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Rodrick: A Voice Assistant Using Python

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ABSTRACT: Automation in technology has bolstered the living experience of everyone. Rodrick is a voice assistant, an application which uses Speech Recognition to perform the user's tasks. Rodrick was specifically designed for people suffering with learning or physical disabilities, so that they can easily perform their day-to-day activities hassle-free using just their natural voice as command rather than using the keyboard to type those commands. It does so by taking in the user input in form of the voice or spoken commands, which is then processed by it and returns the response in by either performing an action like playing music or the search result is spoken out to the end user like reading emails from the inbox acting as the users own personal assistant.

KEYWORDS: Machine Learning; Speech Recognition; Beautiful Soup; Python; Voice Assistant.

I. INTRODUCTION

The rise of digital innovation in the past couple of years has greatly improved the standard of living for everyone. Tasks that were previously complex or cumbersome to perform can now be done with great ease, due to the automation of technology. This automation in technology is possible by the virtue of artificial intelligence or machine learning. Voice assistants are one of the many perks brought forward by automation in technology. They employ the speech recognition feature of machine learning to perform a multitude of tasks such as sending an email to your colleague asking for the budget report. In other words, voice assistants or virtual assistants are a software application that can be used to simplify daily activities like checking the weather report, asking the date and time, searching google or telling jokes etc. and thereby improving productivity. They resourcefully recognize and perform these tasks by taking the voice commands given by the user [1]. This ability of the voice assistants proves to be immensely helpful to people living with mobility issues and disabilities like the geriatric people, blind or paralyzed individuals. They are also particularly useful to dyslexic children and adults i.e. individuals having trouble reading or writing as there will be no need to type the question out to the assistant, they have to simply use their voice to ask the question and similarly they also do not need to have trouble reading the answers as the voice assistant will read back the responses to them causing them to be less stressed and use any device with the utmost ease.

II. RELATED WORK

The usage and application of a voice assistant for desktops has grown tremendously due to the incorporation of python's natural language processing which in turn assists in a seamless user interaction. Several academic papers have explored this fascinating concept, and comprehensively examining this existing literature has led to some insights about the potential ways to improve our system. The reviewed literature has the following works:

Voice Assistant Using Python, the authors in this paper have done an extensive review of literature that has highlighted the fundamental tasks performed by voice assistants and the necessity of them. They have also given a proposed methodology on how to implement a working voice assistant however they have not provided us with any results or analysis to derive any further conclusions [2].

Desktop Assistant AI Using Python, this paper explores a desktop assistant built using Python and works using voice commands. This operates online and handles fundamental tasks such as providing weather updates, and opening desktop applications. However, they have not shown any results to support their claim [3].

Voice Assistant Using Python, this is another paper that draws inspiration from the first paper, however this paper has not only done a literature review but also has showcased results of their voice assistants that performs functions like sending an email, searching Wikipedia, playing audio by using voice commands, however this project does not have a graphical user interface or GUI, thereby limiting its efficacy [4].

SARA: A Voice Assistant Using Python, this paper has put forth a voice assistant that performs various commands using voice like searching Wikipedia, playing music and much more. However, this project has also not incorporated a GUI, reducing the adequacy of their research [5].

These papers have helped significantly in enhancing the usability of our voice assistant by stressing the need of a graphical user interface that will help further establish the accessibility and user-friendliness of the application. Moreover, a new feature that allows the voice assistant to read emails from the inbox was also introduced, complementing the sending emails feature which will in turn help people suffering from any kind of learning disability

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or visually impaired people from easily sending and listening to the emails read out loud by the voice assistant, this feature is not available in any of the projects or prototypes mentioned in the above papers.

III. TECHNOLOGY STACK

1) Python: Python is an interpreted, object-oriented, high-level programming language with dynamic semantics [6]. Python 3.6 version is used for the execution of this project.
2) PyCharm: PyCharm is an integrated development environment (IDE) specifically designed for the Python programming language. It is developed by JetBrains and provides a wide range of features to support Python development [7]. PyCharm version 2020.3.3 is used for this project.

Libraries Used:

1) Tkinter: It is a standard interface provided by python to develop a graphical user interface (GUI) [8].
2) PIL: PIL stands for Python Imaging Library and is particularly useful for all the image processing tasks. A fork of PIL, called the Pillow is the more common alternative used [9].
3) OS: OS is Python's built-in module with methods for interacting with the operating system, like creating files and directories, management of files and directories, input, output, environment variables, process management, etc [10].
4) Web browser: Python's standard library has a webbrowser module, which provides a high-level interface for displaying Web-based documents to users. The open () function can be called to perform the various functions [11].
5) pyttsx3: It is a Python library that allows conversion of text to speech [12].
6) Speech Recognition: It is a python library that allows you to interpret spoken or natural language. It converts spoken words into text, ask a question or prompt a response [13].
7) Beautiful Soup: It is a python library that allows scraping or extraction of text from the documents available on the web [14].
8) smtplib: It is a python library that uses the Simple Mail Transfer Protocol (SMTP) allowing you to easily send emails [15].
9) datetime: It is a Python library that provides classes to work with date and time of the system [16].
10) Wikipedia: It is a python library that allows scraping or extracting data available on Wikipedia [17].
11) win32com.client: It is an API in python that allows conversion of text to speech in python [18]. Win32 was used in this project to allow the voice assistant to read emails in the inbox to the user.

IV. METHODOLOGY

The primary goal of this paper is to create a voice assistant “Rodrick” that will allow both regular users and users with any kind of physical or learning disability to perform various tasks using their voice to give commands. Using Rodrick users can perform the following tasks:

1) Open Google.
2) Open Yahoo.
3) Open YouTube.
4) Search Wikipedia.
5) Can play a song.
6) Can click a picture of us.
7) Send Emails.
8) Read Emails.
9) Tell the date and time.
10) Interact with us.

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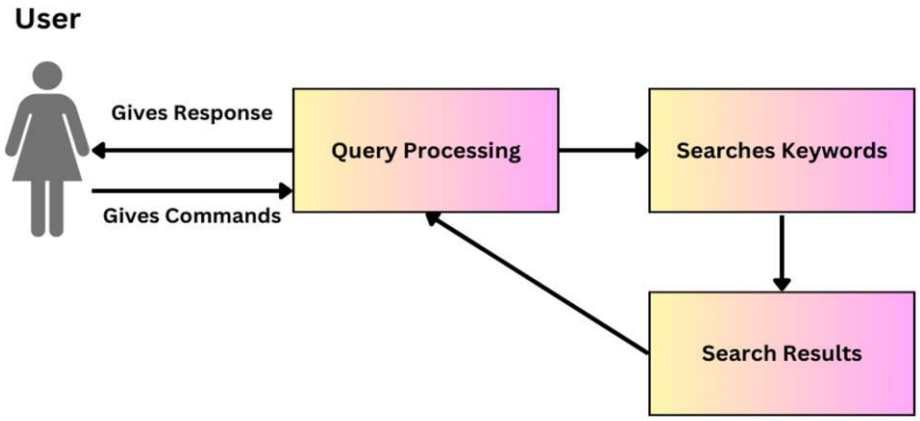

Fig.1. Framework of Rodrick

V. RESULTS

Having successfully managed all the core operations like speech to text, text analysis and interpreting the commands. Attached below are the snippets of some main tasks performed by Rodrick.

Fig.2. Home Screen

Fig.3. What is the date

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Fig.4. What is the time

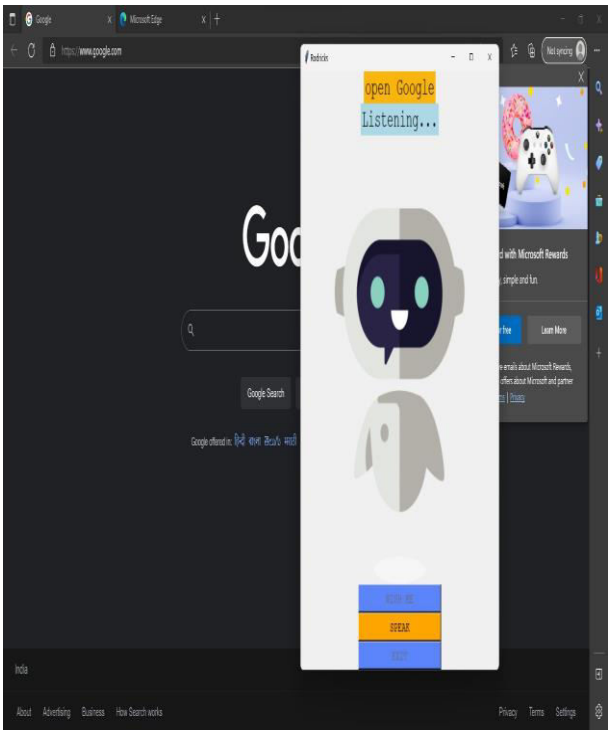

Fig.5. Open Google

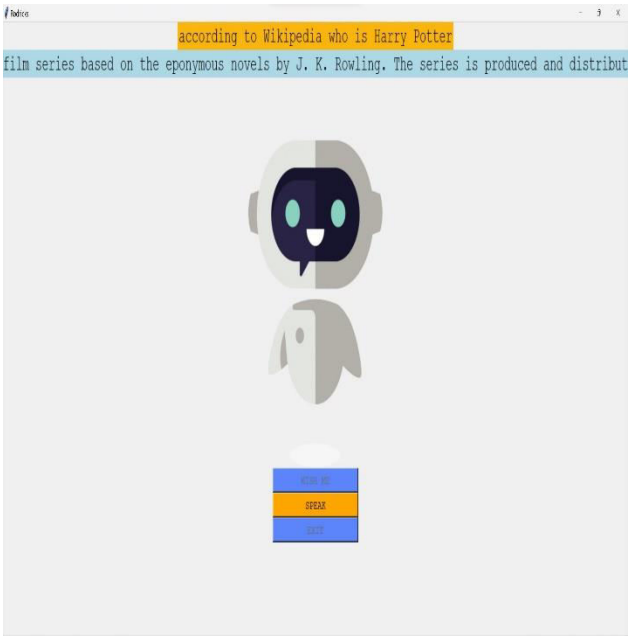

Fig.6. According to Wikipedia

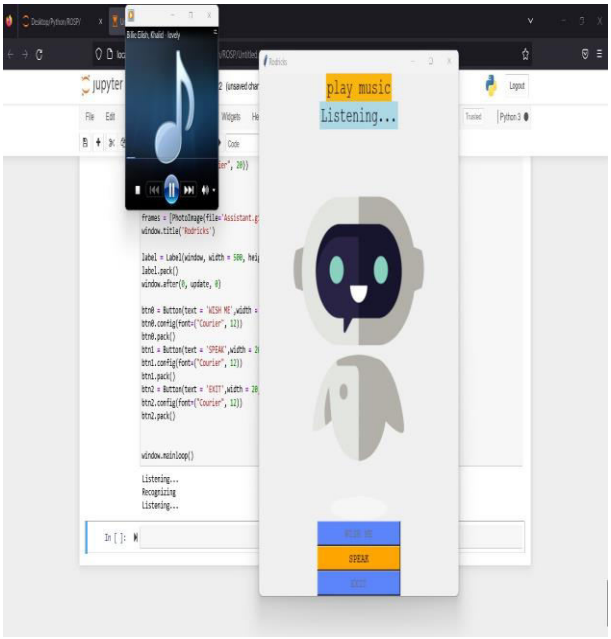

Fig.7. Play Music

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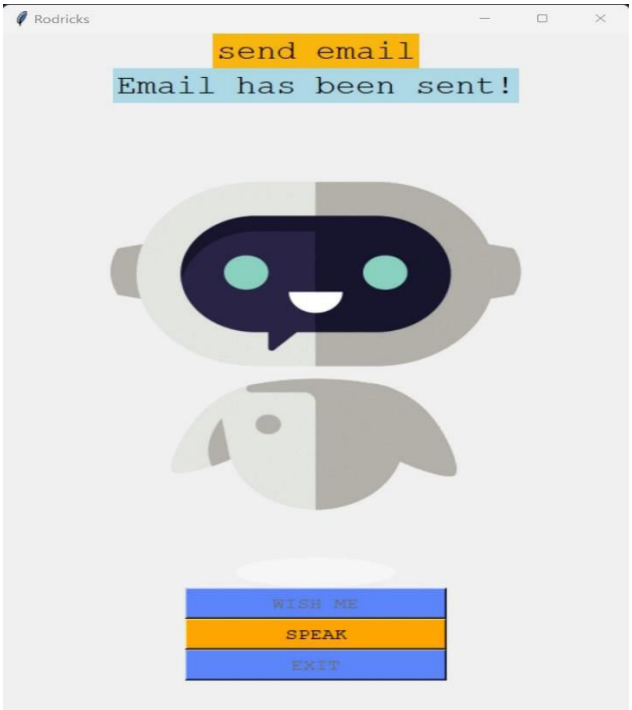

Fig.8. Send Email

VI. CONCLUSION

Voice assistants are a part of everyone's day to day life. They utilize Pythons robust libraries to understand the user's natural language and perform various tasks. This paper has introduced Rodrick a voice assistant, that has automated various services like searching Wikipedia, sending emails, or reading emails and many other functions in an easy and effective manner. It has a user-friendly approach in helping people with different kinds of physical or learning disabilities, thereby reducing manual labor and exertion.

REFERENCES

1. https://botpenguin.com/blogs/definition-purpose-and-benefits-of-voice-assistants
2. Pooja C. Goutam,Monika S. Jalpure,Akshata S. Gavade,Pranjali Chaudhary,A. V. Gundavade, "VOICE ASSISTANT USING PYTHON", International Journal of Creative Research Thoughts (IJCRT), ISSN:2320-2882, Volume.10, Issue 6, pp.c801-c806, June 2022, Available at :http://www.ijcrt.org/papers/IJCRT22A6338.pdf.
3. Abeed Sayyed, AshpakShaikh, AshishSancheti, Swikar Sangamnere, Prof. Jayant H Bhangale. "Desktop Assistant AI Using Python" International Journal of Advanced Research in Science, Communication and Technology (IJARSCT), ISSN- 2581-9429 Volume 6, Issue 2, June 2021.
4. Dev Ranjan Raut, Ayush Rai, "VOICE ASSISTANT USING PYTHON", International Research Journal of Modernization in Engineering Technology and Science (IRJMETS), e-ISSN: 2582-5208, Volume.4, Issue 4, April 2022.
5. Ayush Chinchane, Aryan Bhushan, Ayush Helonde, Prof. Kiran Bidua, "SARA: A Voice Assistant Using Python", International Journal for Research in Applied Science & Engineering Technology (IJRASET), ISSN: 2321-9653, Volume 10 Issue VI, June 2022.
6. https://www.python.org/doc/essays/blurb/
7. https://intellipaat.com/blog/what-is-pycharm/
8. https://www.geeksforgeeks.org/python-gui-tkinter/
9. https://pypi.org/project/pillow/
10. https://www.w3schools.com/python/module_os.asp
11. https://www.javatpoint.com/webbrowser-module-in-python
12. https://pypi.org/project/pyttsx3/
13. https://www.simplilearn.com/tutorials/python-tutorial/speech-recognition-in-python#:~:text=Speech%20recognition%20is%20a%20machine's,respond%20to%20these%20spoken%20words.

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14. https://pypi.org/project/beautifulsoup4/
15. https://docs.python.org/3/library/smtplib.html
16. https://www.geeksforgeeks.org/python-datetime-module/
17. https://pypi.org/project/wikipedia/
18. https://www.geeksforgeeks.org/convert-text-speech-python-using-win32com-client/

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