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# Voice Based Virtual Desktop Assistant - Dexter

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**ABSTRACT:** Voice based virtual assistants have become a very popular user interaction tool in today's world. Performing various tasks from getting to know about the current affairs to playing your favorite songs can be easily done through voice based assistants. Programs on digital devices called voice assistants listen to spoken orders and carry them out. What's the weather, a user might ask? and the voice assistant will respond with the current weather conditions for the area and that day. Voice is accepted as input. The system is being developed in a way that the end user can voice-command access all of the services offered by mobile devices.

**KEYWORDS**: virtual, voice input, tasks, assistant, voice recognition,algorithm,user agent

## I. INTRODUCTION

A voice assistant is a digital assistant that employs voice recognition, language processing algorithms, and voice synthesis to listen to specific spoken commands and return relevant information or execute specified actions as asked by the user. Voice assistants can return pertinent information based on the user's spoken orders, also known as intentions, by listening for certain keywords and removing background noise.

While voice assistants can be entirely softwarebased and integrated into most devices, some assistants, like the Amazon Alexa Wall Clock, are made expressly for single device applications. Voice assistants are now included into many of the gadgets we use every day, including smart speakers, PCs, and smartphones. There are certain voice assistants that offer a very specialized feature set due to their extensive integrations, while others choose to be open ended to assist with nearly any circumstance at hand.

## II. LITERATURE SURVEY

### 1.Raspberry Pi based voice-operated personal assistant(Neobot)

Authors - Piyush Vashistha, Juginder Pal Singh, Pranav Jain, Jitendra Kumar Conclusion – A physical robot was build using raspberry Pi which performs multiple functions as Direction Indicator, Image to Text Converter and Virtual Assistant.

Drawback – The model is physically oriented which just reads out information through the speaker and doesn't have any interface to interact with.[1]

### 2. Voice and Gesture based Virtual Desktop Assistant for Physically Challenged People

Author - Tata Jagannadha Swamy, M Nandini, Nandini B, Venkata Karthika K, V Laxmi Anvitha, Ch Sunitha. Conclusion – A user interface using Python was developed which would interact with the user based on his voice and gesture commands and perform the required activities on Desktop.

Drawback – The System was designed for physically disabled persons which kinda creates a problem for them to use.[2]

### 3.Artificial Intelligence-based voice assistant

Author -
Subhash S, Ullas A, Prajwal N Srivatsa, Santhosh B. In this paper Many companies of voice assistant trying to improve interaction and more features to the next level and many of the youth started using voice assistant in daily life and from many sources the result showing very good feedback.[3]

### 4. Desktop based Smart Voice Assistant using Python Language Integrated with Arduino

Author - Mr. Akash S, Mr. Neeraj Jayaram, Dr. Jesudoss A Conclusion –
A system was build using Python modules to output the user for his demand over voice using Arduino.

Drawback – Anyone can access the system as no security.[4]

### 5. Design and Development of Intelligent Voice Personal Assistant using Python

Authors - Vadaboyina Appalaraju, V Rajesh, K Saikumar, P. Sabitha Conclusion –
A system was built using Python modules to output the user for his demand over voice using CLI.

Drawback – Anyone can access the system as no security.[5]

### 6. "Adapting smart home voice assistants to user's privacy needs using a Digital Voice Assistants: A new kind of user agent"

Authors - Stephan Dallmer-
Zerbe, Jan Haase. In this paper Goals for a Smart Home Voice Assistant were defined, inspired by the privacy by design principles of Cavoukian [6]

### 7. "Digital Voice Assistants: A new kind of user agent"

Authors -
Anders T. Christensen Henning Olesen Lene Sørensen. In this paper Digital voice assistants provide a new way of browsing and interacting online. Now we can simply speak and listen to devices. [7]

## III. METHODOLOGY AND DISCUSSION

### PROPOSED ALGORITHM

Dexter is basically a voice recognizing software. It takes voice input commands from a user and based on the commands performs the required task. The command given by the user can contain any number of characters but as long a it contains the basic keywords like Run, open to run the specific functionality and the name of the required function to be performed like chrome, notepad, Microsoft word etc. Dexter without any error will smoothly perform the given function but take the required voice input and successfully perform the given task.

Dexter is capable of performing a wide range of tasks from answering one's queries and doubts to resolving one problem at the input of a single voice command.

Voice-
based personal assistants are handy tools for simplifying everyday tasks. for instance, you can use virtual voice assistants to search for items/services on the web, to shop for products for you, to write notes and set reminders, and so much more. This voicebased virtual assistant is specially designed for windows. a windows user can use this assistant to open any application (notepad, file explorer, google chrome, etc.) they want by using a different voice command "open". You can also write important messages using the "write" voice command and more stuff like that. One example of our application usage could be a physically disabled blind person asking the interface to open YouTube. On taking the given audio input our virtual assistant would process the voice input and successfully open up the YouTube application without the user needing to manually search for the application. This would make the task of performing various activities much simpler and convenient.

### Algorithms

**Pyttsx3** – This Python Algorithm helps in converting Text-to-
Speech and provides the output as audio through the output device Speaker.

**Speech Recognition** –

This Python Algorithm helps in accessing the Microphone to take input from the user and process it further to function the output.

**Web browser** –

This Python Algorithm helps in access the web services through it by passing the input through sources.
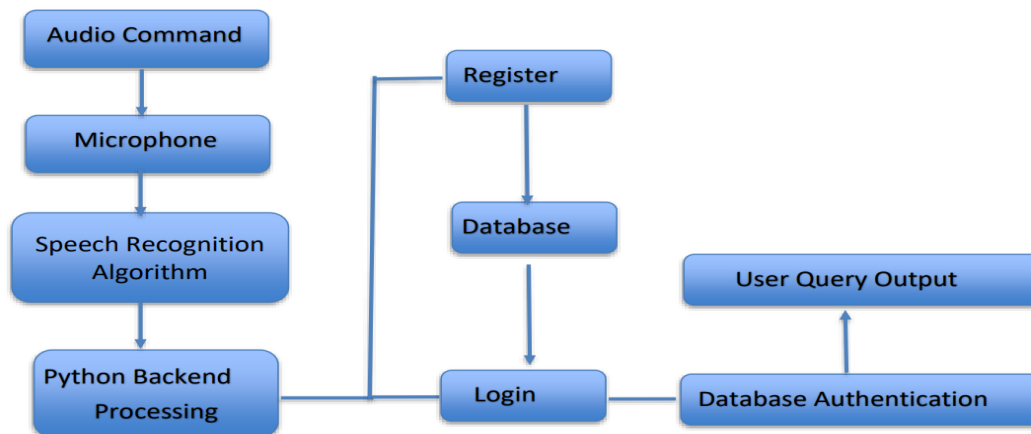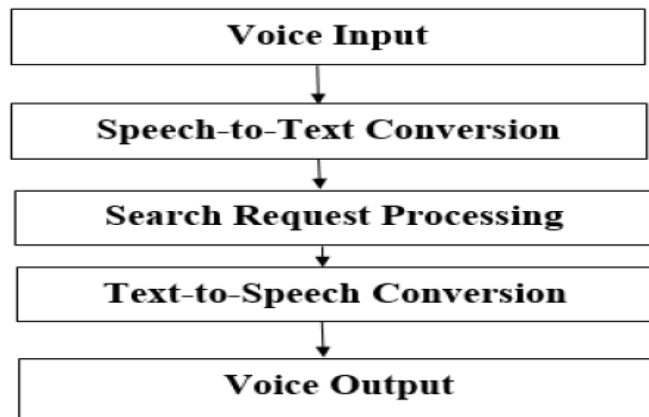
**Flowchart**



Fig. Working flow of Dexter

**Application** –

 • Enhances e-Commerce Marketing.

• Provides 24/7 Customer Support.

• Eradicates Language Barriers.

• Helps Streamline Operations.

 • Saves Time by Automating Repetitive Tasks.

• Enables Smart Offices.

• Aids Hand-free Operation

**Working**

Dexter is basically a voice recognizing software.It takes voice input commands from a user and based on the commands performs the required task. the command given by the user can contain any number of characters but as long as it contains the basic keywords like run, open to run the specific functionality and the name of the required function to be performed like chrome, notepad, microsoft word etc.

Dexter without any error will smoothly perform the given function but take the required voice input and successfully perform the given task.

```
┌─────────────────────────────────┐
│         Voice Input             │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│    Speech-to-Text Conversion    │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│    Search Request Processing    │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│    Text-to-Speech Conversion    │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│         Voice Output            │
└─────────────────────────────────┘
```

## IV. RESULT

A few research studies have shown the positive effects socially assistive robots have on people, the elderly in particular. Voice assistants can increase positive emotions, decrease depression, stimulate interest in physical activity, and enhance social interactions. A voice assistant, also called an intelligent personal assistant or a connected speaker, are new types of products marketed by Apple, Amazon and Google and are based on natural language speech recognition. They allow a search to be carried out using a voice command entered by the user, as well as information retrieval by voice synthesis.

Time is also saved by using this virtual voice based assistant.Since all the tasks required can be done at the input of one single text it is easy to perform various tasks in a shorter amount of time.

The bar graph shown below shows the comparison between the time spent with using a virtual assistant versus time spent without using one.
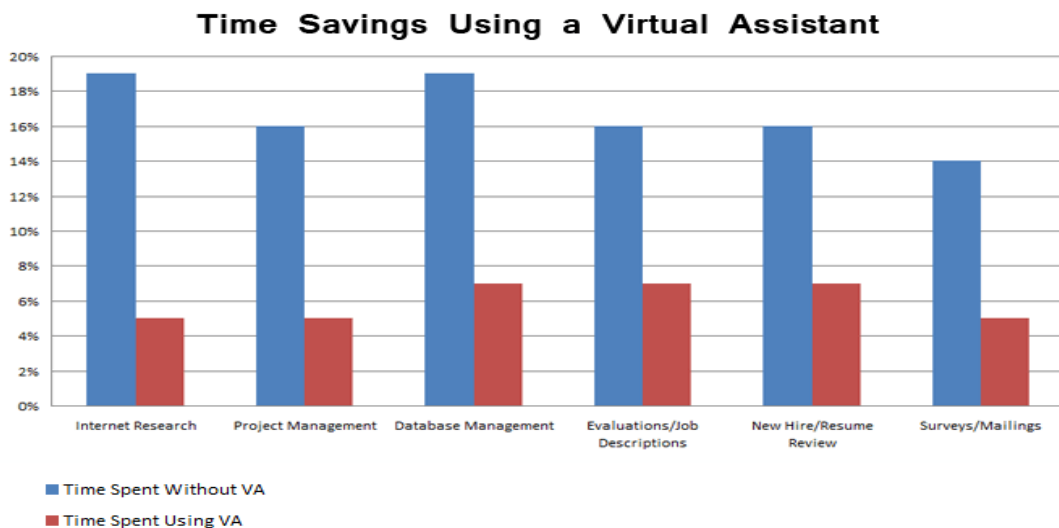


Time Savings Using a Virtual Assistant

Output –



## V. CONCLUSION AND FUTURE WORK

This software created will help the physically disabled people a lot by simplifying their day to day working on the

laptop or their computer. The disabled people will now have an overall access to all the functionalities and operations of the computer without any hassle. Just by giving a simple voice command the dexter will analyze their commands and in a few seconds will perform the required task. Dexter can even be personalized for every particular user so that he/she is particularly recognized by his her name by just logging in.

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