Voice-Text Chat App

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ABSTRACT- ***Teleconferencing is a technique used to bring people and ideas together despite geographical challenges. To start chatting with the user you need to connect to a network where the user can create a specific conversation and group. This application suggests the structure of a professional chat system that will not allow the user to send inappropriate or inappropriate messages to members. This application aims to state a mechanism that provides security to the user and they can easily & safely share their private data with other user. Additionally, we add some keyword options also where the user can set the keyword according to their need.***

KEYWORDS*— Secure chat application, Security, Android, Secure session, Secure storage*

I. INTRODUCTION

In these days of the digital world, there is a very rapid development of electronic devices and therefore, mobile devices have become an integral part of continuous operations. Conversational requests have made a huge difference on social media because of their unique features that attract an audience. It provides real-time messaging and provides various services including, text messaging, photos, files, etc. The security and privacy of chat applications are of paramount importance but few people really take these programs seriously and may use them for informational purposes for specific purposes [5]. In this application, we present a definition to protect the security and privacy of the application request. We have outlined several requirements for creating a secure story that we implement using modern methods that give speed and better protection to their customers. High security and high performance. Customers can be confident that no one can read their messages, even if the mobile phone reaches the wrong hands, cannot access the application, nor can it access the data stored internally [6]. Conversation programs support text messaging to be sent to users as soon as they press the enter key. If the application is at the origin of the message it will be presented with a notification while if the recipient uses the application, it will be displayed in the chat window.

Features: This contains all the features of an existing conversation system as well as [5] -

- List of friends
- Early Conversation
- Currently online friends
- Finding Friends
- Notification

The most effective applications for this application are:

- Introduce a client-server mobile chat application that supports the status of communication groups either online or offline.
- Provide a friendly request service.
- Check the key exchange, then calculate the session key.
- Secure end-to-end messaging.
- Analyze and test the proposed story.

A. Secure Mobile Chat Requirements:

In this section, we propose conditions for making a request for a safe conversation:

Req1: The password stored on the chat server must be stored.

Req2: Providing a safe session. A safe seat is a key to each session. It makes sure the relationship is with the right person and no a neutral man can read the messages.

Req3: Messages must be locked to protect security and privacy.

Req4: Local storage must be kept confidential.

Req5: Messages are not stored on the chat server but on the user's device.

Req6: It is not allowed to exchange messages if not a friend.

B. Registration of an account

Before you start the application, there must be a lock screen on the Key repository that provides a secure container for storing local storage keys to make it difficult to extract unauthorized devices or other applications [31]. Each account has only one device and is sorted by device ID. Also, Email and username are unique. A name, email, and password are needed to register a new account. After verification, the server issues a unique identifier that acts as a user ID. Thereafter, the acknowledgment message is obtained for the successful registration of the client request and the client information is stored in the local database [32].

C. Login

Email and password are required login the user ID. After you enter the verification information, the password is stored and the user IDs are sent to the server. The service checks whether the email and password are valid [16]. if valid, the application is processed (Fig 1).

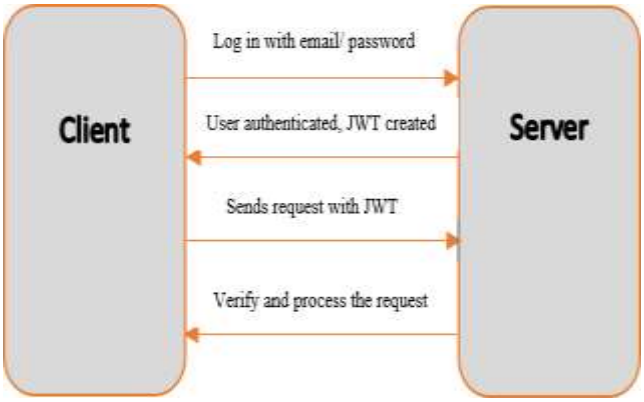

Fig. 1 Login process

D. Session key Setup

To add users to the contact list or username or email address. Sending a request to a friend when it is assumed that the first user knows the username or email of the second user because the username and email are unique to each user and the second user must already be registered on the server [5]. When an application is received, it appears as a notification. Finally, the acceptance is sent to its general server keys to be transferred to the user. Once the application is accepted, the same steps are taken [32]. The session key is calculated by a user and then stored in local storage for later use.

E. Exchanging Messages

Each message has its own key once which provides good security for each message contained as finding one of the keys cannot open the previous messages [5] After fileting the message, it will be closed again. using the receiver meeting key is then sent to the server.

F. Voice to text conversion

We are designing a user-friendly voice-over format in which the user receives the voice data spoken by the user and the user selects a language of their choice and the language spoken by the user changes the voice data to be entered into the text format. then the user can chat freely with anyone. And the voice recognition method is shown(fig.2).

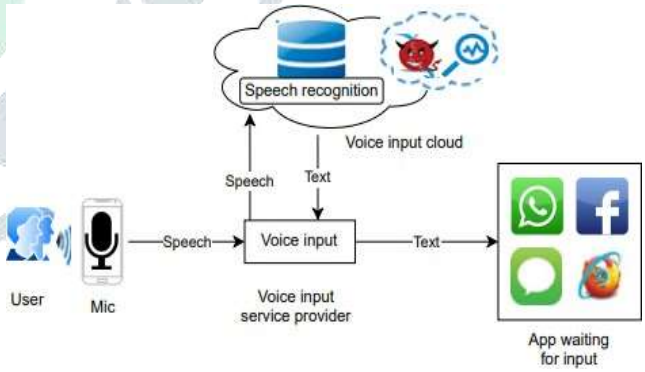

fig. 2 voice to text conversion

G. Logout

Logout is the keyword for stopping a user session in the chat system and users now have an active session. Logout Launched with Introductory Communication. Thus, by opting out of the chat system users can exit the chat system up to the login page [6].

II. RELATED WORK

Dr. Avinash Bamanem et.al [1] states that chat applications support text messages sent to users as soon as they press the Enter key. This application needs to be configured in the Client-Server configuration. While the primary focus of the application is to show the delivery of communication through diagrams and figures, it also provides various features in our conversational program such as the use of text, the provision of themes, the sound of a smile, etc.

Motoki Nakade [2] State that the voice chat system includes a large number of information processing tools that perform voice chat by performing speech recognition and a search server connected to multiple information processing devices through a communication network communication unit which makes speech recognition the voice data obtained from the conversation during the voice conversation with reference to the identity database containing the word identity dictionary.

Burckart et.al [3] It proposed as a way of writing the audio dialogue session that began with the text chat session. The system includes a chat server and voicemail. The chat server is designed to facilitate text chat sessions between multiple instant messaging clients. The voice service is connected to the chat server and is designed to facilitate the transition from text chat sessions to voice chat between multiple instant messaging clients. The voice text can be collected on the date of the text conversation.

Kowatsch et.al [4] proposed limited resources and are unable to personally monitor and support patients in their daily lives. And how text-based health care books (THCB) are designed to effectively support patients and health professionals in treatment settings outside of on-site consultation. introduce an open-source system and how THCP is used to intervene in childhood obesity.

Noor Sabah et.al [5] Proposed that the conversation requests have become one of the most important and popular software applications. It can exchange text messages, images, and files for free for users to communicate with each other.

Qian et.al [6proposed to add a mediator between users and the cloud, called Voice Mask, to hide speech data before it is sent to speech recognition clouds. It does so while still hiding hidden mobile devices from cloud-based voice input services.

Arpita Jadhav Bhatt et.al [7] Proposed to infringe on personal data by sharing sensitive and sensitive information on the server or third party without user permission application-layer.

Nehul et.al [8] Proposed about the whole treatment as well as the management of telephonic calls for complaints are very complicated. The user can ask any personal question related to health care through Chat-Bot without being physically available in the hospital using the Google API voicemail and voice-to-voice conversion. A question is sent to Chabot and it receives the related answer and displays the answer in the android app.

Bhadoria et.al [9] State that communication and interaction with each other become an important part of everyone's life. From small conversations to international company meetings, it is very difficult to live without communication. This includes details about a chat request to send instant and confidential messages without fear of interference.

Liu et.al [10] Proposed the techniques and techniques are presented in the form of direct communication between and between different communication systems. A chat group consisting of chat participants for online chat systems has been created.

Kwon Soon-Hwan et.al [11] Proposed the audio data analysis unit generates the voice signal from a specific voice message. The text-converting component converts voice symbols into text messages. The control unit determines whether the message-to-voice message modification is required for the specific message, based on the status information, and stores the converted text message into the voice data analysis section and the voice-text conversion component in the text message area [12].

Baulch, Emma, et.al [13] The proposed system provides the end of the first decade of WhatsApp and presents a collection of articles on the importance of this technology in everyday life.

Nasser et.al [14] proposed client-server application. Erbeng uses an integrated language platform that provides online communication

services. Erbeng provides direct translation with high translation performance, less time, and increased quality translation.

Ali Makki Sagheer et.al [15] proposed the application allows users to communicate with text messages, voice messages, and photos. For text message security, a standard AES algorithm with a 128-bit key is used. [16, 17].

Rösler et.al [18] proposed generic counter measures against protocol related to the objectives of security and reliability required. Our systematic analysis shows that (1) the unity of 'communication' representing the dignity of all messages exchanged - and (2) the rapprochement of groups - represented by the power of the members in the management of the group - is not maintained from end to end.

Bolli et.al [19] proposed an application behind WhatsApp end-to-end encryption works. First, a bit of an advance called 'crypto primitive' is drawn, to provide meaningful content or service.

Sukhodolskiy et.al [20] suggested the protocol security of popular messaging for both individual users and user groups.

Rastogi et.al [22] proposed the security framework covers key management, end-to-end WhatsApp encryption, Verification Method, Messaging Exchange, and finally security assessment. and cover the importance of metadata and its role in protecting WhatsApp privacy [21].

Gupta Guarav et.al [23] presented a request providing a way to communicate with the teams and senior members of the team without hesitation and implement this project, the members will also be able to present their views and points easily to all team members and senior officials.

T. Susanka [24] proposed a protocol to give context to the reader. First, the Telegram document encryption method uses, and secondly, the vulnerability to repeated attacks that we have discovered. The analysis mainly focused on the MTProto protocol and the official Telegram client for Android.

Watson, Brian D. [27] proposed the modified text is then displayed to the screen user. Alternatively, a remote party wireless network or network can convert text to be transmitted to the user based on the operating system of the user-related wireless communication device.

Arzumanyan et.al [28] proposed an interactive voice response program that provides the voice caller with the option to participate in a text session with intelligent interaction on the application server. The telephone service connected to the telephone network receives voice calls and communicates with the application form to start the voice feedback session.

Kyarimova et.al [29] proposed a model that is based on quick contact with people from a distance. The main task was to create an information system that provides instant radio communication for all employees and partners of the company without additional devices.

Sangsoo Sung et.al proposed voice text system to use an electronic device for voice and working actively to renew a sensitive manner to facilitate the identification of possible users to speak and electronic device intended for voice-operated [30,31].

D. J. Bernstein et.al [32] The proposed negotiation request has been compared with other popular requests based on these criteria and has also been tested as evidence of providing end-to-end security.

III. PROPOSED WORK

In this section, we develop an instant messaging solution to allow users to communicate independently with each other. The project should be very simple so that even beginners and the disabled can use it. Conversation requests range from simple text-based to virtual world filled with exotic images in this project, we are implementing a simple text-based chat client application. The user-based voice-based chat system, which receives the input data spoken by the user and the user selects a language according to their preferences and the language spoken by the user is changed to the text format for the data input. The user can chat with anyone independently.

A. Proposed Architecture

The proposed model is a client-based voice chat system with firebase as the backend database. The user needs to be registered on the application to use

it. Only the username and e-mail address are stored in the database. When a user downloads the application, the user chooses to register or log in. On the server side, the chat server consists of user services and a message server. The user server that manages the user ID. Messages are stored in a confidential manner. The structure is shown (fig. 3).

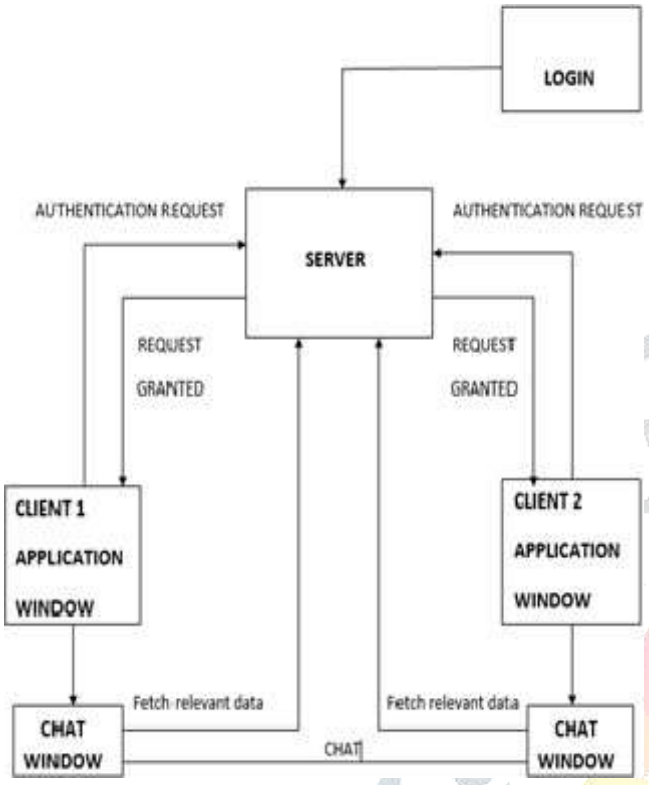

Fig .3 Architecture of voice text chat app

B. Backend Connection

We used firebase to build a database. There are different methods available but firebase is the simplest and most convenient environment for a producer to create a database.

To create a database attached to the application we need to create a firebase project. The following are the steps to create and connect an android studio concept database.

1) Create a Firebase project

2) Download. JSON file created

3) Store that JSON file in the App directory of the project.

4) Now, login with your email id in the Android studio same as

the one which you used to create firebase project.

5) Authenticate your login credentials.

6) Make sure the package name of the firebase project and the android application are the same.

7) Make sure the name of the firebase package is correct in the Gradle. Build file

Now let's focus on securing our database and storage set. Enable email address and password identification method tab. There are various features provided by firebase for the manufacturer. Also, enable Google login as we need it if the user wants to log in to his / her google account. For the data set the database in the experimental format. Once completed, we will in the future add more rules for the database as needed.

C. Process Flow of Application

This application has many performance pages. From the beginning once the user has installed the application he/she will see the page with the option to log in or register. The flow diagram is shown (fig. 4)

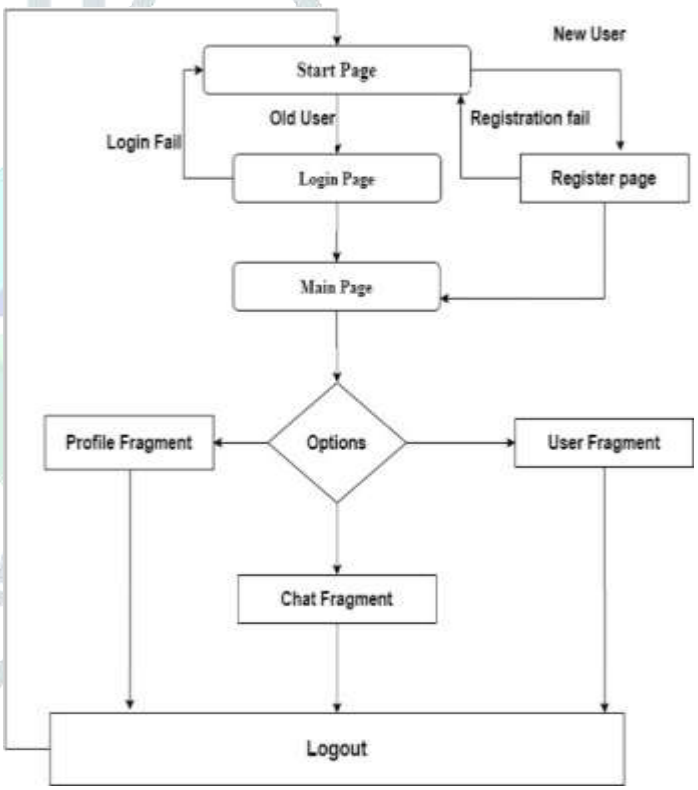

Fig. 4 Flow Diagram of voice text chat app

IV. IMPLEMENTATION

It is fast and capable of handling a large number of simultaneous connections with high throughput, which is equivalent to high scalability. So, no need to spend time in transforming the data between them making it easy to deal with each other.

To perform a client request passes through several steps are:

Step 1: To perform Speech-to-Text conversion is to use Recognizer Intent. ACTION _ RECOGNIZE _ SPEECH. This Intent prompts the user for vocal input by launching Android's familiar microphone dialog box.
Step 2: Once the user stops talking, the dialog will close automatically and ACTION _ RECOGNIZE _ SPEECH will send the recorded audio through a speech recognizer.
Step 3: Then, we start Recognizer Intent. ACTION_RECOGNIZE_SPEECH using start Activity for Result () with bundled extras.
Step 4: Now, the speech response is receiving.
Step 5: Once the speech recognition operation is complete, ACTION _ RECOGNIZE _ SPEECH will send the results back to the calling Activity as an Array of strings.
Step 6: Now, we triggered the Recognizer Intent via start Activity for Result (),
we handle the result data by overriding on Activity Result (int request Code, int result Code, Intent data) in the Activity that is initiated by the speech recognition call.

A. Working of project

Start the application.
Signup with all details
(all details saved in database).
Sign in
(check user name and password from data base).

if (it matches)
Open the page
else
Give a message
(username & password is incorrect)

B. Registration Screen

As shown in the screenshot (Fig 5), to get a new user sign in for the system. The task log consists of inserting a new user into the user class on the server. And there is a special section of the server that is designed to consist of changing user information, such as user status, whether online or offline as well as information that is constantly changing depending on user status and operations. This information is the basis for cross-referencing keywords that have been notified to the user if there are any unread messages, also used to indicate the status of other users.

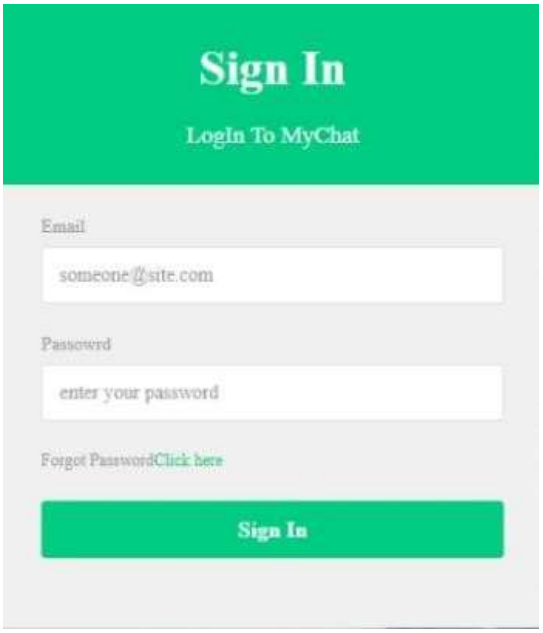

fig. 5 Login Process

V. CONCLUSION & FUTURE WORK

With this, we have defined a number of requirements for creating a secure communication that we implement using modern methods and lightweight that provide speed and good protection to its customers. Customers can be confident that no one can read their message, even if the mobile phone reaches the wrong hands it cannot enter the application and cannot access the data.
In this paper, we discuss an application-to-server conversation between servers and users to enable users to chat with each other. Develop instant messaging solutions to enable users to communicate effectively with each other. The project should be very easy to use and enable even educated people and people with disabilities to use it. Chat rooms have become a popular way to support an n-way discussion forum or discussion between people interested in a common topic. Conversation requests range from simple, text-based to state-of-the-art worlds with visual effects. For this project, we are implementing a simple text-based chat/client application.

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