

Voice based E-Mail for the Blind

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Abstract - The use of internet has immensely revolutionized the present generation. According to various statistics, an average person would spend more than 6 hours per day using the internet. This shows how easier it has made the lives of the people. Although, when average comes into the picture, even a disabled person can adapt to this revolution. A blind person has needs to be fulfilled that can be done in an easier and faster method by the usage of the internet. In concern with this information, we have formulated an accommodating application for a regular blind individual that will help him/her use the generic e-mail application with only the use of one common physical ability i.e. voice [1].

Key Words: TTS, STT, EMAIL.

1. INTRODUCTION

The e-mail is a simple application that is used on a daily basis by the people for various purposes. These purposes could be personal, business-related, digital marketing or many other reasons. The e-mail works on the functionality of communicating across various computer networks.

When it comes to the subject of blind people, there are millions of them due to aging baby-boomers. Conventionally, the use of audio over text has always been the sole dependency for the visually impaired people [3]. Using this conservative logic, we have developed and implemented this idea for contributing towards the betterment of this society. We come with this concept to make it comfortable to use the e-mail and in turn, communicate faster. We've strived to make it an effortless user friendly system so that the operator can complete any task that could be performed on a normal e-mail system. With future tutorial facilities and ongoing updates for better functionalities, we aim to create a comprehensive software.

2. SYSTEM ANALYSIS

2.1 EXISTING SYSTEM

A prevailing system includes all the functionalities of the generic e-mail system. As a matter of fact, these systems also include the use of voice that is, the main functionality for a blind user such as Google Assistant. Although due to lack of commands and insufficient security mechanisms supported by voice, it fails to keep up with the idea of a simple

application for the blind individuals. Even though the technologies used in our system is implemented widely, the logic of these systems differ from the system developed by us. Screen readers are also an example of developed assistive technologies for the blind but it still doesn't fulfill the needs of an average blind user using the e-mail.

2.2 PROPOSED SYSTEM

This application's sole purpose is to run mainly and primarily by the use of the user's voice to make it easier for the individual to communicate and conserve valuable time by providing functions concerning the commonly used utilities of a user on the e-mail system [1]. The operator will be able to use the system as per his/her requirements in accordance with the provided terms and conditions. With increased security and network mechanisms, we endeavor to achieve a systematic and a more approachable application for the users. This system runs mainly on two technologies: Text-To-Speech or TTS, which will be used only for developing system voice instructions or responses for the user to understand the system and Speech-To-Text or STT, which is implemented for the system to understand the user's voice commands and accordingly, perform the necessary actions [2]. Also to be concerned, the speakers of the machine need to be in proper condition for this system to work perfectly as developed.

3. SYSTEM SPECIFICATIONS

3.1 HARDWARE REQUIREMENTS

- Processor – i3
- RAM – 2 GB
- Hard Disk – 5 GB space required

3.2 SOFTWARE REQUIREMENTS

- Windows 7 & above OS
- Working internet connection
- SQL Server
- Python
- Visual Studio Code

4. DESIGN

4.1 REGISTRATION MODULE

This module is required for the user to register on the system. A successful registration generates a confirmed identity to be saved in the database of the system.

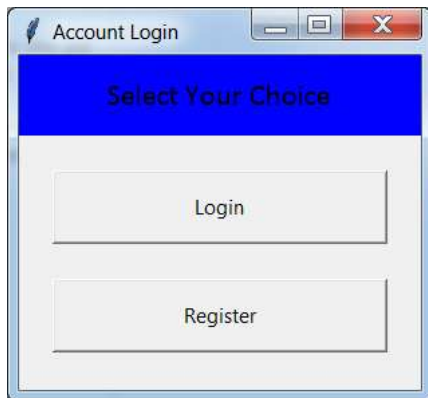


Fig -1: Start page

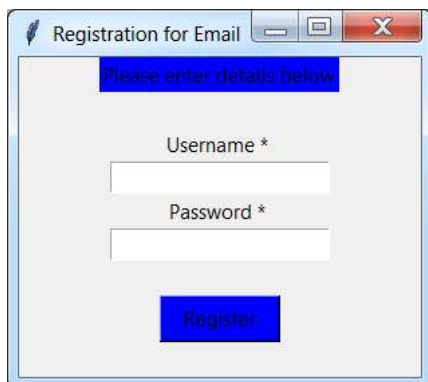


Fig -2: Registration page

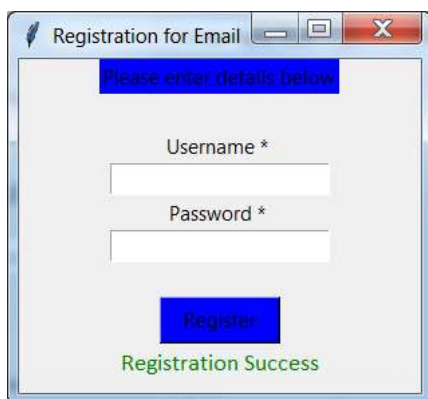


Fig -3: Confirm registration page

4.2 LOGIN MODULE

Once the user has successfully completed registration, this module opens up so as to access the main page.

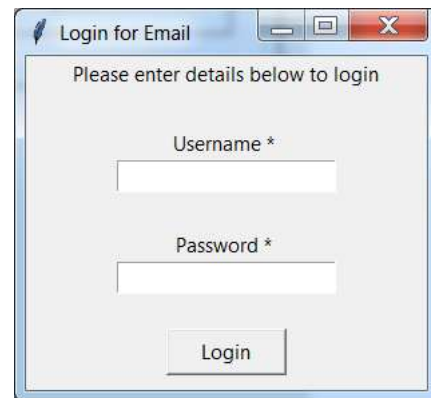


Fig -4: Login page

4.3 LOGIN SUCCESSFUL PAGE

A positive login leads to this page where the user will be given further instructions on the initial attempt. It also acts as a module to authenticate the credentials via encryption/decryption of entered data.



Fig -5: Confirm login page

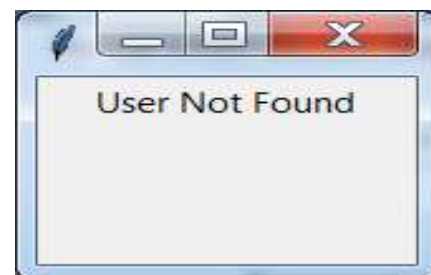


Fig -6: Invalid user page

4.4 MAIN E-MAIL MODULE

This component is the central point of interest of this application where in the user can perform tasks such as: check new e-mails, delete e-mails, compose e-mails, change settings, sign out and many more, all by the use of voice. The TTS and STT is majorly used in this module for better operation of commands.

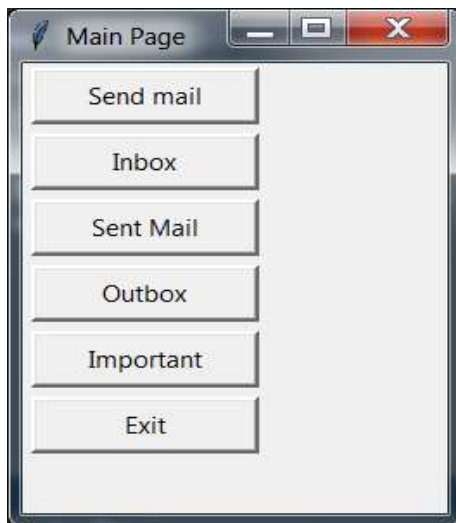


Fig -7: Main page

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- [3] <http://www.id-book.com/preece/whatisitlike.html>

4.5 COMPOSE E-MAIL MODULE

This is also a crucial module in the system which determines and maneuvers conversion of user's voice to text and point out misconceptions if any to perform a systematic mode of communication as per user's will/concern.



Fig -8: Compose mail page

5. CONCLUSION

This system is designed in such a method wherein the user can accommodate to it effortlessly. The TTS and STT technologies in the system makes it a 'go-to application' for an average blind user who wishes to access the mail for any specific or vague reason. This system uses the vocal communication method in such a way that it helps to increase the use of modern technology amongst society at a higher rate and also benefits the visually impaired people in a positive manner. With some future tweaks and updates involving technologies like IVR (Interactive Voice Response) and different application platform compatibilities, we can attempt to make this product more developed and accommodating.