GE-103
Voice Interpreted Translator (VoIT)

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I. Introduction

Our project provides a simple yet interactive interface for users to use a voice translator. Our translator picks up the user's voice as input and translates it. The output includes both textual and audio translations. We can desirably set our source and destination languages as per our choice, but as an illustration, we will translate Hindi into English. It aims to provide optimum solutions to people who either do not know how to write that particular language or are physically challenged, such as those who are unable to type. Our translation tool uses a speech recognition engine and googletrans to translate an audio input.

II. Literature Review

The history of machine-level translation dates back to 1954, when the Georgetown-IBM translation started. It was for the first time that 60 Russian words were translated into English. After the Georgetown-IBM experiment, speech recognition was a significant emphasis for the researchers. A surge in the development of speech recognition developed during the 1990s. The idea of Google Translate was first planted in 2004 when the co-founder Sergey Brin was frustrated after a Korean email was severely translated to English. On April 28, 2006, Google Translate was launched as a statistical machine translation; however, ten years later, on November 15, 2015, it was launched as a neural machine translation. Statistical machine translation uses predictive algorithms and often defers from the context-specific meaning. With the implementation of neural machine translation, translation got more accurate and context-driven. In 2010 it was integrated into the Chrome browser and was widely accepted and used. Current neural machine translation uses deep learning to translate whole sentences.

III. Objective

The language barrier is a major reason that stops people from communicating with each other. These challenges are faced by MNCs, individuals, government and many sections of society. The language barrier can create misunderstanding, confusion, and misinterpretation of an individual’s or group’s ideas, leading to conflicts.

So, to remove this language barrier, we came up with the idea of a translation tool. We developed this tool using AI and pygame. It can take input from the user and give output in any desired language. It gives the translation of a particular word in the desired language. People who do not have prior knowledge of python or software now only need to know the language they already know. This tool is free.

I Modules

A. Text-to-Speech (pyttsx3)

It is a widely used library in python. It is an essential and widely used tool for converting entered text into speech. It can be used offline and is compatible with recent versions of python. sapi5, nsss and espeak are three text-to-speech engines that work

on Windows, Mac OS, and every other platform. sapi5 module supports and provides a male and a female voice for Windows. [1]

B. Speech Recognition (speech_recognition)

This library has various modules that help interpret the inputted audio by breaking it into pieces and converting the speech into text. It helps the computer interact with the user's speech and perform various functions. [1]

C. Translator (google trans)

googletrans is a free and unlimited python library that implements Google Translate API. It calls for various methods to detect and translate desired words. It can perform bulk translations. [2]

D. pygame

It is used to build games. It adds various functionalities to the python program. It allows us to create games and multimedia programs in the python language. [1]

IV. Conclusions

However, some boundaries involve inaccuracies and time consumption involving Google Translate. Translation fails when input is unclear or is given in bulk. Although most languages are successfully translated, accurate translations for some popular languages are yet to be established. Accurate translation is yet to be established and offered for regional or local languages.

Through our project, we created both voice and textual translation methods. It gives users a broader perspective on using the translation methodology and bridges the gap between user and software by taking translation and learning one step over the horizon.

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References

[1] pyttsx3, SpeechRecognition & pyAudio module and its uses through codewithHarry youtube
[2] googletrans module and its uses through google