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Interactive Voice Based E-Mail System

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Abstract: In Today's world of communication has become so easy due to integration of communication technologies with internet. However the visually challenged people find it very difficult to utilize technology because of the fact that using them required visual perception. Even though many new advancements have been implemented to help them but no naive user use the computers efficiently and no other visually challenged can use this technology as efficiently as the normal person. A naive user who can use this software like normal users , they require some practice for using the available technology. This project aims at developing an email system that will help visually impaired person. The system will remove the use of keyboard, instead will work primarily on mouse operation and speech to text. The system is completely based on interactive voice response which will make it user friendly and efficient to use.

I. INTRODUCTION

A. Background

As the title suggests , the application will be a web-based application for visually impaired persons using IVR-Interactive voice response, thus enabling everyone to control their mail accounts using their voice only and to be able to read, send, and perform all the other useful tasks. The system will prompt the user with voice commands to perform certain action and the user will respond to the same. The main benefit of this system is that the use of keyboard is completely eliminated the user will have to respond through voice and mouse click only.

B. Aim & Objectives

For the betterment of society and giving an equal status to such specially abled people we have come up with this project idea which provides the User with ability to send mails using voice commands without the need of Keyboard or any other visual things.

C. Motivation

A survey shows that there are more than 250 million visually challenged people around the globe. That is around 250 million people are unaware of how to use Internet or E-mail. The only way by which a visually impaired person can send an E mail 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 on the behalf of the visually impaired Person. compose the mail and send on the behalf of the visually impaired Person.

II. RELATED WORK

T.Shabana, A. Anam, A. Rafiya, K. Aisha, [10] the research paper mention here have a separate website which consists of their own Database, Interface and also its own interface. In other words they have created their own mailing system in which the visually impaired people can send and receive mails via this system only, no other systems like Gmail, Yahoo can be accessed.

Jayachandran .K, Anbumani .P, [4] In the mentioned research paper there is again use of the different website which consist of separate mailing system which allow the to send and receive e-mails to this same mailing system.

Rahul Anwani [11] In this, system maintains a database for user validation and storing mails of the user. The database is used to store the information of user like username, password his mails. When user request for any information then information is retrieved from database. Dhanashree Zope, Pooja Nevawani, Pooja Tej, Nushrat nparvin [3] In system, they've created their own mailing system which will perform selected e-mail operations such as authentication, compose, inbox. Also the user has to go through the process of signing-up which somewhere giving rise to the complexity of using their website, also this is a website, So there is one more obstacle for the visually impaired people to go to their URL.

Sonali Malap, Vaishali Shirke, Mrunali Chalke, Rohan Jain, Sonali Pakhmode [7], In the above mentioned reference paper they have developed an entirely different email as an desktop app which has completely different UI (User Interface) and the API they used for speech-to-text and text-to-speech is called the Free TTS which is not really advisable at all. The accuracy has consistency been low over the time.

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III. PROBLEM STATEMENT

We have seen that the inception of Internet has dramatically revolutionized many fields. Internet has made life of people so easy that people today have access to any information they want sitting at their home. E-mails are considered to be the most reliable way of communication over Internet, for sending or receiving some important information. But there is a special criteria for humans to access Internet and the criteria is you must be able to see. You must be thinking that what sort of criteria is this, every one with eyes can see. Yes there are some visually challenged people or blind people who cannot see things and thus cannot see the computer screen or keyboard. A survey shows that there are more than 250 million visually challenged people around the globe. That is around 250 million people are unaware of how to use Internet or E- mail. The only way by which a visually impaired person can send an E-mail is, they have to dictate the entire content of the mail to 3rd person (not visually challenged) and then the third person will compose the mail and send on the behalf of the visually impaired person.

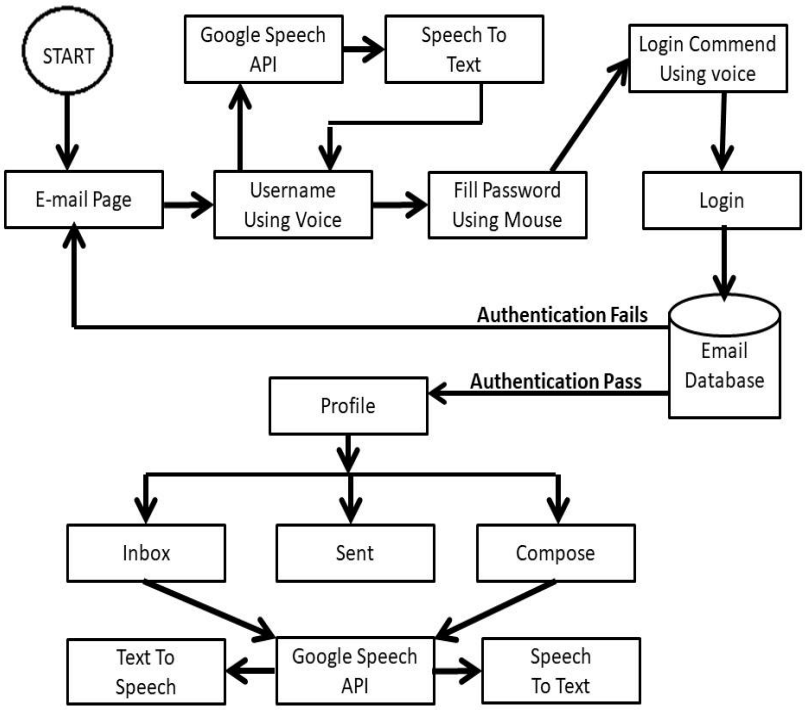
But this is not a correct way to deal with this problem. It is very less likely that every time a visually challenged person can find someone for help. Although for these reasons the specially abled people are criticized by our society. So, for the betterment of society and giving an equal status to such specially abled people we have come up with this project idea which provides the user with ability to send mails using voice commands without use of keyboard or any other visual things.

IV. IMPLEMENTATION

Start-up of IVBES application will be a Gmail authentication (i.e email and password). The working of the application will be in form of requests and response. The application will take the input from the user in the form of voice and then it will send it to the application's API for speech -to- text purpose. User will be using predefined voice commands for different operations such as inbox, draft, send, compose, delete mail, sent different mail, search mail, trash and much more. The System will also need to perform text-to-speech operation with the help of API.

At the start of the application the control is directly transferred to the Gmail page. The user then has to enter the user id by the voice and the system will give the response to what user said (User id). Next thing is to enter the password. For the privacy purpose the Password has to be entered using the mouse. We've tried to decode the Braille language into the mouse clicks to bring simplicity in the usability of the system. Then the user will be given an access to his Gmail account and then our application will guide the user to use the Gmail with the help of voice commands.

V. SYSTEM ARCHITECTURE



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VI. ALGORITHM

A. Start
B. Speech to Text
1) Input through Voice
2) Recognizing speech through Google speech API
3) Extracting audio part
4) Returns Audio data object

C. Text To Speech
1) Recognize text via APIs TTS Engine
2) Initiate speaking Recognized text

D. Access Gmail operations using Selenium

VII. RESULT & DISCUSSION

The project has fulfilled the requirement and objective of the project of giving access to the visually impaired people without any obstacles. The project has kept the user-friendliness and efficiency of the system at the highest priority by using the existing methodology (i.e., Gmail). Motivation of the project has been kept alive as the project will be donated to the blind relief association & will be available publically for free. By making needed changes to an existing application will make us to keep the simplicity of the system at the top. It also enhanced the functional efficiency of the project to greater levels. Developing the resource-less system also makes the system attractive in the eyes of reviewers and also minimized the hardware and software requirement of the system. We had a visit to one of the Blind Relief Associations in the city and asked them about the advancements of visually impaired people in the field of Computer Technology. They ensured us that the system if made would be able to assist their students in any means then they would take our system for the regular use in their association.

VIII. FUTURE SCOPE

Nothing can be ended in a single step. It is the fact that nothing is permanent in this world. So this project also has some future enhancements in the evergreen and booming IT industry. Change is inevitable. Currently our system recognizes only English language. In the future advancements, we would like to add more regional languages in the recognition list of our Voice based Email System. We will try to include other email services such as Yahoo, RadiffMail, Hotmail etc. Privacy is a big concern now days, so we are thinking to introduce a new way of authentication which will be based on voice modulation of user. Currently, we are using mouse clicks for authentication purpose which we will replace with the voice modulation.

IX. CONCLUSIONS

Our project “IVBES” focuses mainly on the welfare of visually impaired people as well as on the promotion of advancements in Computer Technology field. The project is going to introduce the user to the mailing system(Google’s Gmail) with the help of voice(text-to-speech & speech-to-text) and especially this is a great opportunity to involve visually impaired people in the technology. To give the best experience to the user of using mailing system, we are using Google’s Gmail. As it is one of the most renowned and secured mailing systems. We are using the API(Google’s Speech API) for speech recognition purposes, we are using python3 as programming language.

Our team decided to do this project because we think this project has number of good causes such as promoting the innovations in technology field, slight weightage towards the AI field and the most important the social cause. The technology is continuously evolving. But the purpose still looks incomplete. One point in the list of objectives of technology advancements is the social cause. The problem is innovations are happening but unfortunately there have been very few projects made for visually impaired people. There are some organizations, charities or associations who provide education facilities to the blind students, but today computer education is must for every person. Computer education relies highly on visuals. We thought if we could eliminate or at least just try to find some alternative medium for communication, then major problem would be solved. So, we started off with one of the most important things on the Internet i.e. mailing system. We have a confidence that this project is going to be the great help to visually handicapped people.

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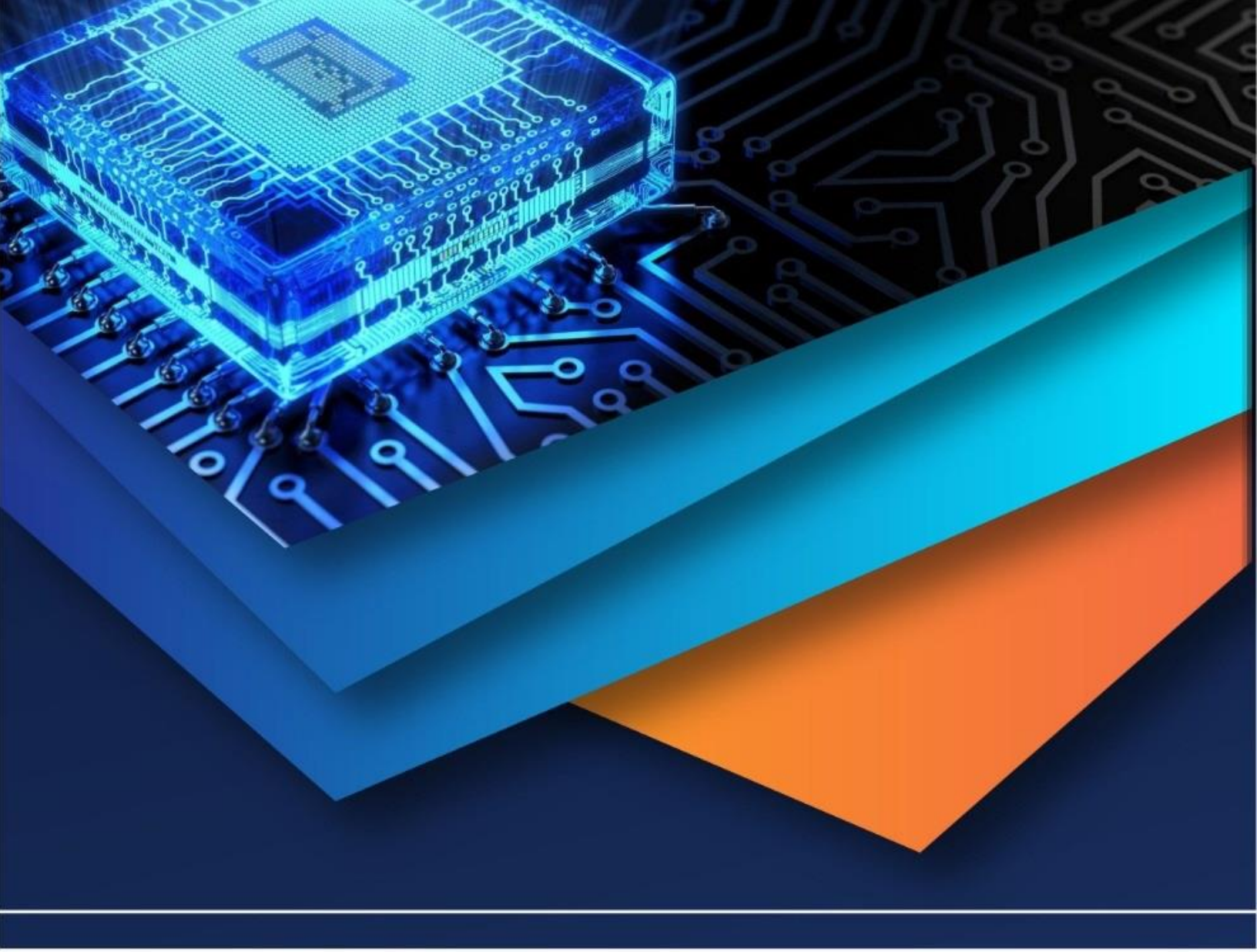

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