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DESIGN AND DEPLOYMENT OF VOICE ASSISTANCE APPLICATION USING PYTHON

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Abstract:
In the modern era of fast moving technology we can do things which we never thought we could do before but, to achieve and accomplish these thoughts there is a need for a platform which can automate all our tasks with ease and comfort. This we need to develop a personal Assistant having brilliant powers of deduction and the ability to interact with the surroundings just by one of the materialistic form of human interaction i.e. Human Voice. The hardware device captures the audio request through microphone and processes the request so that the device can respond to the individual using in-built speaker module. For Example, if you ask the device 'What's the weather?' or 'how's traffic?' using its built-in skills, it looks up the weather and traffic status respectively and then returns the response to the customer through connected speaker.

I.INTRODUCTION

This paper is based on System application development and provide personal assistant using voice recognition or text mode operation. This program can further be added with the functions and services of: calling services, text message transformation, mail exchange, alarm, event handler, location services, music player service, checking weather, Google searching engine, Wikipedia searching engine, robot chat, camera, Bing translator, Bluetooth headset support, help menu and Windows azure cloud computing. This project is originated from a popular application from Apple called "Siri". This application was released on the date when the iPhone4S was published. This application is very interesting, easy going and convenient, with wide real world usage and large developing potential. This application is not limited by different generations and occupations, and can be applied to many industries that we have in the real world. For instance, the voice assistance is very useful for personal assistants, direction guides or driving, helps among the disabled community, and so on. There already exist a number of desktop virtual assistants. A few examples of current virtual assistants available in market are discussed in this section along with the tasks they can provide and their drawbacks [1][2].

SIRI from Apple

SIRI is personal assistant software that interfaces with the user through voice interface, recognizes commands and acts on them. It learns to adapt to user's speech and thus improves voice recognition over time. It also tries to converse with the user when it does not identify the user request.
It integrates with calendar, contacts and music library applications on the device and also integrates with GPS and camera on the device. It uses location, temporal, social and task based contexts, to personalize the agent behaviour specifically to the user at a given point of time.

Supported Tasks

- Call someone from my contacts list
- Launch an application on my phone
- Send a text message to someone
- Set up a meeting on my calendar for 9am tomorrow
- Set an alarm for 5am tomorrow morning
- Enter a new note

Drawback

SIRI does not maintain a knowledge database of its own and its understanding comes from the information captured in domain models and data models.

Existing System

Several different kinds of assistants are developed based on user interfaces are described, including natural-language interfaces, question-and-answer interfaces, menus, form-fill interfaces, command-language interfaces, graphical user interfaces (GUIs), and a variety of Web interfaces for use on the Internet [3].

Disadvantages

Complex combinations can be difficult to remember, and slower to type but that is on a task by task basis, as often you can perform tasks faster with CLI.Disadvantages of using Command Line Interface (CLI) include its unattractive appearance. CLI are not user-friendly because they require the user to remember a lot of commands. The user has no other way to perform a specified task than typing in the right command and parameters. Although this problem has been eased to some extent through caching all previous commands, but it poses an issue as there are a lot of commands to remember.

II. PROPOSED SYSTEM

This Paper mainly concerns the work on System application development; request calling between different System applications, human-mobile phone interaction, database creation and management, the program will reference a lot of APIs from Google, Wikipedia and Android development skills.
Apart from the project itself, there is also some investigation works on the existed products in this area and the tendency of the voice product, personal assistant developing. Two products were mainly investigated that are popular and representative, the English product of "Siri" and the Chinese product of "I-Fly".

The investigation focus on how those ideas originated; what functionalities and services they have; how they provide these services to the customers; test the product and related functions to get the

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architect, structure, logical algorithms of those products; how they spread and promote the promote he product in marketing; and how they refine and upgrade the products from different versions [4][5].

The proposed system will provide following features:

1) It can play the videos based on users voice commands
2) It gets the meaning of words and can translate the words to Spanish.
3) Prefers movie recommendations based on voice commands and giving back the computed solution through a voice.
4) Searching Internet based on user's voice input and giving back the reply through a voice.

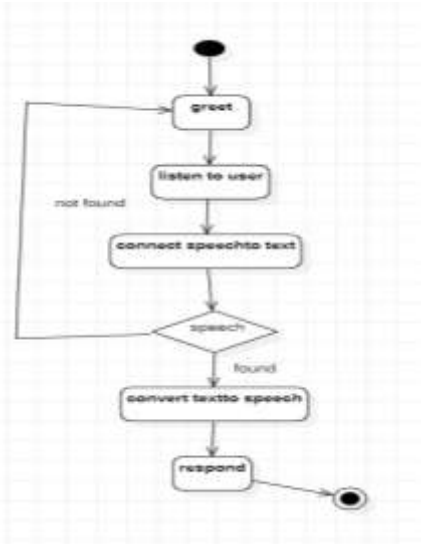

Fig No.1: State Chart Diagram for Voice Assistant Application

In state chart diagram, the process begins with initial stage by initializing and disappears or ends in the final state the process runs in between start and end stage. Here the voice assistant greet the user and then it listens to user connects speech to text and if it able to find the speech converts that related content from text to speech and then respond to user. If it does not find the speech spoken by the user again it starts greeting the user [6].

RESULTS

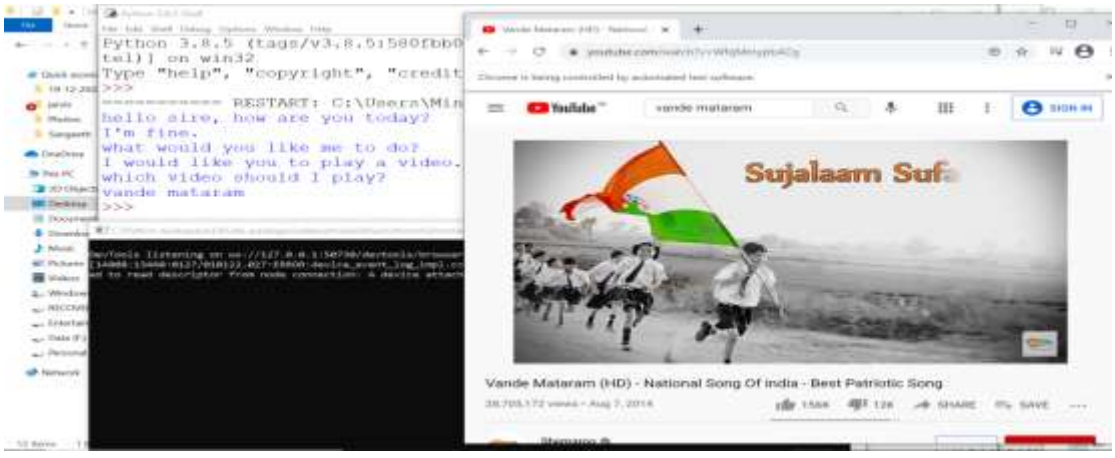

Fig No.2: Using Voice assistant to play the video

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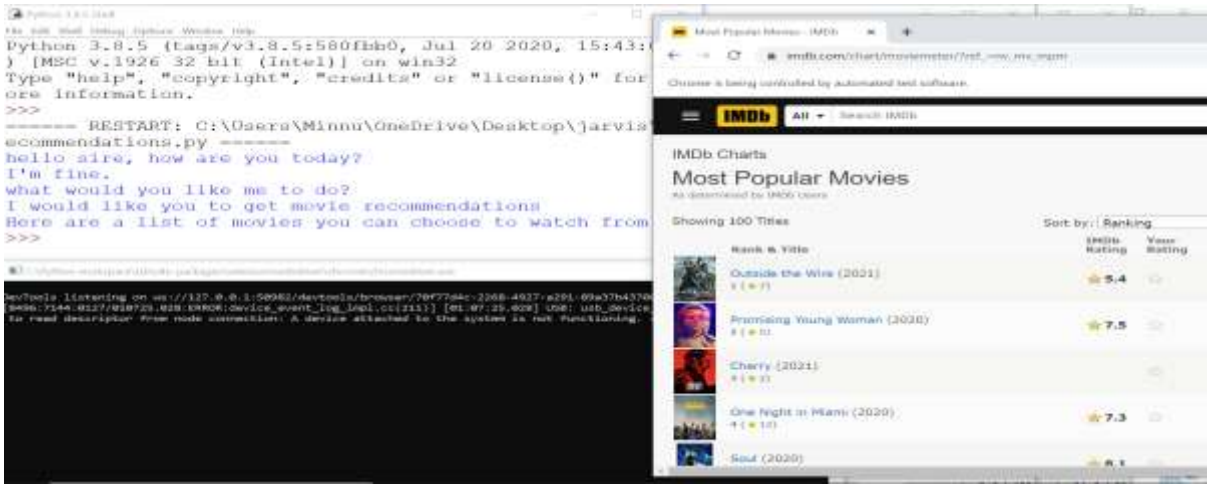

Fig No.3: Using voice assistant to get movie recommendations

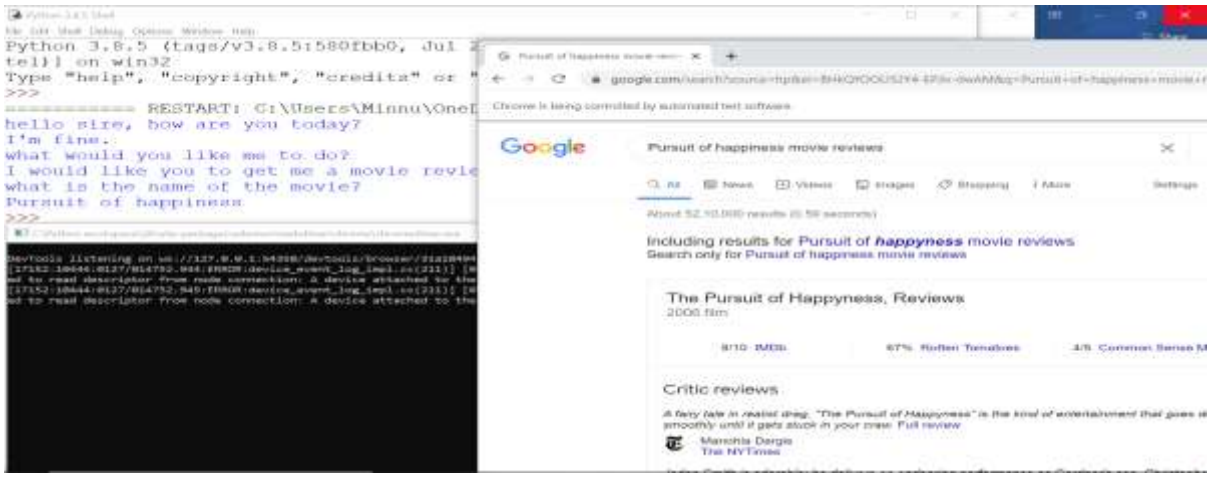

Fig No.4: Using voice assistant to get a movie review

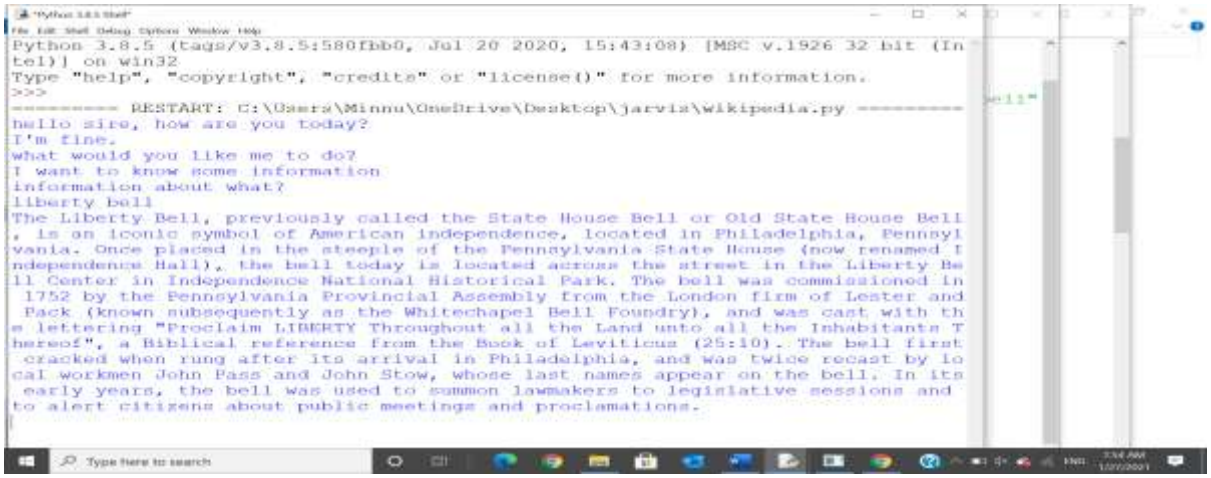

Fig No.5: Using voice assistant to get information from Wikipedia

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Fig No.6: Using voice assistant to get a meaning of a word

Fig. No.7: Using voice assistant to translate a word

CO NCLUSION

When voice assistants began to emerge in 2011 with the introduction of Siri, no one could have predicted that this novelty would become a driver for tech innovation. Now nearly eight years later, it's estimated that every one in six Americans own a smart speaker (Google Home, Amazon Echo) and e-Marketer forecasts that nearly 100 million smart phone users will be using voice assistants in 2020. Brands such as Amazon, Google are continuing to fuel this trend as they compete for market share. Voice interfaces are advancing at an exponential rate in industries of all kinds, ranging from healthcare to banking, as companies are racing to release their own voice technology integrations to keep pace with consumer demand.

Technological advances are making voice assistants more capable particularly in AI, natural language processing (NLP), and machine learning. To build a robust speech recognition experience, the artificial intelligence behind it has to become better at handling challenges such as accents and background noise.

The Voice Assistant using Python is designed especially for the convenience of the users to use their speech as mode of an interface and merge this as one of the User Interfaces like GUI. In this project we have used packages like speech recognition, pyttsx3, pyaudio, selenium and implemented it using Python Programming Language, to use the assistant users need to speak to give their instructions as input to get things done. The users of this project can easily use the assistant simply by running a python program and talking to the assistant. It immediately responds and does work it given to do. By using speech recognition, pyttsx3 and pyaudio we configure system's IO devices and change languages.

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