Voice Assistant For Visually Impaired

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Abstract: Voice assistant for visually impaired is an innovative System for visually impaired people and acts as a voice assistant for them.This system is used to help the visually impaired to have access to the most important features of the phone enhancing the quality of the system making use of different custom layouts and using speech to text. The System has custom messaging feature with inbox and sent items, call log and dialer, notes and battery level checking and reminder. All actions performed by the user the system speaks out and helps the user to know his current position. System helps the user to also read the contents of the message along with the sender and the date and time, in whole everything .The system also allows the user to note few things with its custom note pad.The System speaks out the dialer number pressed and called notification also. The System in all is a voice assistant for whatever action the user has performed though a custom app while taking the data from the default application. The custom app doesn't any data it is dependent on the phones data save
Keywords— voice assistant,text to speech.

INTRODUCTION

Most of the inform ation we regularly need can be accessed via our smartphones, and operating a touchscreen, when you have difficulties seeing, is not the simplest task.So, this apps designed to allow those who have their vision impaired to use a smartphone just like everyone else, and benefit from all the features that these devices offer. We hope these apps will provide a much needed service for anyone in need. The systems accept voice command and perform the operations according to it. For performing the further task it first translate the voice into text andthen produces output in the form of voice The purpose of this study is to discuss the development of Android-based Intelligent Software Assistant application for visually challenged or blind people. The application is intended to help people with visual limitations or blind people to access Android-based devices so that they can use library resources by using android devices.

LITERATURE SURVEY

It has been observed that nearly about 60% of total blind population across the world is present in INDIA. Voice assistants are the next big thing. There are several users who are really fascinated by the voice assistants and when we asked them that what are the basic things that they do daily and want them to get completed through voice commands. Survey Analysis of 100 android users were taken to understand the need of voice assistant in their day to day life.The users were consisting of 3 different sectors Academics with 41.66%, Corporate with 37.5%,General sector with 20.83% .The replies were very common and they suggested that they want this type of system for the simple uses.After the analysis the conclusion were Calling with 83.33% , 45.83% people interested in surfing online with voice,25% in each message and reminder, 20% in setting alarm,16% in controlling music with voice, 8% in controlling maps, 9% in social networking , 4.16% in others which again consist of meaning, weather, settings, mail, calculations, news, notes, language option, camera, etc.

EXISTING SYSTEM

Talkback-An application that is part of Google's Android Accessibility Service TalkBack will greatly help blind people hear what they are trying to do with their mobile phone . The app will tell them the item that they have just selected or picked. TalkBack is an Accessibility Service that helps vision-impaired users interact with, and enjoy, their devices. It uses spoken word, vibration and other audible feedback to let you know what's on your screen, what you're touching, and what you can do with it.

Fig 1: talkback

Drawback of talkback is that it speeds up the consumption of battery levelanddifficult to use. Problem with the application is that it cannot be stopped without leaving the application. Although there is a button for user to stop reading the announcement when they are done, it still keeps going to read them out loud.

PROPOSED SYSTEM

The proposed system is an innovative System for visually impaired people and acts as a voice assistant for them. Our system is an android application in support implemented in JAVA. This system is used to help the visually impaired to have access to the most important features of the phone enhancing the quality of the system making use of different custom layouts and using speech to text. All actions performed by the user the system speaks out and helps the user to know his current position. Every application have some pros and cons, our application too have some pros and cons. Our advantage is that System speaks out everything and anything the user wants to listen from the system and System doesn't require an internet connection and our systemis easy to use. There few limitation of our application which can be solved but for our basic implementation we are just considering the easiest way to implement this application. The application is only built using Android as its platform Since the system doesn't use internet, the data is saved offline and is phone dependent .If the phone is formatted or lost the data is lost

SYSTEM MODULES

Messages: The can check out the messages in 2 forms inbox and sent

Calls: The user can call from this app having a custom dialer and call logs

Battery: The can manually listen to the battery level and the system also reminds the user when the battery is low

Notes: The user can add and update notes

Text to Speech: All the actions preformed even the reminders are spoke

Read Messages/Notes: The system also helps the user to read the contents of the message and notes

Application Programming Interface

1. User will open the app-voice command will prompt "welcome to voice assistant"
2. User will click the screen to know the details
3. For Message-you click message ,click again to confirm and the system will speak out detail about inbox and sent item
4. System will prompt user to swipe left and right to navigate
5. For Call- handle incoming as well as outgoing call using voice command and also detail of call log
6. For Battery-the system will speak out the battery level
7. For notes-long press to add note and system will prompt the alphabet, word or sentences
8. Tap twice to save and exit

METHODOLOGY

We used the Object-oriented analysis and design (OOAD) methodology since the programs were be written entirely in the Java programming language; a very popular Object Oriented Programming Language. The software development methodology used for the program is the waterfall model, this model is a sequential design process in which progress is seen as flowing steadily downwards (like a waterfall) through the phases of Conception, Analysis, Design, Implementation and finally Deployment.

TEXT TO SPEECH (TTS)

Text-to-speech (TTS) is a type of speech synthesis application that is used to create a spoken sound version of the text in a computer document, such as a help file or a Web page.TTS is a method that converts speech from text. It is important for voice output for voice feedback for user. It is implemented in software where audio capability is required. When user enters voice command, TTS will convert that voice into text format and performs specific action

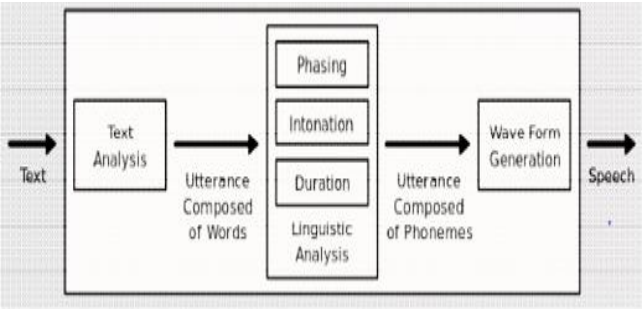

Fig 2: TextToSpeech system works

SPEECH TO TEXT(STT)

Android has a inbuilt feature that is speech-to-text through which user can provide speech input to the software. In the background speech input will be converted to text and perform action in the form of TTS.

USE CASE DIAGRAM

The diagram in Figure3 shows the use case diagram of the proposed system, depicting the user and the actions he/she will be able to perform.

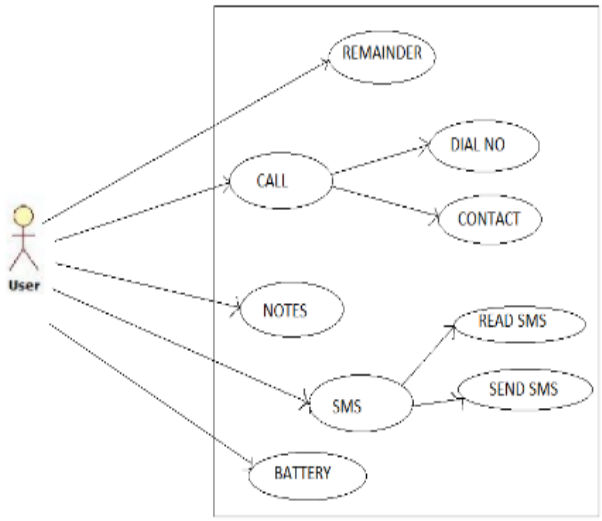

Fig 3: use case diagram

SYSTEM ARCHITECTURE

A system architecture diagram would be used to show the relationship between different components. The systems which include hardware and software and these are represented in the diagram to show the interaction between them.

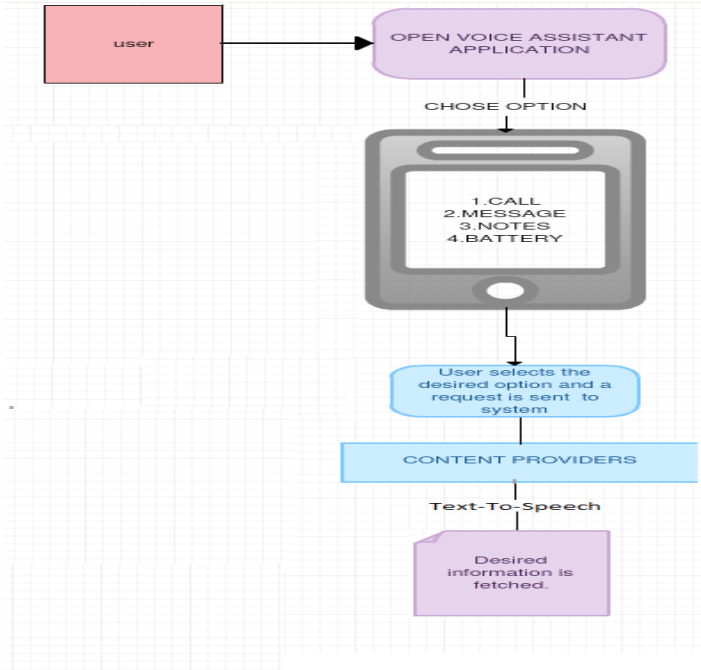

Fig 4: system architecture

CONCLUSION

We conclude that this application is useful for visually impaired people as this system help them to access the device easily .The system will guide the user and help them to know their current position through voice command .The user can swipe the screen to get different features that the system offer and it handle basic requirement what an individual need in today's world. In future there will be centre of attraction on implementation of application which will provide language option. This application will also make life easier for those who are physically disabled and every common user who is fascinated by voice recognition

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