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AI Based Email System using Speech Recognition

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Abstract: ***We have seen that the inception of the Internet has incredibly revolutionized many fields. One of the major fields that the Internet has revolutionized is communication. And talking about communication, the first thing that comes to our mind is Email. Emails are considered to be the most reliable way of communication over the Internet, for sending or receiving some important information. But there is a special condition for humans to access the Internet and it is that you must be able to see. But there are some visually challenged people or blind people who cannot see a computer screen or access a simple keyboard. According to a survey there are more than approximately 250 million visually challenged people around the globe. The only way by which a visually impaired person can send an Email is, they have to dictate the entire content of the mail to a third person (not visually challenged) and then the third person will compose the mail and send it on the behalf of the visually impaired person. But this is not the correct way to deal with such a problem. It is very less likely that every time a visually challenged person can find someone for help. Although for these reasons the especially abled people are criticized by our society. So, for the betterment of society and giving equal status to such especially abled people we have come up with this project idea which provides the user with the ability to send email using voice commands without the need of a keyboard or any other visual things. Voice technology can make powerful contributions to society, especially where hands-free technology is needed in hospitals and care centers. This can be used in writing emails as well! The base idea behind our project is to use voice for writing emails.***

I. INTRODUCTION

In today's world, when we think of communication using the internet, the first thing that comes to our mind is communication via email. Email is being used worldwide and hence it has become one of the most reliable ways for exchange of some important information. A survey found that by the start of 2019, there were an estimated 3.8 billion email accounts around the world indicating that almost half of the population uses email.

However, there are millions of visually challenged people who face difficulties in accessing the existing email systems. They are very far away from email systems and the internet. Every time they want to send an email, they will have to seek help from a third person asking him/her to compose and send emails on the behalf of the visually impaired person. But this approach will not help in maintaining the integrity of the mails. Hence, we can say that the existing systems are not easily accessible to them.

We identified this problem to be very important and came up with an idea that will help visually challenged people to write emails through voice commands without using a keyboard.

II. LITERATURE SURVEY

A. Human computer interaction (HCI) based Smart Voice Email (Vmail) Application - Assistant for Visually Impaired Users (VIU)

In this paper, they have designed an application for visually impaired users. They have used human voices as input instead of typing on the keyboard. It focuses on reducing the load incurred in human memory. Also they have used GSTT for conversion of audio to text and recognizing commands which will control flow of the system

B. Voice Email Based on SMTP For Physically Handicapped

In this paper, the system is focused on the user's behavior and their perspective view. This system should be accessible to all types of people including illiterate people and even new users. Their system uses IVR (interactive voice response) in order to interact with the users. The system is completely made for physically challenged people for easy communication. It enhances the path of communication in a fast and interesting way. Even the normal users can utilize the system smoothly.

C. Controlling Email System Using Audio with Speech Recognition and Text to Speech

This paper provides a summary of the speech recognition technology as well as the most recent developments. This paper is based on methodology and Architecture of voice interaction starting from sender name, subject and body of email which makes it audio controlled email bot. This work proposes a system in which sender will login to own email account and with the help of voice commands and speech that individual will manage to context and send email to particular person available in sender's list. This study focuses on ASR systems with a broad vocabulary that can enable speaker-independent activity and continuous speech in multiple languages.

D. Design, Development and Implementation of (a Voice Email System using Next Generation Networks Technology - A Case Study

This paper presents a Voice Email application which was built on Siemens' state-of-the-art Next Generation Network Technology we SURPASS. Further enhancements to the system are possible. The Voice Email system will become a starting point for the future of voice browsing technologies over the phone where there will be wide spreading of applications and services from different areas.

E. Discovery of Activities' Actor Perspective from Emails based on Speech Acts Detection

This paper first formalizes the knowledge we may discover from emails related to actors' perspectives. Then, it introduces an approach based on speech act detection from textual content of emails for discovering such knowledge. Approach is validated using a public email dataset. Results are publicly provided to be a first step towards ensuring reproducibility in the studied area.

III. MODULES

A. Speech Synthesizer

The application uses google WebKit API that helps us in the voice recognition and processing. The input provided by the microphone of the device or the headphones is given into the API so it further does the conversion of voice to text. The input voice is processed by recognizing its distance, pace, continuity and language. The result of the processed voice is then stored in a string format into the database.

Table 1: Speech synthesizer I/O

Input	Voice Using Microphone
Output	Text In String Format

B. Commands

The application will recognize the following voice commands when commanded or said by the user.

"Write email"	Opens the email composer window.
"Edit Send to"	Place cursor into text box and type recipient email id.
"Edit the content in the email subject"	Place cursor in email text area and type the dictated content.
"Send the email"	Send the email to the mentioned recipient.
"Discard the email"	It discards the composed email.
"Read the email"	It reads the complete active mail content.
"Edit the subject in the email body"	Place cursor in subject text area and type the dictated content.

Table 2: Commands

C. Send Email

Saying "send the email" will send the composed email. The user will have an option to read the entire email composed by them before sending it to the concerned email-id. This application will take the user email address registered during sign-in as the sender address.

D. Read Email

Saying "read the email" will read the received email for the user. The application will read the entire content of the email which the user wants to read. The email that will be read can be heard through the speaker.

Input	Text (Email)
Output	Audio (Reading Email)

Table 3: Read Email I/O

IV. SYSTEM ARCHITECTURE

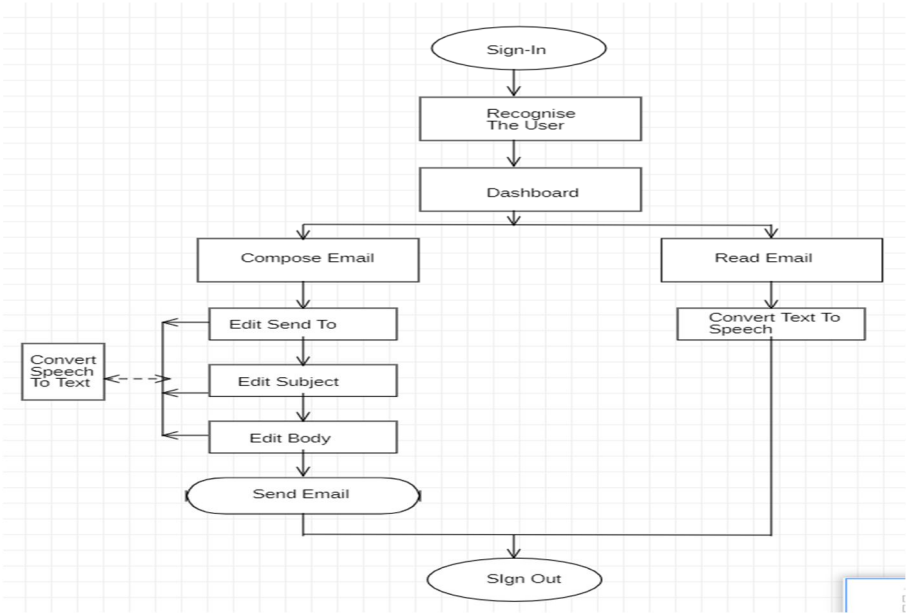

Diagram 4.1

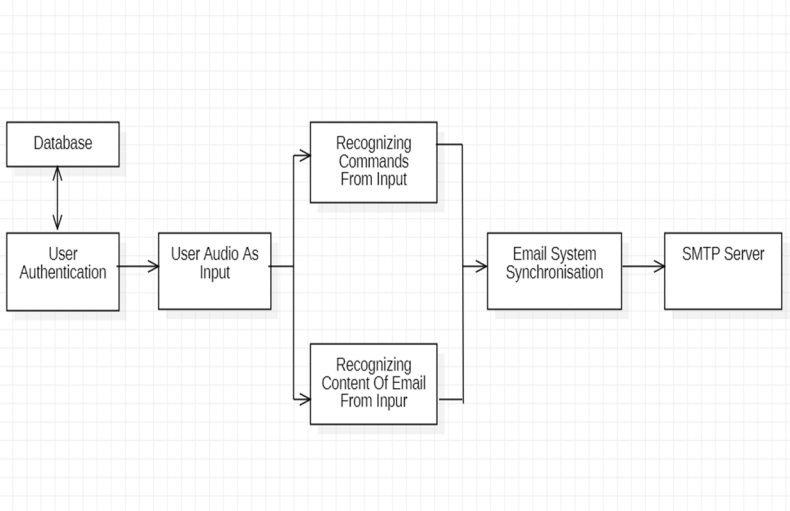

Diagram 4.2

V. CONCLUSION

Through this voice-based Email System it will become easier for visually impaired people to communicate independently using the mail facility. This will also provide a helping hand for the people unknown to the Email system and the steps to send Emails. Reading, writing and accessing any of the e-mails will be easier than never, as all of this will just work on instructions given by the users orally.

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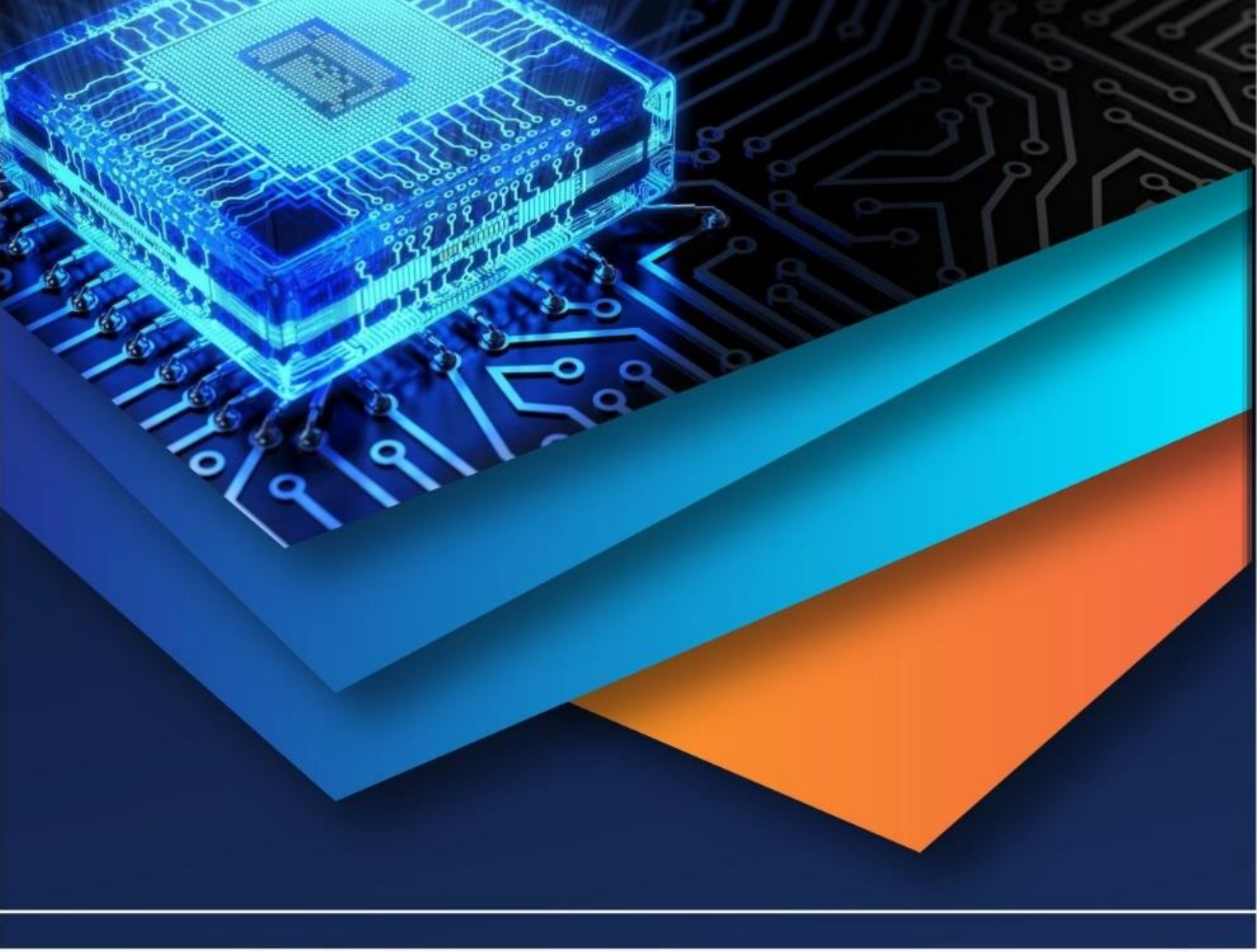

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