Language Translator

S.E. mini-project report submitted in partial

Fulfilment of the requirements of the degree of

Information Technology

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2021–2022

CERTIFICATE

This is to certify that the S.E. mini-project entitled **"Language Translator "** is a bonafide work of **"Poonam Jadhav" (Roll no. 41) [CLASS 1], " Jitesh Kamble" (Roll no. 51) [CLASS 1], "Khushi Kashyap" (Roll no.53) [CLASS 1] and "Nisha Kendre" (Roll no.55) [CLASS 1]** submitted to University of Mumbai in partial fulfilment of the requirement for the award of the degree of **"Information Technology"** during the academic year 2021–2022.

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S.E. Mini-Project Report Approval

This mini-project synopsis entitled ***Language Translator*** *by* ***Poonam Jadhav, Jitesh Kamble, Khushi A. Kashyap, Nisha Kendre*** is approved for the degree of ***Information Technology*** from ***University of Mumbai****.*

Examiners

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Date:

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Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will cause disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Abstract

The development of technology connects everyone from all around the worlds. The problem is, people cannot really mingle with one another because they have communication problems. Some of the problems are with other traveler, disabled peoples, Friends in social media, and International business partners. This device invented to solve this entire problem that faced by people in today's life.
This device invented to make people more knowledgeable, reduce miscommunication among people all around the world, connects people, get maximum profit and give job opportunity to people.

Translation is a medium to transfer the knowledge or information. It can be a bridge which connects the people from the different languages and cultures. By using translation, people can learn and understand each other's languages and cultures. Translation is not merely at changing words, but also transferring of cultural equivalence with the culture of the original language and the recipient of that language as well as possible. The better translation must be accepted by all people in logic and based on fact; thus, the message which contained in the source language (SL) can satisfy the target language (TL) reader with the information within.

Translation is necessary for the spreading new information, knowledge, and ideas across the world. It is absolutely necessary to achieve effective communication between different cultures. In the process of spreading new information, translation is something that can change history.

Contents:

Table of Contents

Chapter	Topic	Page No.
	Abstract	v
	List of Figures	vii
	List of Tables	vii
	List of abbreviations	viii
Chapter 1	**Introduction**	**1**
	1.1 Motivation	

	1.2 Problem Statement	

	1.3 Objectives	
	1.4 Scope	
Chapter 2	**Review of Literature**	**2**
Chapter 3	**Proposed System**	
	3.1 Proposed System	**3**
	3.1.1 Block diagram	**3**
	3.2 Implementation	**4**
	3.2.1 Algorithm/Flowchart	**6**
	3.2.2 Dataset	**7**
	3.2.3 Pseudo code	**7**
Chapter 4	**Results Analysis (**Screenshots of the output with description)	**10**
Chapter 5	**Conclusion**	**12**
Chapter 6	**Future Scope /References**	**12**

List of Figures

Figure No.	Figure Name	Page No.
3.1	Proposed system	3
4.1	Block Diagram	3
4.2	Implementation	4
4.3	Algorithim/ flowchart	6
4.4	Data sets	7
4.5	Pseudo code	7
5.1	Result analysis	10

List of Tables

Table No.	Table Name	Page No.
3.1	Block Diagram	3
3.2	Implementation	4
3.3	DFD diagram	5
3.4	Algorithim/ flowchart	6
3.5	Data sets	7

4.1	**Pseudo code**	**7**
4.2	**Result analysis**	**10**
4.3	**Conclusion**	**12**

List of Abbreviation

ACE	Atharva College of Engineering
CGPA	Cumulative Grade Point Average
CMS	College Management System
DFD	Data Flow Diagram
HOD	Head Of Department
UML	Unified Modelling Language

Chapter 1 .INTRODUCTION

Translation is necessary for the spreading new information, knowledge, and ideas across the world. It is absolutely necessary to achieve effective communication between different cultures.In the process of spreading new information, translation is something that can change history.

1.1 Motivation

The Language translators allow computer programmers to write sets of instructions in specific programming languages. These instructions are converted by the language translator into machine code. The computer system then reads these machine code instructions and executes them.

1.2 Problem Statement

- The structure of sentences in English and other languages may be different. This is considered to be one of the main structural problems in translation.
- Limit your Expertise: Gain expertise only in a couple of languages that you are already well-versed with. The translator has to know the exact structure in each language, and use the appropriate structure, and they have to ensure that the translation is performed without changing the meaning as well.

1.3 Objectives

- To extract effective communication between people around the world.
- To provide ability for two parties to communicate and exchange the ideas.
- To encourage learners to discuss the meaning and use of language at the deepest possible levels.
- To get a challenging position in reputed organization where we can learn a skills by communicating.
- To perform and translate our native language.

1.4 Scope

- Translation is necessary for the spreading of new information, knowledge, and ideas across the world.
- It is absolutely necessary to achieve effective communication between different cultures. It is the only medium by which certain people can know different works that will expand their knowledge of the world.
- Not everyone speak English ,so Language Translator is helpful for us to translate our native language.

Chapter 2. REVIEW OF LITERATURE

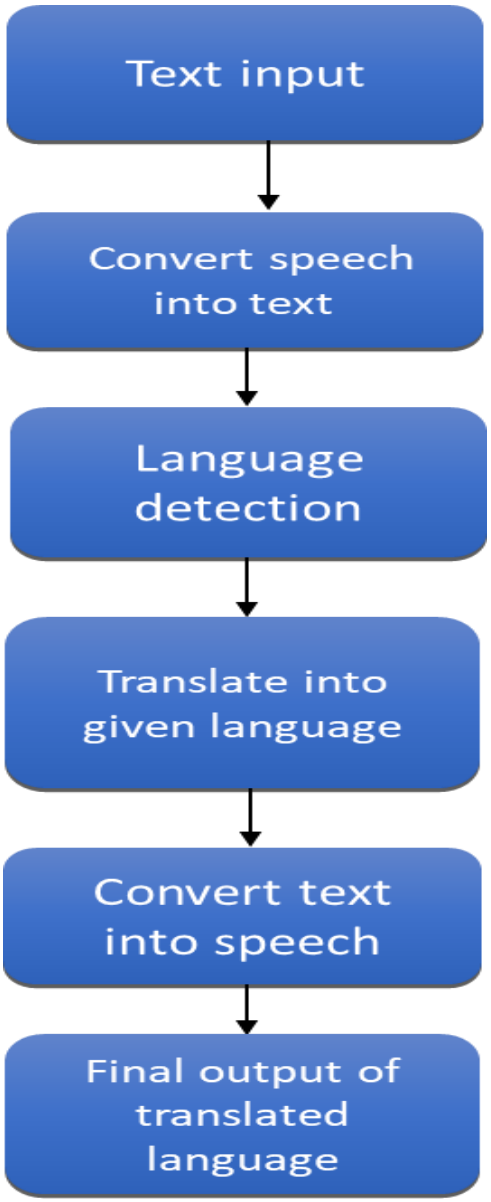
Sr. no.	Title	Author	Publication	Approach
1.	Direct Speech to Speech Translation Using Machine Learning	Sireesh Haang Limbu	December 2020	to develop a proof of concept to provide evidence supporting a unique translation system that might prove to be better and faster.
2.	Machine Translation Enhanced Computer Assisted Translation	Marcello Federico	October 2020	the key difference in this approach compared to the general machine translation techniques available today is the lack of an underlying text representation step during inference.
3.	Auto-Translation for Localized Instruction	Chris Piech, Sami Abu-El-Haija	Sep 2019	The main translation model along with specific areas of future work that has been mentioned in this report can be used for studies in language translation using utterances.
4.	Multilingual Speech and Text Recognition and Translation using Image	Sagar Patil, Mayuri Phonde, Siddharth Prajapati	April-2020	to combine all different tasks such as speech recognition, text translation, text synthesis and text extraction from image all embedded in one so that we get a user friendly application

Chapter 3. PROPOSED SYSTEM

3.1 Proposed System

- **The aim of the proposed system is to develop a system that has capability to perform Translation, Converting text to speech, Speech Recognition. The system proposed here will be developed for a small domain of English words.**
- **A translator is a programming language processor that modifies a computer program from one language to another.**

3.1 .1 Block diagram



3.2 Implementation

1. Import Modules

We import ttk modules from tkinter library and Translator, LANGUAGES modules from googletrans library, speech recoginition module, gtts module.

2. Create a display window

We use tkinter library to create a window where we'll enter the text which we want to convert into voice.

Tk() initialized tkinter which means window created

geometry() set the width and height of the window

resizable(0,0) set the fixed size of the window bg = '' use to

set the background color title() used to set the title of the

window

Label() widget use to display one or more than one line of text that users aren't able to modify.

root is the name which we refer to our window text

which we display on the label font in which the text is

written pack organized widget in block

3. Create an Input-output text widget

The above code creates two text widgets one for entering text and the other for displaying translated text.

Text() widget is used for multiple text lines.

wrap = WORD will stop the line after the last word that will fit. padx puts an

extra bit of space to the left and right of the widget.

pady adds an extra bit of space to the top and bottom.

4. Define Combobox to select the language users can pick a seperate language for both input data and to translate their data.

language gets all the values from the 'LANGUAGES' dictionary in the form of a list.

ttk.Combobox() widget is a class of ttk modules. It is a drop-down list, which can hold multi-value and show one item at a time.
Combobox is useful to select one option from many option.

5. Define Function

The Translate function will translate the message and give the output. src gets the

language selected as input text language dest gets the language select to translate text

gets the input text entered by the user."1.0" means that the input should be read from

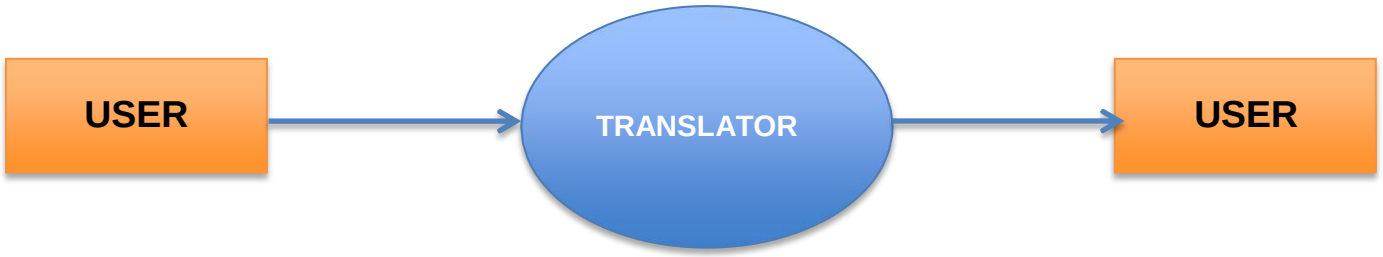
zero characters to line one

The END part means to read the text until the end is reached translator = Translator() used to create a Translator class object Output_text.delete(1.0, END) delete all the text from line one to end
Output_text.insert (END, translated.text) will insert the translated text in Output_text

6. Create a translate button

When we click on the Translate button it will call the translate function Button() widget used to display button on our window command is called when we click the button activebackground sets the background color to use when the button is active
root.mainloop()

DATA FLOW DIAGRAM:



SOURCE LANGUAGE

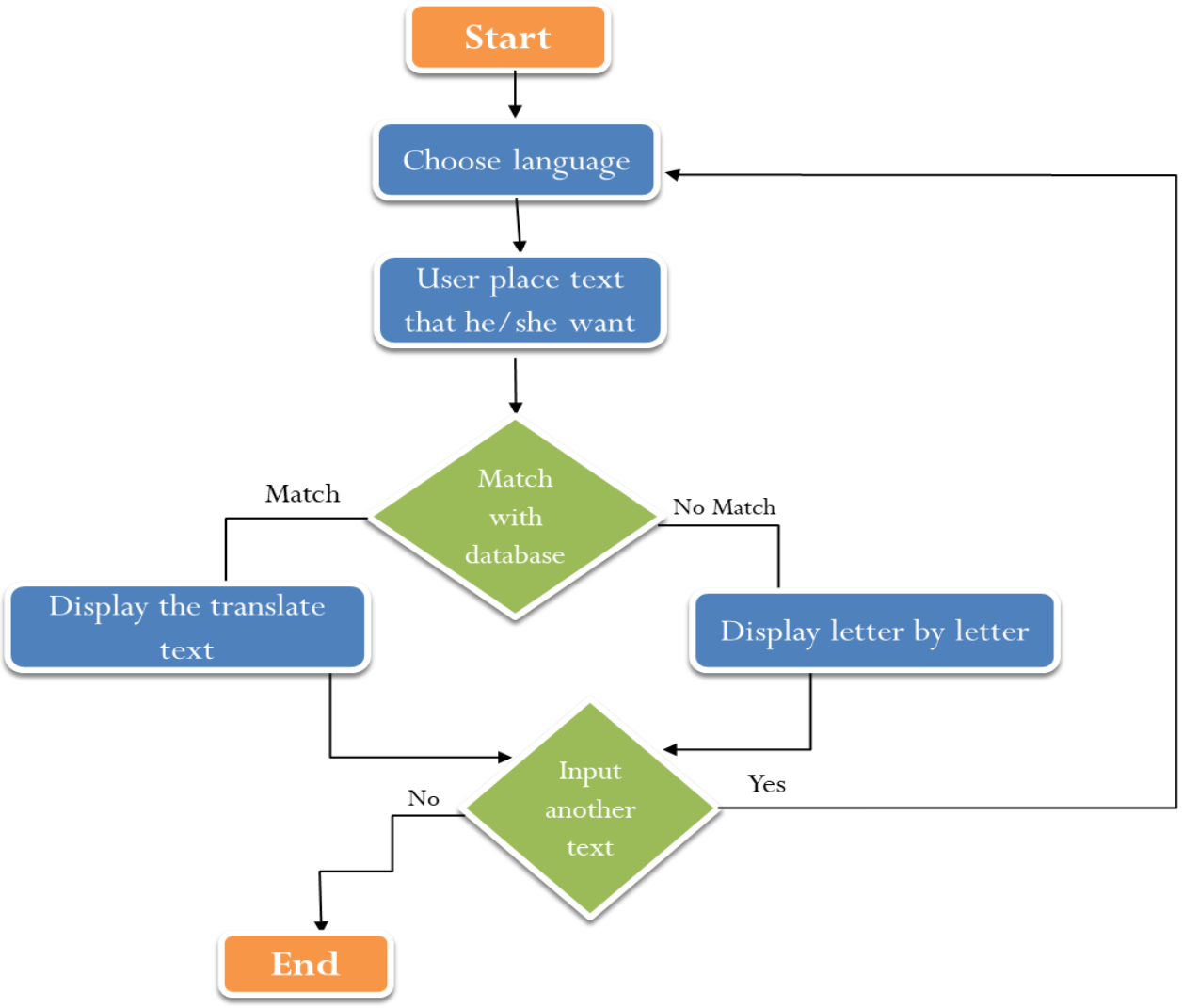
TARGET LANGUAGE

3.2.1 Algorithm/Flowchart

Algorithm:

Step 1: Select the language
Step 2: Input the text/speech that want to translate
Step 3: convert the speech into text
Step 4: language detection
Step 5: translate into given language
Step 6: convert speech into text
Step 7: output of translated language

Flowchart:



3.2.2 Data set

- Tkinter module as GUI interface
- Cttypes library
- PIL library (python imaging library)
- Tkinter.messagebox as tkMessageBox
- Speech recognition library
- pyttsx3 is a text-to-speech conversion library.
- Threading library
- From deep translator module import googletrans library
- Gtts module for text to audio
- pydub is a Python library work with audio files.

3.2.3 Pseudo Code from tkinter import * import
ctypes,os from PIL import ImageTk, Image import
tkinter.messagebox as tkMessageBox import
speech_recognition as sr import pyttsx3 import
threading as td from deep_translator import
GoogleTranslator from gtts import gTTS from pydub
import AudioSegment from pydub.playback import
play

# Initialize the recognizer r =
sr.Recognizer()

main = Tk() main.title("Voiceprint Translator")
main.geometry("940x570") main.config(bg="#C7F8FF")
main.resizable(0,0) lt =
["English","Hindi","Tamil","Gujrati","Marathi"] v1 =
StringVar(main)
v1.set(lt[0]) v2 =
StringVar(main)
v2.set(lt[1])
Label(main,text="Translate Language via Voice Commands",font=("",18,"bold"),bg="#C7F8FF",fg="black").place(x=240,y=20) flag=False

can =
Canvas(main,width=400,height=450,bg="#17C3B2",relief="solid",bd=1,highlig
htthickness=0) can.place(x=30,y=80)

```
Label(main,text="Input Box
:",font=("",12,"bold"),bg="#17C3B2",fg="black").place(x=44,y=70)


can =
Canvas(main,width=400,height=450,bg="#17C3B2",relief="solid",bd=1,highlig
htthickness=0) can.place(x=490,y=80)
Label(main,text="Output Box
:",font=("",12,"bold"),bg="#17C3B2",fg="black").place(x=780,y=60)


txtbx =
Text(main,width=40,height=7,font=("",12,"bold"),relief="solid",bd=0,highlightt hickness=0)
txtbx.place(x=50,y=100) txtbx2 =
Text(main,width=40,height=7,font=("",12,"bold"),relief="solid",bd=0,highlightt hickness=0)
txtbx2.place(x=510,y=100)


def speak():    global txtbx2    tx = txtbx2.get("1.0",END)
code = ["en","hi","ta","gu","mr"]    language =
code[lt.index(v2.get())]    myobj = gTTS(text=tx,
lang=language, slow=False)    try:
     os.remove("temp.mp3")
except:       pass
  myobj.save("temp.mp3")    song =
AudioSegment.from_mp3("temp.mp3")    play(song)


def translate():
  global txtbx,txtbx2    txtbx2.delete("1.0","end-1c")    tx = txtbx.get("1.0",END)
code = ["en","hi","ta","gu","mr"]    lang = code[lt.index(v2.get())]    translated =
GoogleTranslator(source='auto', target=lang).translate(tx)    txtbx2.insert("end-
1c",translated)    def detect():
  global flag,txtbx
while(1):       if
flag==True:
       print("breaked")          break       try:
with sr.Microphone() as source2:
          r.adjust_for_ambient_noise(source2, duration=0.2)             audio2 =
r.listen(source2)
          MyText      =      r.recognize_google(audio2)
MyText = MyText.lower()              txtbx.insert("end-
1c", MyText)
```

```
    except sr.RequestError as e:
      tkMessageBox.showinfo("warning","Could not request results; {0}".format(e))
      break

    except sr.UnknownValueError:
      tkMessageBox.showinfo("warning","unknown error occured")
break def start():    global flag,b1    flag=False    b1["text"]= "Stop Speaking"
b1["command"] = stop    td.Thread(target=detect).start()

def stop():
  global flag,b1    b1["text"] = "Give
Voice Input"    b1["command"] = start
flag=True

b1 = Button(main,text="Give Voice
Input",font=("",12,"bold"),width=35,height=1,bg="#FEF9EF",fg="black",comm
and=start,relief="solid",bd=4,highlightthickness=0) b1.place(x=50,y=250)

Button(main,text="Speak
Text",font=("",12,"bold"),width=35,height=1,bg="#FEF9EF",fg="black",comma
nd=speak,relief="solid",bd=4,highlightthickness=0).place(x=510,y=250)
Button(main,text="Translate",font=("",15,"bold"),width=71,height=3,bg="#FE
F9EF",fg="black",command=translate,relief="solid",bd=3,highlightthickness=0
).place(x=30,y=446)

Label(main,text="Select Language
:",font=("",12,"bold"),bg="#17C3B2",fg="black").place(x=50,y=300)
Label(main,text="Select Language
:",font=("",12,"bold"),bg="#17C3B2",fg="black").place(x=510,y=300)

o1 = OptionMenu(main,v1,*lt)
o1.config(font=("",12,"bold"),width=36,bg="#FEF9EF",fg="black",relief="solid"
,bd=1,highlightthickness=0) o1.place(x=50,y=340) o2 = OptionMenu(main,v2,*lt)
o2.config(font=("",12,"bold"),width=36,bg="#FEF9EF",fg="black",relief="solid"
,bd=1,highlightthickness=0) o2.place(x=510,y=340)
main.mainloop()
```

Chapter 4. RESULT ANALYSIS

We develop this application for desktop application. Here we are integrating the speech to speech, text to text, speech to text and language translator in one system so user doesn't have to download for the different application. You can also give voice input to translate language.

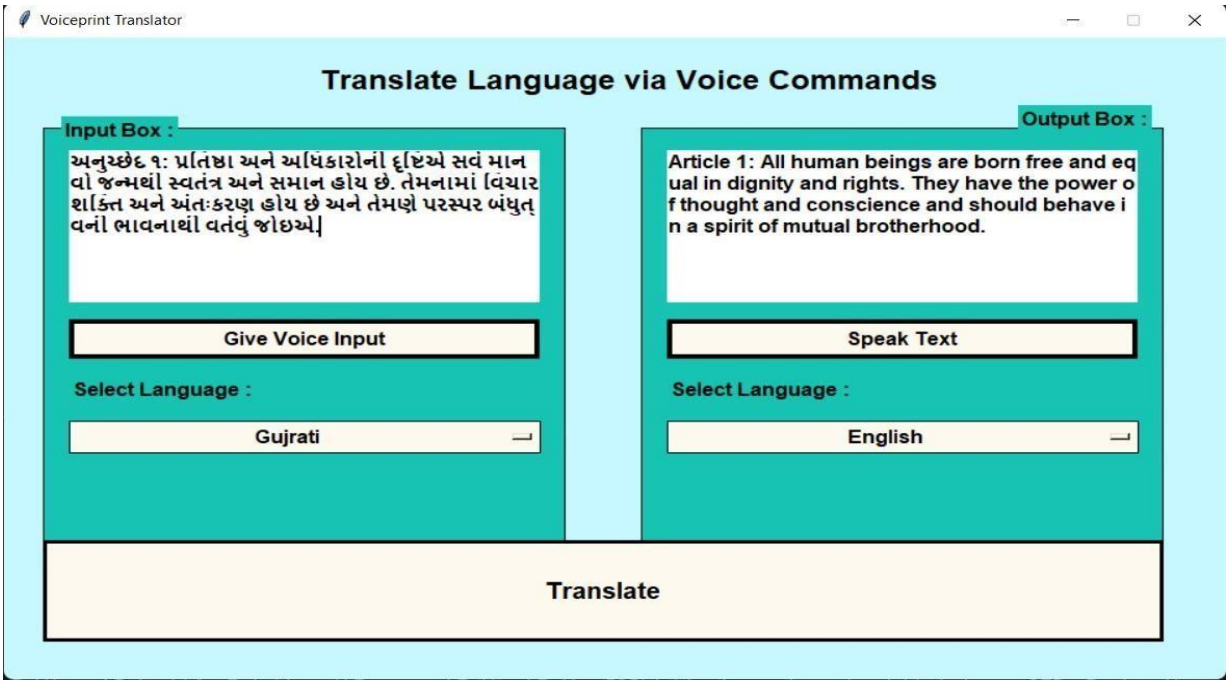
TECHNOLOGY:

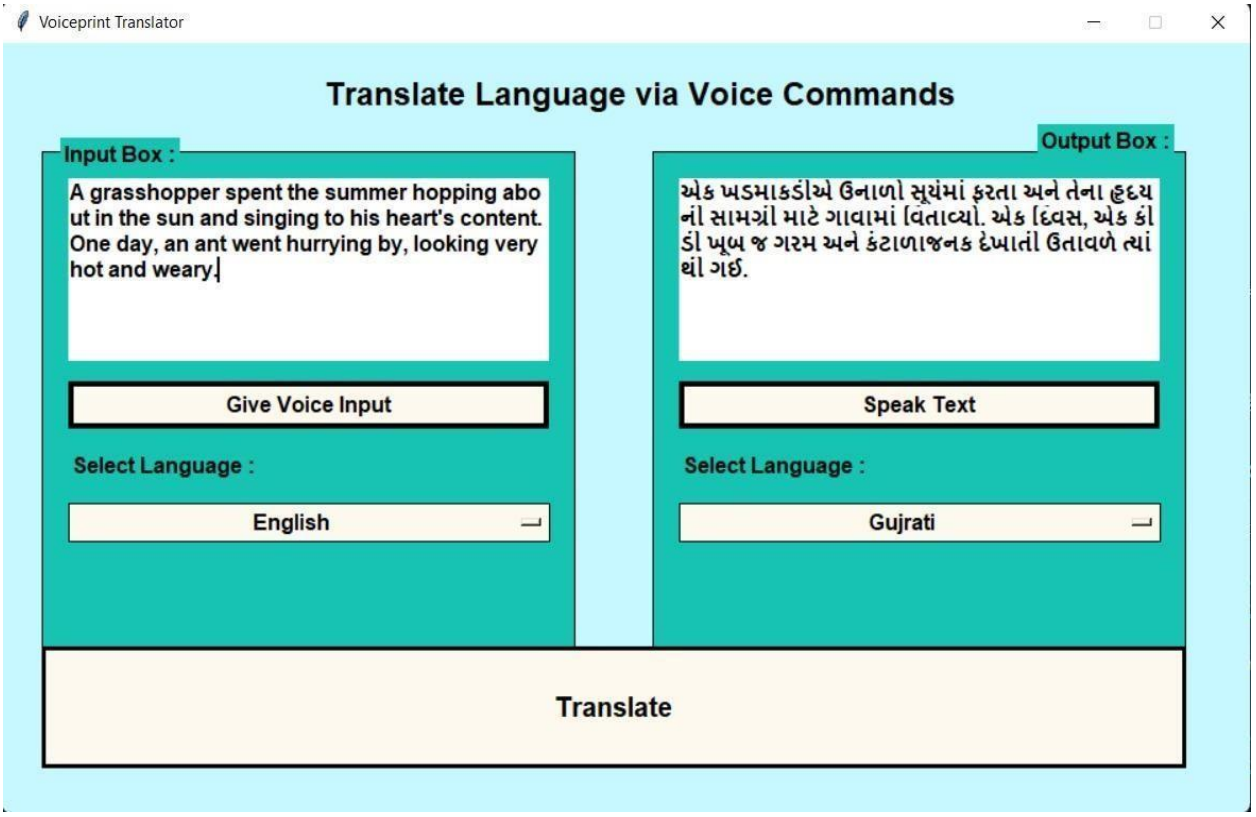
- **We Important Libraries and python modules.**
- **Python frontend**
- **API calls**
- **Speech Recognition module.**
- **Flask for GUI**
- **We Use VS Code Software as code editor**

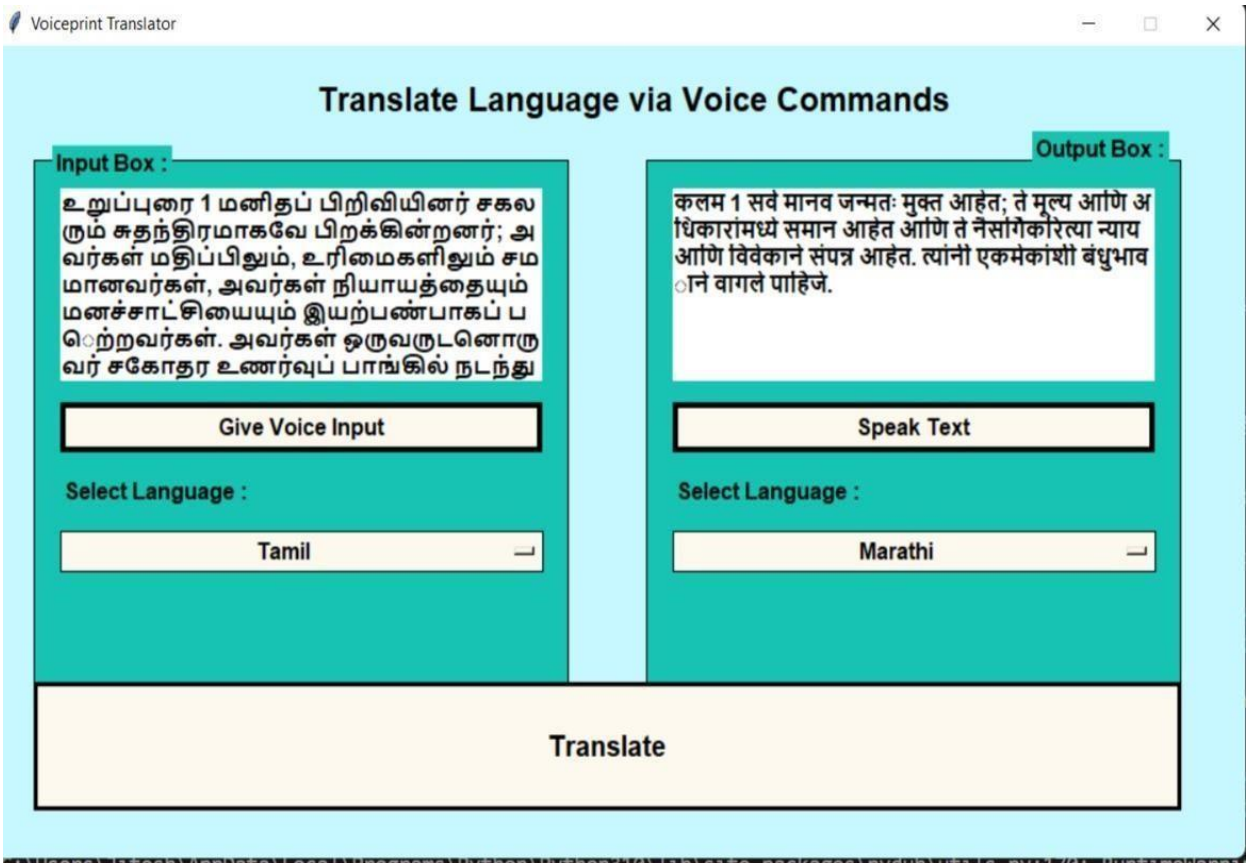
MODULES:

USER MODULE

- **Text/speak: that he/she want to translate.**
- **Language change: According to understanding they can change language of the translation.**




Voiceprint Translator
Translate Language via Voice Commands
Input Box :
A grasshopper spent the summer hopping abo ut in the sun and singing to his heart's content. One day, an ant went hurrying by, looking very hot and weary.
Give Voice Input
Select Language :
English
Output Box :
એક ખડમાકડીએ ઉનાળો સૂયંમાં ફરતા અને તેના હૃદય નાં સામગ્રી માટે ગાવામાં વિતાવ્યો. એક દિવસ, એક કીડી ખૂબ જ ગરમ અને કંટાળાજનક દેખાતી ઉતાવળે ત્યાં થી ગઈ.
Speak Text
Select Language :
Gujrati
Translate


Voiceprint Translator
Translate Language via Voice Commands
Input Box :
உறுப்புரை 1 மனிதப் பிறிவியினர் சகல ரும் சுதந்திரமாகவே பிறக்கின்றனர்; அ வர்கள் மதிப்பிலும், உரிமைகளிலும் சம மானவர்கள், அவர்கள் நியாயத்தையும் மனச்சாட்சியையும் இயற்பண்பாகப் ப ெற்றவர்கள். அவர்கள் ஒருவருடனொரு வர் சகோதர உணர்வுப் பாங்கில் நடந்து
Give Voice Input
Select Language :
Tamil
Output Box :
कलम 1 सर्व मानव जन्मतः मुक्त आहेत; ते मूल्य आणि अ धिकारांमध्ये समान आहेत आणि ते नैसर्गिकरित्या न्याय आणि विवेकाने संपन्न आहेत. त्यांनी एकमेकांशी बंधुभाव ाने वागले पाहिजे.
Speak Text
Select Language :
Marathi
Translate

Chapter 5. CONCLUSION

In this proposed system, we implemented the system for user who phasing problems of language barrier and also it user interface is also user friendly so that user can easily interact with this system . so it automatically reduce the user task for understanding the languages for communication.

Translation is not merely at changing words, but also transferring of cultural equivalence with the culture of the original language and the recipient of that language as well as possible. The better translation must be accepted by all people in logic and based on fact; thus, the message which contained in the source language (SL) can satisfy the target language (TL) reader with the information within.
When you understand the importance of translation for everyone, you will be able to see it as a necessary and worthy investment.

Chapter 6. FUTURE SCOPE

However to make this system more precise and useful for a wide range of target audience, it demands some further improvements Further we are aiming at following improvements:

To take input text from an image of printed English text by implementing character recognition. Presently we are only able to take manual input through virtual keyboard.

The system can be further extended to include more languages and possibly dialects.

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