

AUDIO TO SIGN LANGUAGE CONVERTER

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ARTICLE INFO

ABSTRACT

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There is a communication gap between peoples who are not able to understand the thoughts of those peoples having these problem so with the help of AI this application artificially which will be able to help those peoples having no sense of understanding the thoughts of others by their movement or motion. We will add some signs of English alphabets as predefined expression.

This application we made is for deaf peoples having hearing problems with them.

KEYWORDS:

Interface; Standalone; py Audio; Threshold; Shutil

I. INTRODUCTION

The name of the project is Audio to Sign language converter. As the name of the project the work is like that. The peoples who are deaf and won't be able to understand what anyone said to them. So only for that purpose we are making this project. By using this project we are able to help those peoples who are not able to understand what any person say. In this project we are using some hand sign which shows alphabets what any person said. Like anyone is saying anything and they have difficulties in understanding, so the person talks to them need to say things in this project the pyaudio module is used to recognize speech anyone said and convert that in signs which helps an deaf person to understand by using sign language. . As we know there is a communication gap between peoples who are not able to understand the thoughts of those peoples having these problem so with the help of AI we are making this application artificially which will be able to help those peoples having no sense of understanding the thoughts of others by their movement or motion. We will add some signs of English alphabets as predefined expression.

1. In this application when we compile it will ask for input which will be audio what we said.
2. with the help of pyaudio module the audio will be taken as an input
3. hereon after taking input of audio we convert the audio into text
4. then the text will get separated in smaller chunks
5. then after that the text will be shown by using pre-defined expressions of signing of English alphabets

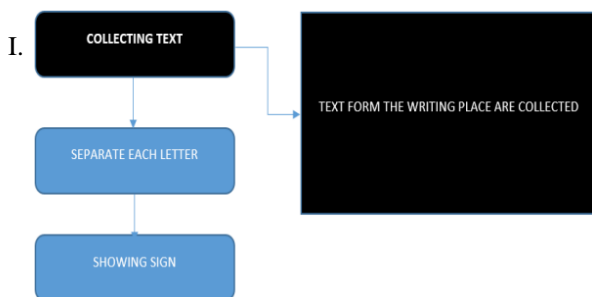
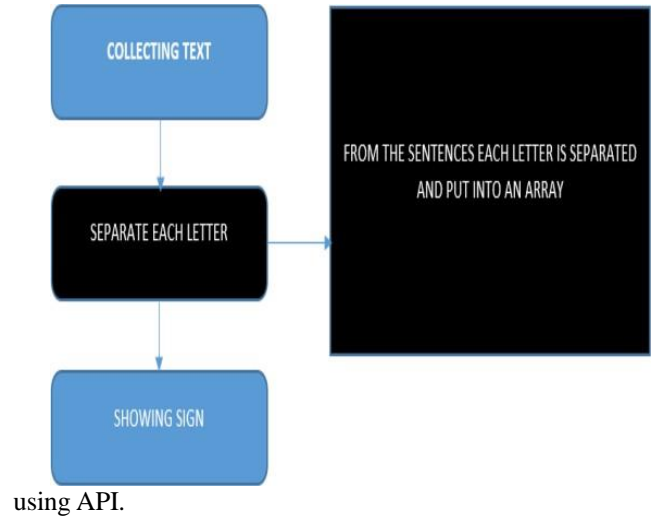


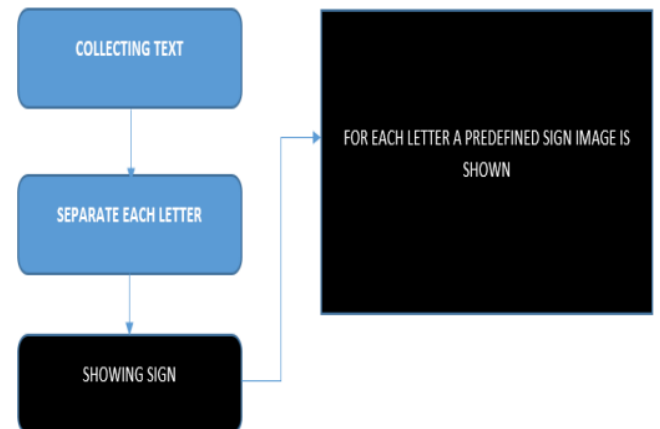
FIG.1 (A) BLOCK DIAGRAM FOR THE CONVERSION OF TEXT

This block diagram showing that how it collecting audio as the input and how it search that audio and recognize it by



II. FIG.1 (B) BLOCK DIAGRAM FOR THE SEPARATION OF TEXT

This block diagram will showing that how the audio collected above will get converted into text and how that text will get separated in smaller chunks.



I. FIG.1 (C) BLOCK DIAGRAM FOR THE CONVERSION OF SIGNLANGUAGE

I. THIS BLOCK DIAGRAM IS SHOWING THAT AFTER SEPARATION OF TEXT HOW PREDEFINED SIGNS FOR EACH TEXT WOULD DISPLAY AS AN OUTPUT.

I. FIG.2 PREDEFINED EXPRESSIONS

This figure shows the predefined signs of English alphabets will use in this project.



II. FIG.2 PREDEFINED EXPRESSIONS

This figure shows the predefined signs of English alphabets will use in this project.

II. LITERATURE SURVEY

The project mainly helps the present here helps deaf peoples to understand the audio or speech of what peoples said. To convert the language deaf people not understand in sign language. In this project audio to sign language converter firstly this take audio as input using PDA by using the pyaudio module. After taking input we need to convert that audio into text using Google speech recognition. After that we need to break the text into some smaller chunks. After that we have to analyze the grammatical structure of the sentence. By utilizing some AI

we have got sets of some predefined language. By using AI we would be able to display converted audio into sign.

In India many other conversion applications were made by the peoples but there is very less applications made for audio to sign language converter. This application is also the need of the peoples as other converters like sign language to text or sign language to audio. So for this necessity we are making these applications. Some deaf peoples can understand the thoughts of other peoples by their movement of lips and movement of hands but some can't understand that because of their dumbness. So this app is very helpful for the dumb peoples.

III. PROPOSED WORK

Main aim or objective is to develop an application for the peoples who are having a hearing problem. As I said that we also studied about many applications being developed like sign to audio converter or like sign to text converter. but the application like audio to sign language converter has been developed very less. So our motive is to develop the application like that for ISL we know that there are many types of sign languages other than ISL but we are here to develop an application for Indian peoples. The persons who are deaf and having issues in hearing will get too much help with this application.

The procedure of this application as follows:

1. AUDIO TO TEXT CONVERSION:

- By using python Python audio module the audio input will be taken.
- After taking input audio is converted into text.
- After analyzing of sentence is done and also relationship between words.

2. AUDIO TO SIGN LANGUAGE:

- Speech recognition.
- Preprocessing of the data
- Finding words help of machine.

IV. ALGORITHM OF PROPOSED

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I. FIG.3 FRONT END

Start Getting the Speech Listen for 1 second and calibrate the energy threshold for ambient noise levels.

Listen the Speech using Microphone. Now the energy threshold is already set to a good value, and we can reliably catch speech right away.

Recognize the Speech.

Convert Speech to Text.

Make the Text to lowercase for further manipulation.

Detected Text

If “goodbye” then exit. 2.Else if Detected Text in predefined Dictionary Words. Display respective GIFs of the Phrase.

Else Count the Letters of the Word/Phrase.

Display the Visual of the phrase with some delay of Actions.

Continue all the steps from Step 3, and continue till the Speech Ends.

If Error in Step 2, That is if no Speech Detected then display error message “Could not listen”

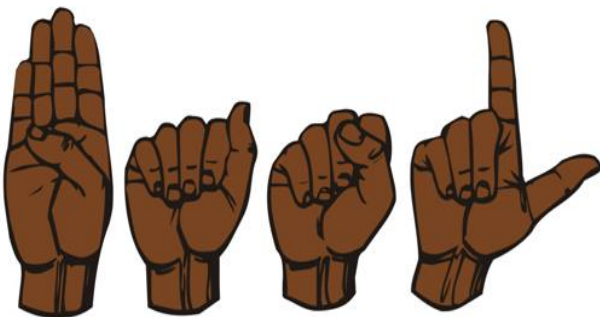
This fig shows how the front ends were designed to give output.



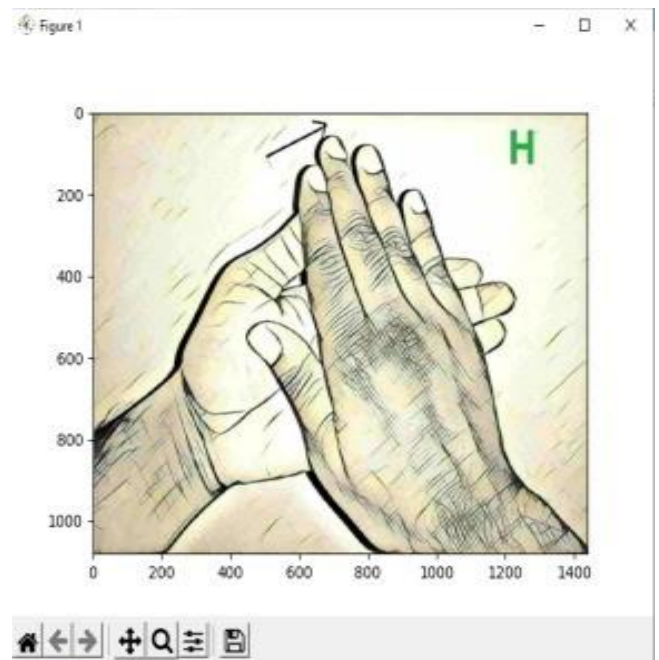
```
Python Shell 3.9.10
File Edit Shell Debug Options Window Help
Python 3.9.10 (tags/v3.9.10:zr22333, Jan 17 2022, 16:14:21) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:\Users\Bunny\Desktop\Sign Language Converter\main.py =====
Say something
you said hello
>>>
```

This figure shows how this takes input.

IMPLEMENTATION AND RESULTS

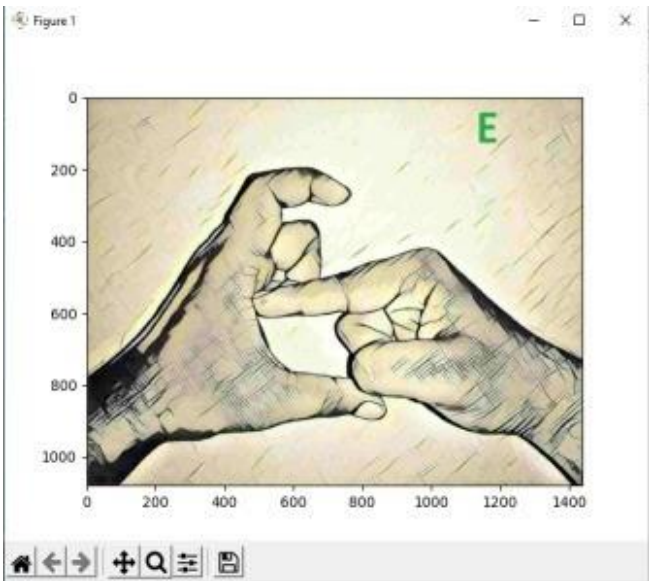


Output generate: This application we made will generate an output as an English signs. The predefined expressions we add in this application will produce an output signs of words in a audio. In this application we generate some ISL sign language gestures.

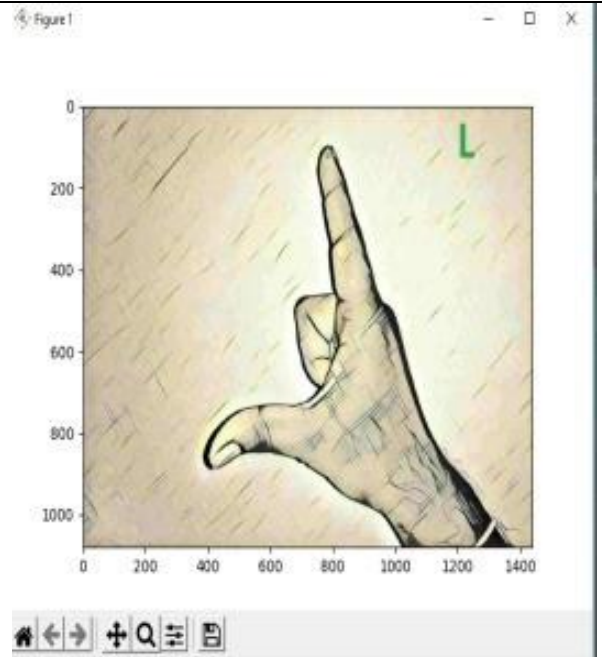


This figure shows sign of word H.

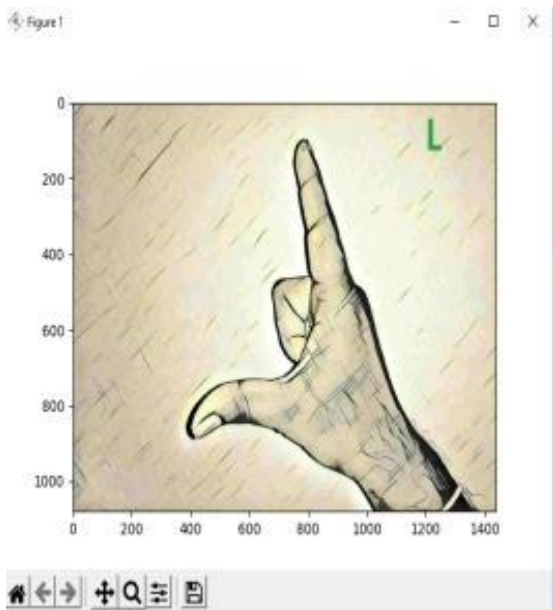
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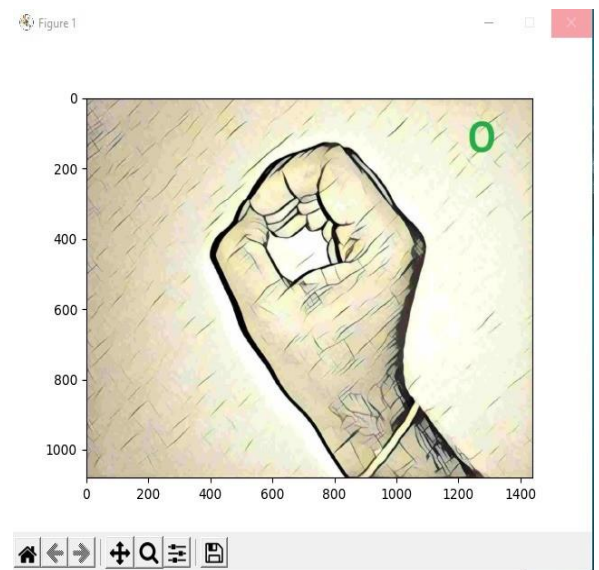
This figure shows sign of word E



This figure shows sign of word L



This figure shows sign of word L.



This figure shows sign of word O.

So, the output of word “HELLO” said in input will shown like this in output

CONCLUSION

This sign language is most important for the peoples having hearing difficulties. It is useful in many areas like we can use this application in schools; we can use this application in colleges, hospitals, etc. There is also the future scope of this application as we know that the peoples having these hearing disabilities will not be able to enjoy the things normal peoples did. The scope is to run the application when you explain anything to the normal peoples with deaf peoples so connect this application in front of them by which they can also enjoy the things normal people did..

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