



ANDROID APPLICATION VIDEO AND IMAGE WITH VOICE FOR DISABLE PERSON

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ABSTRACT

Communication plays a major role in day to day life. But it is very difficult for the normal people to communicate with deaf, dumb and blind people. This project is to develop real time communication with speech and hearing impaired and for visually impaired people through a mobile application. This application contains all images or gif for every corresponding word or letter for deaf and hearing-impaired people to communicate with normal people and speech recognition for every corresponding image captured for visually impaired people. The application which can-do real-time translation from multiple Indian language to sign language, which will help bridge gap to large extent. If an image or gif is not found for a word, the word is broken down and image for each letter is shown if there is any missing new sign needs to be added, the user can do it using his camera itself for deaf and hearing-impaired people. For visually impaired people trained data sets will be stored in a database which is used to retrieve when an object is detected using a camera.

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INTRODUCTION

This project explains about the application of android for gesture with voice which is mainly used for disabled and blind people to communicate with the rest of the world by converting speech in the form of video, gif, and these people can also able to communicate among each other by means of sign language. The main objective of this paper is to develop the speech recognition in order to understand keywords in order to carry good communication among these disabled and blind people. Along these methods we also use voice to sign system for matching the parameter set from the database and face identification method is mainly used to identify people any object or person in general. The interaction between normal with these blind and disabled people is very difficult because of various communication problems. Both these types of persons are provided with separate type of communication method. For disabled person voice to sign communication method is used and for blind people facial recognition method is used. In this paper we mainly use android based application in order to communicate by means of gesture with voice to deal among these disabled and blind people. All this collected information was converting the received text into a audible form. Another innovative way of communicating with these people are voice-based email and chatting system. All these

methods are used to have easy communication among these people and video chatting plays a major role for both blind and disabled people with which these people can easily understand the sent message to them by other common people. By using this above system, we can easily communicate among these deaf and blind people with having much difficulty and can able to do in short time. Thus this is the main reason for using this android application system for gesture with voice in various places in the world.

Related Work

Android application has shown a dramatic improvement in their functionality by using their applications in various parts of the world. This results in providing easy and efficient communication among each other in short time. The main objective of this system is to implement the speech recognition in order to understand keywords for carrying good communication among each other [1]. Gestures for these disabled and blind people can be used in the form of various hand movements like touch, sweep left, drag, pinch open, scroll down, long press, sweep right, touch left, double touch, pinch close, scroll up etc. Through using these simple android methods we can communicate among these disabled and blind people [2]. This method can be used by making these disabled and blind people talk over the cell phone and thus we can easily understand what these people are conveying to us. We can also present what we are saying to these blind and disabled people by means of

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video [2][3]. Thus, this is considered as the most advanced and technical method to carry easy communication among these disabled and blind people.

All these hand gestures are captured and processed with the help of MATLAB and then these text and speech are converted into useful speech and text. Generally in these situations we use two common languages they are Hindi and English. The most advanced technique that was used among these type of persons are video surveillance application. By using this video surveillance method, we can easily make them understand what we are actually conveying to them. We can also send them our conveying messages in the form of text. A separate type of communication is used for each person. For blind persons facial recognition method is used to observe their reactions and also to know what they are saying and for disabled person voice to sign communication system was used [3][4]. Generally the voice to sign system takes place by following process, first the voice is being recorded then this voice is being converted into a digital signal processing and then it is further converted into video database and if this video database matches with the already stored information of these disabled and blind people then automatically it plays the needed video for these disabled and blind people. Thus, communication takes place in a very short time when we have to deal with these blind and disabled persons living in the world and we can also convey our opinions to them by using text messages and also voice mail chat method can also prove to be effective for these types of people living in the world [5]. Thus this was the main reason and objective for using this android application for gesture with voice for interacting with these blind and disabled persons.

Existing System

Generally there are two Types of Technique Used in this project. They are

- 1 Voice to sign system
- 2 Face identification system

Voice to Sign System

This method is mainly used for matching the parameter that was set from the database. If the parameter was matched then we can get to know that we are getting the correct information from the correct disabled persons. If not we can detect that we are dealing with the wrong person.

Face Identification System

The face identification method is mainly used for having the proper identity of the correct person. This method is commonly used for the blind persons.

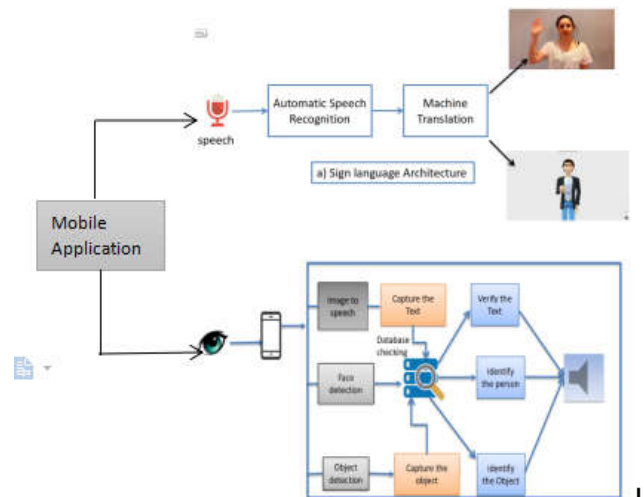
Proposed System

In proposed system V2S system is mainly used for converting speech in the form of video or Gif form . By using this method we can able to display and show them what we are saying by means of using video surveillance system . This makes these disabled persons easy to understand what we are actually conveying to them. This video surveillance system can also be widely used for deaf persons who can view what text or messages are sent by common people in the world. This V2S system takes place

by this following process , first the voice is being recorded then this voice is converted into digital signal processing then it is further converted into video database and if these video database matches with the already stored information of these disabled and blind people then it automatically plays the needed video for these disabled and blind persons[3][4]. Thus this is the speciality of using this android application for gestures with voice for these disabled in the industry.

For blind persons face identification system was mainly used for two reasons, first to observe their facial reaction and second to make them understand what we are actually conveying to these persons[5]. Thus this method also reduces time of conversation when we have to deal with these blind persons. This would also help in improving our communication among these blind people without getting frustrated or irritated by using various android apps during the time of carrying conversation with these blind and disabled persons. This is considered as the one of the advanced methods used in our industry.

Thus these are the two proposed systems that are used in dealing various such situations like this in various places.



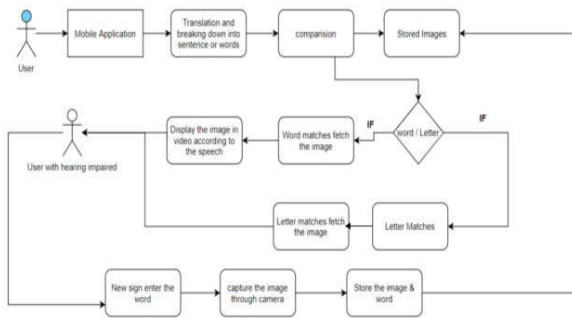
System Architecture Diagram

METHODOLOGY

In methodology part five modules are used. They are listed below:

Speech Recognition and Translation

A hearing impaired person can easily communicate with the normal person through application in real- time .Input is given in speech format, ASR will detect the voice. Machine translate the voice input into image.



Flow diagram

Identification of Object and Person

When visually impaired people shake the mobile accelerometer sensor will be activated and camera will be enable. Camera is used to scan the object or person. When it has been detected output is in voice format

Face Identification

A biometric software application capable of uniquely identifying or verifying a person by comparing and analyzing patterns based on the persons contours. Facial recognition is a way of recognizing a human face through technology[5].A facial recognition system uses bio metrics to map facial features from photograph or video.It compares the information with a database of known faces to find a match.

Object Detection

Every object instance has a unique, unchanging identity. Object identification is often referred as an OID[6].The processing of visual data happens in the ventral visual stream.It is a hierarchy of areas in the brain which happens in object recognition.

Image to Speech Identification

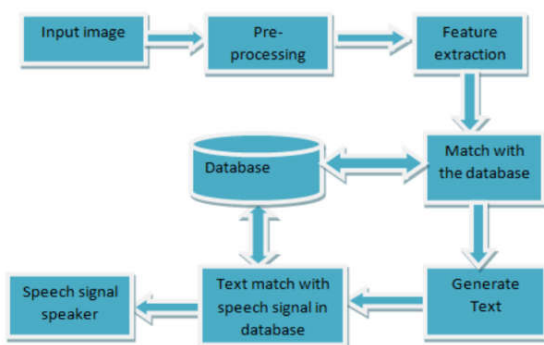


Image to Speech Identification

The system goes through various phases such as preprocessing, feature extraction, object recognition, edge detection, image segmentation and text –to – speech (TTS)conversion[6][7].The database of this system consists of a huge set of sample images which help to identify similar kind of projects in every different image.

The system mainly consists of two main modules such as image- to- text and text – to- speech. An image- to-text generates text descriptions in natural language based on understanding of image[5].A text- to-speech module converts natural language into speech synthesis.

Algorithm

Generally there are two types used in android application are listed below 1.Hidden Markov Model 2.Dynamic Time Wrapping

Hidden Markov Model

It’s a misnomer to call them machine learning algorithm. The HMM model itself is a stochastic process based on a markov chain, usually discrete in time and space but not necessary. Hidden Markov models(HMM) are widely used in many systems .Language modeling is also used in many other natural language processing applications.

Dynamic Time Wrapping

An audio signal into time domain and frequency domain, this means that it can analyze the signal with respect to time as well as frequency.

The approximation and detail coefficients are obtained by using equation:

$$CD(j) = \sum_i s(i)g(2j - i)$$

$$CA(j) = \sum_i s(i)h(2j - i)$$

We have considered Canny edge detection technique with regards to following criteria:

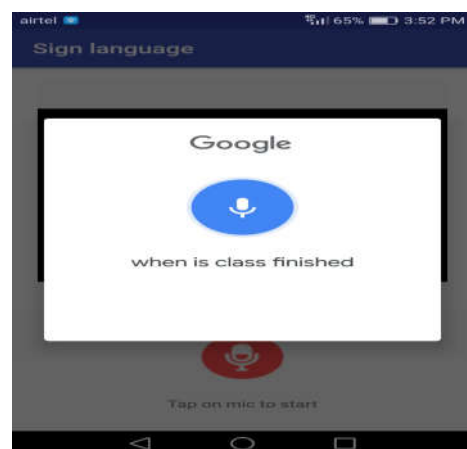
Detection: The probability of detecting real edge points should be maximized while the probability of falsely non-edge points should be minimized. This corresponds to maximizing the signal-to-noise ratio.

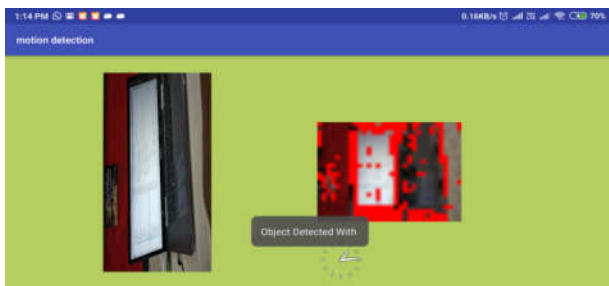
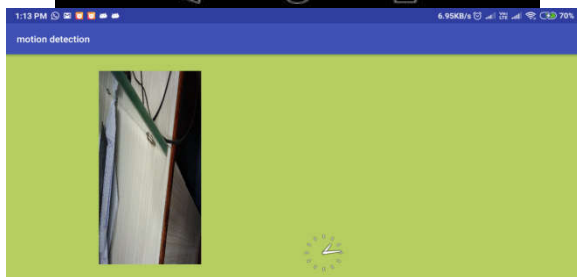
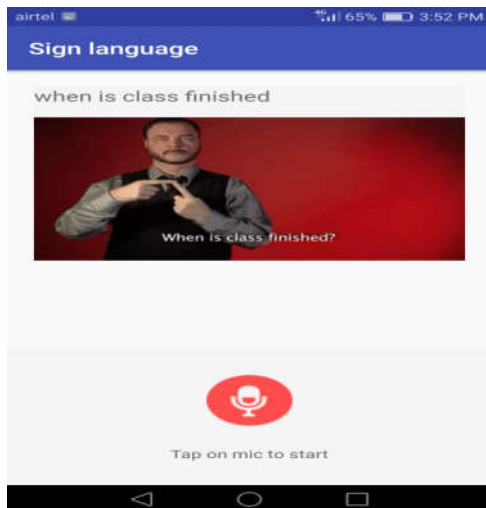
Localization: The detected edges should be very close to real edges. There will be minimum gap between real edges and detected Edges.

Number of responses: One real edge should not result in more than one detected edge.

RESULT AND CONCLUSION

Deaf and Dumb People can add speech to action in Android application. Visually Impaired People can identify the object/person through our application via using camera.





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Future Enhancement

To increase the performance and accuracy, the quality of training database used should be enhanced to ensure that it picks up correct and significant characteristics in each and individual sign and further improve the performance more efficiently.

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