



**IJIRCCCE**

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 11, Issue 4, April 2023

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

**Impact Factor: 8.379**

 9940 572 462

 6381 907 438

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# Voice Based Email for the Visually Impaired

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**ABSTRACT-** It is commendable that you are considering the needs of visually challenged individuals in your project. As you have rightly pointed out, the integration of communication technologies with the internet has made communication much easier for everyone, but it still poses a significant challenge for visually impaired individuals. Developing an email system that is easy for them to use without prior training is a great initiative. Using mouse operations and speech for the system is a great approach, as it provides an alternative to the traditional keyboard-based input. This way, users who may not be able to use a keyboard due to physical disabilities can still use the system. Additionally, this approach can also benefit users who are not visually impaired but are unable to read. In designing the system, it is important to ensure that it is accessible to users with varying degrees of visual impairment. This could involve the use of high-contrast colors, screen reader software, and other accessibility features that will make it easier for visually impaired users to navigate the interface. It may also be helpful to conduct user testing with visually impaired individuals to get feedback on the system's usability and identify any areas that may need improvement. By incorporating feedback from users, you can ensure that the system meets their needs and is truly accessible to them. Overall, developing an email system that is easy for visually impaired individuals to use is a worthwhile project. With the right design approach and consideration for accessibility, you can create a system that provides equal access to communication technology for all users, regardless of their abilities.

**KEYWORDS:** Communication technologies, Internet, Visually challenged, Email system, Mouse operations, Speech, Keyboard, Physical disabilities, Accessibility, Screen reader software

## I. INTRODUCTION

Internet is considered as the most important means of information and has become de facto methods used in communication. Email is one of the most common form of communication. However, it is completely useless for visually impaired and illiterate people. Currently available systems like screen readers TTS (Text-To-Speech) and ASR (Automatic Speech Recognition) does not provide full efficiency to the blind people to use internet. As nearly 285 million people worldwide are visually impaired so it is necessary to make internet facilities for communication usable for them.

Therefore, in this project we will be developing a voice based email system which will aid the visually impaired people who are naive to computer systems to use email facilities with ease. All the functions are based on simple mouse click operations making it very easy for any type of user to use this system. Also the user need not worry about remembering which mouse click operation he/she needs to perform in order to avail a given service as the system itself will be prompting them as to which click will provide them with what operations.

## II. LITERATURE SURVEY

There are 4.1 billion email accounts created until 2014 and there will be estimated 5.2 billion accounts by end of 2018. This makes emails the most common form of communication. The most common mail services that we use in our day to day life cannot be used by visually challenged people because they do not provide any facility so that the person in front can hear out the content of the screen, As they cannot visualize what is already present on screen they cannot make out where to click in order to perform the required operations.

For a visually challenged person using a computer for the first time is not that convenient as it is for a normal user even though it is user friendly. Although there are screen readers available still these people face minor difficulties. Screen readers read out whatever content is there on the screen and to perform those actions the person will have to use keyboard

shortcuts as mouse location cannot be traced by the screen readers. A user is new to computer can therefore not use this service as they are not aware of the key locations.

The screen readers read out the content in sequential manner and therefore user can make out the contents of the screen only if they are in basic HTML format. Thus the new advanced web pages which do not follow this paradigm in order to make the website more user-friendly only create extra hassles for these people.

### **III.PROBLEM STATEMENT**

We aim to overcome the shortcomings of the existing system in making the user completely independent with our proposed system. For a visually challenged person using a computer for the first time is not that convenient as it is for a normal user even though it is user friendly. Although there are screen readers available still these people face minor difficulties. Screen readers read out whatever content is there on the screen and to perform those actions the person will have to use keyboard shortcuts as mouse location cannot be traced by the screen readers. A user is new to computer can therefore not use this service as they are not aware of the key locations.

### **IV.PROPOSED METHODOLOGY**

The proposed system is based on a completely novel idea and is nowhere like the existing mail systems. The most important aspect that has been kept in mind while developing the proposed system is accessibility. A system is said to be perfectly accessible only if it can be used efficiently by all types of people whether able or disable. The current systems do not provide this accessibility. Thus the system we are developing is completely different from the current system. Unlike current system which emphasizes more on user friendliness of normal users, our system focuses more on user friendliness of all types of people including normal people visually impaired people as well as illiterate people. The complete system is based on voice prompt and clicks events. When using this system the computer will be prompting the user to perform specific operations to avail respective services and if the user needs to access the respective services then he/she needs to perform that operation. One of the major advantages of this system is that for the most part, the user won't require the use of keyboard. All operations will be based on mouse click events. Now the question that arises is that how will the blind users find location of the mouse pointer. As particular location cannot be tracked by the blind user, therefore the user has to traverse the mouse throughout the screen from top to bottom and then left to right. This system will be perfectly accessible to all types of users as it is just based on simple mouse clicks and there is no need to remember keyboard shortcuts. Also because of this facility those who cannot read need not worry as they can listen to the prompting done by the system and perform respective actions.

### **V.PROJECT PURPOSE**

Voice-based email for the visually impaired is a system that allows visually challenged individuals to send and receive emails using voice commands. This system is designed to make email communication accessible to visually impaired individuals who may have difficulty using traditional keyboard-based input. To use this system, a user can simply speak their email message and command the system to send it to the recipient. Similarly, they can also listen to incoming emails using speech-to-text technology that converts the text to speech, which can be heard through headphones or speakers. To make this system more user-friendly, it is essential to ensure that it has a simple and intuitive interface. This may involve creating a series of voice prompts that guide users through the process of composing and sending an email. The system should also be designed to work seamlessly with screen reader software, which can read out the contents of the email and provide users with feedback on their actions. Additionally, the system should be designed to work with various speech recognition technologies to provide accurate and efficient voice recognition. In summary, a voice-based email system for the visually impaired can provide an excellent alternative to traditional email communication methods. With the right design approach and consideration for accessibility, it can make email communication accessible to all individuals, regardless of their abilities.

### **VI.FUTURE ENHANCEMENT**

The future scope of voice-based email for the visually impaired is promising as it provides a solution for those who face challenges in using traditional keyboard-based email systems. Here are some potential areas for future development and improvement. Integration with other technologies: Voice-based email systems can be integrated with other technologies

such as voice assistants like Amazon's Alexa or Google Assistant. This can provide a more seamless and efficient user experience. Natural Language Processing (NLP): The use of NLP technology can improve the accuracy and efficiency of the system's voice recognition capabilities. This can make the system more user-friendly and easier to use for visually impaired individuals. Multilingual support: The system can be designed to support multiple languages, making it accessible to visually impaired individuals who speak languages other than English.

Mobile application: A mobile application that integrates the voice-based email system can provide more flexibility and convenience to users. This can enable visually impaired individuals to send and receive emails on the go, without having to be in front of a computer. Voice-based user interface for other applications: The development of voice-based user interfaces for other applications can make technology more accessible to visually impaired individuals. For example, voice-based interfaces for social media or messaging applications can enable visually impaired individuals to participate in online conversations. A commercial model can be able to display more than one message at a time. In our project we are sending messages via WI-FI network and displaying on a LED by utilizing AT-WF commands. The same principle can be applied to control electrical appliances at a distant location. Robots can be controlled in a similar fashion by sending the commands to the robots. These commands are read by using AT-WF commands and appropriate action is taken. This can be used for spy robots at distant locations, utilized by the military to monitor movement of enemy troops.

## VII.CONCLUSION

In conclusion, the development of a voice-based email system for the visually impaired is an important step towards making email communication more accessible to everyone. With the integration of voice commands and speech-to-text technology, visually impaired individuals can now send and receive emails without the need for traditional keyboard-based input. The design of the system should prioritize accessibility and user-friendliness, with features such as screen reader software, high-contrast colors, and intuitive voice prompts to guide users through the process. Future developments such as integration with other technologies, multilingual support, and voice-based user interfaces for other applications hold promise for even greater accessibility and convenience for visually impaired individuals. Overall, the development of voice-based email systems is a positive step towards creating a more inclusive and accessible world for everyone.

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**Impact Factor: 8.379**



**ISSN** INTERNATIONAL  
STANDARD  
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