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Artificial Intelligence based Desktop Partner

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Wasim Alam Rahman¹, Partha Pratim Gohain², Dibya Jyoti Bora Artificial Intelligence based Desktop Partner, PalArch's Journal Of Archaeology Of Egypt/Egyptology 17(9). ISSN 1567-214x, **Keywords: Intelligent Personal Assistants (IPAs), Artificial Intelligence, Virtual Personal Assistants (VPAs), Natural Language Processing (NLP).**

Abstract –

Today our lives became additional fast and agitated than ever before. We have a bent to speak, move and learn on-line. The ultimate luxury of having an assistant who always listens for you, takes action when necessary and anticipates your every need is now available through Intelligent Personal Assistants (IPAs) with the help of users communicate through Natural Language Processing (NLP). Within the age of constantly changing and advancing technology, we will do things that we have a bent to never thought that we could have done it before. To achieve the luxury and your thoughts of automatizing and performing tasks of services for an individual this paper aims to develop a Virtual Personal Assistant (VPA) having the power to maneuver just by the human voice. The assistant is designed entirely in python with an agenda of providing control over your desktop. The user's voice request is captured through the microphone and the result is replied in the form of speech using the built-in speakers. With the promising rising and emerging of the IPAs this voice-controlled virtual assistant helped in transcending our imaginations providing full features of utilizing the desktop technologies on users' voice directions.

Keywords: Intelligent Personal Assistants (IPAs), Artificial Intelligence, Virtual Personal Assistants (VPAs), Natural Language Processing (NLP).

I.INTRODUCTION

In today's world one in every of the items we have got an inclination to cannot hand in our implausibly fast lives is technology. We have got an inclination to form use of technology whereas organizing our own lives, exploit academic information, and interacting with others. There is an incredible advancement and change in the technology over the previous number of years. Intelligent Personal Assistants (IPAs), that were developed upon computing technologies, seem to be nice helpers with many choices that make life easier for users [1]. A straight forward access to the machine through voice commands is that the revolutionary way of approaching human-system interaction. To finish tasks more efficiently via voice interaction, speech to text API is used for understanding the input. Further considerably, these assistants' answers users query via voice commands by Natural Language Processing (NLP) which will be thought of like real conversations with an individual. Through the tongue method used at intervals to those systems, individuals wish they lecture a true person. NLP "focuses on developing methods and machine algorithms for understanding and generating language" [2]. By suggests that of NLP, users have a

chance to possess a dialogue with an intelligent device that behaves sort of an individual. This might sound to be an oversized step for the interaction of humans with machines as these assistants play an enormous role in understanding the given user commands, assisting the user with basic tasks, helping to answer the command and respond to queries based on the user's input data. However, there measures still some obstacles to the coordination and understanding between the user and therefore the system that causes sympathy to be elusive [3]. Intelligent Personal Assistants (IPAs), as code agent's exploitation NLP in an integrated system, acknowledge users' commands, fulfill the prevailing wants things, and provides the proper response [4]. This will be a stimulating development in terms of the recognition of humans by machines. Already we have seen huge companies putting their steps throughout this field – Google Now, Apple's Siri and Microsoft's Cortana. Similarly, our developed application is being designed in such a way where the assistant looks for a wake-up command and performs all the essential tasks from greeting you to sending emails, setting reminders, forecasting weather, opening applications, look things up online even locking and unlocking your desktop, etc. with ease changing the way you used to work before on your desktop by fairly up taking it.

II.LITERATURE REVIEW

Many companies like Microsoft's Cortana, Apple's Siri, Amazon's Alexa, Google's Assistant have used the Natural Language Processing (NLP) to style their voice assistants. These companies used different approaches to change the working flow and improve their Virtual Personal Assistants (VPAs) consistent with the appliance use and its complexity. Google has improved the Google Assistant by using the Deep Neural Networks (DNN) method which highlights the foremost components of dialogue systems and new deep learning architectures used for these components [5]. Also, Microsoft used the Microsoft Azure Machine Learning Studio with other Azure components to reinforce the Cortana dialogue system [5]. Moreover, Amazon offers the superior deep studying functionalities of Automatic Speech Recognition (ASR) for converting speech to text, and tongue appreciation to well known the intent of the text, to allow the developer to create purposes with fantastically enticing consumer experiences and practical conversational interactions [5]. Most of the virtual voice assistants have the voice of female although the user can change the voice and tone consistent with owns need.

Everybody should be accustomed to Siri, Google Now, Cortana, or Alexa. These voice-controlled virtual assistants are not as performable as Ironman's Jarvis, however, their supposed perform is essentially identical and quite relatable. Ask an issue, get a solution. Provide a query, get a result. Give command, get the work done.

Google Assistant allows you to ask about anything, like it be the weather information or location of places, the assistant searches it for you. Keeping it aside, you can have translated information in almost over 100 languages [6]. The Google Home assistant gets you help around the house to control your smart home from managing your schedule to making a reservation, setting a reminder to playing your favorite playlist, and all of this directly from your smartphone through hands-free speech recognition technique.

Cortana is probably one among the foremost quintessential multi-device, multi-sense surface areas. Cortana is a component of Windows Shell, it's built into Outlook, it's getting to be built into Teams. It has the special abilities round scheduling meetings, assigning meetings, preserving commitments. Something just like the Bot Framework is often wont to build skills for Cortana also as many other surface areas. Cortana can even engage in conversation with other personal digital assistants. The truly designed personal digital assistant Cortana assists you to get more things done and keep track of your busy life [6]. Cortana learns more about you over time to become more useful every day by providing answers and completing basic tasks.

Alexa is the voice service fascinated by Amazon and thus stands as the brain behind the popular devices of Amazon like the Amazon Echo, Echo Show, Echo Dot. Alexa allows customers to form more personalized experience by providing capabilities to implement their skills [6]. There are now quite 25,000 skills from companies like Uber, Capital One, and Starbucks also as other innovative developers and designers. Alexa is supposed for voice cognizance so as that when a personal difficulty a voice command, Alexa is aware and affords a reply to questions in seconds. Amazon is moreover inventing in innovators who software or diagram for Alexa-enabled gadgets and honors humans who nonetheless instruct and decorate how Amazon Alexa communicates with the earth.

Here are some common tasks of Google Assistant, Alexa, Siri, Cortana.

- Send messages
- Set reminders
- Create calendar entries
- Dial calls
- Answer questions
- Set timers
- Show weather forecast
- Open apps
- Set alarms
- Play music
- Sent texts
- Home automation
- Real-time information
- Scheduling
- Briefing emails
- Choose voice
- Automatic updates
- Games and entertainment
- Multi-language
- Cloud and online services

According to the Pew Research Center survey on May 2017 considering the adults, 46% of them have ever used digital voice assistant, 42% have used on their smartphones, 14% have used on their computers and tablets, 8% on stand-alone devices and 3% on other devices. Among them according to Voicebot Smart Speaker Consumer Adaption Report on January 2018, 57.8% are male users and 42.2% are female users among which Amazon's Alexa holds the highest record of 71.9% users, 18.4% Google's Assistant and 9.7% other digital assistants [7].

III. METHODOLOGY

A. *System Architecture* – The designed system consists of the following sections:

- (a) Collection of records in the structure of voice.
- (b) Analysis of the voice and conversion into text.
- (c) Storage of data and processing.
- (d) Voice output from the processed data.
- (e) Performing the task



Fig 1: System Architecture of Virtual Digital Assistant

In the first section, the information is accrued in the structure of speech and saved as an entry for the subsequent segment for processing. In the second phase, the entered voice is consistently processed and transformed to textual content the use of Speech-To-Text. In the subsequent section the transformed textual content is analyzed and processed the usage of Python Script to pick out the response to be taken in opposition to the command. Finally, as soon as the response is identified, voice output is generated from easy textual content to speech conversion by the usage of Text-To-Speech. The basic system architecture of the virtual digital assistant is shown in figure 1.

B. Data Flow Sequence –

- a. *Starting the device:* Initialize the machine with the aid of calling its name.
- b. *Mission Manager:* Conversion of Speech-to-Text and Text-to-Speech is carried out by employing the mission manager.
- c. *Service Manager:* Analysis of instruction and matching them with internet carried adapter and cloud server.
- d. *Execute Command:* After discovering the in shape for the given command, run the respective python script.

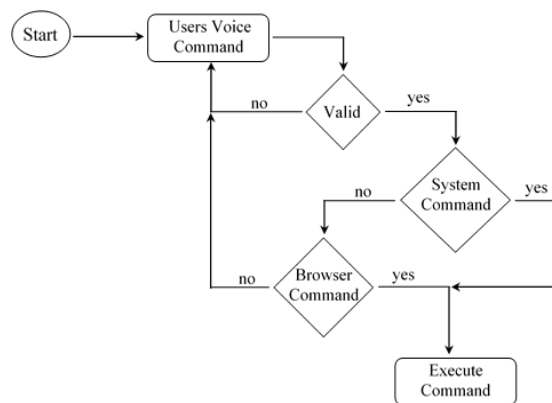


Fig 2: Data Flow Sequence of Virtual Digital Assistant

IV. PROPOSED SYSTEM

The designed system will grant the following features:

- (1) It constantly maintains a checklist for its identity and wakes up to respond while calling its name.
- (2) It maintains mastering the sequence of queries requested to it associated with its settings keeping remembered for future use. So, when the identical context is referred, it starts evolved a dialog with you discussing applicable questions.
- (3) It starts searching the internet based totally on the user's voice enter and giving lower back the reply via a voice.

- (4) It can log you in to your Gmail account by giving user input through voice by keeping it secure and can send emails to your contacts.
- (5) It opens up and closes the Microsoft Office package.
- (6) It locks, reboots, and shut down the user's PC by the user's voice command.
- (7) Other elements such as enjoying music, putting an alarm, checking climate prerequisites of the device's location, etc. can be carried out by way of an entry from the user's voice.

V. CONCLUSION

Using the Natural language processing built-in with synthetic talent we have completed a clever virtual digital assistant that can manage applications, replies to customers queries, and additionally internet searches conversing with the human voice. Moreover, this program is designed to have full get entry to computer interacting intelligently and manipulate the devices, this consists of looking in Wikipedia, opening Google, YouTube, Facebook, MS-Word, MS-Excel, MS-PowerPoint, sending mails, login to your Gmail thru voice, lock your PC, restart your PC, shut down your PC, play music, placing alarms, getting climate notifications, etc. Thus, on the foundation of the literature survey and with the aid of examining the current system, we have come to the conclusion that the proposed machine is very environment friendly with appreciate to points and additionally maintains us organized. There are lot extra abilities to be developed in the world full of automation however as like we have constructed an assistant like that we can step in to construct a new technology of voice-controlled units and carry a new sustaining alternate in the discipline of automation the place VAs efficaciously acts as a filter of statistics to the user, providing what it thinks is of a fee to the user's wishes at any given moment.

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