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## **EAR HEAR AID USING ANDROID FOR PHYSICALLY CHALLENGED INDIVIDUAL**

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### **Abstract**

In this paper we proposed to build up an android application for hard of hearing individuals to correspond with other individuals ordinarily. The Sign Languages are utilized, which were for the most part utilized by the hard of hearing individuals as a part of their discussion. Here the Speech-to-Sign and Sign-to-Speech innovation are actualized. At first, the Sign dialect is written by the hard of hearing individual toward one side of correspondence side and which is later changed over into discourse on flip side of correspondence side. This is accomplished with outfit – 7 and Video Relay Service (VRS - empowers capable of being heard dialect interpretation on advanced mobile phones with marking) innovations which can change over the gesture based communication into discourse. At the point when the discourse sign is gotten as the reaction then it will be changed over into gesture based communication. This discourse to-sign transformation is accomplished by Mimix innovation, which deciphers talked and composed words into communication through signing with a 3D character. By utilizing this application hard of hearing individual can without much of a stretch cooperate with ordinary individual anyplace, and he can likewise utilize this application for portable sign interpretation utilizing VRS. Likewise utilizing UTF-7 he can convey in day by day enacts without dialing number. Subsequently our paper clarifies a simple method for particularly abled individuals correspondence with other individuals normally of part utilizing this android application.

**Keywords:** Sign Language; Android Application; Speech to sign; Sign to Speech;

### **I. Introduction**

The projected system can pave approach for the handicapped person to simply act with traditional person from anyplace. This method conjointly supports automatic translation, automatic speech recognition, and speech-to-sign and sign-to-

speech transmission. The assorted technologies employed in this method square measure divided into 2 main components hardware, and package. In hardware phone and speaker is employed. In package outfit-7 and Video Relay Service (VRS) is employed.

They're brought along and integrated as a system. It is an application for the mobile that converts everything we are saying during a high pitched voice. It may be used while not dialing the amount of the receiver as he's a registered user.

This paper gian facilitate for the people that don't seem to be ready to communicate properly with normal individual even in emergency conditions.

- It doesn't need gap recorder every time like Mimix.
- While not in dialing range we will communicate to alternative like face to face communication.
- Record any sound and play it back with a filter. The sound is recorded and erased when the replay.
- It doesn't need great amount of storage.
- Record a brief video then send it as a text message (SMS), Face book message, Kakao speak message etc.
- We will conjointly share our video by posting it on Face book or Twitter.
- This app is ideal for causation messages you'd somewhat be too back to mention head to head.
- Profess love or sing a song... you'll be able to even produce your own funny video story. Tom's traveler is far and away the best and quickest thanks to send a message you do not even got to kind.

## II. Literature Survey:

[1] Since decades, ongoing hardware implementation of Text-To-Speech framework has been drawing consideration of the research community because of its different constant applications. These incorporate perusing helps for the visually impaired, talking help for the vocally crippled and preparing helps and other business applications. All these applications demand the real time embedded platform to meet the real time specifications such as speed, power, space requirements etc.

Text-To-Speech (TTS) conversion needs algorithms to perform various operations like parts of speech tagging, phrase marking, word to phoneme conversion.

[2] In autotomatic conversion from Text-To-Speech (TTS) includes numerous issues like text tokenization, text normalization, word to phone conversion, pitch marking, duration modelling, speech synthesis etc..

[3] While medical researchers and biomechanical scientists use sophisticated methods and measurements to describe and quantify human hand motions, computer scientists and engineering professionals use a more abstract model, principally to allow interaction and fast rendering in real time.

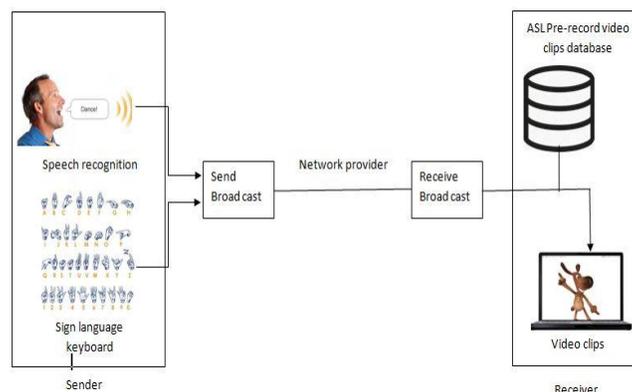
[4] Beifang Yi in his work suggested efficient modeling and rendering algorithms to emphasize the interactions between the model and its users. And a convenient GUI makes implementing all the finger movement operations easy and effective for new users.

[5] Karabasi Et.Al, in their work suggested a stand-alone system to allow the deaf or hard-of-hearing people and normal people to communicate with each other easily and fluently. They purposed a model for recognizing Malaysian Sign Language through image processing techniques and converting the visual information into textual information at real-time.

### III. Proposed Design

The projected system can pave manner for the handicapped person to simply move with traditional person from anyplace. This method additionally supports automatic translation, automatic speech recognition, and speech-to-sign and sign-to-speech transmission. Various technologies employed in this method square measure divided into 2 main components hardware and code. In hardware phone and speaker is employed. In code outfit-7 and Video Relay Service (VRS) is employed. they're brought along also integrated as system type. It is AN application for the movable that converts everything we are saying in a very high pitched voice. It will be used while not dialing the amount of the receiver as he's a registered.

#### 3.1 Architecture:



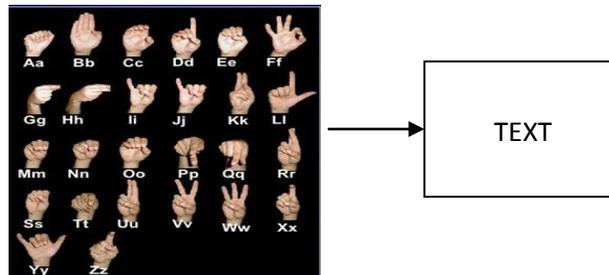
**Fig:1 Architecture Diagram**

### 3.2 Login & Registration:

This module is employed to assist the user to put in the appliance in their mobile phones. Once the user installs the appliance it asks the user to enter their user name, secret key and make sure secret. If each the secret key matches the user registration gets auspicious at present. The user is taken to the page wherever the ASL keyboard is displayed. The user will read their details exploitation SQLite browser information. The result's the creation of virtual application setting on the user's machine with the vacant minimum of application elements streamed into it. This application could be a self monitoring contained application .Interface to the users application becomes utterly mobile wherever appropriate network property exists, the user will access their own personal application, and also the state of those application is preserved between accesses from completely different locations.

### 3.3 Sign to Text (or) Sign Recognition

Second module contains the signing input, that is displayed because the keyboard on the mobile screen. American sign language (ASL) is that the predominant sign language of deaf communities within the us and most of anglophone North American country sign language signs have variety of sound elements, as well as movement of the face and body part furthermore because the hands. Sign language isn't a style of pantomime, however iconicity will play a bigger role in sign language than in spoken languages. English loan words area unit usually borrowed through sign language, though sign language synchronic linguistics is unrelated thereto of English. sign language has verbal agreement and aspectual marking, and incorporates a productive system of forming agglutinative classifiers. several linguists believe sign language to be a subject-verb-object (SVO) language, however there are a unit many various proposals to account for sign language order.



### 3.4 Access ASL Dictionary

CASL could also be a system of manual communication that strives to be an explicit illustration of English vocabulary and linguistics. it's one in each of type of such systems utilized in communicative countries. it's related to Seeing

Essential English (SEE-I), a manual sign system created in 1971, supported the morphemes of English words. SEE-II models thick of its sign vocabulary from yank language (ASL). The four components of signs square measure hand shape (static or dynamic), orientation (the direction of the palm), location (where the sign is performed relative to the body), and movement (trajectory type, physical phenomenon size, direction of motion, and flattened orientation). language could also be an entire, distinctive language which suggests that it not alone has its own vocabulary but its own linguistics that differs from spoken English. SEE-II is not a separate language but rather a system to talk in English through signs and language. The vocabulary of SEE-II could also be a mix of language signs, modified language signs, or distinctive English signs. the principle SEE-II signs vary from language is to feature clarity therefore the precise English word meant for the language is understood.

### 3.5 Sign Recognition

Last module of our project comprises of the main Sign Language Video. This video is displayed on the deaf party side. Sign Language video is obtained from the JSON and the Hand Speak websites. These websites includes most of the words from the ASL Dictionary. For Example: The below picture represents the meaningful video for the deaf people in the sign language. Good Morning is displayed in the video as follows: The sign language recognition can be implemented through our project by giving a link to the particular web server. Intent can be used implicitly to get the video as the output in the user's mobile phone. The request is given to the server and is hit to the server with get/post

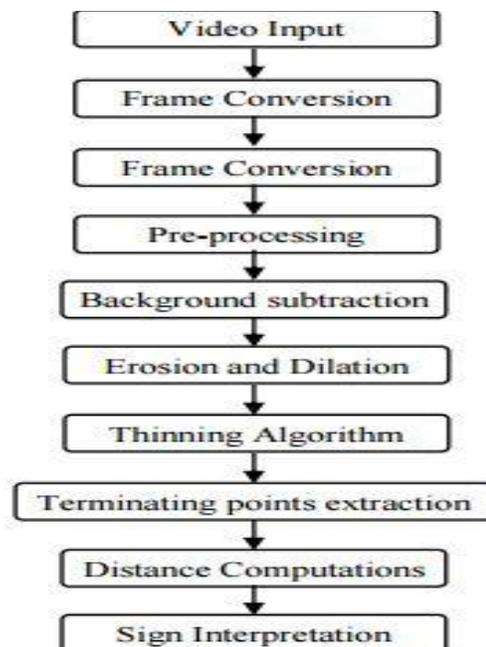


Fig:2 Data Flow Diagram Diagram.

### 3.5 Video Relay service

VRS permits those persons whose primary language is American sign language to speak in American sign language, rather than having to sort what they need to mention. as a result of customers victimization VRS communicate in signing, they're ready to a lot of absolutely specific themselves through facial expressions and visual communication, that cannot be expressed in text. A VRS decision flows back and forth similar to a conversation between 2 hearing persons. for instance, the parties will interrupt one another. VRS calls could also be created between American sign language users and hearing persons speaking either English or Spanish.

### 3.6 Hand Shape Recognition Algorithms:

We can currently build a price matrix (E) for 2 shapes, wherever the weather ( $E_{i,j}$ ) is that the value between the log-polar histograms of the I<sup>th</sup> and j<sup>th</sup> purpose of the primary and second shapes severally. This value matrix, we will then calculate the optimum association between each purpose within the initial form thereto of the second form exploitation the hungarian method. This ends up in a permutation  $\pi(i)$ , wherever the total  $d = \sum_k C_k \pi(k)$  is minimum the worth d also will be used as an identical value between-2-shapes.

## IV. Results and Discussion:

In addition, the planned system can pave means for the handicapped person to simply act with traditional person from anyplace. This method conjointly supports automatic translation, automatic speech recognition, and speech-to-sign and sign-to-speech transmission. The assorted technologies employed in this method area unit divided into 2 main components hardware and package. In hardware phone and speaker is employed. In package outfit-7 and Video Relay Service (VRS) is employed and they're brought along and integrated as a system.

## V. Conclusion:

These devices will be a giant facilitate for the people that don't seem to be ready to communicate properly and even in emergency conditions .Thus our project enables an easy way for specially abled people communication with other people in a normal way. The main important way for communication between deaf and dumb has been implemented in our project by using ASL (American Sign Language). Using this application we paved a way for the deaf person who can easily interact with normal person anywhere.

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