Synopsis on Converting Text to Speech & Speech to Text using Python

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“TTS AND STT USING PYTHON”

**Introduction-**

Text to speech is a process to convert any text into voice. Text to speech project takes words on digital devices and convert them into audio with a button click or finger touch. Text to speech python project is very helpful for people who are struggling with reading. This project will be developed using **Tkinter library, pyttsx3** and **os module**.

Speech to Text on the other hand is useful in various appliances around us like Google Assistant, Alexa, Cortana etc. This project will recognize the speech of the user and print it on the Tkinter window. This part is developed using **Tkinter library, speech recognition** and **os module.**

**Overview-**

* In the TTS part we add a message which we want to convert into voice and click on the play button to play the voice of the text message.
* In the STT part we speak some line in the microphone and we get the line as a text
* This project will be developed **by Tkinter library, pyttsx3, speech** **recognition** and **os module**.
* Importing the modules.
* Create the display window.
* Define Functions.

**Project Prerequisites-**

To implement this project, we will use the basic concepts of Python, pyttsx3 and speech\_recognition libraries.

1. ***Tkinter-*** It is a standard GUI python library that id one of the fastest and easiest ways to built GUI applications using Tkinter.
2. ***Pyttsx3-*** It is a text-to speech conversion library in python, unlike alternative libraries, it works offline and I compatible with both python 2 & 3.
3. ***Speech Recognition-*** It is a module in python that helps us to record the speech of a person.
4. Os is a pre-installed library**.**

**How does it Work-**

**TTS works with the help of pyttsx3 module. We can change the speed, voice(male/female), mute/unmute the audio and download the specific audio in our desired location.**

**At first the main screen appears where we get to choose between TTS and STT options, after clicking we get redirected to our desired options. In TTS we write the desired text and select the multiple options to edit the text to audio, we simply play the text thereafter or download if we wish to.**

**The STT option is in its development stages and may give errors but still it can convert a given speech or sentence to text format. We simply must record the sentence and it will provide the desired text after some seconds.**

**Some Real-Life Examples-**

1. **Like a nice example of text to speech usage is on our Android/iOS devices. They have an accessibility feature called “Select to Speak”, you can select/ highlight the text and the phone/computer will read it aloud to the person using this feature.**
2. **The last example of text to speech conversion, I would like to share with you is audiobooks. Using some training data from previous audio files, it is possible to make a machine read a book using a trained person’s voice.**
3. **Speech to text is used in voice assistants like Google, Cortana, Siri. They have many more features in them, but the main feature is they capture the persons speech and then convert it in text and then process further.**
4. **In addition, the most significant use of speech to text is for the entry of text without using an on-screen or physical keyboard.**