Project Report Format

1. INTRODUCTION

1.1 Project Overview

"ChatConnect" is a real-time chat and communication app crafted for effortless connectivity across smartphones, tablets, and desktops. With a focus on global communication, the app breaks down geographical barriers, fostering connections worldwide. Prioritizing user experience, it features personalized interfaces, cutting-edge collaboration tools, and robust security measures.

In addition to text-based messaging, "ChatConnect" stands out with practical video and audio calling features, elevating the communication experience. The app boasts a technology stack including Android Studio, Kotlin, and Jetpack Compose, ensuring a user-friendly and inclusive platform for real-time connection and collaboration.

Moreover, "ChatConnect" offers a range of user-centric features, including a chat bot, personalized themes, 2-step verification using OTP for enhanced security, personalized status, and profile pictures. This comprehensive approach aims to provide users with a versatile and secure environment for seamless communication and collaboration.

1.2 Purpose

"ChatConnect" is a user-friendly chat and communication app designed to help people connect effortlessly across different devices. Whether you're on a smartphone, tablet, desktop, or browser, the app ensures you can stay in touch wherever you are. It breaks down geographical barriers, allowing users to communicate globally and fostering cultural exchange. The app prioritizes user experience with personalized interfaces, advanced collaboration tools, and reliable security features. Additionally, "ChatConnect" includes practical video and audio calling features, enriching communication by enabling face-to-face conversations. Built with Android Studio, Kotlin, and Jetpack Compose, the app aims to provide a simple yet dynamic platform for real-time connection and collaboration.

2. LITERATURE SURVEY

2.1 Existing problem

The advent of internet communication, exemplified by chat technology like ICQ, has witnessed a surge in popularity over the last two years. Users can engage in real-time communication, sending messages, files, URLs, or playing games. The passage underscores the societal impact of this trend, exploring perspectives on the benefits and challenges associated with chat platforms.

Positive Impacts:
The passage highlights positive aspects of chat technology, drawing attention to the idea that removing the influence of first impressions allows users to communicate freely without fear or apprehension. It suggests that this freedom is a key reason for the growing use of chat platforms. Additionally, the passage notes the viewpoint that online communication enables people with similar goals and interests to connect, enriching their lives and making communication more productive and enjoyable.

Negative Considerations:
Contrastingly, the passage also delves into concerns associated with chat platforms. It points out that users often adopt different identities in the virtual space, creating a dichotomy between their online and offline personas. This behavior, according to Randall, may complicate the ability to switch between these identities seamlessly. Furthermore, the passage discusses the perception that the socializing facilitated by chat platforms differs from real-world interactions, potentially affecting the social development of children and youths.

Educational Concerns:
Randall expresses apprehension about the consequences of online education, anticipating a reduction in traditional teacher dominance due to financial constraints. This concern extends to the potential impact on unemployment in the future.

Overall Assessment:
In summary, the passage presents a nuanced view of chat technology, acknowledging its positive impact on societal communication while raising valid concerns about identity issues, socialization patterns, and potential repercussions on education and employment. Despite these concerns, the passage suggests that chat technology is becoming increasingly central to our lives.

2.2 References

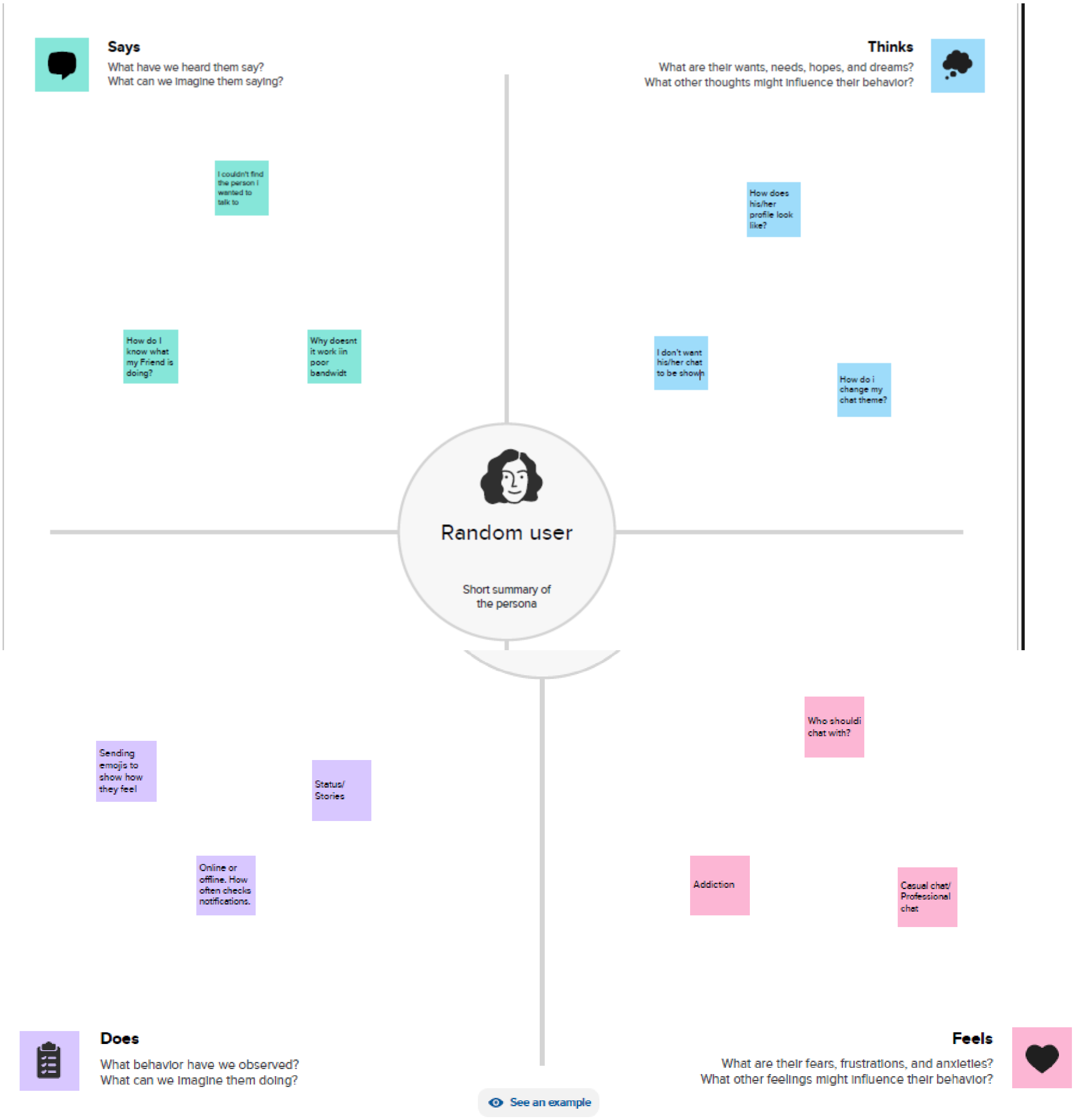
- Randall. N (1997). Chapter 19: Future Communities: Socializing and Educating in the Internet's Future, The soul of the Internet: net gods, netizens and the wiring of the world(pp.333-344). London: Computer Press.
- Randall. N (1997). Epilogue: The Soul of the Internet, The soul of internet: net gods, netizens and the wiring of the world(pp.345-358). London: Computer Press.
- Hauben .M (1997). Chapter 1:The Net and Netizens: The Effect the Net Has on People's Lives, Netizens(3-34). Los Alamitos: Computer Society Press.
- Hauben. M (1997). Chapter2: The Evolution of Usenet: The Poor Man's ARPANET, Netizens(35-47). Los Alamitos: Computer Society Press.
- Hauben. M (1997). Chapter 6: Cybernetics, Time-sharing, Human-Computer Symbiosis and Online Communities: Creating a Supercommunity of Online Communities, Netizens(76-95).Los Alamitos: Computer Society Press.

2.3 Problem Statement Definition

The identified gaps and challenges in existing real-time communication apps form the basis for defining the problem statement. The need for a platform that seamlessly connects users across diverse devices, breaks down geographical barriers, prioritizes user experience with personalized interfaces and cutting-edge collaboration tools, integrates robust security measures, and includes practical video and audio calling features is evident. The goal is to develop an innovative solution that addresses these concerns, providing users with a dynamic and inclusive platform for real-time communication and collaboration.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas



Says

What have we heard them say?
What can we imagine them saying?

I couldn't find the person I wanted to talk to

How do I know what my Friend is doing?

Why doesnt it work iin poor bandwidt

Thinks

What are their wants, needs, hopes, and dreams?
What other thoughts might influence their behavior?

How does his/her profile look like?

I don't want his/her chat to be shown

How do i change my chat theme?

Random user

Short summary of the persona

Sending emojis to show how they feel

Status/ Stories

Online or offline. How often checks notifications.

Who shouldi chat with?

Addiction

Casual chat/ Professional chat

Does

What behavior have we observed?
What can we imagine them doing?

See an example

Feels

What are their fears, frustrations, and anxieties?
What other feelings might influence their behavior?

32 Ideation & Brainstorming

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

⏱ 10 minutes

Team gathering
Aadhithya R
Vishnuthi Meyyappan
Kambala Sree Harshitha
Kaushik P

Set the goal
To identify the components required to create a chat connect app

1 Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

⏱ 5 minutes

PROBLEM

To create a real time chat application

Key rules of brainstorming

To run an smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

2 Brainstorm

Write down any ideas that come to mind that address your problem statement.

⏱ 10 minutes

TIP

You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

Person 1

- Prioritize chats
- Deleting Chats
- Status

Person 2

- User Name
- Profile Picture
- Pinning Chats

Person 3

- Personalized Themes
- Time Spent
- Capturing images from the chat

Person 4

- User Authentication
- Push Notification
- Sharing Images

3

Group ideas

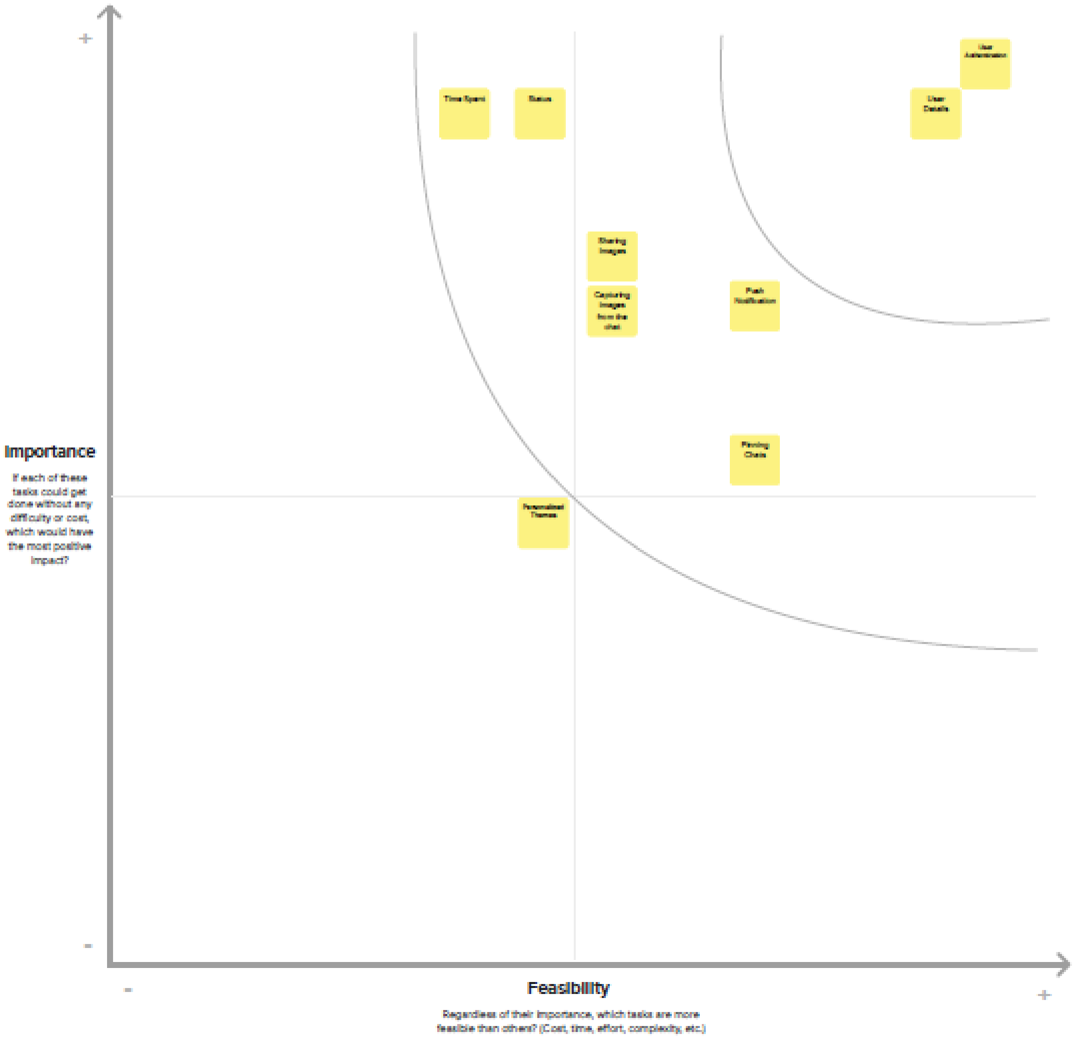
Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

⏱ **20 minutes**

TIP

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

User Authentication	User Details	Sharing Images
Time Spent	Status	Push Notification
Capturing images from the chat	Personalized Themes	Prioritize chats



4. REQUIREMENT ANALYSIS

4.1 Functional requirement

- **Real-time Database:**
  Firebase provides a real-time database that enables the synchronization of data across all connected devices in real-time. This is essential for a chat app as it allows messages to be instantly updated and delivered to all users.

- **Authentication:**
  Firebase Authentication allows you to manage user authentication. A chat app typically requires user accounts, and Firebase Authentication provides easy integration with various identity providers like Google, Facebook, and email/password authentication.

- **Cloud Firestore:**
  Firestore is another Firebase database option that offers more powerful querying capabilities than the Realtime Database. It's suitable for complex data structures, and it could be used for storing and retrieving chat messages.

- **Cloud Functions:**
  Firebase Cloud Functions allow you to run backend code in response to events triggered by Firebase features and HTTPS requests. This can be utilized for additional server-side logic, such as sending notifications when a new message is received.

- **Cloud Messaging:**
  Firebase Cloud Messaging (FCM) is essential for push notifications. It enables your app to notify users of new messages even when the app is not in the foreground, improving the real-time nature of your chat application.

- **Storage:**
  Firebase Storage is useful for storing and serving user-generated content such as images, videos, or other multimedia shared within the chat. Instead of storing these files on the device, Firebase Storage allows you to manage them in the cloud.

- **Security Rules**:
  Firebase allows you to define security rules for your database and storage. This is crucial for ensuring that only authorized users can access and modify the data, adding a layer of security to your chat app.

4.2 Non-Functional requirements

Performance:

- Response Time: The time it takes for the system to respond to a user request.
- Throughput: The number of transactions or operations that the system can handle within a specific time frame.
- Scalability: The system's ability to handle increased load by adding resources (e.g., users, transactions) without compromising performance.

Reliability:

- Availability: The percentage of time the system is operational and available for use.Fault

Tolerance: The system's ability to continue operating in the presence of hardware or software failures.

- Recovery Time: The time it takes for the system to recover after a failure.

Security:

- Authentication: Verifying the identity of users accessing the system.
- Authorization: Controlling access to specific functionalities or data based on user roles and permissions.
- Data Encryption: Protecting sensitive data by encoding it in a way that can only be deciphered by authorized parties.

Usability:

- User Interface (UI): The system's interface should be intuitive, user-friendly, and comply with usability standards.
- User Experience (UX): Ensuring that users have a positive and efficient experience while interacting with the system.

Maintainability:

- Code Maintainability: The ease with which the system's code can be modified or enhanced.
- Documentation: Providing comprehensive and up-to-date documentation to facilitate maintenance.
- Modularity: Designing the system in a way that allows components to be modified or replaced without affecting the entire system.

Compatibility:

- Browser/Device Compatibility: Ensuring the system works correctly on various browsers and devices.
- Backward Compatibility: Supporting interactions with older versions of the system or related software.

Scalability:

- Vertical Scalability: Increasing the capacity of a single component, such as adding more CPU or memory to a server.
- Horizontal Scalability: Distributing the load across multiple instances or servers.

Interoperability:

- Integration: Ensuring that the system can easily integrate with other systems or services.
- Data Exchange: Supporting the exchange of data with external systems using standard formats and protocols.

Regulatory Compliance:

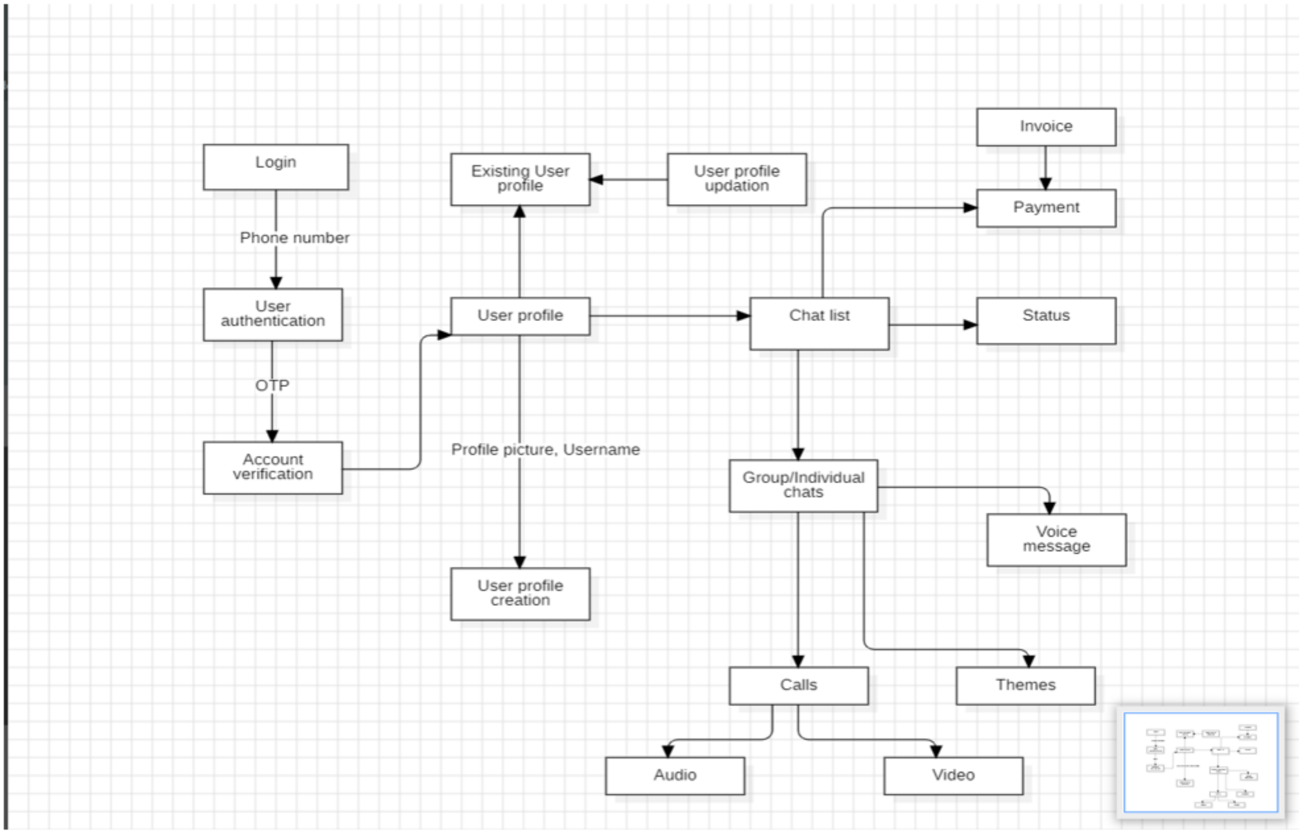
- Adherence to Standards: Ensuring that the system complies with industry or regulatory standards.
- Data Privacy: Compliance with data protection and privacy regulations.

Performance:

- Response Time: The time it takes for the system to respond to a user request.
- Throughput: The number of transactions or operations that the system can handle within a specific time frame.

5. PROJECT DESIGN

5.1 Data Flow Diagrams & User Stories

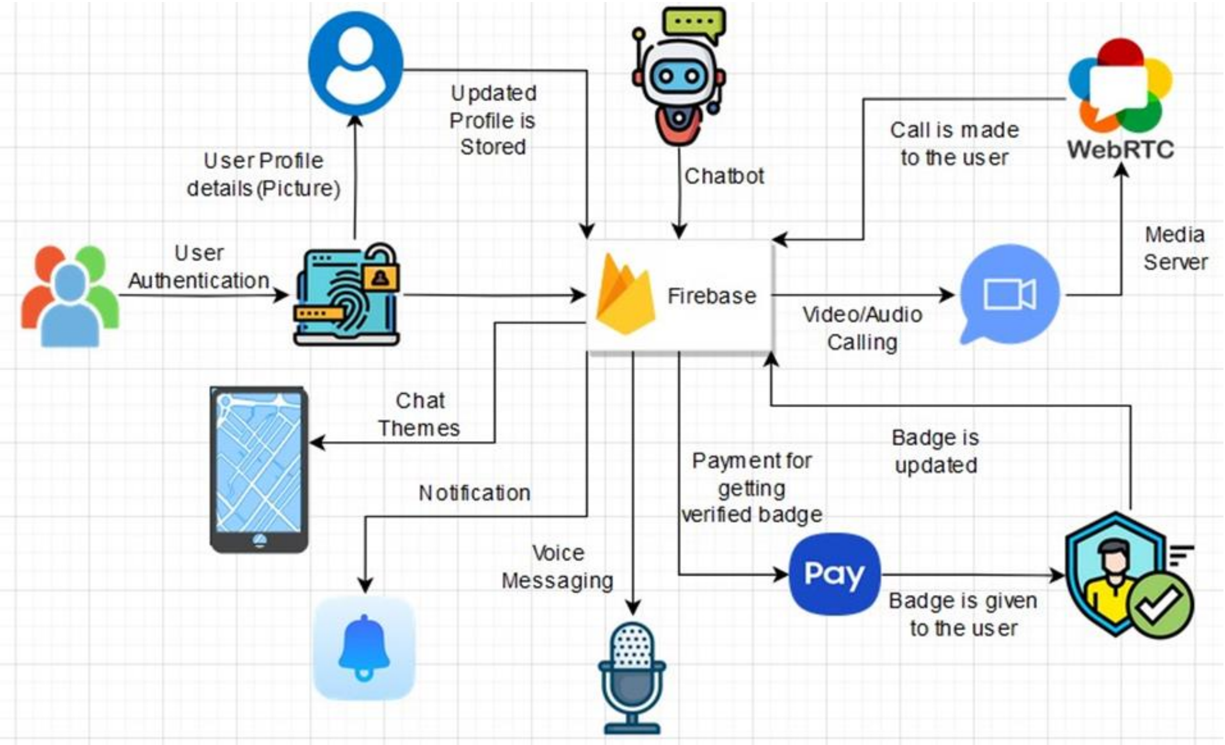


User Stories :

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a new user, I want to sign up using my phone number to create an account.	I can access my account / dashboard	High	Sprint-1
		USN-2	As an existing user, I want to sign in using my phone number to use the application	I can sign in using phone number	High	Sprint-1
		USN-3	As a user, I can update my profile details through settings	I can access settings to update my profile details	High	Sprint-1
		USN-4	As a user, I want to receive a verification code/OTP via SMS for secure authentication	I can access my account/ dashboard	High	Sprint-1
	Profile management	USN-5	As a user, I want to share my status/story with my contacts	I can share my status/ story with my contacts	Medium	Sprint-3
		USN-6	As a user, I want to manage my profile picture(updating, changing and removing status/story)	I can manage my profile picture	High	Sprint-2
	Chat features	USN-7	As a user, I want to be able to block an report users to reduce fake accounts	I can block and report accounts	Medium	Sprint-4
		USN-8	As a user, I want to access the user guide chatbot for app assistance	I can use the chatbot to guide me using the app	Medium	Sprint-3

		USN-9	As a user, I want to have the option to select different chat themes for specific chats	I can use different chat themes for my chats	Low	Sprint-3
	Account verification	USN-10	As a user, I want to receive a verified badge once my account is verified	I get a verified badge near my name	Medium	Sprint-5
	User interactions	USN-11	As a user, I want to search for other users or groups	I can search users incase when I don't find them in my chat list	Low	Sprint-4
		USN-12	As a user, I want to create groups for my preferred contacts	I can create groups for specific preference and people	Low	Sprint-4
	Communication	USN-13	As a user, I want to make video calls with my contacts	I can video call any user in my chat list	Medium	Sprint-2
		USN-14	As a user I want to make audio calls with my contacts	I can audio call any user in my chat list	Medium	Sprint-2
	Notifications	USN-15	As a user, I want to receive notification for new messages and calls	I want to get notified when someone has texted me	Medium	Sprint-5

5.2 Solution Architecture



User Authentication:

•Components:

1.User Database: Store user account information, including user ID, email, password, and authentication status.

2.Authentication Process: Use Firebase Authentication or other methods for user sign-up, login, and password reset.

3.User Profile: Display user information, including their name, email, and profile picture.

4.Front-end: Implement UI for user registration, login, and profile management.

5.Security Rules: Set up Firebase Security Rules to secure user data and authentication.

•Workflow:

1.Users create accounts by providing their email and password.
2.Email verification may be used to ensure the authenticity of user accounts.
3.Users can update their profiles, including their name and profile picture.

Status/Story:

•Components:
1.Firestore Database: Store user status updates, including user ID, timestamp, and content.
2.Storage: Store media files (images, videos) related to status updates.
3.User Interface: Implement a UI for users to view and post status updates.
•Workflow:
1.Users can post status updates, which are stored in Firestore.
2.Media files associated with status updates are stored in Firebase Storage.
3.Users can view and interact with status updates in the app.

Profile Picture:

•Components:
1.Firebase Storage: Store user profile pictures.
2.User Profile: Display the user's profile picture.
•Workflow:
1.Users can upload their profile pictures to Firebase Storage.
2.The profile picture URL is stored in the user's data in Firestore.
3.The user's profile picture is displayed in their user profile.

Chatbot (Predefined Responses):

•Components:
1.Realtime Database or Firestore: Store chat messages between users and the chatbot, including predefined responses.
2.User Interface: Implement a chat interface for users to interact with the chatbot.
3.Chatbot Logic: Define predefined responses for specific user inputs.
•Workflow:
1.Users can send messages to the chatbot.
2.The app checks if user messages match predefined responses in the database.
3.If a match is found, the predefined response is sent; otherwise, the message is stored, and a generic response is provided.

Video Calling Feature:

Components:
•User Interface (UI):
Video call buttons, user profiles, and the video call screen.
•Signalling Servers:
Technologies: WebSockets or SignalR.
Functions: Call initiation, call acceptance, and user presence updates.
•Media Server:
Technology: WebRTC.
Supporting Servers: STUN and TURN servers for NAT traversal and firewall support.
•Codecs and Media Processing:
Features: Echo cancellation, noise reduction, and bandwidth adaptation.
•User Authentication and Authorization:
Process: User login and authentication.
•Data Synchronization:
Purpose: Call history, call status (e.g., ongoing, missed, completed), and call-related data.
•Push Notifications:
Function: Notify users of incoming video call requests or missed calls.
•Security and Encryption:
Priority: Implement end-to-end encryption for privacy.
Workflow:
•User initiates a video call from the UI.
•Signalling server handles the call initiation and notifies the recipient.
•The recipient accepts the call request through the UI.
•Signalling server establishes a connection between caller and recipient.

•Media server (WebRTC) handles audio and video streaming directly between clients.
•Codecs and media processing enhance call quality.
•User authentication and authorization ensure only authorized users can initiate calls.
•Call data is synchronized and stored for future reference.
•Push notifications notify users of incoming video call requests or missed calls.
•End-to-end encryption is implemented for secure video call content.

Audio Calling Feature:

Components:
•User Interface (UI):
Call buttons, user profiles, and the in-call screen.
•Signalling Server:
Technology: WebSockets or SignalR.
Functions: Call initiation, call acceptance, and user presence updates.
•Media Server:
Technology: WebRTC or SIP (Session Initiation Protocol).
Supporting Servers: STUN and TURN servers for NAT traversal.
•Audio Codecs:
Usage: Audio codecs (e.g., Opus, G.711) for audio stream compression and decompression.
•Audio Quality Enhancement:
Features: Echo cancellation and noise reduction.
•User Authentication and Authorization:
Process: User login and authentication.
•Data Synchronization:
Purpose: Call history, call status (e.g., ongoing, missed, completed), and call-related data.
•Push Notifications:
Function: Notify users of incoming audio call requests or missed calls.
•Security and Encryption:
Security Measure: Implement end-to-end encryption for audio content privacy.
Workflow:
•User initiates an audio call from the UI.
•Signalling server handles the call initiation and notifies the recipient.
•The recipient accepts the call request through the UI.
•Signalling server establishes a connection between caller and recipient.
•Media server (WebRTC or SIP) handles audio streaming between clients.
•Audio codecs compress and decompress audio streams.
•Audio quality enhancement features improve call quality.
•User authentication and authorization ensure only authorized users can initiate audio calls.
•Call data is synchronized and stored for future reference.
•Push notifications notify users of incoming audio call requests or missed calls.
•End-to-end encryption is implemented for secure audio call content.

Voice Messaging:

Components:
•User Interface (UI): Voice messaging button in chat interface. List of voice messages in chat history.
•Voice Messaging Server: Responsible for recording, storing, and delivering voice messages.
•Recording and Playback: Components for recording and playing voice messages within the app.
•Data Synchronization: Ensure voice messages are synchronized across devices and users.
Workflow:
•User selects the voice messaging button in the chat interface.
•The app prompts the user to record a voice message.
•The recorded message is sent to the voice messaging server for storage.
•The recipient is notified of the incoming voice message.
•The recipient can play the voice message from the chat interface.
•Data synchronization keeps track of sent and received voice messages.

Chat Themes Feature:

Components:
•User Interface (UI): Themes selection screen.Theme customization options.

•Theme Storage: Store theme preferences and customizations.

Workflow:

•Users access the chat themes feature from the UI.

•They can select from pre-defined themes or customize their own.

•Theme preferences are stored for the user to apply in the chat interface.

Verified Accounts (Tick Marks):

Verified accounts are typically used to confirm the authenticity of an account or user. This can be crucial for ensuring trust and security in a chat application.

Components:

•User Database: This is where user account information is stored, including account status (verified/unverified).

•Verification Process: A verification process should be in place to confirm user identity. This may include document submission, email verification, or phone number verification.

•User Profile: Each user should have a user profile page where their verification status is displayed, typically with a tick mark symbol to indicate a verified account.

•Front-end: The application's user interface should display tick marks next to verified users' names in the chat interface.

•Verification Badge Management: An admin panel or system should be available for managing and updating verification badges.

Workflow:

•User initiates the verification process by providing necessary information and documents.

•The application's backend verifies the submitted information through an automated or manual review process.

•If verification is successful, the user's account status is updated to "verified," and a tick mark badge is displayed on their profile and next to their name in chats.

Text Reading:

The text reading feature allows users to have messages read aloud, which can be beneficial for accessibility or when users are unable to read the text.

Components:

•Text-to-Speech (TTS) Service: You need a Text-to-Speech service or API that can convert text messages into spoken words. There are several TTS services available, such as Google Text-to-Speech, Amazon Polly, or Microsoft Azure Cognitive Services.

•Chat Interface: Within the chat interface, you should provide a button or option for users to initiate the text reading feature.

•Audio Output: Ensure that the spoken text is played through the user's device's audio output (speaker or headphones).

•User Settings: Allow users to customize the TTS settings, such as voice selection, speed, and volume.

•Accessibility Features: Implement accessibility features to make it easier for users with disabilities to access the text reading functionality.

Workflow:

•User selects a message in the chat interface they want to be read aloud.

•The selected text is sent to the TTS service, which converts it into speech.

•The generated speech is played through the user's device's audio output.

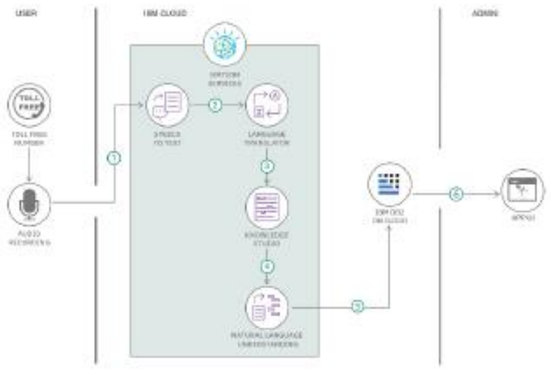
Considerations:

•Ensure that the text reading feature is accessible and customizable for users with different needs.

•Implement privacy controls to allow users to opt-in or opt-out of having their messages read aloud.

6. PROJECT PLANNING & SCHEDULING

6.1 Technical Architecture



Guidelines:

Include all the processes (As an application logic / Technology Block)
Provide infrastructural demarcation (Local / Cloud)
Indicate external interfaces (third party API's etc.)
Indicate Data Storage components / services
Indicate interface to machine learning models (if applicable)

6.2 6.3 Sprint Planning & Estimation and Sprint Delivery Schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a new user, I want to sign up using my phone number to create an account.	2	High	Kaushik
Sprint-1		USN-2	As an existing user, I want to sign in using my phone number to use the application	1	High	Kaushik
Sprint-1		USN-3	As a user, I can update my profile details through settings	2	High	Kaushik
Sprint-1		USN-4	As a user, I want to receive a verification code/OTP via SMS for secure authentication	2	High	Kaushik
Sprint-1	Dashboard (App interface)	USN-5	As a user, I can log into the application by numbers(UI design)	1	High	Vishnuthii
Sprint-3	Profile management	USN-6	As a user, I want to share my status/story with my contacts	1	Medium	Aadhithya

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-2		USN-7	As a user, I want to manage my profile picture (updating, changing, and removing status/story)	1	High	Vishnuthii
Sprint-4	Chat features	USN-8	As a user, I want to be able to block a report user to reduce fake accounts	2	Medium	Harshitha
Sprint-3		USN-9	As a user, I want to access the user guide chatbot for app assistance	1	Medium	Kaushik
Sprint-3		USN-10	As a user, I want to have the option to select different chat themes for specific chats	2	Low	Harshitha
Sprint-5	Account verification	USN-11	As a user, I want to receive a verified badge once my account is verified	1	Medium	Vishnuthii
Sprint-4	User interactions	USN-12	As a user, I want to search for other users or groups	1	Low	Aadhithya
Sprint-4		USN-13	As a user, I want to create groups for my preferred contacts	1	Low	Kaushik
Sprint-2	Communication	USN-14	As a user, I want to make video calls with my contacts	2	Medium	Harshitha
Sprint-2		USN-15	As a user I want to make audio calls with my contacts	2	Medium	Aadhithya
Sprint-5	Notifications	USN-16	As a user, I want to receive notification for new messages and calls	2	High	Vishnuthii

7. CODING & SOLUTIONING (Explain the features added in the project along with code)

7.1 Feature 1: Chat

Realtime Database:

Firebase's Realtime Database is a cloud-hosted NoSQL database that enables developers to store and sync data in real-time. In the context of a chat application, this feature allows messages to be instantly sent and received across multiple devices. As users send messages, the database is updated, triggering real-time updates to all connected clients. This ensures that the chat interface is always up-to-date and responsive.

Firebase Cloud Messaging (FCM):

FCM is a reliable and scalable cloud solution for delivering messages to applications. In a chat application, FCM enables the delivery of push notifications to notify users of new messages even when the app is in the background or closed. This ensures that users stay informed and can quickly respond to incoming messages. FCM also supports topic-based messaging, allowing you to send messages to specific chat rooms or groups.

Firebase Authentication:

User authentication is a crucial aspect of a chat application. Firebase Authentication provides a secure and easy-to-implement solution for authenticating users. With Firebase Authentication, users can sign in using various methods, including email/password, social identity providers (Google, Facebook, etc.), and anonymous sign-ins. Securely identifying users ensures that messages are attributed to the correct sender, creating a personalized and secure chat experience.

72 Feature 2: Video Calling and Audio Calling

User Input and Navigation:

- The MainActivity includes a text input field (userIdTextField) where users can enter the ID of the person they want to call.
- Upon clicking the "Next" button (button_next), the app extracts the entered user ID,creates an Intent to launch the VideoCallActivity, and starts the new activity.

Zego Video and Audio Call Services:

- The videoCallServices function in MainActivity initializes Zego's prebuilt call invitation services. It configures parameters such as appID, appSign, and user IDs for video and audio calls.
- In VideoCallActivity, the layout includes buttons (video_call_btn and audio_call_btn) for starting video and audio calls. These buttons use Zego's ZegoSendCallInvitationButton to handle call invitations.

Dynamic UI Updates:

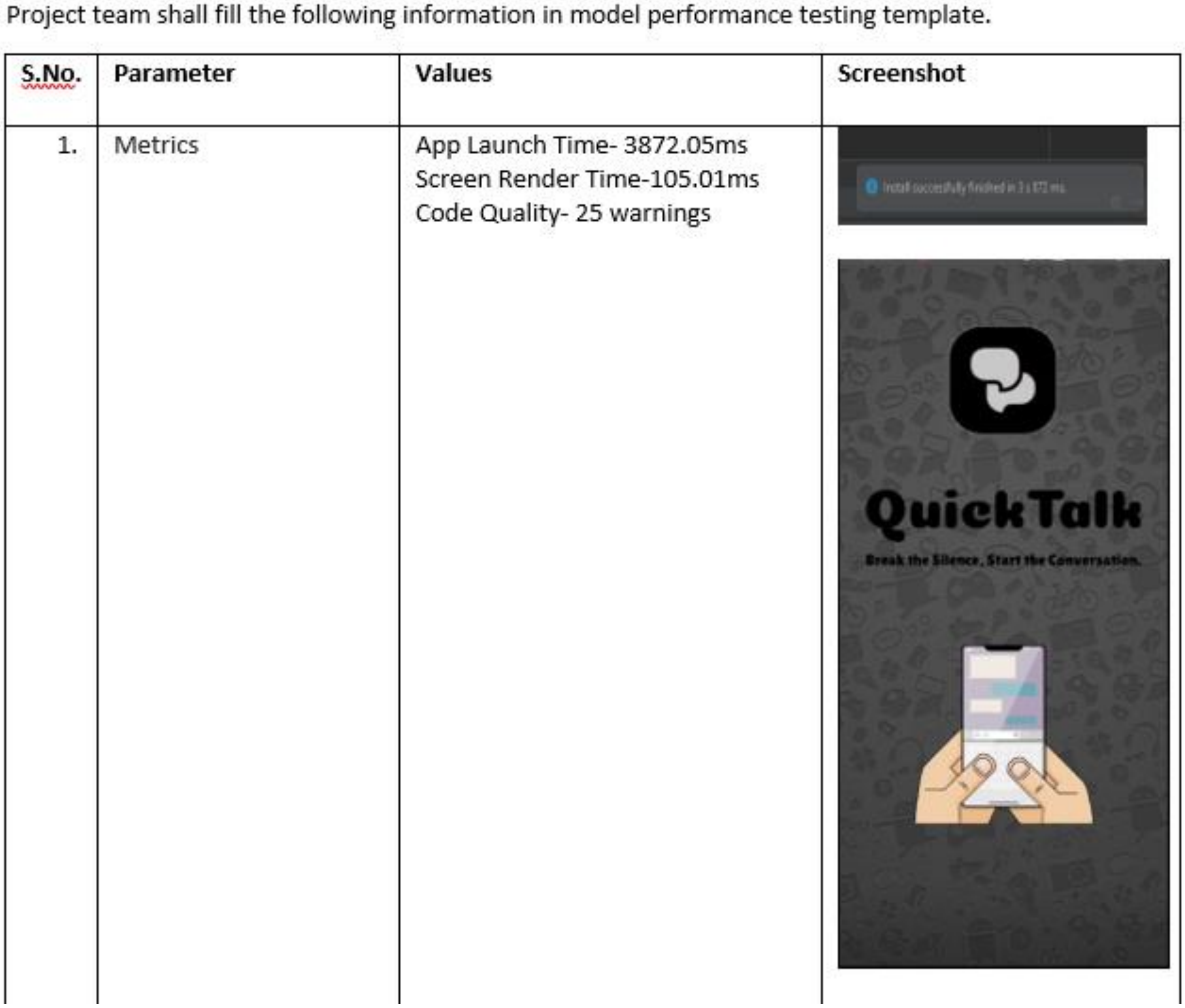
- The UI in Videocall Activity dynamically updates based on user input. When the user enters the receiver's ID in the receiverUserId field, the layout (buttonLayout) containing video and audio call buttons becomes visible.
- Text views (textView and receiverUserId) are used to display information such as a welcome message and the user ID.

73 Database Schema (if Applicable)

1. Cloud Firestore: it is a NoSQL, document-oriented database unlike a SQL database, there are no tables or rows. Instead, you store data in documents, which are organized into collections.
2. ZEGOCLOUD: ZEGOCLOUD revolutionizes virtual engagement with real-time interaction services for hassle-free cloud communication, connecting enterprises, teams, customers and users.

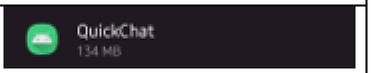
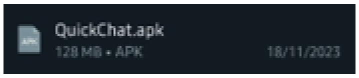
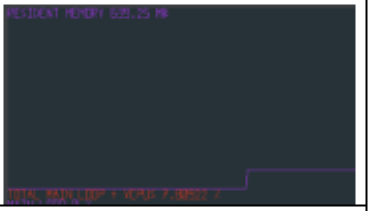
8. PERFORMANCE TESTING

8.1 Performace Metrics



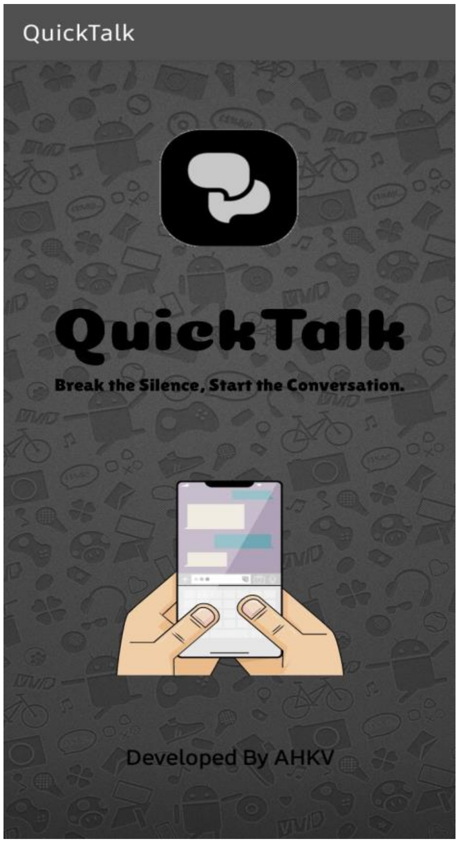
Project team shall fill the following information in model performance testing template.

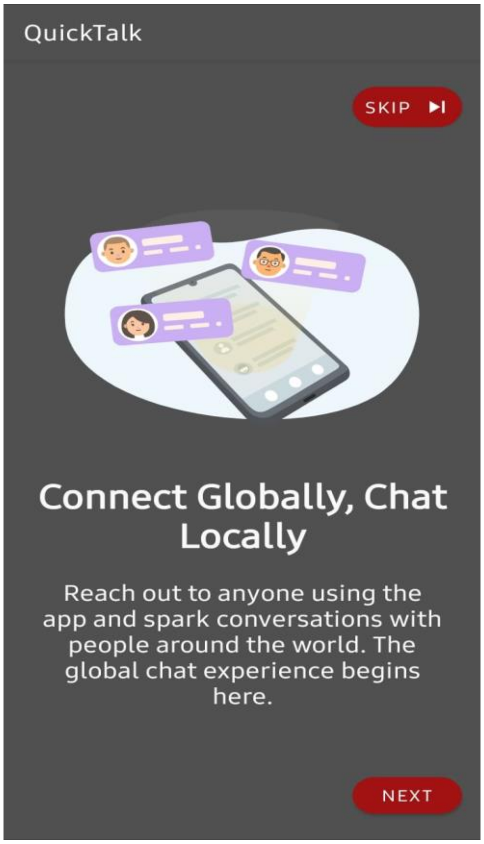
S.No.	Parameter	Values	Screenshot
1.	Metrics	App Launch Time- 3872.05ms Screen Render Time-105.01ms Code Quality- 25 warnings	Install successfully finished in 3 s 872 ms.

2.	Usage	App Size- 128mb Customer Experience- 134mb	 QuickChat 134 MB  QuickChat.apk 128 MB • APK 18/11/2023  RESIDENT MEMORY 639.25 MB TOTAL MAIN LOOP + VCPUS 7.80522 %
3.	Performance	Error and Crash Rates- Database Query Performance-	None

9. RESULTS

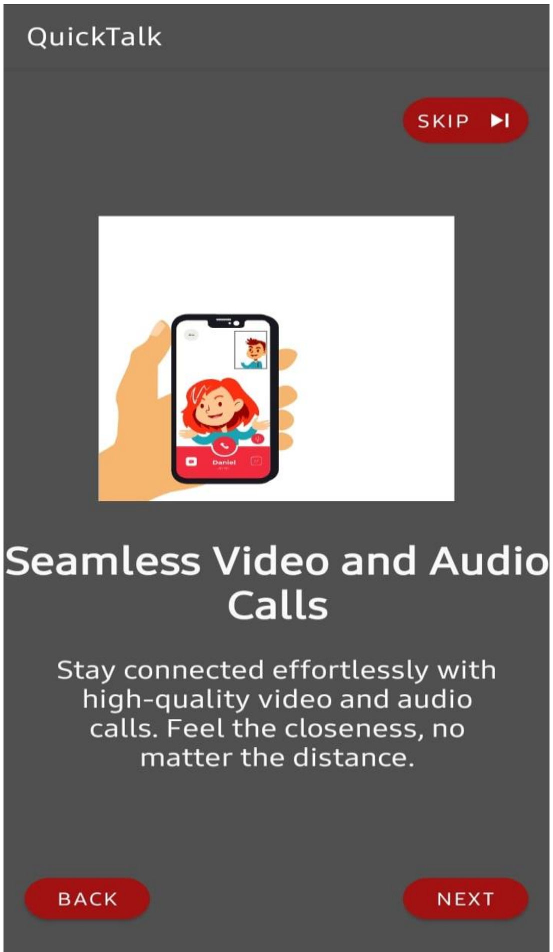
9.1 Output Screenshots





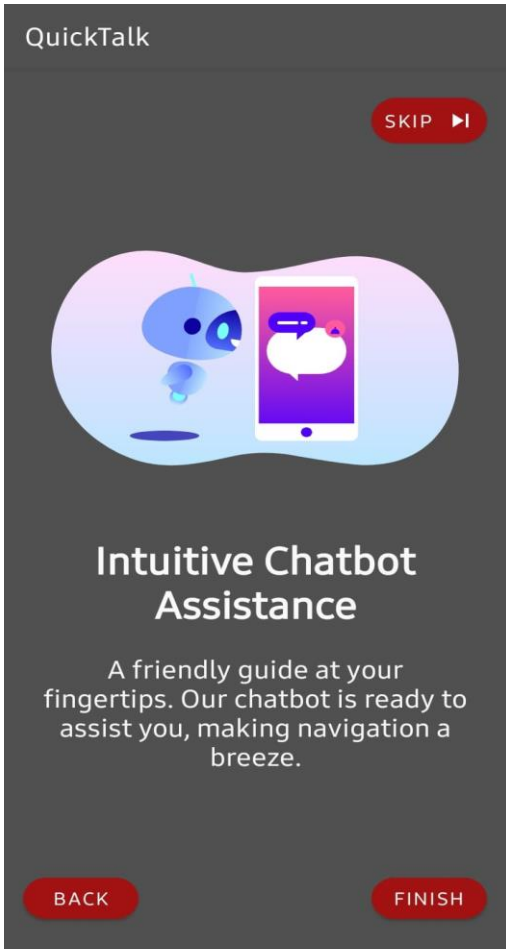
Connect Globally, Chat Locally

Reach out to anyone using the app and spark conversations with people around the world. The global chat experience begins here.



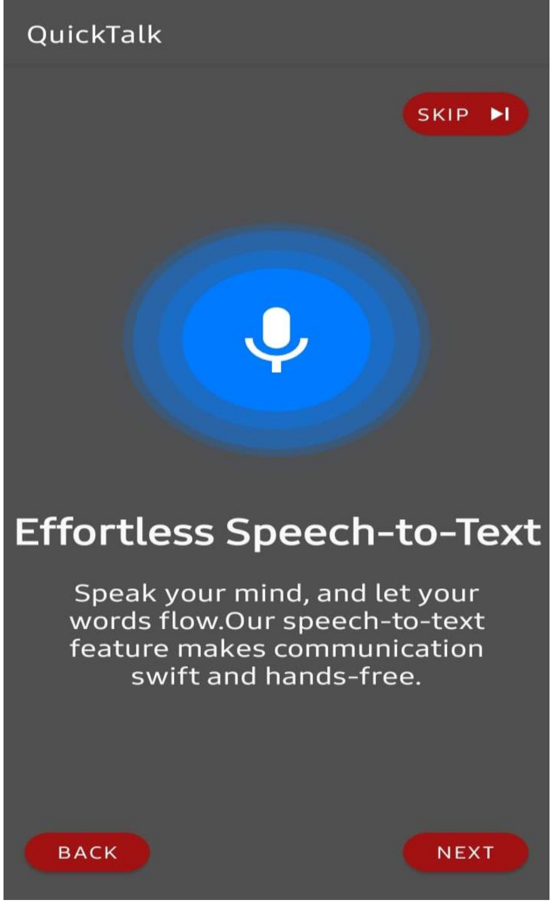
Seamless Video and Audio Calls

Stay connected effortlessly with high-quality video and audio calls. Feel the closeness, no matter the distance.



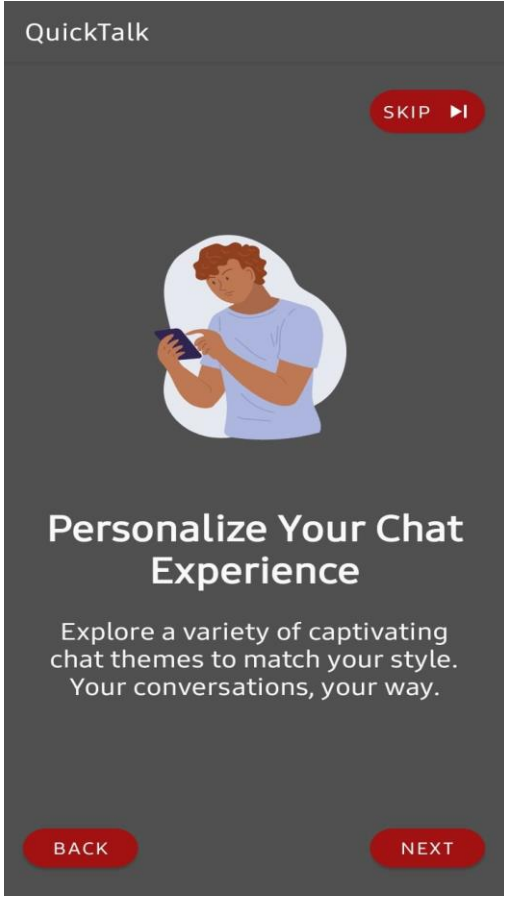
Intuitive Chatbot Assistance

A friendly guide at your fingertips. Our chatbot is ready to assist you, making navigation a breeze.



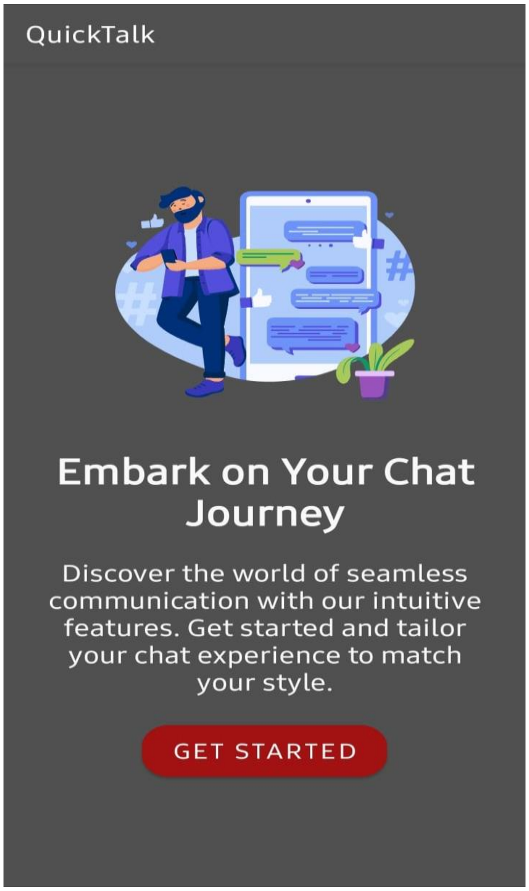
Effortless Speech-to-Text

Speak your mind, and let your words flow.Our speech-to-text feature makes communication swift and hands-free.



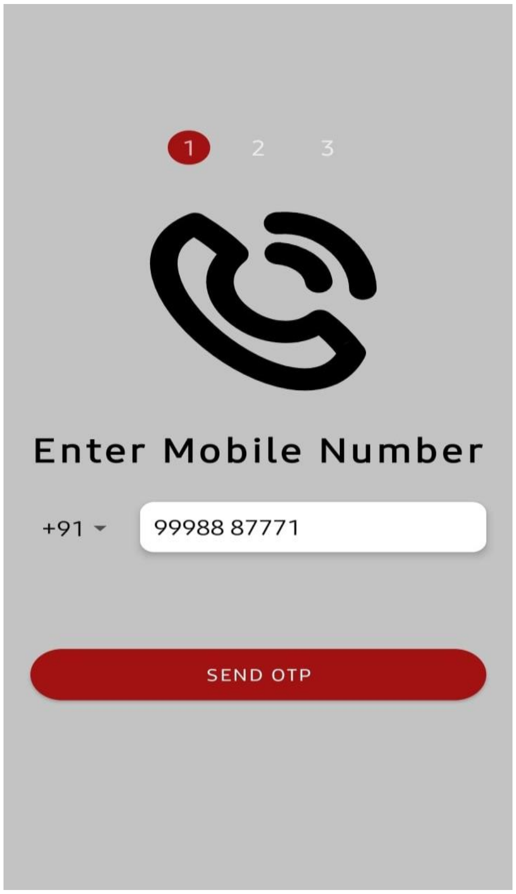
Personalize Your Chat Experience

Explore a variety of captivating chat themes to match your style. Your conversations, your way.



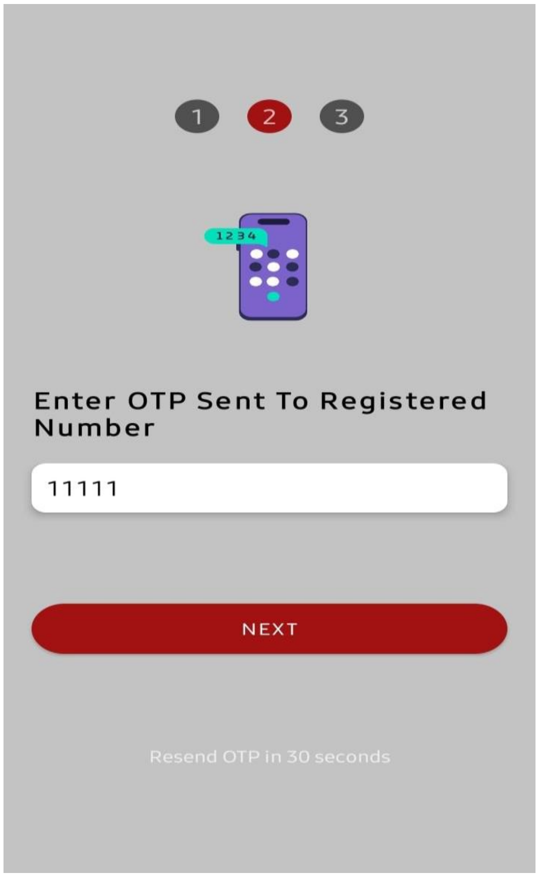
Embark on Your Chat Journey

Discover the world of seamless communication with our intuitive features. Get started and tailor your chat experience to match your style.



Enter Mobile Number

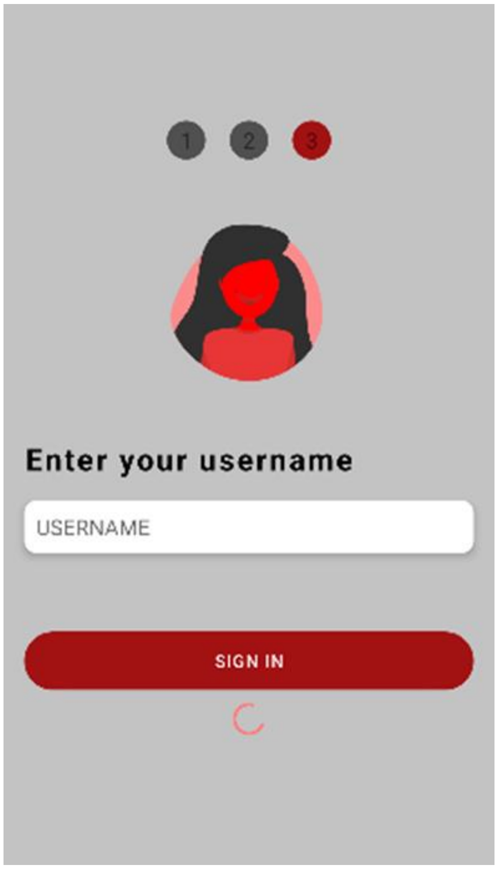
+91 99988 87771



Enter OTP Sent To Registered Number

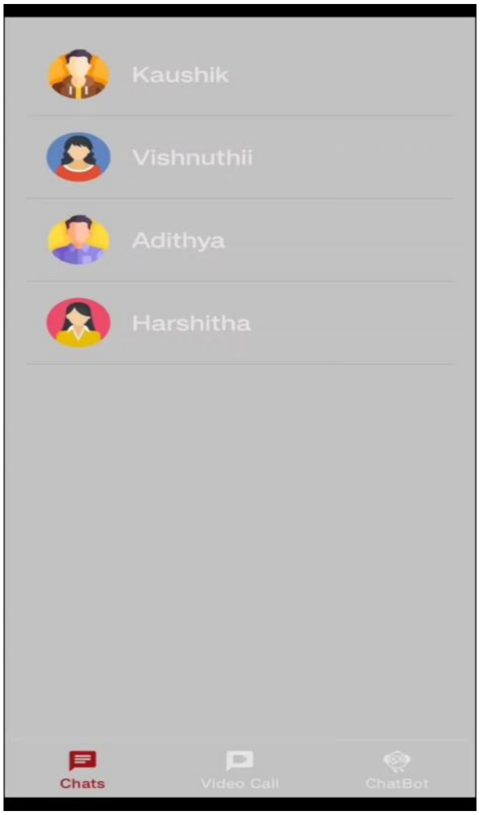
11111

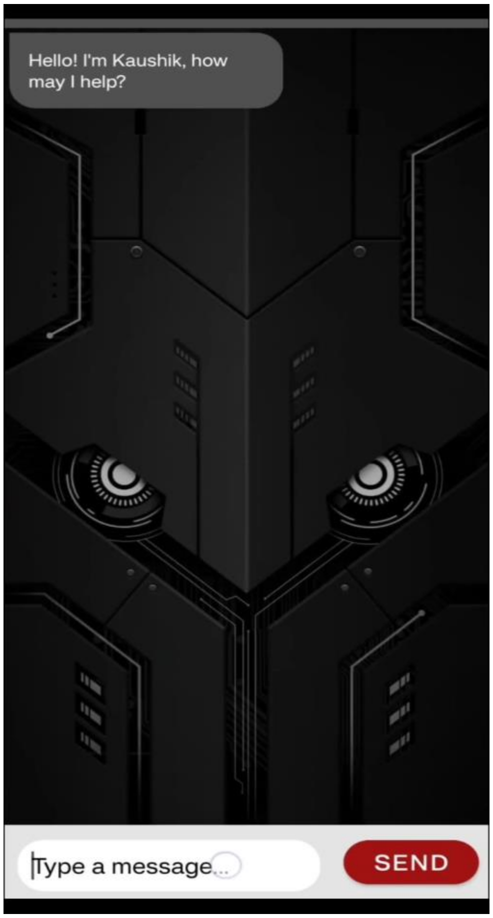
Resend OTP in 30 seconds

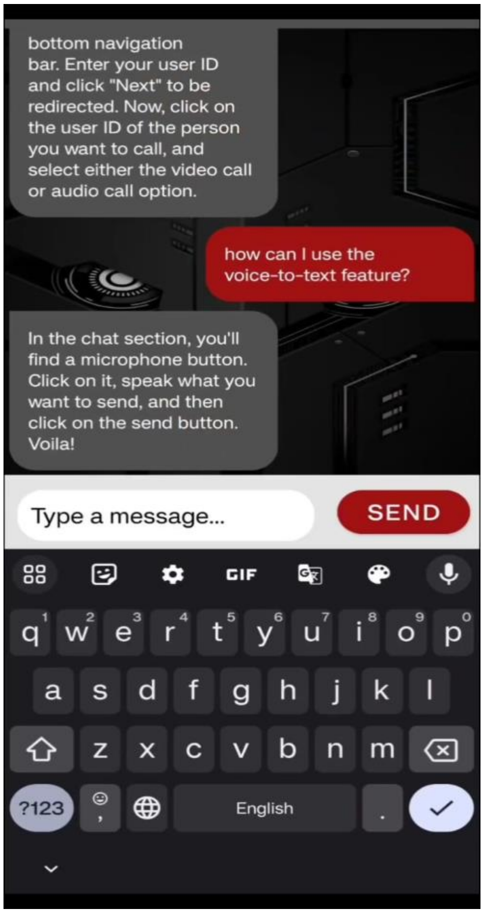


Enter your username

USERNAME

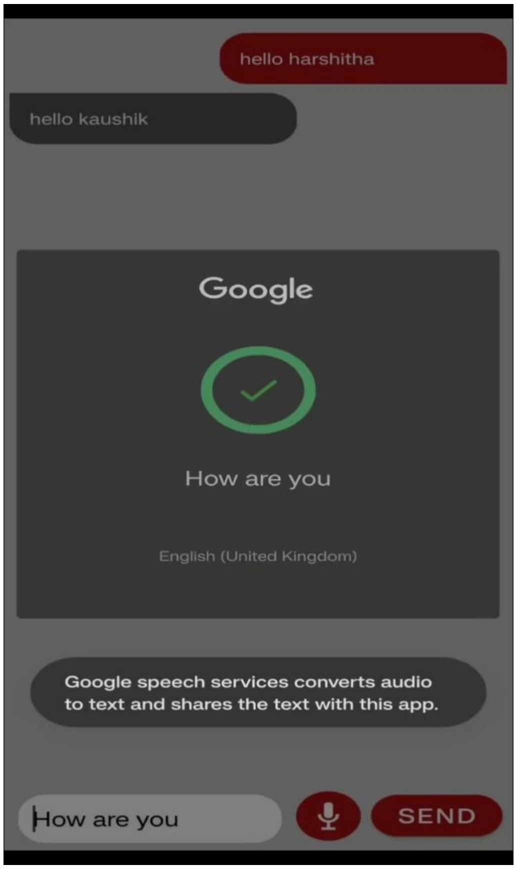



Hello! I'm Kaushik, how may I help?


bottom navigation bar. Enter your user ID and click "Next" to be redirected. Now, click on the user ID of the person you want to call, and select either the video call or audio call option.

how can I use the voice-to-text feature?

In the chat section, you'll find a microphone button. Click on it, speak what you want to send, and then click on the send button. Voila!



hello harshitha

hello kaushik

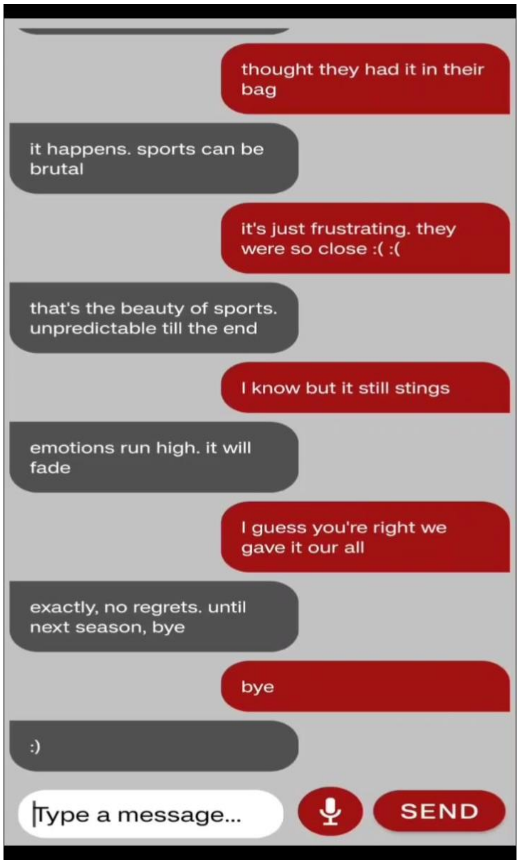
Google

How are you

English (United Kingdom)

Google speech services converts audio to text and shares the text with this app.

How are you



thought they had it in their bag

it happens. sports can be brutal

it's just frustrating. they were so close :(:(

that's the beauty of sports. unpredictable till the end

I know but it still stings

emotions run high. it will fade

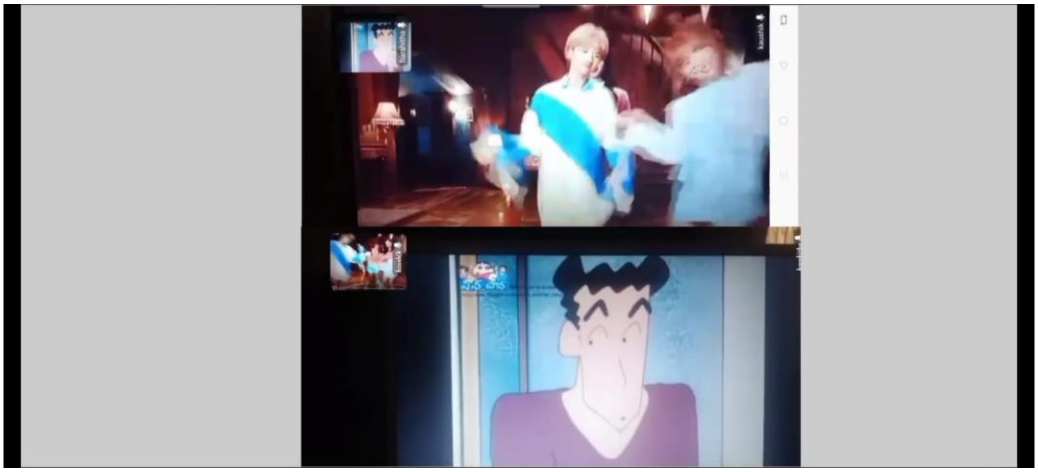
I guess you're right we gave it our all

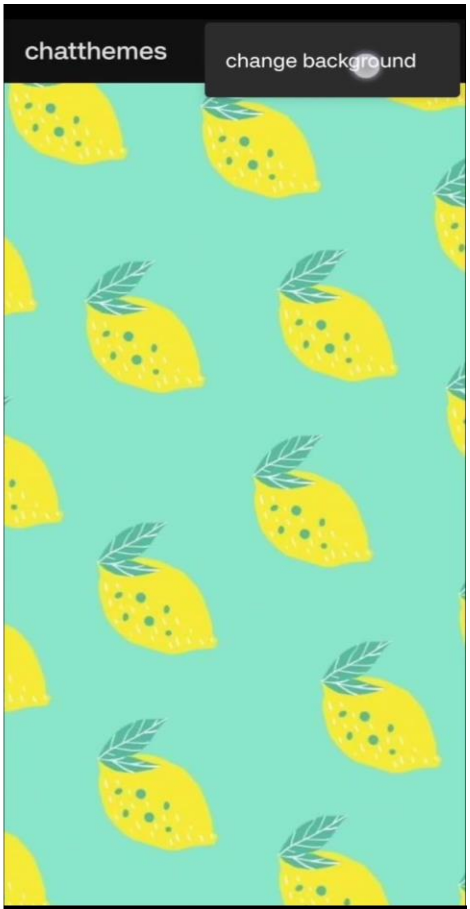
exactly, no regrets. until next season, bye

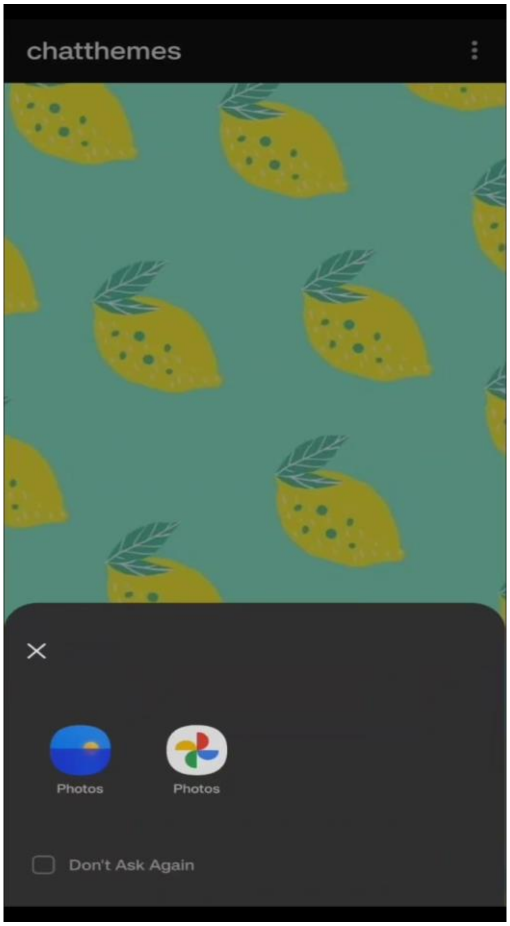
bye

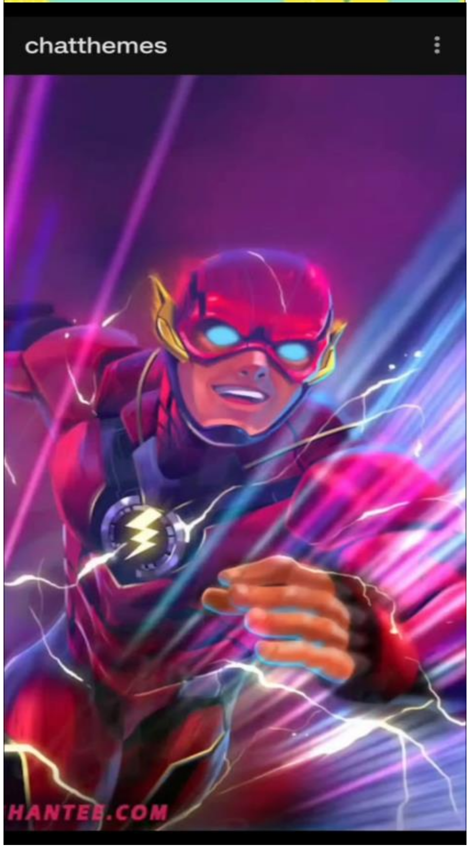
:)

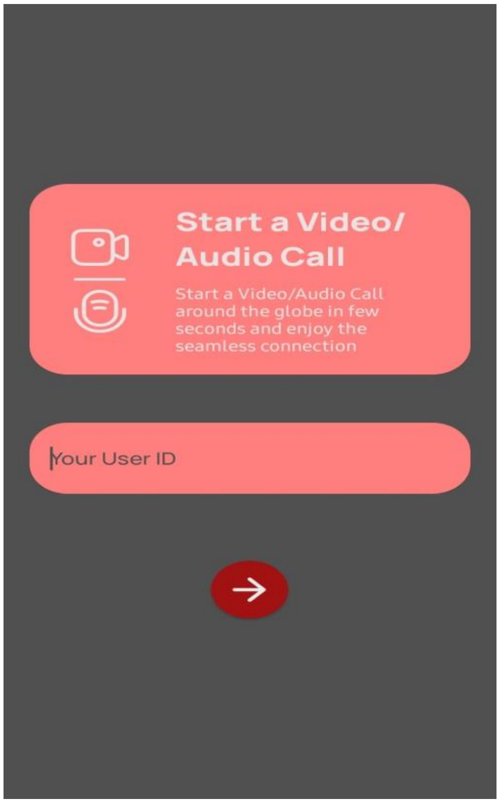
Type a message...




chatthemes
change background


chatthemes
Photos
Photos
□ Don't Ask Again

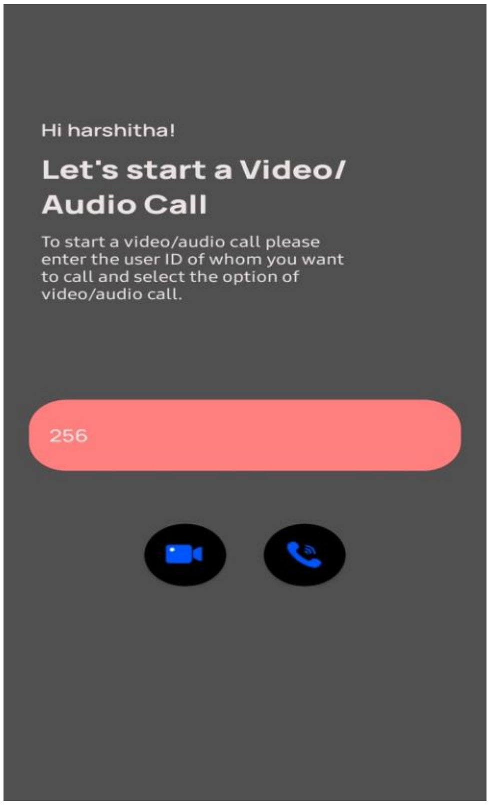

chatthemes
HANTEE.COM



Start a Video/ Audio Call

Start a Video/Audio Call around the globe in few seconds and enjoy the seamless connection

Your User ID



Hi harshitha!

Let's start a Video/ Audio Call

To start a video/audio call please enter the user ID of whom you want to call and select the option of video/audio call.

256

10. ADVANTAGES & DISADVANTAGES

Real-time Communication:

Chat apps facilitate real-time communication, enabling users to send and receive messages instantly, fostering quick and efficient conversations.

Global Connectivity:

Chat apps break down geographical barriers, allowing users from different parts of the world to connect and communicate seamlessly.

Multimedia Sharing:

Users can share a variety of multimedia content such as images, videos, documents, and voice messages, enhancing the richness of communication.

Group Collaboration:

Chat apps often support group chats, enabling multiple users to collaborate, discuss, and share information within a single conversation.

Cost-effective:

Chat apps are generally more cost-effective than traditional communication methods like SMS or phone calls, especially for international communication.

Notification Alerts:

Users receive instant notifications for new messages, ensuring that important information is communicated promptly.

Asynchronous Communication:

Chat apps allow for asynchronous communication, meaning users can respond at their convenience without the need for immediate responses.

Searchable Conversations:

Most chat apps provide search functionality, making it easy for users to find and reference past conversations or specific information.

Integration with Other Services:

Many chat apps integrate with other services and platforms, allowing users to share content, access external information, or collaborate on projects seamlessly.

Personalization and Customization:

Users can personalize their chat experience, such as setting profile pictures, updating statuses, and choosing customized themes.

Disadvantages of Chat Apps:

Distraction and Productivity Loss:

Continuous notifications and the ease of distraction within chat apps can lead to reduced productivity and focus.

Security Concerns:

Chat apps may pose security risks, especially if sensitive or confidential information is shared without adequate encryption and protection.

Overreliance on Text:

While text is the primary mode of communication, nuances, emotions, and context can be lost, leading to misunderstandings.

Potential for Misuse:

Chat apps may be misused for spreading misinformation, cyberbullying, or engaging in inappropriate behavior.

Dependency on Internet Connectivity:

Chat apps require a stable internet connection, and users may face communication challenges in areas with poor connectivity.

Data Privacy Concerns:

Users may have concerns about data privacy, especially when using free chat apps that may collect and use personal information for advertising purposes.

Fragmentation:

The availability of numerous chat apps can lead to fragmentation, making it challenging for users to coordinate and communicate across different platforms.

Limited Personal Interaction:

While chat apps provide convenient communication, they lack the personal touch and non-verbal cues present in face-to-face interactions.

Potential for Addiction:

Excessive use of chat apps, especially among younger users, may lead to addictive behavior and negatively impact mental health.

Technical Issues:

Users may encounter technical issues such as app crashes, server outages, or compatibility problems, disrupting communication and user experience.

11. CONCLUSION

In conclusion, ChatConnect is a user-friendly and innovative communication app designed to bring people closer regardless of their location or device. With real-time messaging, video and audio calling features, and a commitment to user privacy and security, ChatConnect provides a seamless platform for global connections. The app's focus on inclusivity, personalized experiences, and advanced collaboration tools sets it apart in the world of communication apps. Whether you're sharing moments through multimedia, engaging in group collaborations, or simply staying connected with loved ones, ChatConnect aims to redefine the way we communicate and collaborate in a connected world. With its intuitive interface and commitment to user satisfaction, ChatConnect stands poised to make a meaningful impact on the landscape of real-time communication.

12. FUTURE SCOPE

Group Calling:

Introduce group calling functionality, allowing users to initiate voice and video calls with multiple participants simultaneously. This feature enhances the application's versatility and accommodates scenarios where group communication is essential.

Creating Groups:

Enable users to create custom chat groups, fostering community building and collaboration. Group administrators should have the ability to manage group settings, add or remove members, and control group permissions.

Emojis and Reactions:

Enhance the expressiveness of messages by incorporating emojis and reactions. Users can react to messages with a variety of emojis, adding a fun and dynamic element to the chat experience.

Audio and Video Calls:

Extend the chat application to support one-on-one audio and video calls. This feature provides users with more communication options, making the application a comprehensive platform for both text-based and multimedia interactions.

Voice Messages:

Integrate voice messaging capabilities, allowing users to send short voice recordings as messages. This feature adds a personal touch to communication and accommodates users who prefer voice-based interactions.

Payment Integration:

Implement secure and seamless payment features within the chat application. Users can make transactions, split bills, or send/receive payments directly within the app, transforming it into a multifunctional platform.

Desktop Version:

Develop a desktop version of ChatConnect to offer users the flexibility of accessing the application from their computers. Synchronized data across devices ensures a seamless experience whether users are on mobile or desktop.

Block and Report Buttons:

Prioritize user safety by incorporating block and report buttons. Users can block unwanted contacts, and reporting mechanisms help address inappropriate content or behavior, ensuring a secure and respectful community.

Star Messages:

Allow users to mark messages as favorites or important by introducing a "star" or bookmark feature. This enables users to easily revisit significant messages in the future.

App Languages:

Implement multilingual support to cater to a diverse user base. Users can choose their preferred language, enhancing accessibility and usability on a global scale.

Avatars:

Introduce customizable avatars, enabling users to personalize their profiles. Avatars enhance user identification and contribute to a visually appealing and engaging user interface.

13. APPENDIX

Source Code - https://github.com/harshitha-36/AndroidsTUDIO-chatconnect

GitHub - https://github.com/smartinternz02/SI-GuidedProject-587429-1696942847

Project Demo Link -
https://drive.google.com/file/d/1CvuwchJFVkuSplIrXPdkX0YAU56OaSWn/view?usp=sharing