



AI BASED VOICE ASSISTANT USING PYTHON

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ABSTRACT-The creation of genuine conversation between humans and machines is the primary objective of artificial intelligence (AI). In order to increase contact between humans and machines, numerous IT businesses have developed different types of Virtual Personal Assistants (VPAs) using conversation systems technology. Such as Google Assistant, Apple's Siri, Amazon Alexa, Microsoft Cortana, and others. comparable to Microsoft Cortana Using Python, we have developed a custom virtual personal assistant that is solely accessible on Windows. windows explorer programmes like 7, 8, and 10 Python is the programming language we choose because it has a lot of advantages. Commands are executed by libraries. Through the use of Python installer packages, our virtual helper recognise and act upon the user's voice.

Terms- Artificial intelligence, Voice Assistant, voice recognition, speech recognition, python library.

INTRODUCTION- voice assistants are gadgets or applications that reply to human speech using AI, voice recognition, and NLP. The technology allows the gadget to synthesise, deconstruct, assess, and provide a relevant response to the user's message. AI voice assistants can be divided into two categories: general-purpose and bot voice assistants. Brands of voice assistants like Siri and Alexa fall under the first category. Voice chatbots, on the other hand, are typically the second kind where the assistant is built into an application or website to aid consumers in navigating the service.

RELATED WORK-

The final result is impacted by the unique methods and approaches that each company-developer of the intelligent assistant uses

throughout development. While some assistants can perform a wider range of tasks, others can do so more accurately and without the need for further justification or corrections. One assistant can synthesise speech more qualitatively. As desired by the user There isn't a single helper that could do everything perfectly, of course. The group of qualities that Which region the developer has given greater attention will determine whether an aide exists.

SOFTWARE DETAILS-

Pycharm -The Integrated Development Environment, or IDE, has a number of features, including support for scientific tools (such as Matplotlib, Numpy, and Scipy), web frameworks (such as Django, Web2py, and Flask), refactoring in Python, an integrated Python debugger, code completion, code and project navigation, and more. Along with Anaconda, it offers data science.



Python- Libraries-

pyttsx3- It translates text to speech.

SpeechRecognition- it is a Python package that turns spoken words into text.

Pywhatkit- it is a Python library that allows you to send WhatsApp messages at a specific time and with extra features.

Datetime: The current date and time are provided by this library.

Wikipedia: A Python module is available to search any topic on Wikipedia.

pyPDF2- The Python module pyPDF2 can read, split, and merge any PDF file.

Pyjokes: This is a Python library that has a tonne of funny jokes in it.

Webbrowser: It offers a user interface for showing people web-based documents.

os: This code denotes functionality related to the operating system.

sys: It permits using the interpreter because it gives access to the variables.

SYSTEM TESTING-

On a fully integrated system, system testing is carried out to determine whether or not the requirements are met. The four following factors are the main emphasis of the system testing for the desktop assistant:

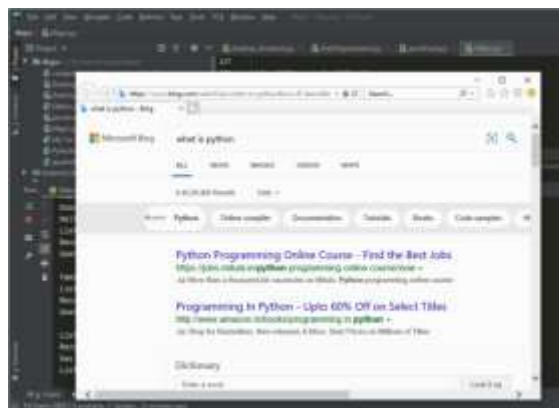
*** functionality**

Here, we test the system's functioning to see if it accomplishes the job for which it was designed. Each function was examined and tested to determine its functionality; if it can successfully do the needed task, the system passes that particular functionality test. For instance, to see if ADAM could utilise Google, the user said, "Open Google." When Adam inquired, "What should I search on Google?" the user responded, "What is Python." Adam then opened Google and looked up the necessary information.

***usability**

The ease of the programme and how user-friendly it is for the user to use, as well as how it responds to each question that the user asks, are used to assess a system's usability.

Any task may be completed more quickly and easily because Python's core modules and libraries are used automatically and in a conversational manner. Because of the conversational contact required to provide input and obtain the intended output—a task completed—any user who gives it a task feels as though they are delivering it to a human helper.



*Security-

The vulnerability and risk testing is the major focus. Adam is a desktop application that can only be used locally, so remote access poses no security issue. The software will be enabled when the user logs in because it is made specifically for that system.

*Stability-

The output of a system determines its stability; if the output is constrained and particular to the constrained input, the system is said to be stable. The system is stable if it functions properly across all functional polarities.

CONCLUSION-

Without a question, ADAM is a very useful voice assistant because it saves the user time through conversational engagements and is effective and efficient. But while working on this project, there were several obstacles to overcome and opportunities for improvement that are mentioned below.

Limitation -

- Security is a problem in that this project lacks voice command encryption.
- Background noise can be distracting .
- Accents may lead to misinterpretation and erroneous findings results.
- Unlike other conventional assistants, such as Google Assistant, ADAM cannot be called at any time by simply saying, "Ok Google!"

Scope-

- Make ADAM learn new things on its own and acquire new abilities.
- An Android app for ADAM can also be created.
- Create more voice terminals for Adam.
- Voice commands can be encrypted to protect security, according to maintain security.

REFERENCE

- [Voice Assistant using python - GeeksforGeeks](#)
- Artificial intelligence (AI), sometimes called machine intelligence.
https://en.wikipedia.org/wiki/Artificial_intelligence
- Fryer, L.K. and Carpenter, R., 2006. Bots as language learning tools. Language Learning & Technology
- G. Bohouta, V. Z. Këpuska, "Comparing Speech Recognition Systems (Microsoft API Google API And CMU Sphinx)", Int. Journal of Engineering Research and Application 2017, 2017