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Voice Assistant

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Abstract-The project is based on Voice Personal Assistant (VPA) it is a digital assistant that uses voice recognition, natural language processing and speech synthesis to provide aid to users through voice recognition applications. One of the most studied and popular was the direction of interaction, based on the understanding of the machine by the machine of the natural human language. It is no longer a human who learns to communicate with a machine, but a machine learns to communicate with a human, exploring his actions, habits, behavior and trying to become his personalized assistant.

Keywords-Pyttsh, Python, speech recognition.

I. INTRODUCTION

Voice Assistant is based on Desktop application development and provides personal Virtual Personal Assistant (VPA) using voice recognition. This program includes the functions and services of: mail exchange, event handler, music player services, Google searching engine, camera and we can also use it to open any desire application.

The basic idea behind this project is to create a simple stand-alone application that helps less tech savvy people in the world to use the computer without feeling ignorant or computer illiterate. Computers have become a very important devices and as well as less expensive over time. The application works same like Siri/ Google Assistant etc. But the application deals with the computer itself mainly.

The U.I of the application is self-explanatory and minimal. Virtual assistants are software programs that help you ease your day to day tasks, such as showing weather reports, creating remainders, making shopping lists etc. Voice-based intelligent assistants need an invoking word or wake word to activate the listener, followed by the command. We have so many virtual assistants, such as Apple's Siri, Amazon's Alexa and Microsoft's Crotona.

II. REQUIREMENTS

For the software like Desktop Assistant, the focus is given on the easy to use and effort free operations for the user. The four essential elements that the software needs to get right are Artificial Intelligence (AI), Natural language processing (NLP), voice recognition, and machine learning

1. Artificial Intelligence:
Virtual assistants are typically cloud-based programs that require internet-connected devices and/or applications to work., As the end user interacts with a virtual assistant the AI programming uses sophisticated algorithms to learn from data input and become better at predicting the end user's needs.

2. Natural language processing (NLP):
Natural language processing is the ability for machines to manipulate text and voice. It allows the bot to take my words, understand them and formulate a response to my inquiry.

3. Voice recognition:
Voice recognition is the ability of a machine or program to receive and interpret dictation or to understand and carry out spoken commands

4. Machine learning:
Machine learning gives software the opportunity to continuously "learn" new words and phrases through self-learning. This means that they can only get better.

III. METHODOLOGY

1. System Architecture:
The overall system design phase consists of following phases:

- Data collection in the form of speech.
- Voice analysis and conversion to text.
- Data storage and processing.
- Generating speech from the processed text output.

2. Modules:
The two mostly used modules are Pyttsx3 and Speech recognition.

2.1 Pyttsx3: Pyttsx3 is a cross-platform text to speech library which is platform independent. The major advantage of using this library for text-to-speech conversion is that it works offline. However, pyttsx supports only Python.

2.2 Speech Recognition: Library for performing speech recognition, with support for several engines and APIs.

The other two modules are Wikipedia and Webbrowser.

2.3 Wikipedia: Wikipedia is a Python library that makes it easy to access and parse data from Wikipedia.

2.4 Webbrowser: Web browser module provides a high-level interface to allow displaying Web-based documents to users.

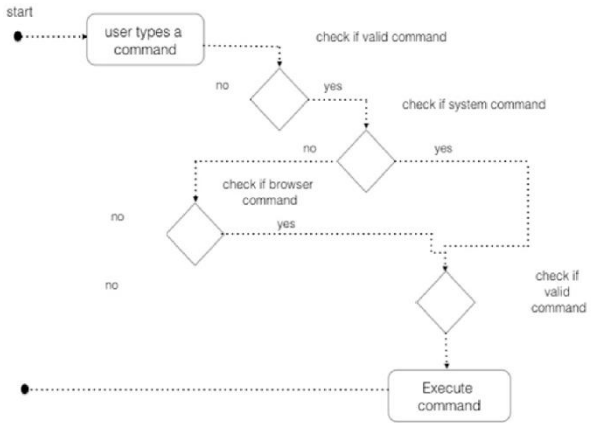

Fig 1. Activity Diagram.

IV. RESULT

The final output can be one of the various tasks that the desktop assistant can execute. The voice input is collected with the use of microphone present in the device then it is converted into text which is processed using various algorithms to turn these inputs into a meaningful phrase that is known to the system.

This phrase is then cross checked for the any commands or responses that might be connected to the phrase. Then the response is generated in the form of speech from the processed text output.

V. PROPOSED SYSTEM

To design a device that acts as a digital organizer to provide variety of services to its master. It will look at examples of intelligent programs with natural language processing that are currently available, with different categories of support, and examine the potential usefulness of one specific piece of software as a VPA.

It continues to expand its digital abilities in organizing events, ordering food, playing music, guiding services for travelling, game prediction etc. It is suggested that new technologies may soon make the idea of virtual personal assistants a reality.

VI. CONCLUSION

This paper describes one of the most efficient ways for voice recognition. This system uses machine learning. It overcomes many of the drawbacks in the existing solutions. It is mainly built to make a much more efficient VPA o that they can be brought into much more practical day to day uses.

But the system has its own limitation. Though the efficiency is high the time consumption for each task to complete maybe higher than the other VPAs and also the complexity of the algorithms and the concepts would make it very tough to tweak it if needed in the future

REFERENCES

[1] Knote, R., Janson, A., Eigenbrod, L. and Söllner, M., 2018. What and How of Smart Personal Assistants: Principles and Application Domains for IS Research.
[2] Canbek, N.G. and Mutlu, M.E., 2016. On the track of artificial intelligence: Learning with intelligent personal assistants. Journal of Human Sciences, 13(1), pp.592-601.
[3] Buck, J.W., Perugini, S. and Nguyen, T.V., 2018, January. Natural Language, Mixed-initiative Personal Assistant Agents.
[4] Feng, H., Fawaz, K. and Shin, K.G., 2017, October. Continuous authentication for voice assistants. In Proceedings of the 23rd Annual International Conference on Mobile Computing and Networking (pp. 343-355). ACM.
[5] https://www.devdungeon.com/content/text-speech-python-pyttsx3
[6] https://realpython.com/python-speech-recognition/
[7] https://pypi.org/project/wikipedia/
[8] https://www.tutorialspoint.com/convenient-web-browser-controller-in-python