



**SINHGAD TECHNICAL EDUCATION SOCIETY'S**  
**SINHGAD INSTITUTE OF TECHNOLOGY**

(Affiliated to Savitribai Phule Pune University, Pune & Approved by AICTE)

Sinhgad Institutes Gat No. 309/310, off Mumbai Pune Expressway Kusgaon (Bk), Lonavala Pune -410401  
website: sit.sinhgad.edu

## **7.1.7 Disabled-friendly, Barrier-free environment**

**Text-to-Speech Software**

**Providing Assistance**

**to**

**Visually Impaired**





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## 1. ChromeVox Screen Reader Install and Setup

Though there are other more popular screen readers, such as JAWS and NVDA, for day-to-day screen reader testing, we prefer ChromeVox (specifically the ChromeVox Plugin for the Chrome web browser) because it is easy to install and configure, easy to use, free and open source, and works on a variety of computer platforms.

Another reason ChromeVox is helpful for accessibility testing is its WAI-ARIA support. WAI-ARIA is still a relatively new technology, and as of mid-2018, support for it was variable between browsers and screen readers. Use WAI-ARIA as intended, as stated in the WAI-ARIA specification, and test it with ChromeVox while creating for the Web. For production testing, you should still utilise JAWS or NVDA, as these are more likely to be used by blind people. We will, however, solely use ChromeVox for the activities here.

While ChromeVox is currently used by a tiny number of screen reader users, it is a very useful tool for developers when testing web content. Also, because ChromeVox is designed to operate with Google Drive capabilities, it may be preferred for users of other screen readers when dealing with Google Docs, Sheets, and Slides, among other things.

**Toolkit:** Visit the Chrome store while using the Chrome web browser to install the **ChromeVox screen reader**.





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## 2. How to Set Up the ChromeVox Screen Reader

1. Open the Chrome web browser (install Chrome, if needed).
2. Type “Chromevox” into Chrome’s address bar, or into Google search.
3. Follow the ChromeVox link to the Chrome Web Store (the first link in the search results).
4. Click the “Add to Chrome” button.
5. In the dialog box that opens, click “Add extension.”
6. Now installed, find the ChromeVox icon near the top right of Chrome to review its options.
7. In the Options, set the ChromeVox modifier key to Alt or Ctrl or both (referred to here as CVox).
8. In the Options, choose your preferred voice from the Voices menu.
9. Done, turn ChromeVox on or off by pressing and holding the modifier key then pressing the letter “A” twice (i.e., CVox + A + A).

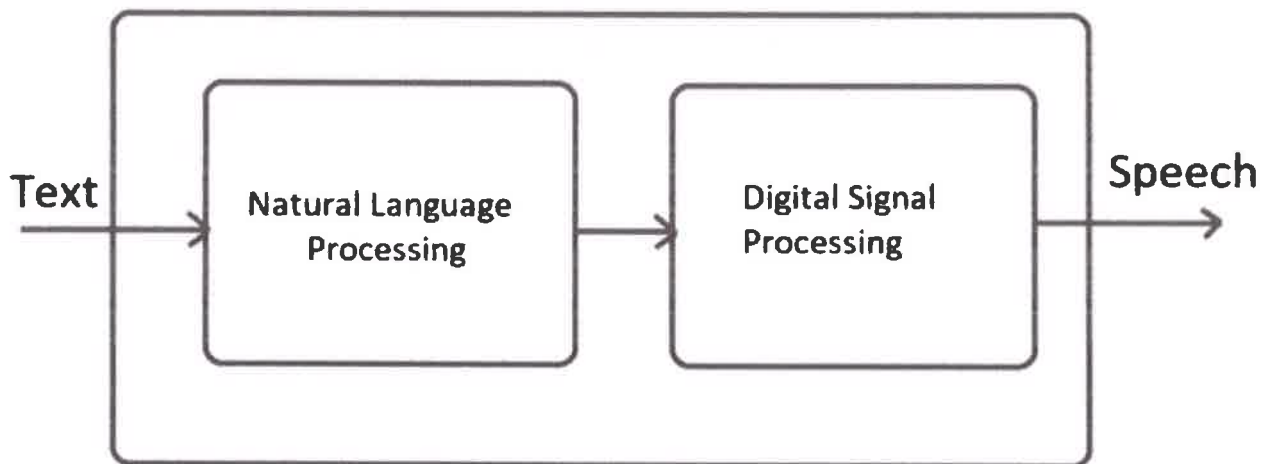




### 3. Introduction to Text-to-Speech:

The process of turning words into a vocal audio form is known as text-to-speech (TTS). The programme, tool, or software takes a user's input text and, using natural language processing methods, deduces the linguistics of the language and does logical inference on it. This processed text is then sent to the next block, which performs digital signal processing on it. This processed text is then translated into a voice format using a variety of techniques and transformations. Speech is synthesised throughout the entire procedure. To help you comprehend what's going on, here's a simple block diagram.

**Speech Synthesizer**



This appears to be a lengthy procedure, but due to Python and the gTTS module, it can be reduced to only a few lines of code. We can see from the block diagram that the text being given is first pre-processed using natural language processing, and then translated to speech using digital signal processing.





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After installing the gTTS module, we can proceed to write a very simple programme to understand how we can use this module to convert our typed text into a speech converted output using the following command in the command prompt terminal. Open the python file and give it a name of your choice and make sure it ends with the .py format.

Google Text-to-Speech (gTTS) is a Python library and command-line utility for interacting with the Google Translate text-to-speech API. The gTTS library, which can be used for voice translation, will be imported from the gtts module.

The user's input is stored in the text variable, which is a string. Within the quotes, you can change the wording to whatever you like. Another option is to use the input statement to allow the user to type in their own desired input each time the application is executed. This can be accomplished in the following manner:

On the user's input, the tts variable is utilised to do a Google text-to-speech translation. The output of the transformed text is kept in the tts variable as speech.

The tts.save function allows us to save the converted speech in a format that allows us to play sounds. It can be saved in a file called hi and in a format called .mp3. Other formats like .wav format can also be used.

Now there are 3 ways to run this file.

1. Running the saved file directly from the folder: The file is saved in the same location as your python programme, and you may access it there.
2. Using the OS module: We may use the OS module in Python to launch a file directly from a programme.
3. Using the playsound module: After installing the playsound module with the pip install playsound command,





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#### 4. Languages:

Other languages, such as French, German, and Hindi, can also benefit from the gTTS module. When there is a communication barrier and the user is unable to communicate his messages to others, this is highly useful. Text-to-speech is a wonderful benefit to those who are visually impaired or have other disabilities since it may assist them with text-to-speech translation. The gTTS module can also be used for other languages, which opens up a lot of possibilities. With the same, there is the possibility for a lot of fantastic projects.



  
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