Voice based Email for Visually Challenged

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Abstract: The rise of artificial intelligence based systems has opened many avenues for folks with visual impairments in a wide area of the world. Depending on virtual environments such as audio responses, screen readers have been able to make use of the Internet's full potential for visual impairments. However, in many countries, a large proportion of those with vision problems, especially the Indian subcontinent, may not benefit much from such applications. In this paper, we introduce the structure of the audio mail system, which can be used to easily and correctly e-mail the blind person. The contribution made by this discovery has blinded the world to the use of mobile devices to receive and send mail in their own language. Our proposed systems Graphical user interface is evaluated against the graphical user interface of the previous mailing server. Our team found that our system architecture works better than previous Graphical user interface. In proposed system, we use audio-to-text, word detection and text-to-audio technology for the visually challenged.
Keywords: email support for visual impairment, audio-to-text converter, word detection, text-to-audio converter.

I. INTRODUCTION

Voice based email for the blind uses TTS (Text-to-Audio) to deliver services via audio. The recommend system is a self-sufficient program, this program can be easily installed in any device at a very negligible price. This system makes it easier for the blind to use the email service. There are a growing number of studies that help the funders integrate more fully into the global world. We provide service for the blind in many ways.

The app has a service that helps users to send and receive emails using their audio (Voice). The rapid advancement of technology has resulted in the purchase of many beneficial services for the blind worldwide. Observations show that 60% of the world's blind population is in our country

This app helps the blind or physically disabled to access the app via audio and eliminate the use of the keyboard, which can keep busy people with vision impairment. That is why our team came up, our project "Voice based email system for visually challenged" that will help people who are blind and illiterate to send Electronic Mails.

II. LITERATURE SURVEY

In this field, we provide a brief overview of the literature to highlight previous relevant work in the field of email systems for the blind. Most systems that work on audio Detection rely heavily on speaker training. They only respond to the input given by a particular speaker, which depends on the speaker of the application. Various techniques have been used to improve systems and make their response more efficient. Increasing Detection and rate He developed an experiment called the dictation pad, which demonstrated that the age of the speaker also influences the system's detection rate. Young and old have different pitches and frequencies, which contribute greatly to the identity component, but today's audio API tools provide multi-user identity.

We built our system to respond to any user-given commands. Yet it can perform operations based on that command. Some of the deficiencies encountered during audio Detection must be handled through exception handling technology.

III. COMPARISON TABLE

Security	It is less secure for blind	It is effectively secure for the blind.
Use of Mouse/Keyboard	Required frequently	Eliminated Completely
Fingerprint	No use of fingerprint sensors	Fingerprint sensor to provide security.
Modules	Use only text to audio module	Both Text to audio and audio to text are used
Efficiency	Works a bit slow and less effective.	Works fast compared to existing and more efficiently.

IV. SYSTEM ANALYSIS

A. Past Systems

Normal emailing systems are available like Gmail, yahoo during which audio Detection text-to-audio systems are available only. The audio-based emailing system we have proposed uses audio-to-text converter and screen reader. Input depends on audio to provide output. We have also provide fingerprint for more security purpose. The existing system is therefore less secure.

B. Our System

We describe the architecture of an audio mail system used by a visually challenged person to make mailing easier, faster and more efficient. This investigation enables the visually challenged to receive and send audio-based mail messages in their voice with the help of any mobile device which supports basic audio functions. Our proposed system graphical user interface is evaluated against the standard mail server's graphical user interface. We have found that our proposed architecture work superior than the past graphical user interfaces.

1) AUDIO-TO-TEXT Converter
2) TEXT-TO-AUDIO Converter

Word Detection

C. Module Explanation

1) *AUDIO- TO-Text Converter:* In Audio to text, the device receives audio through the device's inbuilt mic and processes the sample audio to accept spoken text. We are making the system on the Android platform using Eclipse Workspace. The text that system receives directly get converted to audio by using this software. This can complement other large projects, giving users a unique option for information entry. The audio-to-text application improves accessibility of the application by giving data entry options to visually challenged, deaf or physically challenged users. This audio recognition system is divided in multiple parts some of them are: feature extraction, acoustic model database training data, dictionaries and language models and so on, supported by audio Detection algorithms. The main idea audio signal must first be sampled or digitized over time and amplitude axes. At various intervals audio signal patterns get analyzed. This cycle is normally 20 MS because the signal is taken into the stationary at this interval. Audio feature extraction is the creation of discrete vectors without equal space for audio features. Feature vectors from the working files are used to estimate the specification of the audio pattern. The acoustic model describes the characteristics of important elements to be identified. The root element is often the word for extended audio or personal word Detection.

2) *TEXT-TO-AUDIO Converter:* TEXT-TO-AUDIO convert written sentences into audio format using audio fusion techniques. Although firstly funded to focus on writing, it is now widely used to communicate commercial data, online notes and other valuable information by using phone. Text-to-audio is used on various handhold devices such as android devices, portable GPS units to declare street names when giving guidance. Our text-to-audio converters accept input of up to 30 characters of text. In this we have interfaced the keypad with the controller and defined all the letters and the numeric keys on it. The conversation processor has a huge dictionary and can speak any text provided in the input for many days. Therefore, it has an accuracy of more than 80%. It is a microcontroller based hardware coded in programming language. More investigation needs to be done to optimize the different ways to input text, such as reading the text using a visual sensor and turning it into audio so that it can overcome many kinds of physical challenges that people face when communicating. Let that happen.

D. Word Detection

Audio Detection application (audio to text software) grants a person to use their audio (Voice) rather than typing the whole word on a keypad. Audio Detection can be used to specify text to the device or to give commands to the device. Audio Detection application allows the device to write quickly.

This system is also useful for those who are disabled or unable to type using keypad/keyboard. This systems helps people to speak their ideas easily using voice without interpreting any writing issues. Word Detection is mostly the part of velocity, which means that a word with a more probability of Detection is read even faster than a novel.

This test method indicates that words do not need to be interpreted as reading, but the ability through which it detect the word that allows for correct pronunciation. Hence, context is not important, and word Detection is often assessed with words provided alone in formats such as flash cards. However, the ease of word Detection, in the form of fluency, permits the skill to encourage the awareness of the message being read.

V.   DIAGRAMS

A.   UML-Diagram

UML (Unified Modeling Language). Modern way detailing and explaining a software is simply known as UML.

As the ancient saying goes: "A image is always superior than thousands of characters". By using visual representations, we can easily understand potential flaws or shortcomings in software or business processes.

Unified Modeling Language was created as a result of rounds of software development and documentation. There were many ways to represent and document software systems In the 1990s. A more efficient way to visualize those projects and the systems is needed, and as a result, in 1994-1995 at Rational software UML was developed and created by Ivor Jackson, James Rombow and Grady Booch which has been adopted as standard in 1997 since today.

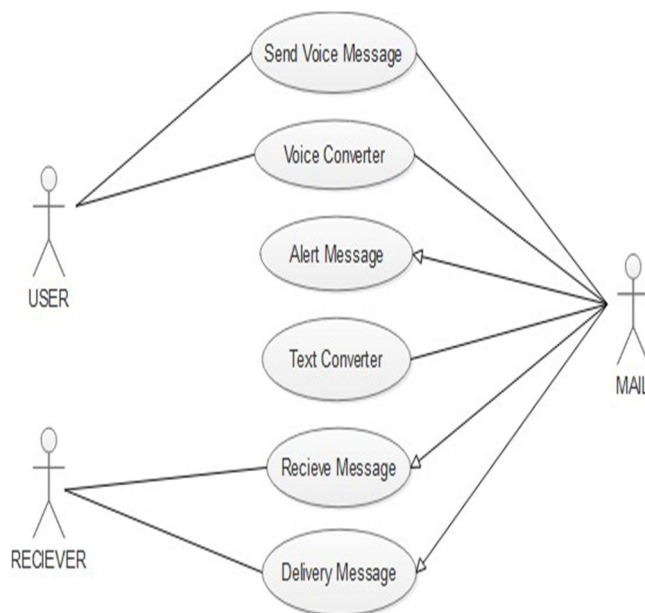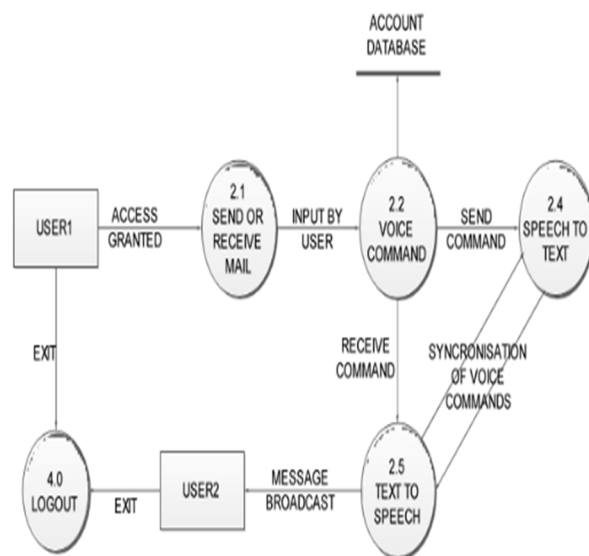Diagram 1: USE CASE FIGURE

Diagram 2 : System Architecture

VI. SYSTEM DEVELOPMENT

A. Main Page

After successfully proceeded to main page greeting message will be pronounced by the system.

B. Compose

This is one of the important options that email services offer. Since the system is intended for low-vision people and completely avoids keypad operation, mail can only be done via audio input. User has no need to write anything. The user can directly record the message and send the campaign message directly. The receiver can easily access the message through the inbox which was send by the user.

C. Inbox page

The user will received all the receive messages in this tab, the user will easily navigate to inbox tab by just saying 'INBOX'.

VII. CONCLUSION

This emailing system is used with general access at any age. It is equipped with a audio reader in the form of audio, which creates a system controlled by the blind.

VIII. ACKNOWLEDGEMENT

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