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EXPERT SYSTEM FOR VISUALLY CHALLENGED USING AI

Project Proposal Presentation
by

Adarsh verma(2147102), Amber Ujjwal Linda(2147104), Ankur Sharma(217105)

Project Guide
Dr. THIRUNAVUKKARASU V

Department of Computer Science
CHRIST(Deemed to be University), Bengaluru-29

System Requirement Specification

ABSTRACT

This application helps people that are visually challenged to carry on the tasks for which they are dependent on someone else to be done. This application covers the processes such as text-to-speech conversion for office documents, library books, and any other printed text document and campus tours for the students' using audio output. This system can also be used for identifying any teacher based on the Face recognition concept and voicing out their details to the student. This complete system will majorly focus on the visually impaired students and help the students who are visiting the college for the first time. The development of this application aims to replace manual involvement with audio, and students do not need to rely on another person to complete the process.

INTRODUCTION

With advances in new technology, mobile devices have grown in recognition to emerging as one of the maximum commonplace customer devices. Cell telephones are an essential part of cutting-edge lifestyles. Proposed is an android application that helps voice commands. The utility is evolved for visually impaired human beings. After unlocking the mobile telephone, the application can be launched with voice commands. The structures accept voice commands and volume button actions to perform operations according to them. For acting the further task, it first translates the voice into textual content, producing output in the form of voice. It performs simple features such as a campus tour of the college. We will use the concept of image processing to train our model to detect the different places inside the campus. This will help the visually impaired students to know about the campus, and by using this functionality, the visually impaired students will be independent enough to explore the campus on its own. In the next functionality, we have a concept of Teacher recognition which uses the concept of face detection, which uses image recognition and computer vision. The next functionality is Text to Speech recognition using which the student can scan any printed document and convert it to speech, and this functionality will support the students for documentation in the office and the library. The last functionality is about how the user will navigate through the landing page.

PROBLEM STATEMENT

The primary hassle of humans that are visually challenged is that they may be dependent on someone else in any academic manner, for instance, filling up the institutional form or for a campus tour. This software enables the students to carry out the tactics independently; audio-based total input is provided so that there is no guide involvement, and the techniques may be finished conveniently. Audio assessments may be completed so that there may be no need for an author. This is how the software facilitates triumph over the demanding situations faced using visually challenged college students.

Existing System

These are the apps which are made for blind people namely Voice Over, Talk back, Be my eyes, Seeing AI, Aira, Lookout. These are the applications which use the concept of artificial intelligence and machine learning, they have most of the functions which are dependent on the mobile camera and the speaker. These components collect most of the information for processing the data. Some of the examples are text to speech, face recognition, reading the text out loud, detecting the object in front of them, scene descriptor and also scans the barcode of an item from a supermarket and gives the detailed information about the same. These functionalities use the concept of Natural language processing, sentiment analysis, computer vision and many more concepts.

Proposed System

This system is going to be implemented as an android mobile application. It will consist of four functionalities that will be useful for the users who are visiting Christ university. These four functionalities are namely: a landing page, this page will direct the users to the other three functionality as the application is for users who are visually impaired it will ask for any input from the users side to select one of the functionality using a button or a gesture. The second functionality will consist of text to speech option for this the application will ask for permissions from the user which will ask to use the camera and microphone. This functionality will read any printed document and output the data in a audio format which was collected from camera. The next functionality is Teacher recognition, this is similar to face recognition in this the dataset of

few teachers will be trained from different angles and will be stored so that if a teacher from the collected dataset is in front of the camera then the application will respond with the teacher's name. The last functionality is the campus tour which will tell the user about the current place he is present.

Benefits of Proposed System

The proposed system will help the users to explore the campus and will also help the user to know about that particular place. This system will also help the user to complete the documentation work very easily as the text to speech functionality will help the user to differentiate between the documents they want to get. This system will also help the user to know about their teachers in a good and brief manner.

Literature Review

This paper's name is Be my eyes: Android voice application for visually impaired people. This explains that 60% of the population of Blind people are present in India. The need for voice recognition techniques has 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. The application converts your voice into text.The programme was built on a navigation system that employed Text-to-Speech to deliver voice commands for navigating for visually impaired users. Map data was applied using the Google Map API as well. Smartphones can identify voices, find destinations and routes, and give directions to users using voice commands. The main purpose was to perform speech recognition and Google Text-to-Speech service destination searches. Using C and C++ programmes, the authors of this work have built and implemented voice user interfaces for navigation, instructions, and starting other applications. The voice application was created using typical Palm Operating System programmes and written in C++ with CodeWarrior 9.1 support.

Kaur, Parminder & Ganore, Mayuri & Doiphode, Rucha & Garud, Ashwini & Ghuge, Tejaswini. (2017). Be My Eyes : Android App for visually impaired people. 10.13140/RG.2.2.12307.48164.

Requirement Specification

The users should have basic knowledge of using a smartphone and should be familiar with the buttons on the phone, as the application will be guiding the user to press any button to select the functionality but there can also be a scenario where the user needs to use hand gesture to select any one the mentioned options from the landing page. The user should have a good camera so that when the text is getting scanned it should not be blurred so that the information provided turns out to be something else and to make it clear the user has to get a smartphone which is with a good camera quality as it will be useful for campus tour and also teacher recognition.

Functional Requirements

S.no	Functional Requirement
FR1	User should be able to Open the Application
FR2	User should be able to navigate through the three modules
FR3	User should be able to select the functionality
FR4	User should be able to hear the audio message regarding the choices
FR5	User should be able to user all the functionality
FR6	User should be able to go back to the landing page
FR7	User should be able to close the app even when the functionality is running

Non functional Requirements

This application has to be updated based on the user's choice as it is made to help the visually imapaired users

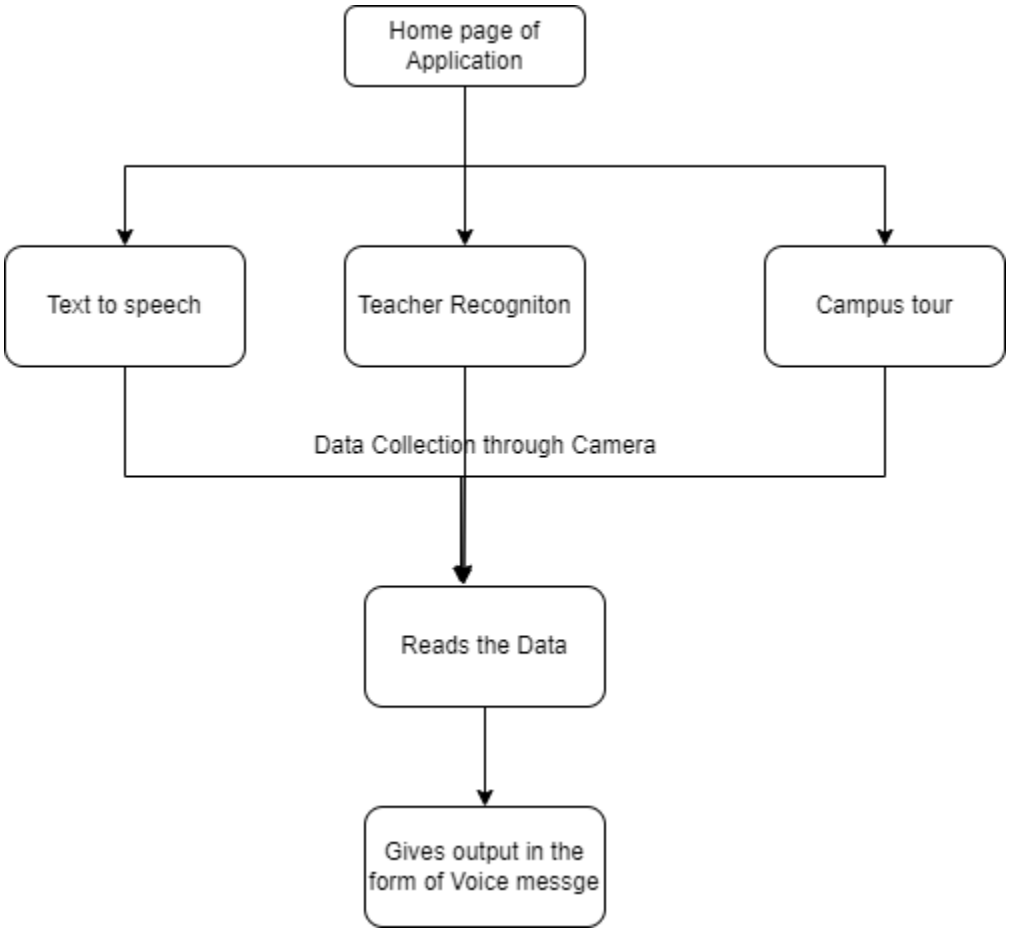
Software

Android 11 or more

Hardware

Smartphone with a good camera

The data which is getting collected from the users will be protected as the data is getting stored in the server and the data loss will be very minimal and also once the data is stored then the model can start with the training.



The Home page is the landing page where the user will by default be present. The user will be able to hear the instructions from the application that he/she needs to select one of the options to go to any one functionality. The first functionality is campus tour. This functionality will help the user to give a brief information about the campus as most of the students don't know about the campus so that they can get familiar. The second functionality which is text to speech is the one of the functionality which uses the camera to scan the printed document so that the user can get an complete information about the document he/she is about to receive one of the example would be getting a claim forms these claim forms can be identified by their color so the module needs to be trained with one of each of those forms. The last functionality is the teacher recognition which uses the concept of image processing and image detection which will tell the user about the teacher and her areas of interest in PHD so that the visually impaired students can get an idea about research too.