DESKTOP VIRTUAL ASSISTANT

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Abstract - *Everything in the twenty-first century is automated, including items we use every day like bus doors, air conditioning systems, and turning everything on with a single click, among other things. The current study provides a newer notion of voice-controlled gadget that detects one's speech, processes the request, and details of other associated information in this fast-paced environment. We need to develop gadgets with built-in speech recognition that can recognize a person's speech even in a crowded environment, as well as a facial recognition system. We thought making a personal assistant in Python would be fun. The device will take sounds through the device's microphone, process the human's query, and respond to the human with the necessary results. If you ask the gadget to play a video on your computer, for example, it will open YouTube and play the video you choose. The Python Speech Recognition module can be used to do speech recognition. Because of its high quality, we use the Google Speech API.*

1. INTRODUCTION

The concept of a smart assistant has become widely known and popular over the last decade. Commercial devices such as Amazon Alexa, Google Home, and Mycroft can interact with users through speech recognition and synthesis, provide a variety of network-based services, and can interface with smart home automation systems, providing them with an advanced user interface. The availability of a large number of network services and an increasing number of additional skills, or capabilities that can be easily added to smart assistants is driving the spread of such speech-enabled smart assistants. Their potential is still limited, however, by their inability to extract real-time visual information from video data, either concerning the user or the environment Spoken dialogue systems are intelligent agents that can assist users in completing tasks more efficiently through spoken interactions. Personal assistants, also known as virtual personal assistants, intelligent personal assistants, digital personal assistants, or voice assistants, are devices that help people. Personal assistant agents are a new type of software that acts on the user's behalf to find and filter information, negotiate for services, easily automate complex tasks, and collaborate with other software agents to solve complex problems. If the laptop/desktop has the ability to learn and adapt to the user's behavior, this can be developed. The laptop/desktop must collect training data from a user's daily activities and apply machine learning techniques to the data. The model

that is created would be able to predict the behavior ahead of time such features in a laptop/desktop could make life easier for the user, such as notifications based on location rather than time. Such features in a laptop/desktop could make life easier for the user, such as notifications based on location rather than time. Time-based reminders are more popular and static, but they are inconvenient to use. It will show your current position as well as recognize your face. The programmers that run on your desktop and laptop must make effective use of resources in order to avoid unnecessary power consumption.

2. MOTIVATION

The main goal is to improve the efficiency of the personal assistant application by giving the agent the ability to learn. Because the agent typically performs a large number of repetitive activities, previous experiences can be applied to similar future scenarios. We propose a learn-by-doing agent that will aid the user in completing tasks. The task at hand is to manage the user's desktop or laptop profile. Every user has a daily schedule that requires them to place their desktop or laptop at a distance for a period of time.

3. LITERATURE SURVEY

There have been some significant advancements or innovations in the field of virtual assistants with speech recognition. This is primarily due to its popularity in devices such as smart watches or fitness bands, speakers, bluetooth, earphones, mobile phones, laptops or desktop computers, televisions, and so on. Almost all digital devices on the market today include voice assistants that allow users to control the device solely through speech recognition. A new set of techniques is constantly being developed to improve the performance of voice automated search. As the amount of data increases exponentially, now known as Big Data, the best way to improve the results of virtual assistants is to incorporate machine learning into our assistants and train our devices based on their uses. Other major techniques that are equally important include Artificial Intelligence, the Internet of Things, Big Data access and management, and so forth. We can easily automate the task with the use of voice assistants; simply provide the input to the machine in the form of speech, and it will perform all of the tasks, from converting your

speech into text form to extracting keywords from that text and executing the query to return results to the user.

Artificial Intelligence is a subset of Machine Learning. This has become one of the most beneficial technological advances. We were the ones who upgraded technology prior to AI. Perform a mission, but now the computer is capable of counteracting new tasks. And solve it without the need for humans to be involved in the evolution process. This has proven to be beneficial in everyday life. These assistants are in high demand for automating tasks and growing productivity in everything from cell phones to personal computers to technical industries.

Figure A: Voice Controlled Appliances Affecting Our Daily Life

4. SYSTEM ARCHITECTURE


```
import speech_recognition as sr
import datetime
import wikipedia
import pyttsx3
import webbrowser
import random
import os
```

Figure B: Module Imported

Modules imported:-

- **Speech_recognition : -**

The speech recognition module made use of the Google Speech Recognition API, which can be imported into Python with the command "import speech recognition as sr." This module is used to recognize the voice inquiry that the user has provided as input. This is a Google-provided and supported API that is available for free. This is a small API that aids in the compression of our application.

- **Datetime : -**

To support date and time formats, the date and time module was imported. The Datetime module contains classes for manipulating dates and times. These classes offer a variety of capabilities for working with dates, times,

and time intervals. In Python, date and datetime are objects. The user may, for example, want to know the current date and time or schedule a task for a specific time. In short this module supports classes to manipulate date and time and perform operations according to it only.

- **Pyttsx3 : -**

The pywhatkit module is a Python module. It is in charge of playing everything you wish to search for on YouTube. For example, if a user wants to play a song from YouTube, they can say "play song ms dhoni" and the song will be played immediately.

- **Web Browser : -**

This module enables the system to show information from the internet. It is a Python built-in module that provides every assistance to the user in obtaining information from the internet. For example, if a user says "open youtube," the query is processed through the webbroser module, and youtube is opened.

- **Random : -**

The random module is a built-in module that is used to produce pseudo-random variables. It may be used to do random actions such as generating a random integer, picking random elements from a list, and shuffling elements at random. As an example,

import random

random.seed(2)

- **OS : -**

The OS module in Python provides functions for communicate with the operating system. OS comes under Python's standard utility modules. This module provides a portable way of using os-dependent functionality. The *os* and *os.path* modules include many functions to interact with the file system.

For example if you want to current directory: os.getcwd ()

If you want open some application simple you do this: os.startfile (adobe.exe)
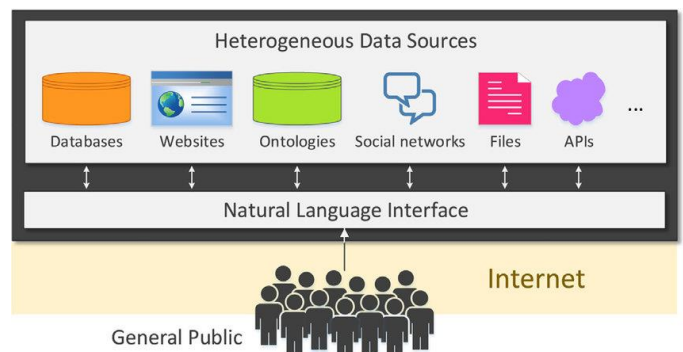
5. PROPOSED SYSTEM ARCHITECTURE

FIGURE C: Natural language interface for general public

While working on data-intensive apps, I frequently run across input/output (I/O) issues, which are the bottleneck for any performance-critical programme. With the growing

number of data stored, it is necessary to store data on discs in order to compensate for a lack of RAM by loading data from disc to RAM and vice versa. When it comes to processing financial data or other scientific data, I/O activities are therefore critical. Python provides built-in facilities for storing objects on disc and reading them from disc into RAM. As a result, Python is capable of handling both text files and SQL databases. The Pandas library includes many classes and methods for reading and writing files in a variety of formats.

6. FUTURE SCOPE

Virtual assistants are now available and are quick and responsive, but there is still a long way to go. The current systems' understanding and reliability need to be greatly enhanced. In crucial situations, the helpers available now are still unreliable. Virtual assistants will be merged with Artificial Intelligence, such as Machine Learning, Neural Networks, and IoT, in the future of these assistants. We will be able to reach new heights by incorporating these technology. What virtual assistants can accomplish is far beyond what we have accomplished thus far. Although Jarvis, a voice-activated virtual assistant created by Iron Man, is fictional, it has set new expectations for what we can achieve with voice-activated virtual assistants.
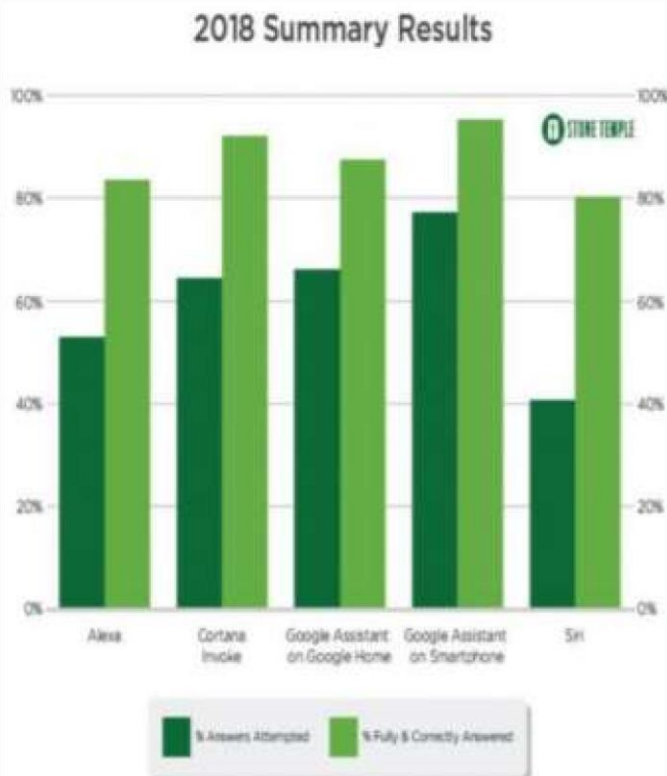

Figure D: Accuracy of Results over Time

7. CONCLUSION

In this paper, we discussed a Python-based Voice Activated Personal Assistant. This assistant currently works online and performs basic tasks such as weather updates, music streaming, Wikipedia searches, opening desktop applications, and so on. The current system's functionality is limited to working only online. Machine learning will be incorporated into the system in future updates of this assistant, resulting in better suggestions with IoT to control nearby devices, similar to what Amazon's Alexa does.

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