile number, and optional profile picture for account creation.

10.1.2 Validation:

- Validate details including email and mobile verification for security.

10.2 User Profile Management:

10.2.1 Profile Setup:

- Enable users to set up their profile with a profile picture, status message, and personal preferences.

10.3 Messaging and Communication:

10.3.1 One-on-One and Group Chats:

- Allow users to create one-on-one and group chats with text, multimedia, and emoji support.

10.3.2 Real-Time Messaging:

- Utilize Socket.io for instant message delivery and receipt notifications (double and blue ticks).

10.4 Data Storage and Security:

10.4.1 Encrypted Storage:

- Store user messages, profiles, and multimedia securely with end-to-end encryption.

10.4.2 Data Backup:

- Regularly back up chat data to ensure reliability and data availability.

10.5 Verification and Authentication :

10.5.1 Login Security:

- Use secure JWT-based authentication and optional OTP verification for login.

10.5.2 Google Sign-In Support:

- Enable users to log in with Google for added convenience.

CHAPTER-11: – TESTING

11.1. User Test Cases:

11.1.1. Test case 1: User Registration

Test case ID	TC01
Test Case Description	Verify user registration functionality.
Pre-conditions	User accesses the Smart Talk platform.
Test Steps	1. Navigate to the registration page. 2. Enter valid registration details (e.g., email, password, name). 3. Click on the "Sign Up" button.
Expected Result	User should be successfully registered and redirected to the login page.

[11.1.1. User registration]

11.1.2. Test case 2: User Login

Test case ID	TC02
Test Case Description	Verify user login functionality.
Pre-conditions	User has registered successfully.
Test Steps	1. Navigate to the login page. 2. Enter valid login credentials (email and password). 3. Click on the "Login" button.
Expected Result	User should be logged in and redirected to the chat dashboard or homepage.

[11.1.2. User Login]

11.1.3. Test Case 3: Search for Contacts

Test case ID	TC03
Test Case Description	Verify search functionality for Contacts.
Pre-conditions	User is logged in and on the dashboard
Test Steps	1. Enter contact name or username in the search bar 2. Click on the search icon or button.
Expected Result	Relevant contacts matching the search criteria should be displayed.

[11.1.3 Search For Contacts]

11.1.4. Test Case 4: Messaging

Test case ID	TC04
Test Case Description	Verify messaging functionality
Pre-conditions	User is logged in and has at least one contact.
Test Steps	1. Open a chat with an existing contact. 2. Type a message in the message input field. 3. Click on the "Send" button.
Expected Result	User should receive a confirmation message for the booking, and relevant details should be updated in the user's dashboard.

[11.1.4. Messaging]

11.1.5. Test Case 5: Multimedia Sharing

Test case ID	TC05
Test Case Description	Verify multimedia sharing functionality.
Pre-conditions	User is logged in and has an active chat
Test Steps	1. Open a chat window. 2. Select a multimedia file (e.g., image, video) using the attachment icon. 3. Confirm file upload and click "Send".
Expected Result	Feedback should be successfully submitted, and the worker's profile should be updated with the new feedback.

[11.1.5. Multimedia Sharing]

11.2. Admin Test Cases:

11.2.1 Admin Login

Test case ID	AT01
Test Case Description	Verify that the admin can log in to the admin panel.
Pre-conditions	Admin credentials are available, and the admin panel is accessible.
Test Steps	1. Navigate to the admin login page. 2. Enter valid admin username and password. 3. Click on the "Login" button.
Expected Result	The admin is successfully logged into the admin panel without any errors.

[11.2.1. Admin Login]

11.2.2 Manage Registered Users

Test case ID	AT02
Test Case Description	Ensure that the admin can view and manage registered users.
Pre-conditions	The admin is logged in to the admin panel.
Test Steps	1. Navigate to the user management section. 2. View the list of registered users. 3. Perform actions such as deleting, updating, or blocking users.
Expected Result	The admin can view and manage registered users effectively, ensuring proper oversight and control.

[11.2.2. Manage Registered Users]

11.2.3. **View Message Details**

Test case ID	AT03
Test Case Description	Verify that the admin can view message details.
Pre-conditions	The admin is logged in to the admin panel.
Test Steps	1. Navigate to the message management section. 2. View all messages along with sender and receiver information.
Expected Result	The admin can successfully access and review message details, ensuring compliance and moderation.

[11.2.3. View Message Details]

11.2.4. ***Monitor Platform Statistics***

Test case ID	AT04
Test Case Description	Verify that the admin can monitor platform statistics..
Pre-conditions	The admin is logged in to the admin panel.
Test Steps	1. Access the admin dashboard. 2. View statistics, including total users, total messages, and new users. 3. Check the graph for the past 7 days.
Expected Result	The admin can monitor platform statistics, including new users and messages, through a graphical interface.

[11.2.4. Monitor Platform Statistics]

11.2.5. **Admin Logout**

Test case ID	AT05
Test Case Description	Verify that the admin can monitor platform statistics..
Pre-conditions	The admin is logged in to the admin panel.
Test Steps	1. Click on the "Logout" button in the admin panel.
Expected Result	The admin is successfully logged out of the admin panel, ensuring session security and termination.

CHAPTER-12: USER MANUAL

Installation Steps:

12.1 Visit the SMART TALK website.

Link:- https://deployment-front-m5v6.onrender.com

12.2 App Usage Steps:

12.2.1. Signup Page:

12.2.1.1. Open the Application:

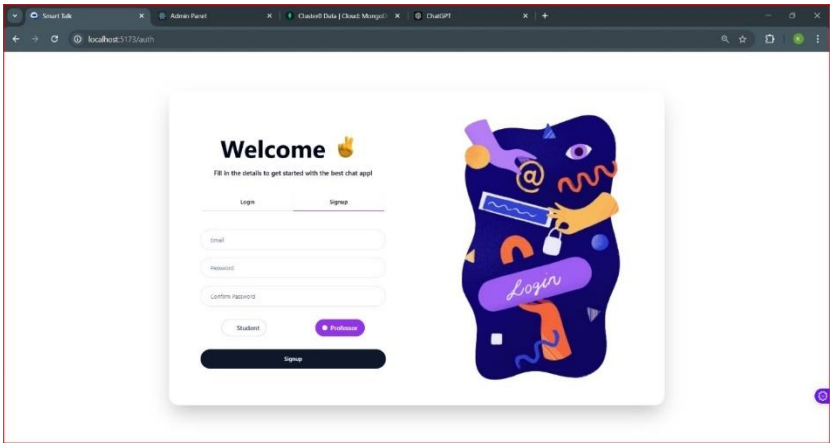
➢ Navigate to http://localhost:2482 in your web browser.

12.2.1.2. Signup Page

➢ The home page will display various options including "Sign Up" and "Login."

➢ Enter the required information such as name, email address, phone number And create a password

➢ Complete the registration by clicking "Submit".



[12.2.1 Signup]

12.2.2. Sign In:

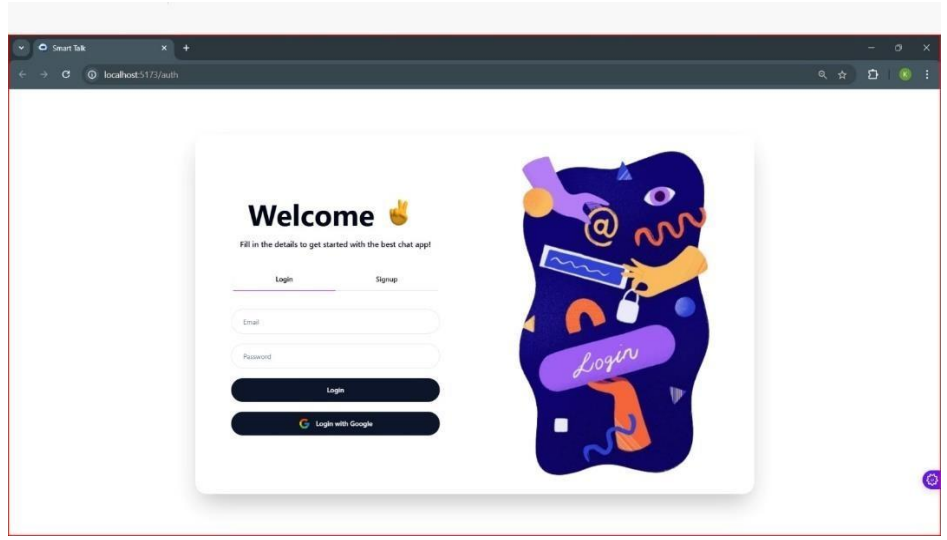
12.2.2.1. Open Sign In Form:

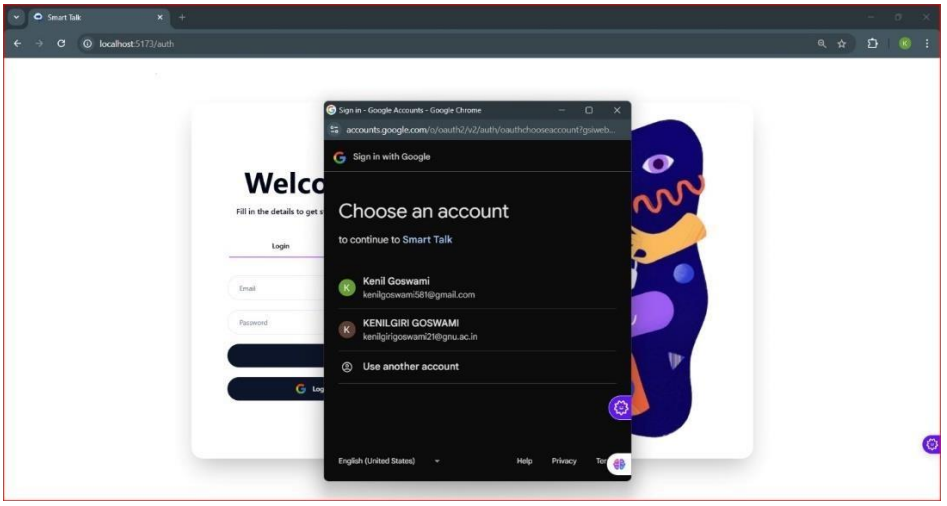
➢ Click on the "Sign In" button on the home page.

12.2.2.2. Fill in Details:

➢ Enter the required information such as email address And create a password

➢ Complete the registration by clicking "Submit".



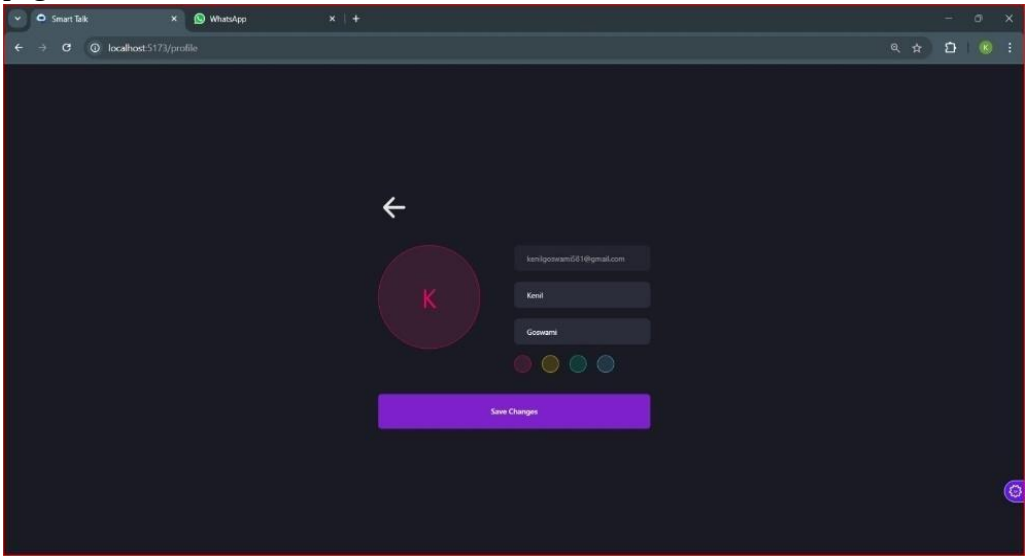


[12.2.2. SignIn Page]

12.2.3. User Profile:

12.2.3.1. Access Profile:

- ➢ Navigate to the user dashboard.
- ➢ Click on the "Profile" icon or select "Profile" from the menu to open your profile page.



[12.2.3 User Profile Page]

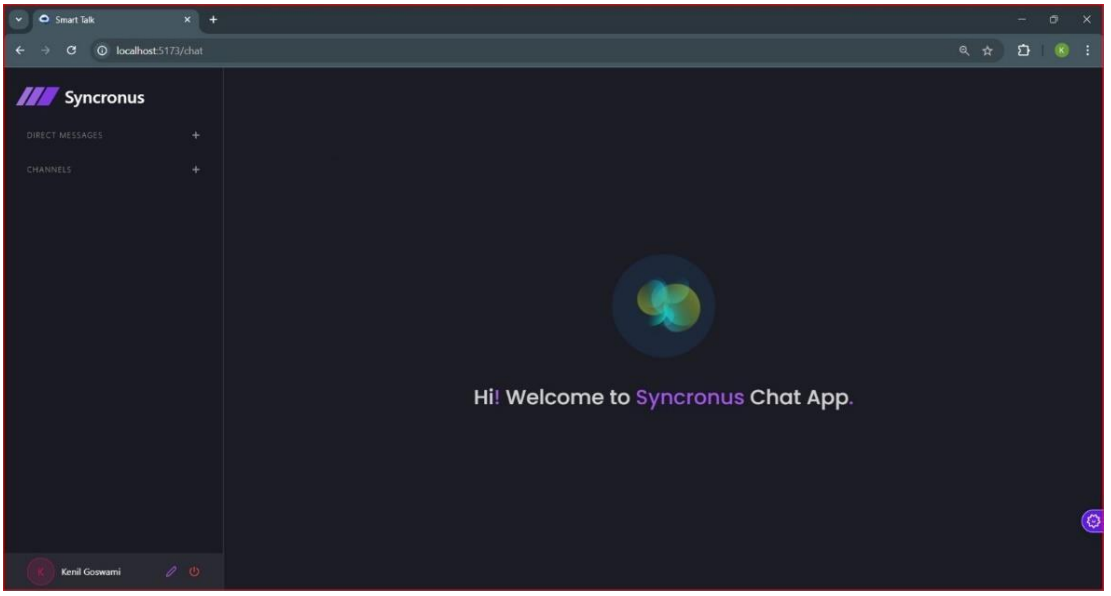
12.2.4. Home Screen View:

12.2.4.1. Navigation:

➢ After logging in, users are directed to the Smart Talk home screen or dashboard..

➢ From here, navigate to different sections such as:

- ➢ Chats: Access personal and group chat conversations.
- ➢ Contacts: View your contact list and initiate new chats.
- ➢ Profile: Manage and update your profile settings and preferences.



[12.2.4. Home Screen View]

12.2.5. Start a Personal Chat in Smart Talk:

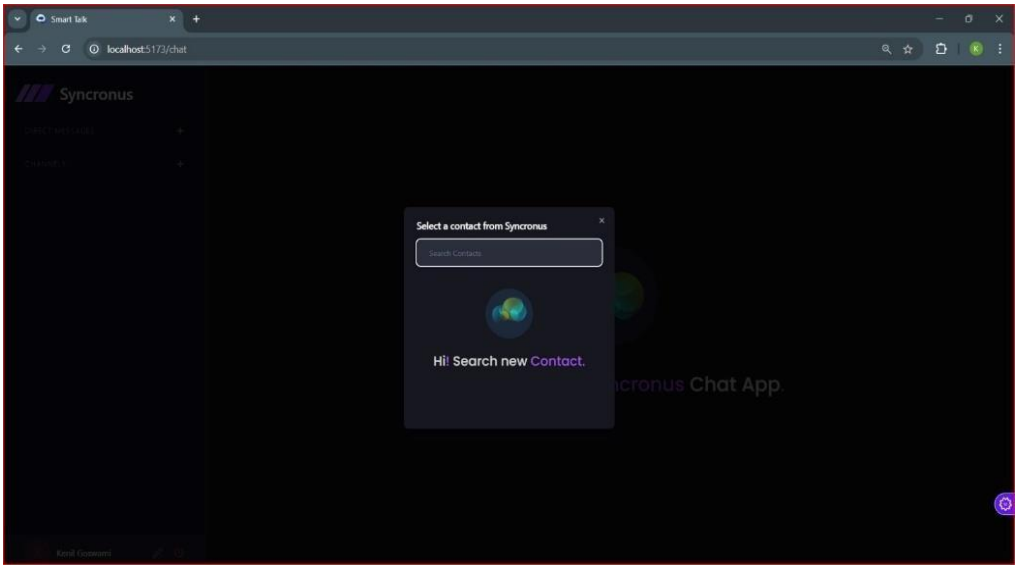
12.2.5.1. Initiate a Personal Chat:

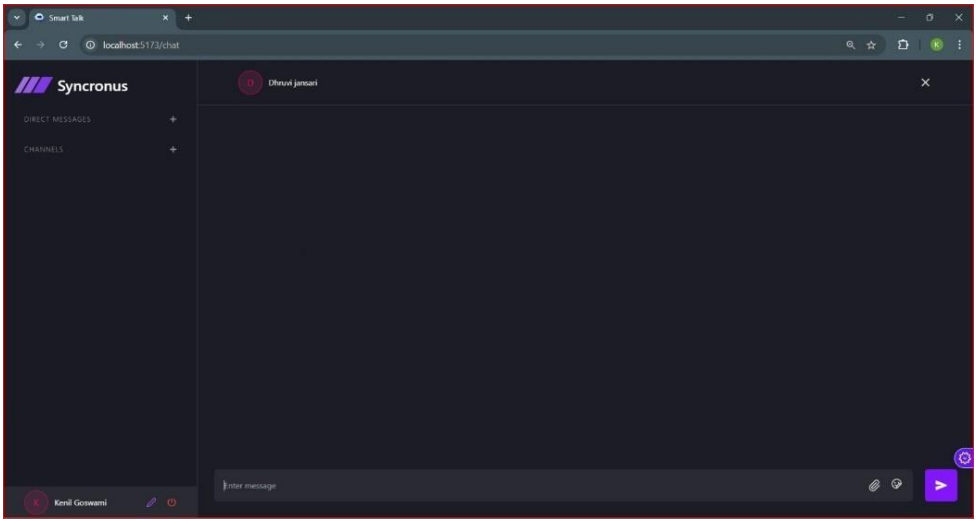
➢ On the **Chats** page, locate and tap the **"New Chat"** button.

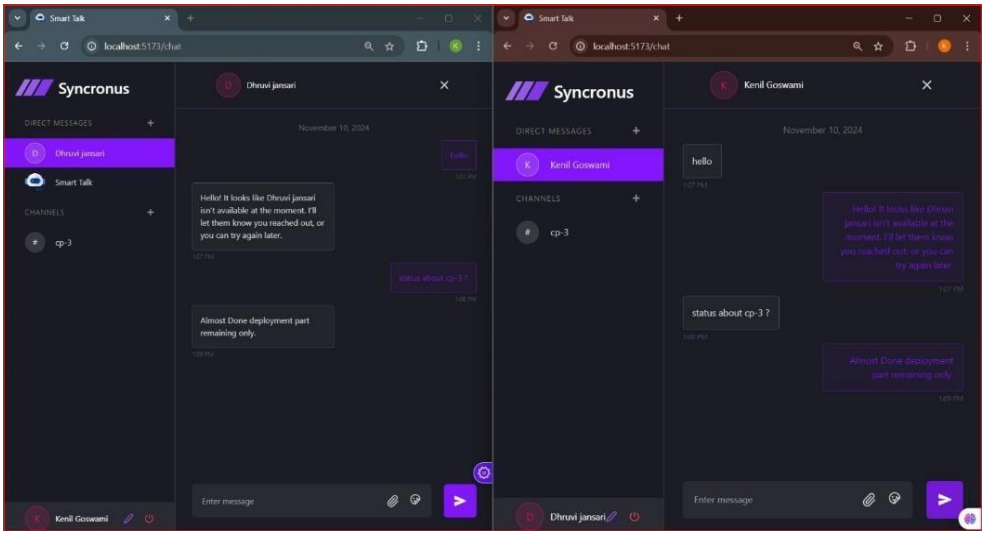
➢ Select a contact from your **Contacts** list or search for a user by their name..

➢ Enter your message in the text field at the bottom of the screen.

➢ Send the message by pressing the **"Send"** button to start the chat





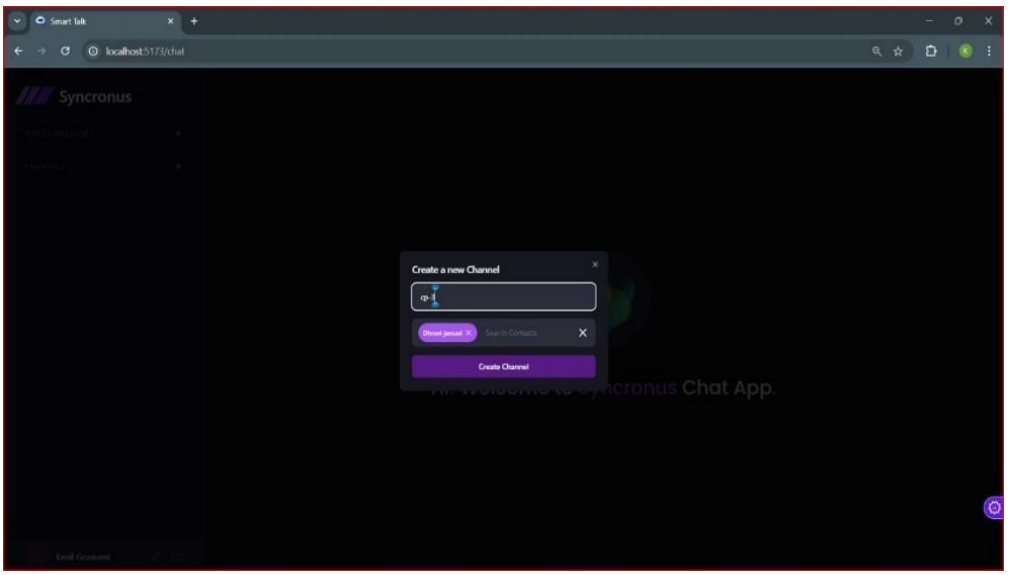


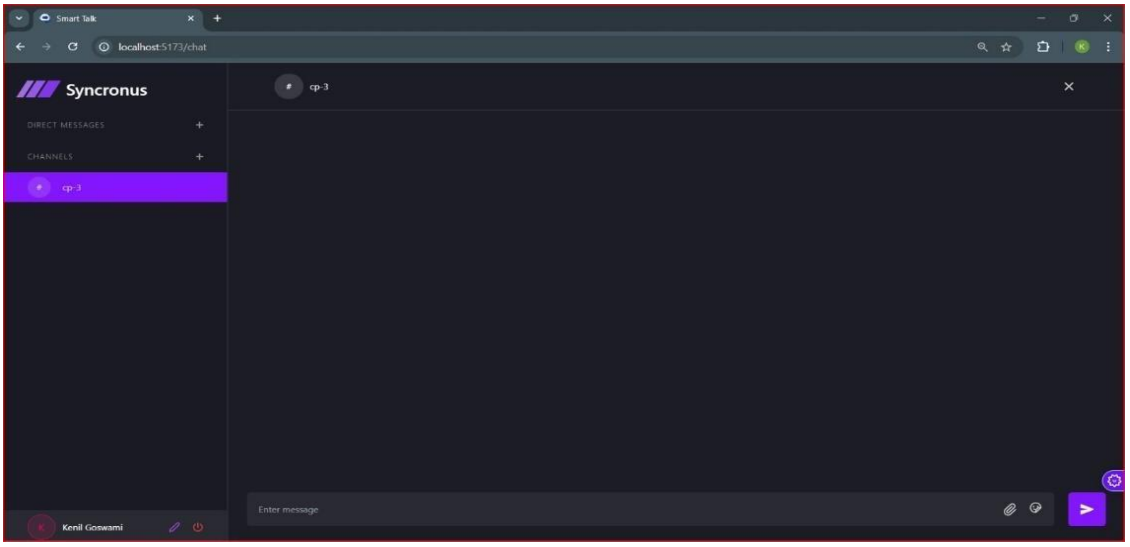
[12.2.5. Personal Chat in Smart Talk]

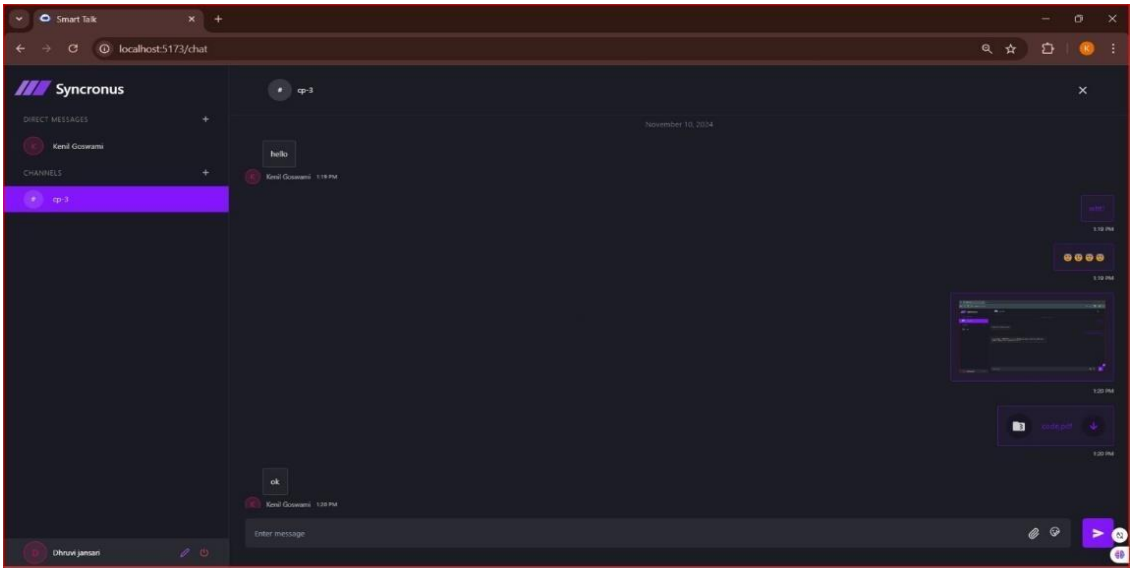
12.2.6. Start a Group Chat in Smart Talk:

12.2.6.1. Profile Page:

- ➢ Navigate to the **Chats** page and click on the **"New Group"** button
- ➢ Select multiple contacts from your **Contacts** list or search for users to add them to the group
- ➢ Click **"Create Group"** and enter a group name to set up the group chat.





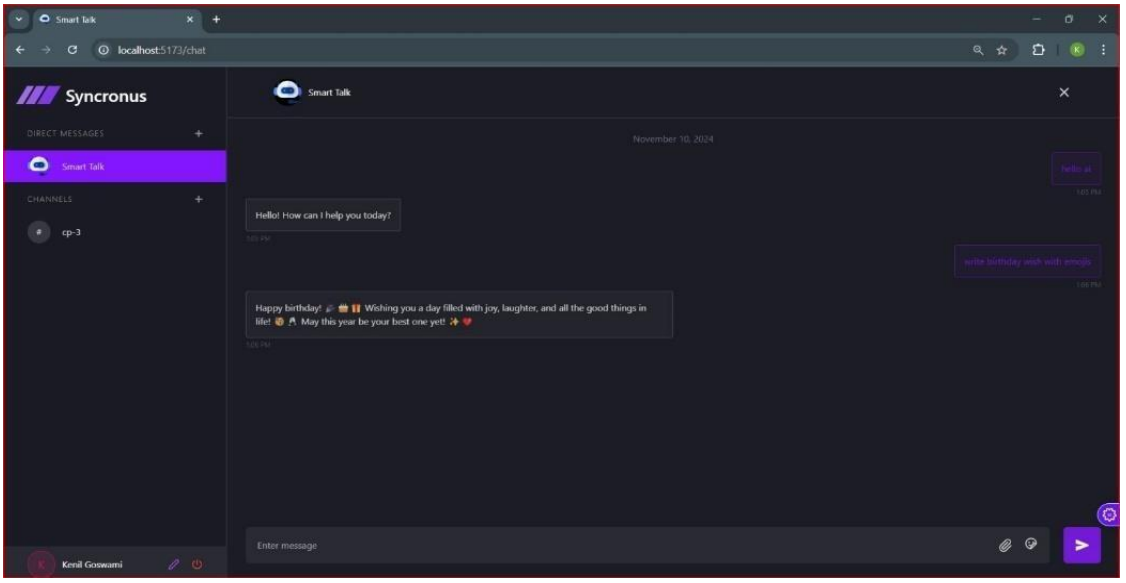


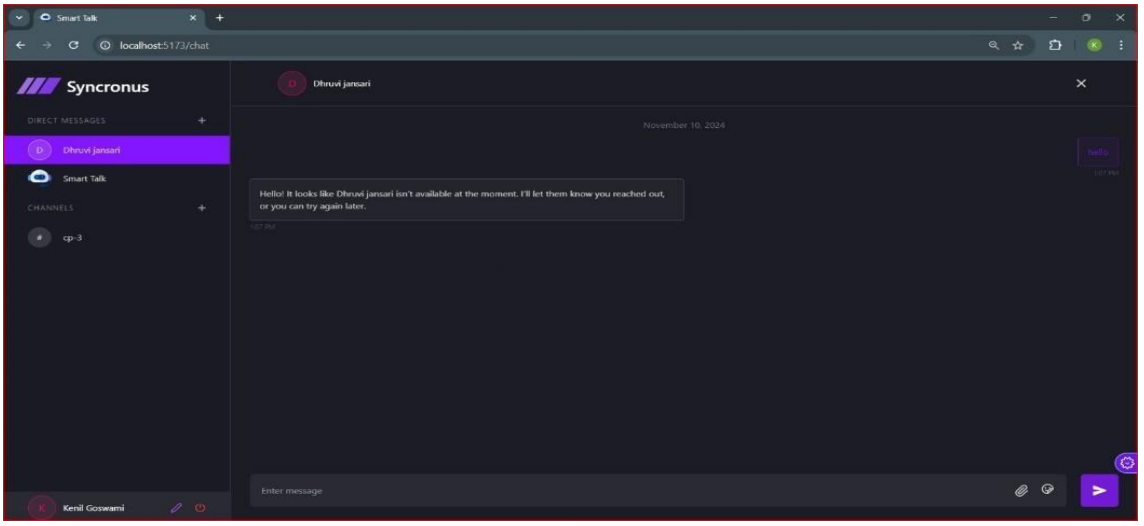
[12.2.6. Group Chat in Smart Talk]

12.2.7. AI Chat Assistance in Smart Talk:

12.2.7.1. Access AI Chat:

- ➢ Go to the **Chats** page and select **"AI Assistant"** from the options or find it in the menu bar..
- ➢ Type your question or request in the chat box to interact with the AI Assistant.



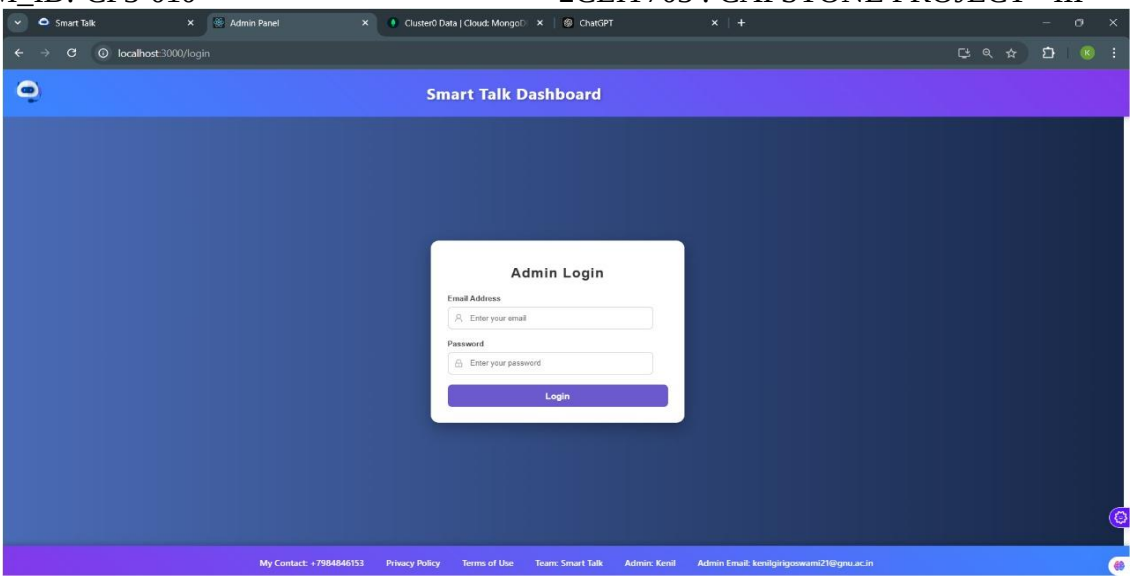


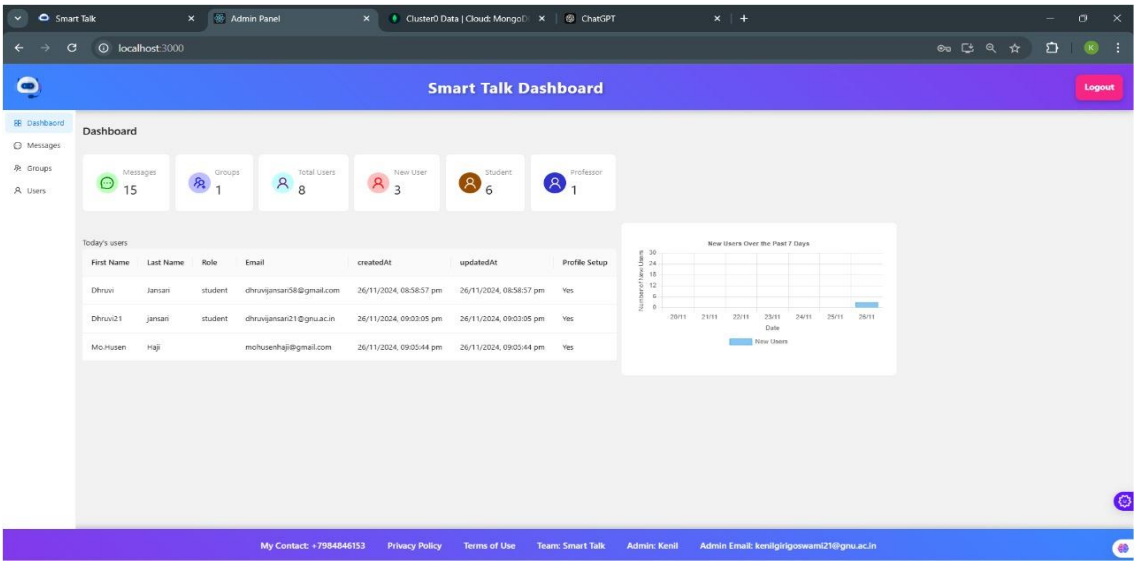
[12.2.7. AI Chat Assistance in Smart Talk]

12.2.8. Admin Panel Smart Talk:

12.2.8.1. Acces Admin panel

- ➢ Go to the Smart Talk homepage or dashboard.
- ➢ Click on the "Admin Panel" link in the menu or the navigation bar.
- ➢ Enter your admin username and password in the login page to authenticate
- ➢ Click the "Login" button to access the admin panel.
- ➢ Once logged in, you will be directed to the admin dashboard, where you can manage users, view messages, and monitor platform statistics


Smart Talk
Admin Panel
ChatGPT
localhost:3000/login
Smart Talk Dashboard
Admin Login
Email Address
Enter your email
Password
Enter your password
Login
My Contact: +7984846153
Privacy Policy
Terms of Use
Team: Smart Talk
Admin: Kenil
Admin Email: kenilgirigoswami21@gnu.ac.in


Smart Talk
Admin Panel
ChatGPT
localhost:3000
Smart Talk Dashboard
Logout
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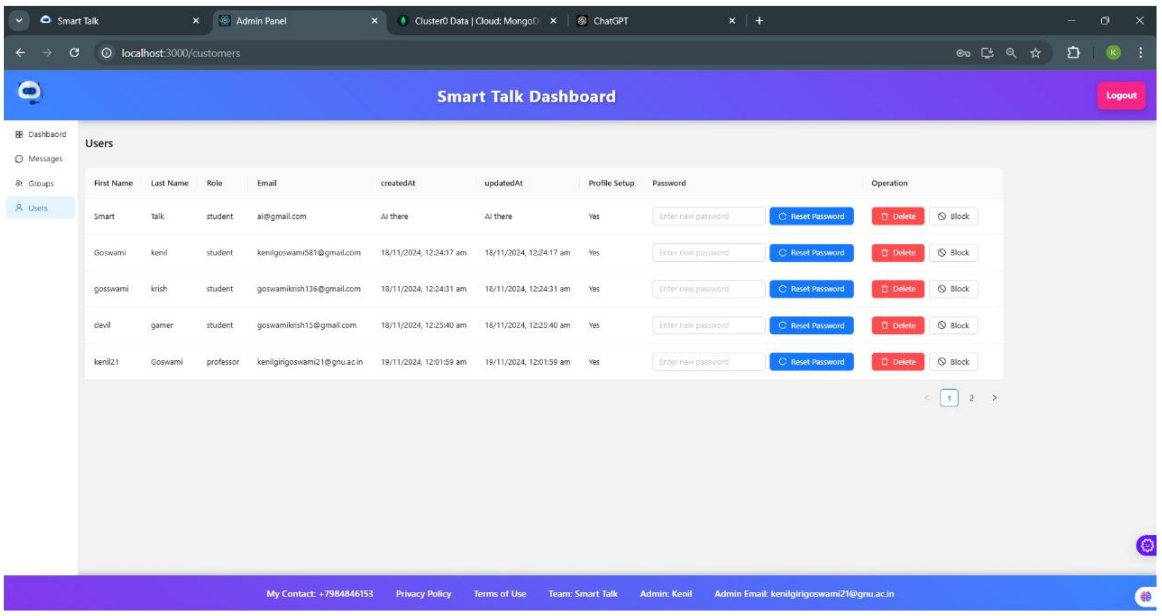
Messages
Groups
Users
Dashboard
Messages 15
Groups 1
Total Users 8
New User 3
Student 6
Professor 1
Today's users
First Name
Last Name
Role
Email
createdAt
updatedAt
Profile Setup
Dhruvi
Jansari
student
dhruvijansari58@gmail.com
Dhruvi21
jansari
student
dhruvijansari21@gnu.ac.in
Mo.Husen
Haji
mohusenhaji@gmail.com
New Users Over the Past 7 Days
My Contact: +7984846153
Privacy Policy
Terms of Use
Team: Smart Talk
Admin: Kenil
Admin Email: kenilgirigoswami21@gnu.ac.in


Smart Talk
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Dashboard
Messages
Groups
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Users
First Name
Last Name
Role
Email
createdAt
updatedAt
Profile Setup
Password
Operation
Reset Password
Delete
Block
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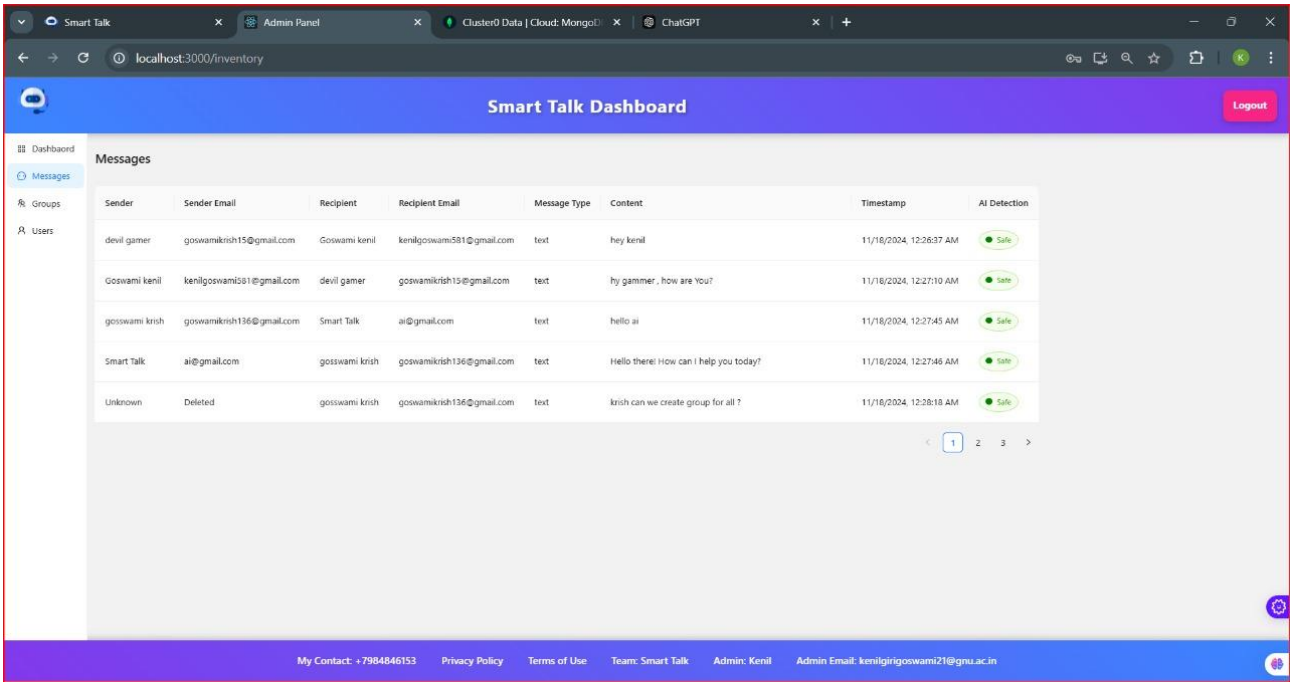
Privacy Policy
Terms of Use
Team: Smart Talk
Admin: Kenil
Admin Email: kenilgirigoswami21@gnu.ac.in


Smart Talk
Admin Panel
ChatGPT
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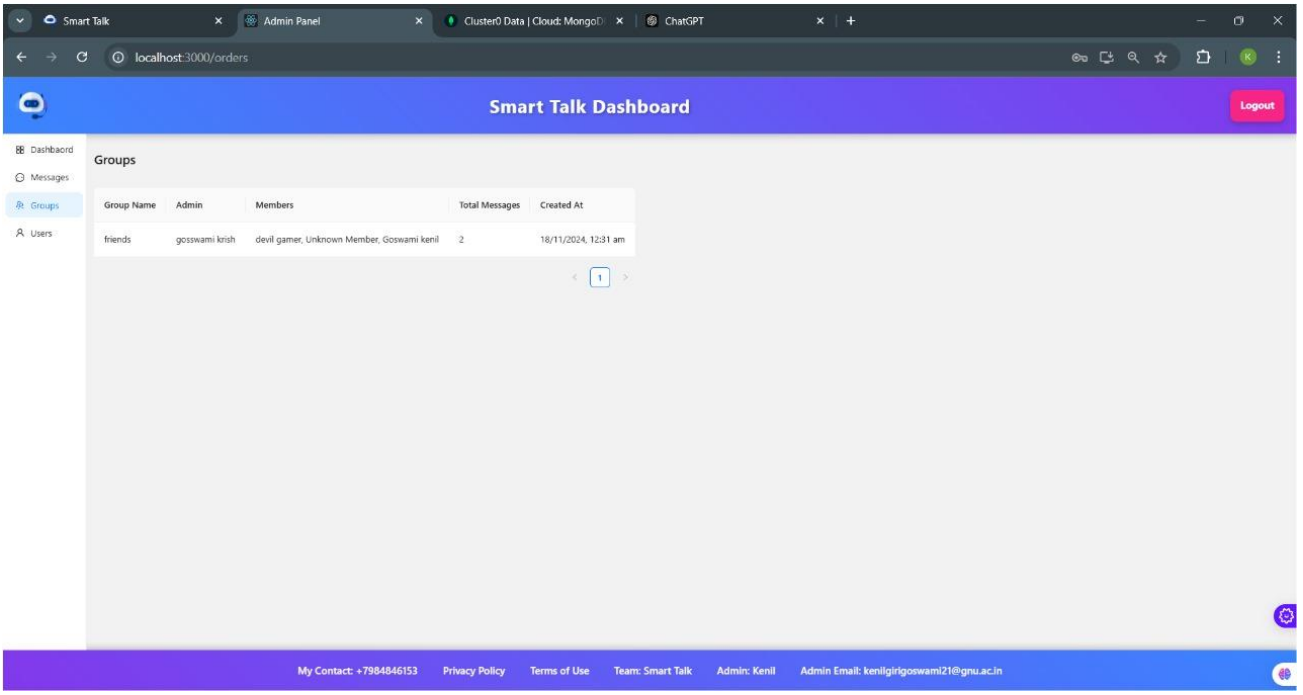
Smart Talk Dashboard
Logout
Dashboard
Messages
Groups
Users
Messages
Sender
Sender Email
Recipient
Recipient Email
Message Type
Content
Timestamp
AI Detection
devil gamer
goswamikrish15@gmail.com
Goswami kenil
kenilgoswami581@gmail.com
text
hey kenil
11/18/2024, 12:26:37 AM
Safe
Goswami kenil
kenilgoswami581@gmail.com
devil gamer
goswamikrish15@gmail.com
text
hy gammer , how are You?
11/18/2024, 12:27:10 AM
Safe
gosswami krish
goswamikrish136@gmail.com
Smart Talk
ai@gmail.com
text
hello ai
11/18/2024, 12:27:45 AM
Safe
Smart Talk
ai@gmail.com
gosswami krish
goswamikrish136@gmail.com
text
Hello there! How can I help you today?
11/18/2024, 12:27:46 AM
Safe
Unknown
Deleted
gosswami krish
goswamikrish136@gmail.com
text
krish can we create group for all ?
11/18/2024, 12:28:18 AM
Safe
My Contact: +7984846153
Privacy Policy
Terms of Use
Team: Smart Talk
Admin: Kenil
Admin Email: kenilgirigoswami21@gnu.ac.in


Smart Talk
Admin Panel
ChatGPT
localhost:3000/orders
Smart Talk Dashboard
Logout
Dashboard
Messages
Groups
Users
Groups
Group Name
Admin
Members
Total Messages
Created At
friends
gosswami krish
devil gamer, Unknown Member, Goswami kenil
2
18/11/2024, 12:31 am
My Contact: +7984846153
Privacy Policy
Terms of Use
Team: Smart Talk
Admin: Kenil
Admin Email: kenilgirigoswami21@gnu.ac.in

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CHAPTER-13: CONCLUSION AND FUTURE WORK

Conclusion:-

Smart Talk is a dynamic platform tailored to meet modern real-time communication needs, offering users a rich, secure, and flexible messaging experience. Built with an emphasis on user convenience, it integrates essential features like instant messaging, multimedia support, and secure transactions, catering to both personal and professional communication requirements. The platform leverages responsive design to ensure compatibility across various devices, creating a seamless and intuitive experience for users on desktops, tablets, and mobile devices. Its user interface is crafted with accessibility and ease of use in mind, combining speed with functionality to support quick exchanges and meaningful interactions.

At the core of Smart Talk's commitment to security is its dual-layered approach to user authentication. By incorporating JWT (JSON Web Token) authentication alongside OTP (One-Time Password) verification, Smart Talk safeguards user data and strengthens access control, preventing unauthorized entry and securing sensitive information during exchanges. The platform also includes end-to-end encryption for messages and multimedia files, ensuring that communications remain private and protected from external threats. Additionally, Smart Talk offers secure transaction capabilities, allowing users to make payments or share financial information with peace of mind. By blending high security, multimedia features, and real-time responsiveness, Smart Talk delivers a robust, trustworthy, and engaging communication solution tailored for today’s connected world.

Future Work:-

- **End-to-End Encryption for Group Chats and Calls:** Extend the existing security framework by implementing end-to-end encryption for group chats and voice/video calls. This enhancement would provide a higher level of privacy, especially for professional and confidential conversations, ensuring that only intended participants can access the shared information.

- **Real-Time Collaboration Tools**: Introduce collaborative features, such as shared whiteboards, document editing, and task management within the chat interface. This would make Smart Talk an all-in-one communication and productivity tool, allowing users to brainstorm, share ideas, and manage projects in real-time without switching to external applications.

CHAPTER-14 : ANNEXURE

14.1 Glossary of terms and abbreviations:

14.1.1. User:

➢ Definition: A person who uses the Smart Talk platform to communicate, send messages, share multimedia, and participate in group chats.

14.1.2. Real-Time Messaging

➢ Definition: A core feature of Smart Talk that enables users to send and receive messages instantly with no delays, ensuring smooth and continuous communication.

14.1.3. Group Chat

➢ Definition: A feature within Smart Talk that allows multiple users to communicate simultaneously within a single chatroom or thread.

14.1.4. Multimedia Sharing:

➢ Definition: The ability for users to send and receive multimedia content such as images, videos, documents, and audio clips within the Smart Talk platform.

14.1.5. JWT (JSON Web Token):

➢ Definition: A secure authentication mechanism used in Smart Talk to verify the identity of users during login and protect sensitive data by ensuring that each user's session is securely maintained.

14.1.6. OTP (One-Time Password):

➢ Definition: A security feature in Smart Talk used for additional user verification during account login, ensuring that users are securely authenticated via a temporary password sent to their registered phone or email..

14.1.7. User Interface (UI):

➢ Definition: The visual elements of the Smart Talk platform that users interact with, including buttons, chat windows, notification icons, and overall layout design, which are aimed at providing an easy-to-use interface..

14.1.8. User Experience (UX):

➢ Definition: The overall experience of the user when interacting with Smart Talk, focusing on usability, interface design, accessibility, and how enjoyable the platform is to use for communication.

14.1.9. End-to-End Encryption:

➢ Definition: A security feature of Smart Talk that ensures messages and multimedia shared between users are encrypted and can only be decrypted by the intended recipient, providing maximum privacy for communication.

14.1.10. Push Notification:

➢ Definition: A real-time notification feature in Smart Talk that alerts users about new messages, calls, or other activities even when they are not actively using the app.

14.1.11. Profile Setup

➢ Definition: The process through which users create their profiles on Smart Talk, including entering their personal details, uploading profile pictures, and customizing their settings for preferences and notifications.

14.1.12. Chat History:

➢ Definition: A record of past conversations within Smart Talk that allows users to review their previous interactions and easily refer back to important messages and shared media.

14.1.13. Real-Time Collaboration

➢ Definition: A feature in Smart Talk that allows users to collaborate instantly on documents or tasks by sharing files and messages in a synchronized manner, enhancing teamwork and communication.

14.1.14. Scalability

➢ Definition: The ability of the Smart Talk platform to handle increased usage, including more users, messages, and multimedia sharing, without performance degradation.

14.1.15. Admin Panel

➢ Definition: The backend interface that allows administrators to manage user accounts, monitor platform activity, configure system settings, and handle technical issues within the Smart Talk application.

14.1.16. Profile Privacy Settings

➢ Definition: The settings that allow users to control the visibility and privacy of their personal information, including who can view their profile and message them within the Smart Talk platform.

14.1.17. Real-Time Notifications

➢ Definition: Notifications that are sent immediately to users within the Smart Talk platform to alert them about new messages, group chat activity, or important platform updates.

14.2 REFERENCES

[1] Whatapp
Url:- https://www.whatsapp.com/

[2] Telegram
Url:- https://telegram.org/

[3] Slack
Url:- https://slack.com/intl/en-in

[4] Microsoft Teams
Url:- https://www.microsoft.com/en-in/microsoft-teams/group-chat-software

[5] Discord
Url:- https://discord.com/

[6] Design Inspiration
Url:- https://99designs.com/profiles/sudipdutta/designs/1761376

Tools:

[1]Draw.io
[2]Plantuml
[3]Figma

14.3. About Tools & Technology:

14.3.1. Frontend:

- HTML: Standard markup language used to structure the content of web pages.
- Tailwind CSS: A utility-first CSS framework for rapidly building custom designs with a focus on responsiveness and accessibility.
- React.js: JavaScript library for building user interfaces, primarily for creating interactive and dynamic single-page applications.
- TypeScript: A statically typed superset of JavaScript, providing better tooling and error checking for JavaScript code, enhancing code maintainability and scalability.
- Axios: A promise-based HTTP client for JavaScript that enables making requests from the frontend to the backend

14.3.2. Backend:

- Node.js: Asynchronous event-driven JavaScript runtime, used for building scalable and efficient server-side applications.
- Express.js: Web application framework for Node.js, simplifying routing and middleware configuration for building APIs and server-side functionality.
- Socket.io: A library for enabling real-time, bi-directional communication between web clients and servers, used for real-time messaging and notifications in Smart Talk.
- **J**WT (JSON Web Tokens**)**: A compact, URL-safe means of representing claims between two parties, used for secure authentication in Smart Talk.
- Node Mailer: Module for sending emails from Node.js applications, useful for features like account verification and password resets.
- Multer: Middleware for handling multipart/form-data, used in Smart Talk for handling file uploads such as profile pictures and multimedia messages.

14.3.3. Database:

- MongoDB: A NoSQL database used for storing flexible, scalable data. It provides a high level of performance and scalability for storing user messages, profiles, and other real-time data.
- MongoDB Atlas: Managed cloud service for MongoDB that offers scalability, security, and automatic backups for data.

14.3.4. Development Tools:

- **Visual Studio Code**: Lightweight and powerful code editor with features such as debugging, Git integration, and extensions, used for writing and debugging code in Smart Talk..
- **Postman**: Tool for testing APIs and HTTP requests, useful for testing endpoints during the backend development of Smart Talk
- **Git**: Version control system for tracking changes in the project and collaborating with other developers..

14.3.5. Deployment:

- **Hostinger**: A cloud hosting platform that provides reliable, fast, and scalable hosting services for web applications. Hostinger is used to deploy and host the Smart Talk application, ensuring efficient and seamless access for users. With its user-friendly interface, it allows for quick deployment of both backend and frontend components, supporting the scalability and high availability of the platform..

14.4. About College

Ganpat University-U. V. Patel College of Engineering (GUNI-UVPCE) is situated in Ganpat Vidyanagar campus. It was established in September 1997 with the aim of providing educational opportunities to students from It is one of the constituent colleges of Ganpat University various strata of society. It was armed with the vision of educating and training young talented students of Gujarat in the field of Engineering and Technology so that they could meet the demands of Industries in Gujarat and across the globe.

The College is named after Shri Ugarchandbhai Varanasibhai Patel, a leading industrialist of Gujarat, for his generous support. It is a self-financed institute approved by All India Council for Technical Education (AICTE), New Delhi and the Commissionerate of Technical Education, Government of Gujarat.
The College is spread over 25 acres of land and is a part of Ganpat Vidyanagar Campus. It has six ultra-modern buildings of architectural splendour, classrooms, tutorial rooms, seminar halls, offices, drawing hall, workshop, library, well equipped departmental laboratories, and several computer laboratories with internet connectivity through 1 Gbps Fibre link, satellite link education centre with two-way audio and one-way video link. The superior infrastructure of the Institute is conducive for learning, research, and training.

The Institute offers various undergraduate programs, postgraduate programs, and Ph.D. programs.

Our dedicated efforts are directed towards leading our student community to the acme of technical excellence so that they can meet the requirements of the industry, the nation and the world at large. We aim to create a generation of students that possess technical expertise and are adept at utilising the technical 'know-hows' in the service of mankind.

We strive towards these Aims and Objectives:

- ➢ To offer guidance, motivation, and inspiration to the students for well-rounded development of their personality.
- ➢ To impart technical and need-based education by conducting elaborated training programs.
- ➢ To shape and mold the personality of the future generation.
- ➢ To construct fertile ground for adapting to dire challenges.