CHAT IT- CHAT APPLICATION WITH IMAGE AND AUDIO RECOGNITION

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Abstract - Communication is a means for people to exchange messages. The emergence of computer networks and telecommunication technologies bears the objective of allowing people to communicate. All this while, much effort has been drawn towards consolidating the device into one and therefore indiscriminate the services. Chatting is a method of using technology to bring people and ideas together despite the geographical barriers. Chat applications have evolved dramatically over the last decade. With multi-tasking mechanisms playing a major focus, today's chat apps are explored globally by billions of users for both personal as well as commercial fulfillment.

The aim of this project is to develop a chat system based on Java multithreading and network concepts. The application allows people to transfer messages and resources like files, images, audios, etc. It also enables the feature of searching these images, files and audios based on the contents present in them. it has been efficiently designed to override the problems prevailing in the current practicing chat system. The feature of converting image to text and audio to text among the files sent and received on the application becomes a necessity when there is a daily exchange of such messages and one cannot keep track of all the exchanged data. The searching of data is done by machines instead of doing it manually for better performance and reliability.

This web application has been enriched with concepts of ML to provide the best user interaction, still keeping the size to normal. This online system is developed to interact or chat with one another on the Internet and to help achieve ease in accessing shared files over the application. It is much more reliable and secure than other traditional systems available. Java, multi threading and client-server concepts were used to develop the web based chat application.

This application is developed with proper architecture for future enhancement. It can be deployed in all private organizations like Colleges, IT parks, etc.

Key words: Java, OCR, Sphinx, Tesseract

1. INTRODUCTION

1.1 Purpose:

The "Chat-It" application is a communications service aimed at providing a seamless chat application with human level intellect. This web chat application is designed to integrate web chat for websites.

Our project is much similar to the numerous chat applications available in the market because it provides communication services.

CHAT IT stands for Chat Application with Image to Text. This application has been developed to overcome the hardships faced by users in the existing chatting systems. It has been embedded with the feature of image scanning and audio scanning along with the features of normal chatting applications to ease human interactions. Such an application can prove to be quite beneficial to business professionals or even students. We aimed to ensure an easier chatting experience for such an audience by using enhanced features embedded in this application, and propose a solution to ensure audio and image recognition.

1.2 Objective:

1. This project is to create a chat application with a server and users to enable the users to chat with each other.
2. To develop an instant messaging solution to enable users to seamlessly communicate with each other.
3. To allow both group and private chat.
4. To transfer different file formats over the system.
5. To have enough size to store message data.
6. To enable the users to search the contents of images as well by using desired keywords.
7. To enable the users to search the contents of audio as well by using desired keywords.
8. To ensure security of the message and private data that will be shared over the network.
9. To allow both group chat and private chat.
10. The project should be very easy to use, enabling even a novice person to use it.

1.3 Modules of the System:

1. User Management Module : This module has two sub modules
2. User Registration Module
3. User Validation Module
4. Administration Module : Register new user records.
5. Login Module : User can login with valid username and password.

6. Server Module: This module is used to enter the server name (pc name) where server is running.
7. Chat Module: This module is used for chatting, sending images or audio and display his inbox and outbox.
8. Searching Module: This module searches the content of image and audio.
9. Logout Module: This module deletes the cookies for the current user and displays the login page.

1.4 Existing System:

The previous work of this already exists. The similar application can be found on the project in the Android market. This project will focus on providing high quality usability experiences to users mainly following Google's user interface guidelines. Existing methods of developing chat applications are based on java, python, android, iOS etc. The functionality and methodologies of these were studied and a few were replicated.
The web and desktop applications providing optical character recognition services also exist. Several technologies to implement OCR are available, such as Tesseract, available cost free.

- Current System for fulfilling the need is to have a dedicated application to sending and receiving of data only, this project exceeds that to accommodate advanced searching methods.
- Presently, there are many audio to text conversion technologies available which can convert an audio message to text as can be seen in Google voice search.
- The OCR engines available over the internet hosted by various applications can easily perform the task of converting image to text but none of these are chatting primarily chatting applications.

1.5 Technology and Development Environment

The technologies used are OCR, Signal processing, socket programming.
Development environment includes Eclipse IDE, Visual Studio Code, Sql

2. SYSTEM FEASIBILITY ANALYSIS

A feasibility study is an analysis of how successfully a system can be implemented, accounting for factors that affect it such as economic, technical and operational.

2.1 Technical Feasibility

For any real-time chatting system, there is a need to process messages, images, audios and other files from the shared content. For this, the kind of framework used must be the one that is capable of processing those data from the messages easily and accurately in real-time. The framework used in this

is Apache tomcat, an application server designed to execute Java servlets and render web pages that use Java Server page coding.

2.2 Economical Feasibility

For any real-time chatting application system, there is a need for a compatible system with respect to software requirements for better and accurate results.

Since the system is completely automated, there is a need for continuous electricity supply for it to operate 24X7.

The storage capacity of the system in use is required to be high since the application is converting images and audio files to text and storing them separately.

2.3 Operational Feasibility

The main motto of our system is to reduce the manual efforts of searching the different types of data over the system shared manually.

The system is able to do that accurately and efficiently making the system operationally feasible.

3.IMPLEMENTATION

1. Import: Imported required libraries i.e. exocr, sphinx.
2. Software Program: Here we are using JAVA and JSP for servlet programming , Mysql for database operation and Eclipse IDE.
3. Algorithm:
   - The system will allow user to register for with JavaScript validation
   - Successful signing in redirects the user to home page url
   - Homepage is collection of various modules :
     1. Chatting:-Implemented using socket programming
     2. Image to text :-Implemented using OCR by including exocr library of Tesseract
     3. Audio to text :- Implemented using Java speech recognition library i.e. sphinx4
     4. Searching :- Users can search the media through its content by using sql queries since the media is converted to text and stored in a central database.
   - Users can log out from the application which will delete the cookies.
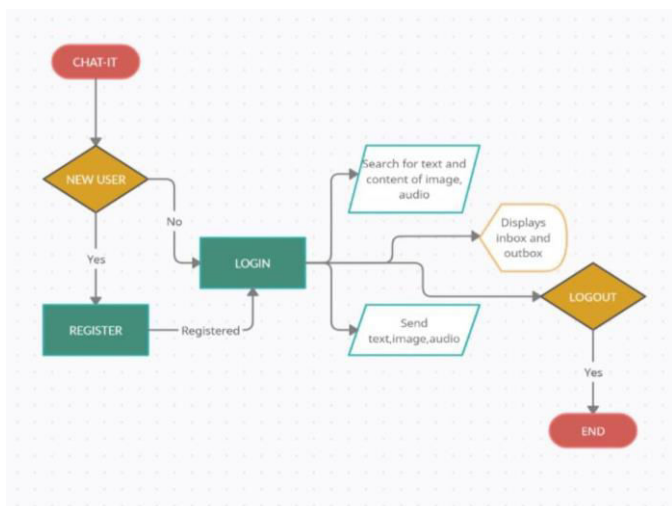
Overview of the System

CONCLUSION

This project would definitely satisfy all the requirements of the college and would be beneficial for the students and the college staff as well.In this chat application a person can transfer messages and images to the receiver. Aside from that, the content searching available in normal chat apps is only for the messages sent and received. This application provides the means to extend that feature to images as well.

We implement the concepts of pattern recognition using OCR and Java speech API to the task of developing Chat application with image and audio recognition. The recognition performed is fairly accurate unless there is huge and sudden variation in the text of the image, PDFs and audio. On the other hand, it provides ease of search, privacy protection and engaging environment for the users

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