Virtual Desktop Assistant

Synopsis submitted
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Degree of

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In
ELECTRONICS & TELECOMMUNICATION ENGINEERING

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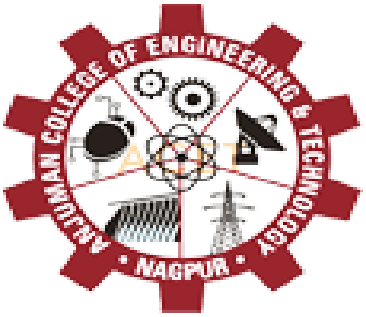

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SYNOPSIS

Title: - Virtual Desktop Assistant

Introduction: -

In the 21st century, human interaction is being replaced by automation very quickly. One of the main reasons for this change is performance. There's a drastic change in technology rather than advancement. In today's world, we train our machine's to do their tasks by themselves or to think like humans using technologies like Machine Learning, Neural Networks, etc. Now in the current era, we can talk to our machines with the help of virtual assistants. There are companies like Google, Apple, Microsoft, etc. with virtual assistants like Google Now, Siri, Cortana, etc. which helps their users to control their machine by just giving input in the form of voice. These types of virtual assistants are very useful for old age, blind & physically challenged people, children, etc. by making sure that the interaction with the machine is not a challenge anymore for people. Even blind people who couldn't see the machine can interact with it using their voice only. Some of the basic tasks that are supported by most of the virtual assistants are:

- Checking weather updates
- Sending and checking mails
- Search on Wikipedia
- Make and receive calls
- Stream Binaural Beats
- Open applications
- Random Password Generator etc.

The voice assistant we have developed is a desktop-based built using python modules and libraries. This assistant is just a basic version that could perform all the basic tasks which have been mentioned above but current technology is although good in it is still to be merged with Machine Learning and Internet of Things (IoT) for better enhancements.

The understanding and executing commands are still to reach a new level like the virtual assistant of the iron man named Jarvis. This is although fictional yet this is what that can be achieved using virtual assistants. All you need to do is give a command to the assistant and the rest will be performed by the assistant. With the help of voice-activated virtual assistants, there will be no need to write long codes to perform a task; the system will do so for us. The machine will work in three modes- supervised, unsupervised or reinforcement learning depending upon the usage for which the assistant is developed. This is all possible with the help of machine learning.

Literature Survey:-

1.	**Can Virtual Assistants Perform Cognitive Assessment in Older Adults? A Review** Community-dwelling older adults have raised the scientific community's interest during the COVID-19 era as their chronic conditions might be aggravated by the consequences of confinement.	By- Isabel Iborra Marmolejo
2.	**Component-Driven Development in Modern Virtual Assistants: A Mapping Study** Virtual assistants are becoming more common today as access to this technology has become cheaper and more affordable to the common consumer.	By-Ahmad Shahi
3.	**Intelligent Virtual Assistant –VISION** An Intelligent Virtual Assistant (IVA) or Intelligent Personal Assistant (IPA) is a software agent that can perform tasks or services for an individual based on commands or questions.	By-IJRASET Publication
4.	**Eight Kinds of Virtual Assistants- Which One Is Right For You? | Remote Staff** Virtual assistants, or VA's, are what I like to call the gateway to outsourcing. Why? It's because most people start out with one before they end up hiring an entire remote team.	By-Remote Staff

Problem definition: -

- If the system is not able to gather information from the user input it will keep asking again to repeat till the desired no. of times.
- Features supported in the current version include playing music, emails, texts, and search on Wikipedia, or opening system installed applications, opening anything on the web browser, etc.
- The system will keep listening for commands and the time for listening is variable which can be changed according to user requirements.

Objective:-

- A virtual assistant is a self-employed worker who specializes in offering administrative services to clients from a remote location, usually a home office.
- Typical tasks a virtual assistant might perform include scheduling appointments, making phone calls, making travel arrangements, and managing email accounts.
- Some virtual assistants specialize in offering graphic design, blog writing, bookkeeping, social media, and marketing services.
- For an employer, one advantage of hiring a virtual assistant is the flexibility to contract for just the services they need.

Research methodology to be employed: –

The proposed plan started by providing voice input to the voice assistant by the user through microphone which later processed and analyzed by voice assistant. The voice input can be anything like getting any information, operation on computer's internal files(such as we have added our functions like aggregate percentage calculator, random password generator, etc.). Speech recognition has been used to convert the voice input into text. Then this text is then passed through the central processor which analyses the purpose of the command and calls the required script for execution.

- **Hardware –** NA
- **Software-**
  - PyCharm IDE
  - Visual Studio Code IDE
  - Python 3.9.7
  - Modules Used:
    - Speech Recognition
    - Pyttsx3
    - Pyaudio
- **Cost –** Zero cost project

References: -

- D O'SHAUGHNESSY, SENIOR MEMBER, IEEE, "Interacting With Computers by Voice: Automatic Speech Recognition and Synthesis" proceedings of THE IEEE, VOL. 91, NO. 9, SEPTEMBER 2003
- Kei Hashimoto, Junichi Yamagishi, William Byrne, Simon King, Keiichi Tokuda, "An analysis of machine translation and speech synthesis in speech-to-speech translation system" proceedings of 5108978-1-4577-0539- 7/11/$26.00 ©2011 IEEE.
- Nil Goksel-Canbek Mehmet Emin Mutlu, "On the track of Artificial Intelligence: Learning with Intelligent Personal Assistant" International Journal of Human Sciences.

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