***Advanced Blind helper Android Application Using Text-to-speech synthesis***

*As per IEEE format…*

***Abstract***— Blind people are not comfortable to read and write. Hence, I am making an application which will enable blind people to read the printed text with a camera by just tapping on the screen using a speech engine. I have also designed a talking calculator so that blind people can use the calculator via voice commands. Along with that I have added some of the applications so that they are helpful to blind people use during everyday life. It also shows your current location. With the help of this application users will also find weather in any of the city or location. With the help of an object detection system the blind person can easily detect the object and listen to the name of that object through the camera. [1]They can also transfer the money using a phone number or account number by using a voice based payment system that I have implemented in this project. It also requires minimal effort from the user to use the application during everyday life. With the rapid growth of wireless communications, the need for voice recognition techniques have increased greatly. Voice applications based on voice interfaces, voice recognition, and voice dialogue management can help users to be focused on their current work without extra effort for hands or eyes. The application listens to your commands and then responds with voice commands by talking.

***Keywords:*** *OCR recognition, Calculator, location detector, Weather detector, text-to speech,Music player*

**I. INTRODUCTION**

This project was conceived keeping in mind the day-to-day struggles such as reading, current location, weather detection, phone battery status and time and date etc. faced by the blind and visually impaired people. So, for that I have used google speech input where the blind user has to say certain words to open those particular tasks. This application has simple working like a user has either swipe right or left on the screen to open the voice assistant and talk. I have also added a text-to-speech method for listening to the working and use of applications. It is developed to help blind people interact with others with ease. It Provides the blind user the ability to perform some basic daily activities by the combination of some mere touches and taps, such as read, calculating, weather, location, get the time and date phone battery status with someone. The project is designed to address the daily struggles of blind and visually impaired people such as reading, current location, weather detection, phone battery status and time and date. So, for that I have used Google Speech Input where the blind user has to say a few words to open those specific functions. This application has a simple function as the user swipes right or left on the screen to open and speak to the voice assistant. I've also added a text to-speech method to listen to the application's functionality and usage. It is developed to help deaf-blind people communicate more easily with others. This application allows the blind user to perform some basic daily activities such as reading, calculator, weather, location, time and date to know the battery status of the phone with

with the help of touch and tap on the mobile screen. Also, the main thing I have implemented is the user will open this functionality using voice commands like when I say read it automatically open that particular activity.As some blind peoples fail to remember some tasks but by using our application user has to say only time date and task on which time he would like to remember the task then our application triggers the notification on that time. User can also read the reminders by using voice commands

**II. TOOLS AND TECHNOLOGY**

Android studio

Language -: Java

Android SDKs are modules of Java code that required for accessing mobile device functions

The main component of the Android SDK is a library called Gradle to build our application.

Google Speech API is required

**III. METHODOLOGY**

**Methodology: -**

a. First I have added the required dependencies that allows us to include external library or local jar files or other library modules in our Android project. Then in the xml I have designed the user interface of the application.

In MainActivity java I have created all the methods that will help the user to open certain tasks by simple voice command.

We have also implemented a swiping touch event as given in [4] so that we have left and right swipe.

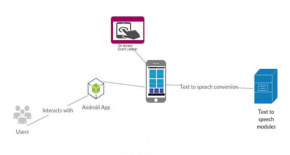
By left swiping on the screen the user will read the feature or operations of the app.

By right swiping on the screen voice input will start. After the user gives the voice command it will automatically be redirected to that particular activity. Let's say If the user says “read” then it will automatically open the read activity. So that user will just tap on the screen and take the picture and read aloud text in it.

b. b) Methods Used: i. Text to Speech (TTS):- TTS is a method that converts speech from text. TTS is important for voice output for voice feedback for users. TTS is implemented in software where audio capability is required. When a user enters a voice command, TTS will convert that voice into text format and perform specific action. ii.[3] 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.

**System architecture: -**

The system proposes the following applications: w



**Project requirements: -**

► The requirements were arranged in three groups: user interface, functional

requirements.

► **(1) User interface**

*(i) Easily accessible*

*(ii) Flexibility of voice control (Set speed, pause speech)*

► **(2) Functional requirements** *(i) Switching among the different voices (ii) read the text (OCR Reader) (iii) Calculator*

*(iv) Weather*

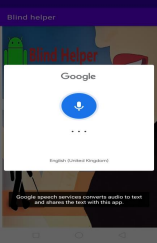
*(v) Location*

*(vi) Battery*

*(vii) time and date*

*( Viii) Music*

*(ix) Exit - close the app.*

**IV. FIGURES AND DIAGRAMS **

**V. CONCLUSION**

At present, mobile apps on smartphones are used to perform most of our daily activities. But the people with vision impairment require assistance to access these mobile apps through handheld devices like mobile and tablets. Google, Android applications has been developing various mobile apps for visually impaired people Still it needs to provide more effective facilities in app by adopting and synergizing suitable techniques from Artificial Intelligence.[5] This report introduced two environmentally-friendly designs for a blind people. We presented information about the Blind people application. This application will be more effective for blind people. It is important to develop this application for the

future. The system is used by Blind people but normal people also can use it.

**ACKNOWLEDGMENT**

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