

# VOICE CONTROLLED MOUSE AND KEYBOARD

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**KEYWORDS:** Human computer interaction, Voice Controlled, GUI, API, Mouse, Keyboard, Application, Automation

**ABSTRACT:** Human computer interaction is a field which focuses on providing a means of interaction between humans and computers. Controlling the mouse pointer is one of the best ways to provide a meaningful interaction. The Speech Recognition feature helps us in building an application using Python that will accept voice commands from the user and perform certain GUI based actions using the mouse and keyboard. Listening to the input voice from microphone and converting it to text and performs actions as commanded.

## 1.INTRODUCTION:

Voice Controlled Mouse and Keyboard is a system which accepts speech from the users through a microphone. This speech is transcribed to text by the Google's Speech-To-Text API <sup>[1]</sup>. Then the system will perform actions accordingly. This system can perform actions like moving Mouse-Cursor (up, down, right, left), opening Applications, change some system settings like Volume, Brightness, takes Screenshots, terminates itself or it can also able to shut down or restart the PC.

There are several reasons why Voice Controlled Mouse and Keyboard is important. The following is a list of various reasons:

1. Convenient human computer interaction.
2. Making more efficient system for people with disabilities.
3. This Voice Controlled Mouse and Keyboard can be embedded in any applications for performing computer operations through our voice.
4. It will be very useful if we combine this Voice Controlled Mouse and keyboard with existing voice assistants.

## 2.LITERATURE SURVEY:

A Human computer interaction is provided by using the voice controlled mouse and keyboard by using which system and the user can exchange information and share the information and also can perform several interaction. So basically these kind of interaction between user and the system can be done through by using the voice make the interaction more easier for the user as normal human interaction process is by using the voice. In this it involves understanding user commands and extraction of all the information from the user and process the commands and execute them. And we also

provide a interactive voice of the system to communicate with user .

**3.PROPOSED METHODOLOGY:**

In this the system accepts user commands through the system’s microphone and saves the user audio in an

audio file. This audio file is sent to the Google cloud. This text is considered as commands and each command is fetched in the program. If the command exists then the appropriate action is performed by the system. And system gives reply using Text to Speech API<sup>[2]</sup> We Have use PyAuto GUI <sup>[3]</sup> for Automating GUI actions

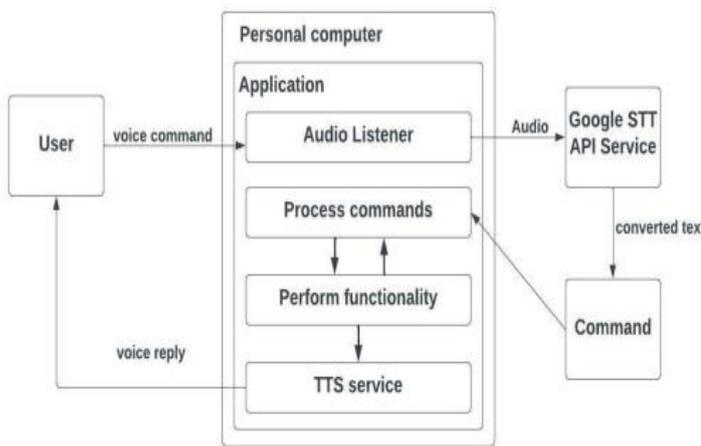


Figure 3.1 Proposed Architecture

**USER:** User orders the system for his/her requirements through his/her voice.

**AUDIO LISTENER:** System’s microphone is used to record the user’s voice(speech).

**AUDIO FILE:** The recorded audio is saved in an audio file.

**GOOGLE CLOUD-SPEECH TO TEXT API(STT):** The saved audio file is sent to the Google’s Speech-To-Text API through Google Cloud. This API transcribes the audio to the text. This transcribed text is sent back to the system.

**PROCESS COMMANDS:** Here the system tries to understand the commands i.e., system fetches the command(text) in the program.

**PERFORM FUNCTIONALITY:** If the system finds command i.e., the command exists in the program then the pre-programmed actions are performed.

**TTS SERVICE:** In this project PyTTS is used for Voice Feedback, for Human computer interaction.

**4.RESULTS:**

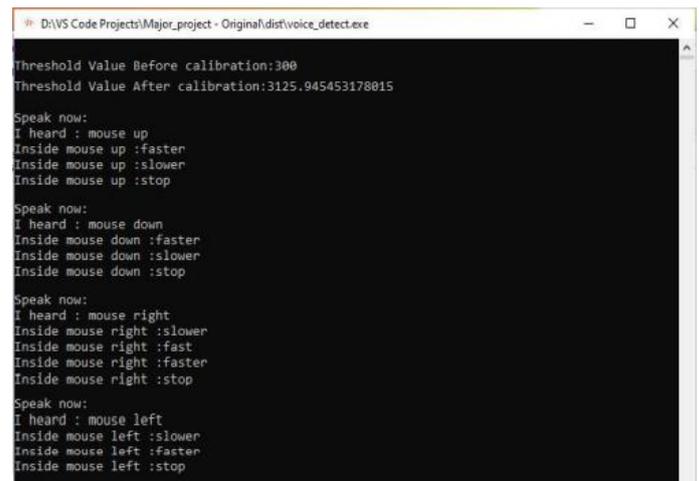


Figure 4.1 Mouse Movements

```
Select D:\VS Code Projects\Major_project - Original\dist\voice_detect.exe
Threshold Value Before calibration:300
Threshold Value After calibration:3225.511923436925
Speak now:
I heard : left click
left Clicking
Threshold Value After calibration:3495.315149614242
Speak now:
I heard : right click
Right Clicking
Threshold Value After calibration:2126.014935023876
Speak now:
I heard : double click
Double Clicking
```

Figure 4.2 Mouse clicks

```
D:\VS Code Projects\Major_project - Original\dist\voice_detect.exe
Threshold Value Before calibration:300
Speak now:
I heard : volume up
Speak now:
I heard : volume down
Speak now:
I heard : press backspace
Pressed backspace key
Speak now:
I heard : press enter
Pressed ENTER key
Speak now:
I heard : press delete
Pressed DELETE key
Speak now:
I heard : press windows
Speak now:
I heard : left arrow
Speak now:
I heard : press right arrow
Speak now:
I heard : take a screenshot
```

Figure 4.3 Keypress and other action

## 5.CONCLUSION:

This provides facility of performing the actions a commanded by the user. This software is developed with scalability in mind. The software is developed with modular approach.

All modules in the system have been tested with valid data and invalid data and everything work successfully. Thus, the system has fulfilled all the objectives identified and is able to replace the existing system. Human computer interaction is a field which focuses on providing a means of interaction between humans and computers. Controlling the mouse pointer is one of the best ways to provide a meaningful interaction.

The system is very flexible and versatile. Validation checks induced have greatly reduced errors. Provisions have been made to upgrade the software. The application has been tested with live data and has provided a successful result. Hence the software has proved to work efficiently.

## 6.FUTURE SCOPE:

In future we can use offline Speech Recognition by downloading the modules directly into the project files. So that we don't need internet connection. We simply give the command, then the command will be processed locally and the action will be performed. The software can be developed further to include lot of modules because the proposed system is developed on the view of future.

## 7.ACKNOWLEDGEMENT:

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## 8. REFERENCES:

[1]. Speech to Text API - Perform Speech recognition to transcribe voice into written Text.

[2]. Text to Speech API- it enables developers to generate human like speech converts text into audio formats.

[3]. PyAutoGUI- Is python module which can automate your GUI and programmatically control Your mouse and Keyboard.