

Language Translation and its importance

^[1] Thejas BR, ^[2] D Charan Raju, ^[3] Bhuvan Gowda, ^[4] Kushal NG, ^[5] C Narasimhulu

^{[1][2][3][4][5]} Department of AIML, DSATM, Bengaluru, Karnataka, India

^[1] 1dt20ai041@dsatm.edu.in, ^[2] 1dt20ai015@dsatm.edu.in, ^[3] 1dt20ai012@dsatm.edu.in,

^[4] 1dt20ai025@dsatm.edu.in, ^[5] 1dt20ai013@dsatm.edu.in

Abstract— In this paper we are dealing with the translation of the source language to the required language. Our main aim is to make this process of translation automated and efficient, so that no person is deprived of gaining knowledge and exchanging information due to language barriers. We will be mainly focusing on how to make the process of language translation automated using software languages like python.

Index Terms— Language translator, language barriers, python, library, API

I. INTRODUCTION

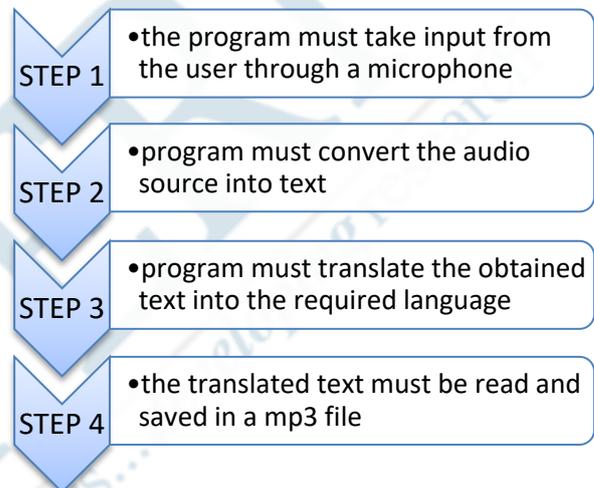
In With continuous change in humanity, there is a rapid change in culture and sharing of knowledge between people. With this rapid change in the human society the importance of language translation plays a crucial role in exchange of information between people.

With the rapid change in technology, language translation is made easier to access which helps in better exchange of information. As of in India we have a total of 121 languages and 270 mother tongues but only 22 are made official languages. This shows the necessity of language translation in the real world. Remembering all the languages is an impossible task for an individual, here is the place where a language translator can be utilized to fill in the gap where individuals are denied of gaining appropriate knowledge.

A translator basically translates one language to the required language, according to the user requirements.

Hiring a language translator would be expensive and sometimes difficult to find appropriate translators for the appropriate languages required. This issue can be resolved by having an automated language translator which helps in converting the given language to the required language. A language translator can be automated using various software languages which makes translation faster and accurate.

Python is a computer programming language often used to build websites and software, automate tasks and conduct data analysis.



Language translator can be automatic using python. The basic ideology on which the code will work is been demonstrated in the figure given above.

We take the input from the user using the mic, which must be preinstalled in the device, in the form of voice. The software must convert the voice recognized into text. The software must recognize the language in which the user is giving as a input to process it into the required language. The next process would be converting the recognized text into the user required language using googletrans library which is a free library available in python.

II. TRANSLATOR WITH PYTHON

In this Python Google translator, we use googletrans module to convert text in python. There are many APIs accessible to convert text to speech in Python. One of such APIs is the Google Text to Speech API commonly known as the GTTS API and googletrans.

The libraries used are:-

1. googletrans
2. gtts(google text to speech)
3. pyaudio

Googletrans:

Googletrans is a free library available in python that is available to use the Google Translate API. The advantages of using this library over other libraries is that :-

→ It automatically detects the users language and helps in faster and Easier translation to the required Language.

Language.

→ In case of large sentences this library

Is useful in giving the translated output in a quick and effective manner.

→ This library is faster and

Reliable to obtain the required output.

To install this library in our system use the command

PIP install googletrans

```
In [ ]: from googletrans import Translator
translator = Translator()
data = ['hi there how are you']
translated = translator.translate
        (data, scr='en',dest='hn')
```

The above picture shows an example of googletrans library where data is the input given, translator translates the above line from the source language ie English to the destination language Hindi.

GTTS :-

gtts is an acronym for google text to speech.

GTTS is a very easy to use tool which converts the text entered, into audio which can be saved as a mp3 file.

This is also a free library available in python to convert the text into voice. Here this software uses the speaker of the device to give the output in audio form. This library also converts the audio into an mp3 file which helps in saving the file and sharing it if necessary. The advantage of using this library is that it has several languages imported in the source code which helps in recognizing different languages and giving the necessary output, either in a mp3 file or directly using the speaker of the system used.

Gtts API is used as an interface between the program and google application. Data from the program is sent to the Google application, the application performs operation on the data and sends it back to the program in a mp3 file

To install this library in our system we use the command:

pip install gtts

```
In [ ]: from gtts import gTts
tts = gTts("hello", lang = 'en')
tts.save('hello.mp3')
```

In the above example "hello" is read by the program and stored in a mp3 file named hello.mp3

PYAUDIO :

PyAudio is a python library file that is cross platform audio Input /output library. We use pyaudio to play and record audio.

In our project, pyaudio is used to recognize the input which will be in mp3 or mp4 (audio) format, it recognizes each and every word from the user input and pass it to the googletrans library which further translates to the required language and returns the output back to pyaudio .Now the pyaudio library plays the audio output in the required necessary language.

To install this library, we use the command :

PIP install pyaudio

The above command helps to install the pyaudio library to the system and hence imports all the files that are necessary to record and play the input and output audio files.

III. OPERATIONS INVOLVED :

The operation performed on the data given by the user are :

- The libraries googletrans and gtts must be installed and imported for the operations to be performed.
- The input to the program is given by the user in the form of audio using the microphone of the system. The user talks into the system with the help of microphone
- The program must recognize the audio and language of the user input.
- The program also uses the library pyaudio to convert the audio recognized into text.
- The destination language to which the audio must be converted is taken from the user as the second input.
- Using the googletrans library the text is converted to the destination language. This library acts as an API to perform this operation.
- The translated text should now be read out by the program. Using the gtts(Google Text To Speech) library this operation is performed. The converted audio can directly be heard by the user using the speaker of the system or converting the audio file to an mp3 file.
- The output of the program is the converted language from the source to destination language.

Importance and challenges faced :

Human translators are very expensive to employ and therefore cannot be used by the common people who travel to different places for Job, Studies ,etc.

People from many places stick to their notion of language and hence reply or answer in the same language.

Hence our language translator will be handy enough to deal with these kind of situations.

Some of the challenges faced are :

Dialects: A form of a language that is spoken in one area of a country.

Sarcasm: A form of everyday language in which the speaker says the opposite of what he or she means.

Slang: Day to day phrases which are informal used in a particular language.

IV. CONCLUSION

In this paper, we have discussed how language translator project works, its pros and cons, the working of python in our project, the different libraries used and how to install and access these libraries and the operations involved in the process.

Hence our project is convenient, practical, easy to use and user friendly.

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Sanket Gandhare
Preethi Jyothi
Pushpak Bhattacharyya
IIT Bombay, India
sanketmonu@cse.iitb.ac.in

