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Python Based AI Assistant for Computer

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Abstract – *AI is the core specialization of making smart machines, especially computer programs. It relates with the familiar task of using computers to understand human intelligence. AI is broadly classified the study of computations that permit for perception, reason and action. This paper gives an overview idea of a personal-assistant for Windows based systems. The system draws its inspiration from virtual assistants like Cortana for Windows and Siri for iOS. It has been designed to provide a user-friendly interface for carrying out a variety of tasks by employing certain well-defined commands. As a personal assistant, this paper focuses upon assistance of end-user with day-to-day activities like general human conversation, searching queries on Google, searching for videos, retrieving images, live weather conditions, word meanings, searching for medicine details, health recommendations based on symptoms and reminding the user about the scheduled events and tasks. The user statements/commands are analyzed with the help of machine learning to give an optimal solution.*

Key Words: **Personal Assistant, Windows systems, Automation, Machine Learning.**

1. INTRODUCTION

Today the advancement of AI systems that are able to create a natural Human-Machine-Interaction (through voice, communication, gestures, facial expressions, etc.) are gaining popularity. One of the most observed and popular was the direction of interaction, based on the understanding of the machine by the machine of the natural language processing. It is no longer a human self-learns to communicate with a machine, but a machine self-learns to communicate with a human, exposing his actions, habits, behaviour and trying to become his best personalized assistant. The work on making and improvising such personalized assistants has been going on for a long period of time. These systems are constantly improving and improving, go beyond personal computers and have already firmly established themselves in different mobile devices and gadgets [4].

One of the most popular voice assistants are Siri, from Apple, Amazon Echo, which responds to the name of Alexa from Amazon, Cortana from Microsoft, Google Assistant from Google, and the recently appeared intelligent assistant under the name AIVA. This paper presents a brief introduction to the architecture and construction of voice assistants. It provides proposed plan of work and also provides methodology of the work of a voice assistant. It also describes the test results of the voice assistant. The primary goal of this work is to build a local voice assistant that performs the work of human and the daily task that a human needed to do in day-to-day life. It has some new features like posting comments on the social media websites such as Facebook, Instagram, etc. by just few simple commands. You can also know the weather around and can get the climate conditions in your local region. It can open and launch web-applications and the local storage of the user computer.

1.1 Motivation

"Google Voice Search" which is used for in Android Phones. But this Application mostly works with Internet Connections. But our Proposed System has capability to work with and without Internet Connectivity. It's named as Python based AI Assistant for Computer which takes the user input in form of voice or text and process it and returns the output in various forms like action to be performed or the search result is dictated to the end user.

1.2 Related Work

Each company-developer of the intelligent assistant implements his own specific methods for development, which in turn affects the final output. One assistant can produce speech more qualitatively, another can more neatly and without more explanations and corrections do tasks, others are able to do a narrower range of tasks, but most accurately and as the user demands. Surprisingly, there is no universal assistant who would do all tasks equally well. The set of features that an assistant has, depends totally on which field the developer has paid more attention. Since all systems are machine-learning dependent methods and use for their creation; large amounts of data collected from different sources and then trained on them, an essential role is played by the source of this data, be it search systems, various information sources or social media networks. The amount of information from various sources determines the actual nature of the assistant. Despite the different approaches to learning, different algorithms and techniques, the phenomena of building such systems remains almost the same. The primary technologies are voice activation, automatic speech recognition, Text-To-Speech, voice

biometrics, dialog manager, natural language understanding and named entity recognition.

2. PROBLEM STATEMENT

We are all well aware about Cortana, Siri, Google Assistant and many other virtual assistants which are designed to aid the tasks of users in Windows, Android and iOS platforms. But to our surprise, there's no such complete virtual assistant available for Core Windows platform consisting of 70% of the users. So, this is actually a major problem for users where there could be internet instability, server problems and places where internet is not accessible.

3. EXISTING SYSTEM

The current voice assistant system basically existing on Windows OS is the Cortana which is completely online based system and requires high speed fast internet and also a regular Microsoft account for login and other existing system is Ok-Google voice assistant which is browser dependent.

4. PROPOSED SYSTEM

The work is initialized with analyzing the audio commands given by the user via microphone. This can be anything like retrieving any information, operating computer's files, etc. Tests are conducted by programming according to books and online resources, with the goal to find best practices and a more advanced understanding of Voice Assistant. Fig.1 shows the detailed workflow of the basic process of the voice assistant. Speech recognition is used to convert the speech input to text. This text is then fed to the central processor which determines the nature of the command and calls the relatable script for execution. But the difficulties don't end there. Even with tons of hours of input, other factors aside can play a big role in whether or not the software can understand you basically. Background noise can easily eliminate a speech recognition device off the track. This is because it does not inherently have the ability to classify the ambient sounds it "hears" of a dog barking or a helicopter flying overhead, from your voice. Developers have to program that ability into the machine; they conduct data collection of these ambient sounds and "tell" the device to filter them out accordingly. Another factor is the way humans naturally shift the pitch of their voice to accommodate for noisy environments; speech recognition systems can be sensitive to these pitch changes in most of the conditions.

In our system as specified the input process goes on till the end which is double-edged sword as user on one side has ended his speech input but the recognizer waits for an ample time before it switches and converts the subsequent input to text. Then the Speech Recognition module now completes the recognizing process and generates a search thread.

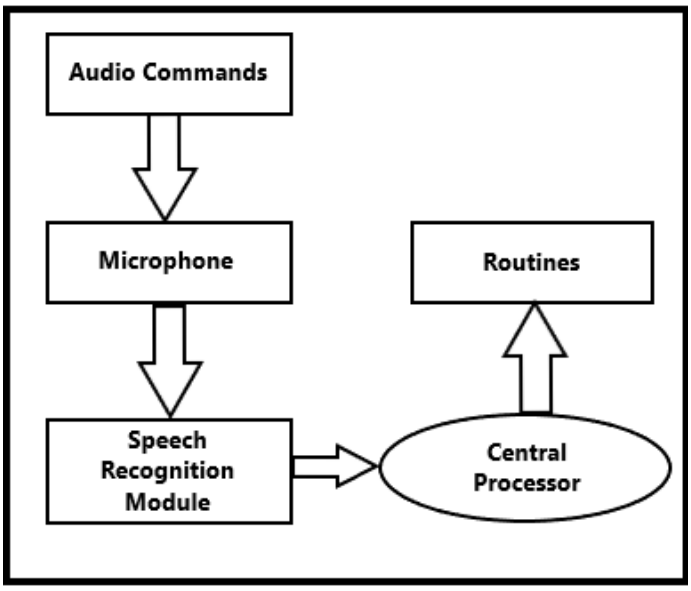

Fig -1: Basic Workflow

5. SALIENT FEATURES

A. QUERIES FROM THE WEB
Making queries is an essential part of one's life, and nothing changes even for a developer working on Windows. We have addressed the essential part of a netizen's life by enabling our voice assistant to search the web. It supports a plethora of search engines like Google, Bing and Yahoo and displays the result by scraping the searched queries.

B. ACCESSING YOUTUBE VIDEOS
Videos have remained as a main source of entertainment, one of the most prioritized tasks of virtual assistants. They are equally important for entertainment as well as educational purposes as most teaching and research activities in present times are done through YouTube. This helps in making the learning process more practical and out of the four walls of the classroom.

C. WEATHER REPORT
Getting live weather conditions about a place remains an important task of virtual assistants. It helps the user charter the course of their action. It addresses this issue with the help of Python.

D. RETRIEVE IMAGES
Users could get images directly through the user interface. The images are derived from the entire web code received from Google images. These are formatted according to use and displayed in a compact manner in the user interface.

E. DICTIONARY MEANING
One of the usages of the web is to find word meaning and its usage in our day-to-day life. Instead of going through the bulky books, our users can simply search for it using the

voice assistant and get the meaning within a fraction of seconds.

D. MEDICINE DETAILS

One of the important issues our software addresses is of healthcare, and medicine in general. The user can query either the medicine or the symptoms. The former lets you know the complete details of the medicine, like indications, contradictions, trade or brand names, dosage, the process of consumption, warning and precautions, storage conditions, etc. On the other hand, the symptom feature lets you query about the symptoms while it lists various diseases one is likely to be affected along with their medicine. This is helpful for people who are quite busy with their life and find trouble visiting the doctor immediately, thus relying on the web to find the best result for short term cause.

E. SET REMINDERS

One of the main features of a voice assistant is to set a reminder for the user accordingly. It is no different when it comes to this feature. The user can set reminders to be notified about a task at a particular time. This will help users, especially developers to schedule their time and resources easily. All the user has to do is to input Set reminder to the assistant.

F. SEND E-MAILS

Integrating mailing features to eases the job of mailing, which otherwise would have to be done by opening the concerned email address. Here, you do not need to go for another tab to do one of the major tasks of your day-to-day affairs. The user can send emails to the desired receiver.

6. CONCLUSIONS

Through this voice assistant, we have automated various services using a single line command. It eases most of the tasks of the user like searching the web, retrieving weather forecast details, vocabulary help and medical related queries. Speech recognition in future will evolve the way people do business around the web and will ultimately integrate world class e-business. Speech recognition & voice XML clearly represent the next generation of the web.

The future plans include integrating our software with mobile to provide a synchronized experience between the two connected devices. Further, in the long run, it is planned to feature auto deployment supporting elastic beanstalk, backup files, and all operations which a general Server Administrator does. The functionality would be seamless enough to replace the Server Administrator with our software.

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