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Technical Report

SPECIFICATION

Objective: To help visually impaired persons, I create Text to Speech application based on Python Language

Description: This application converts text to speech. Very simple but powerful utilities to impaired vision as long he/she still having functional hearing

DESIGN

Files Involved: TTS.py, modules.py, speech.mp3 (to be overwritten each new input downloaded)

A. TTS.py

Purpose: to hold all functional codes for converting the input to audio output, also housing scripts for UI window design, so no need manually inputting on the script.

Components (shown below):

```
#importing the module
from modules import *
```

This line for importing the modules from TTS.py

```
#the graphical user UI , overall
root = Tk()
root.geometry("400x400")
root.title("Text to Speech")
root.config(bg="white")

Label(root, text="Text to Speech", bg="white smoke").pack()
Label(root, text="Enter text:", bg="white smoke").place(x=20, y=60)
```

This line is for build the dimension of app window, window title and the background color. Also

The Label is for putting text inside the windows

```
#to read the text on the typing box
Msg = StringVar()

#the typing box itself
input_field = Entry(root, textvariable=Msg, width="40")
input_field.place(x=20, y=100)
```

This snippet of codes is to convert the input into string and input_field is for the input (text box, I use this etymology from C#), and read it as msg. Also the input_field already have Entry variable , so the next codes can read and transform what inside the text box is

```
def tts():
    message = input_field.get()
    speech = gTTS(text=message)
    speech.save("speech.mp3")
    playsound("speech.mp3")

def Exit():
    root.destroy()

def Reset():
    Msg.set("")
```

There are 3 definitions, having different purpose and property. The def TTS() is to convert the text box content to become hearable sound. By getting what inside the input field and fetching it to gTTS service, it would download the sound and play it (note that is the app would overwrite each different input, so there's only one file called speech.mp3)

Def Exit() used to close the app while Reset used for delete the text box text so can be used again.

```
Button(root, text="Play", command=tts, width=3).place(x=20, y=140)
Button(root, text="Exit", command=Exit, width=3).place(x=80, y=140)
Button(root, text="Reset", command=Reset, width=3).place(x=140, y=140)


root.mainloop()
```

These are buttons and its own command. Mainloop used so the application doesn't close in 1 sec after executing the codes

B. Modules.py

Purpose : to house the essential modules

Components shown below:

```
#modules we need
from typing import Text
from gtts import gTTS
from playsound import playsound
from tkinter import Tk, Label, StringVar, Entry, Button
```

Used to house all the modules, typing import Text means to read what inside the box ,gtts to import all the module relevant from Google Text to Speech , Playsound used for playing the TTS output without rely on media player installed on PC , Tkinter used for desiging UI for the python.

HOW TO USE

Its pretty simple using my python TTS

1. Execute the code
2. Put anything text on text box
3. Press “play button to play the voice

Note: Apparently my application had some stutter/lag/delay while playing for the first time, you should wait a bit so my app can play the text