

# **TEXT TO SPEECH CONVERTER**

**A Project Work Report**

*Submitted in the partial fulfilment for the award of the degree of*

**BACHELOR OF ENGINEERING**

**IN**

**COMPUTER SCIENCE ENGINEERING IN  
SPECIALIZATION WITH ARTIFICIAL  
INTELLIGENCE AND MACHINE LEARNING.**

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Harshit Gupta

Name and signature of Supervisor

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# PROJECT COMPLETION CERTIFICATE

## Project Title

This is to certify that the **Harshit Gupta** has successfully completed the project work titled “Text To Speech Converter” *Submitted in the partial fulfilment for the award of the degree of* **BACHELOR OF ENGINEERING IN ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING.**

This project is the record of authentic work carried out during the academic year 2020-21.

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Mr. Somsirsa Chatterjee

**Date:**

# DECLARATION

I the undersigned solemnly declare that the project report is based on my work carried out during the course of our study under the supervision of Mr Somsirsa Chatterjee. I assert the statements made and conclusions are drawn are an outcome of my work. I further certify that the work contained in the report is original and has been done by me under the general supervision of my supervisor.

II. The work has not been submitted to any other Institution for any other degree/diploma/certificate in this university or the any other University of India or abroad.

III. We have followed the guidelines provided by the university in writing the report.

IV. Whenever we have used materials (data, theoretical analysis, and text) from other sources, we have given due credit to them in the text of the report and giving their details in the references.

Harshit Gupta  
19BCS6013

## **ACKNOWLEDGEMENT**

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

I am highly indebted to Mr Somsirsa Chatterjee for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

I would like to express my gratitude towards my parents and my department for their kind co-operation and encouragement which help me in completion of this project.

**THANKS AGAIN TO ALL WHO HELPED**

## **List of Chapters**

Chapter 1: Introduction to Project ”Text to Speech Converter”.

Chapter 2: Project Requirements (Software/Hardware requirements)

Chapter 3: Implementation Details (Algorithm and code )

Chapter 4: Output Analysis (screenshots)

### **1. Introduction to Project ”Text to Speech Converter”**

Text-to-speech synthesis -TTS - is the automatic conversion of a text into speech that resembles, as closely as possible, a native speaker of the language reading that text. Text-to speech synthesizer (TTS) is the technology which lets computer speak to you. The TTS system gets the text as the input and then a computer algorithm called the TTS engine analyses the text pre-processes the text, and synthesizes the speech with some mathematical models. The TTS engine usually generates sound data in an audio format as the output.

Speech synthesis can be described as the artificial production of human speech. A computer system used for this purpose is called a speech synthesizer and can be implemented in software or hardware.

This program will convert the entered text in the text box into the speech. The program will be using different libraries in a python programming language. It also uses the GUI (Graphical User Interface) library known as Tkinter. The library which converts the text into the speech will be gTTs (Google Text-To-Speech). The library that will handle the Sound/Audio part of the program. The last library which will be used is the os library which will be used for the different processes for interaction with the operating system.

The converter’s GUI also has the exit button, through which we can simply exit from the program by one click. The voice in which the phrase will be converted, it is default of the library. The font style used in the GUI is calibri, the font size is 26 in the title box, 16 in the normal lines. All the text except the entered one is in bold style.

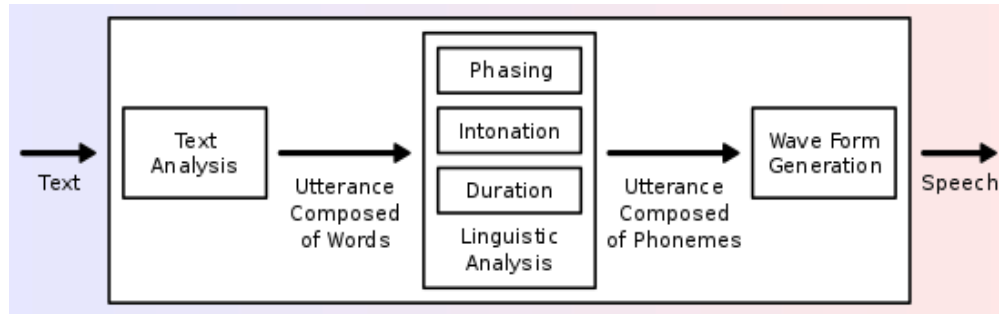
## **2. Project Requirements (Software/Hardware requirement)**

- ⇔ Computer machine
- ⇔ Operating system(Windows, Linux, Mac)
- ⇔ RAM 2400 mhz.
- ⇔ Dual core processor.
- ⇔ Graphic card.
- ⇔ Speaker.
- ⇔ Python version 3.8 or above.
- ⇔ Python IDE.
- ⇔ Python libraries.

### **Preferred requirements:**

- ⇔ Computer Machine.
- ⇔ Operating System (Windows).
- ⇔ RAM 16 Gb or more 3200 mhz.
- ⇔ AMD Ryzen 5 or 7 '4<sup>th</sup> Generation' or above.
- ⇔ AMD Radeon 6900XT.
- ⇔ Speaker.
- ⇔ Python version 3.8 or 3.9 .
- ⇔ Pycharm Professional or Google Colab with suitable libraries.

### 3. Implementation Details



Text-to-speech synthesis takes place in several steps. The TTS systems get a text as input, which it first must analyze and then transform into a phonetic description. Then in a further step it generates the prosody. From the information now available, it can produce a speech signal.

The structure of the text-to-speech synthesizer can be broken down into major modules:

- Natural Language Processing (NLP) module:
  - Digital Signal Processing (DSP) module.
- The major operations of the NLP module are as follows:
- Text Analysis:
  - Prosody Generation:

The algorithm that TTS used is basically based on [FLITE ALGORITHM](#).

#### Code:

In [168]:

```
from tkinter import * #GUI LIBRARY
from gtts import gTTS #GOOGLE'S TEXT-TO-SPEECH LIBRARY
from playsound import playsound #AUDIO PLAYING LIBRARY
import os #LIBRARY TO INTERACT WITH OPERATING SYSTEM
```

In [169]:

```
apps = Tk() #Tk() USED TO INITIALIZE TKINTER
apps.geometry('500x500') #DIMENSIONS OF DIALOGUE WINDOW
apps.configure(bg='black') #CONFIGURE THE WINDOW BY IT'S BACKGROUND COLOUR
apps.title(" 'COVERT ANY TEXT INTO SPEECH'- Made by Harshit Gupta") #PLACE THE TITLE
```

In [170]:

```
Label(apps, text = "CONVERT-TEXT-INTO-SPEECH", font = "bradley 26 bold", bg='white').pack() #
apps IS THE NAME BY WHICH WE REFER TO OUR WINDOW
Msg = StringVar() #Msg IS A STRING TYPE VARIABLE.
Label(apps,text ="ENTER TEXT", font = 'calibri 18 bold', bg ='white').place(x=50,y=50) #HEADING
TO SHOW THE MESSAGE ABOVE THE INPUT BOX
entry_field = Entry(apps, textvariable = Msg ,width ='120') #CREATE A INPUT BOX
entry_field.place(x=20,y=100) #SPECIFY THE POSITION OF THE WIDGET
```

In [171]:

```
def Text_to_speech():
    Message = entry_field.get() # STORE THE ENTERED VALUE
    speech = gTTS(text = Message) # TEXT WHICH WILL BE CONVERTED
    speech.save('speech.mp3') #SAVE THE CONVERTED FILE AS 'filename.mp3'
    playsound('speech.mp3') #PLAY THE AUDIO FILE 'filename.mp3'
```

In [172]:

```
def Exit():
    apps.destroy() #BLOCK THE MAINLOOP PROCESS
```

In [173]:

```
def Reset():
    Msg.set("") #RENAME THE MAINLOOP PROCESS
```



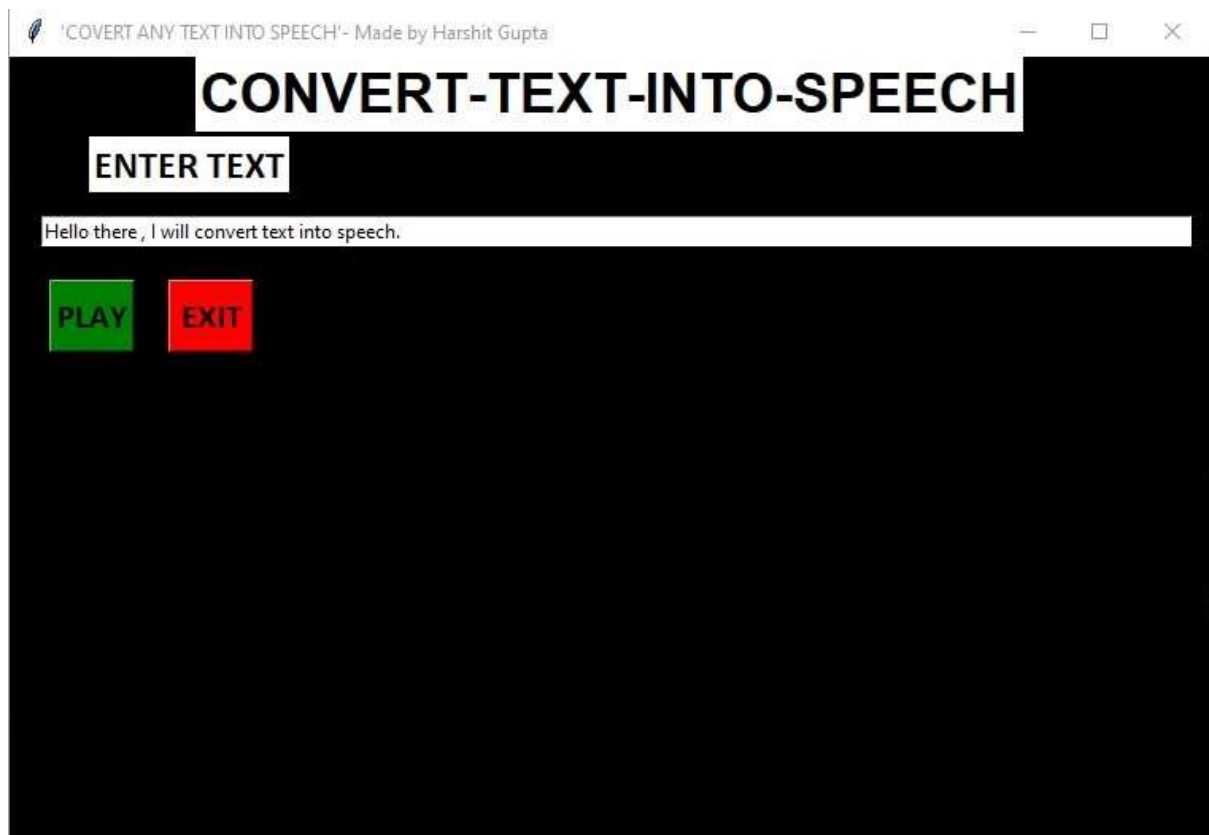
In [174]:

```
Button(apps, font = 'calibri 16 bold',text = "PLAY", command = Text_to_speech ,width = '4',bg = 'green').place(x=25,y=140) #BUTTON FOR PLAYING THE AUDIO FILE  
Button(apps, font = 'calibri 16 bold',text = 'EXIT', width = '4' , command = Exit, bg = 'red').place(x=100 , y = 140) # BUTTON FOR EXIT COMMAND
```

In [175]:

```
apps.mainloop() #IT WILL EXECUTE WHEN WE RUN THE PROGRAM  
os.remove(r"C:\Users\Harshit Gupta\Desktop\project\speech.mp3") #REMOVE THE AUDIO FILE FROM THE SYSTEM MEMORY
```

#### 4. Output Analysis:



**AUDIO OUTPUT**