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DESKTOP VIRTUAL ASSISTANT

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ABSTRACT: *AI is the core specialization of making smart machines, especially computer programs. It relates with the familiar task of using computers to understand human intelligence. AI is broadly classified the study of computations that permit for perception, reason and action. This paper gives an overview idea of a personal-assistant for Windows based systems. The system draws its inspiration from virtual assistants like Cortana for Windows and Siri for iOS. It has been designed to provide a user-friendly interface for carrying out a variety of tasks by employing certain well-defined commands. As a personal assistant, this paper focuses upon assistance of end-user with day-to-day activities like general human conversation, searching queries on Google, searching for videos, retrieving images, live weather conditions, word meanings, searching for medicine details, health recommendations based on symptoms and reminding the user about the scheduled events and tasks. The user statements/commands are analyzed with the help of machine learning to give an optimal solution.*

1. INTRODUCTION

Virtual Assistants are software programs that help you case your day to day tasks, such as showing weather report, creating reminders, making shopping lists etc. They can take commands via voice. Voice based intelligent assistants need an invoking word or wake word to activate the listener. We have so many virtual assistants, such as Apple's Siri. Amazon's Alexa and Microsoft's Cortana. For this project.

This system is designed to be used efficiently on desktops. Personal assistant software improves user productivity by managing routine tasks of the user and by providing information from online sources to the user. VA is effortless to use.
Voice searches have dominated over text search. Web searches conducted via mobile devices have only just overtaken those carried out using a computer and the analysts are already predicting that 50% of searches will be via voice by 2020.

Virtual assistants are turning out to be smarter than ever. Allow your intelligent assistant to make email work for you. Detect intent, pick out important information, automate processes, and deliver personalized responses.
This project was started on the premise that there is sufficient amount of openly available data and information on the web that can be utilized to build a virtual assistant that has access to making intelligent decisions for routine user activities.

1.1 Motivation

Virtual assistants prevail in today's smart product market. Likes of Apple Siri, Amazon Alexa and Google Assistant that reside in a smart speaker allow users to merely speak to get commonplace household chores done, such as controlling room lighting, checking weather and news. Moreover, they were also developed to amuse people: that is about game and pastime functions. From basic games such as rock paper scissors and Simon Says, to trivia and quiz.

Nowadays in every buissness field virtual assistants are being used eg. for food ordering, retailing market price/house price, and also for searching online eg google assistant (is used if we want to search anything online), siri (for making phone calls,

setting alarms). Seeing such advanced use of AI we got motivated to try and build a VA that can possibly do most of the things for a person, also can chat.

1.2 Related Work

Research on Virtual Assistant is not a new field. However, it recently gained wide prominence in the broader public. In the past, these systems were almost exclusively studied as expert systems giving "intelligent advice" within a limited set of highly specified use cases Gregor, S., Benbasat, I.: Explanations from Intelligent Systems: Theoretical Foundations. However, due to the emergence of technologies associated with AI such as Machine Learning (ML), voice recognition, and natural language processing, new generations of VAs have emerged such as Amazon`s Echo, Google`s Google Assistant and Apple`s Siri. They can now be applied in a wide range of use cases spanning from everyday tasks such as ordering consumer goods to more specialized tasks such as helping users track their expenses Knote, R., Janson, A., Söllner, M., Leimeister, J.M.: Classifying Smart Personal.

There are various terms describing these assistants – for example conversational agent, chatbot, digital assistant -, who all are based on the idea of interacting with users via natural language (e.g., Rzepka, C., Berger, B.: User Interaction with AI-enabled Systems: A systematic review of).Implementation of an intelligent personal assistant consists of input by a user and an application program. IBM became the first to introduce a voice assistant with its Shoebox device. While very primitive, it did understand 16 words and 9 digits [web link]. The first modern digital virtual assistant installed on a smartphone was **Siri**, which was introduced as a feature of the iPhone 4S on 4 October 2011.

S.No.	Authors	Problem discussed and solved	Method/Tool Used/Algorithm	Result
1	Mohammed Javed	To implement word segmentation (tokenization)	Calculating all character spaces	It involves mathematical calculations hence proves to be slower than the others
2	Naeun Lee	To implement word segmentation (tokenization)	Using NLTK package which involves inbuilt tokenizer	Easy to implement, as does not require any coding. Faster and more accurate
3	Tao Jiang	To implement word segmentation (tokenization)	Using Conditional Random Fields	This algorithm proves to be more accurate and less complex than the first but less efficient as compared to NLTK.
4	Jerome R. Bellagarda	To implement POS Tagging	Using the latent analogy algorithm	Requires training of large amount of data. Hence involves complexity.
5	Liner Yang	To implement POS Tagging	Using neural network algorithm	As the algorithm works in layers, it provides high accuracy, but is not time efficient.
6	Bo Chen	To create a dependency parser	Using a dependency tree to understand the dependencies	Traditional method. Accuracy depends on the training of the data.
7	Zhenghua Li	To create a dependency parser	Using a graph data structure for the	Improvised version of the above mentioned

			implementation of the parser	algorithm. Provides higher visibility, understandability and improves accurac

The most prominent application which helps the end-user to communicate through voice and also responds to the user through voice commands, SIRI on the iPhone. A similar kind of application has been built for android devices by Google called "Google Voice Search".

VAs are increasingly moving towards the level of interpersonal communications Pfeuffer, N., Benlian, A., Gimpel, H., Hinz, O.: Anthropomorphic Information Systems., including the establishment of emotional bonds Purington, A., Taft, J.G., Sannon, S., Bazarova, N.N., Taylor, S.H.: "Alexa is my new. At the same time, the pervasiveness of invasive technologies embedded in these systems as well as their autonomous nature raises questions of accountability and data security Cowan, B.R., Pantidi, N., Coyle, D., Morrissey, K., Clarke, P., Al-Shehri, S., Earley, D.,. Moreover, the rising intelligence of SPAs comes with issues of interpretability of their behavior through users. This may explain why users still only reluctantly adapt and use these systems despite their potential . Lee, J.D., See, K.A.: Trust in Automation: Designing for Appropriate Reliance. Hum..

The VA manages the phone calls, meetings, and different tasks. VA , a program that works in the windows system that produces a certain type of conversation between man and machine through natural language. Input texts are scrutinized based on decomposition rules and accordingly output responses are produced. This paper includes sensor techniques in the development of smart assistant that is used for day to day activity.

2. PROBLEM STATEMENT

We are all well aware about Cortana, Siri, Google Assistant and many other virtual assistants which are designed to aid the tasks of users in Windows, Android and iOS platforms. But to our surprise, there's no such complete virtual assistant available for Core Windows platform consisting of 70% of the users. So, this is actually a major problem for users where there could be internet instability, server problems and places where internet is not accessible.

The current voice assistant system basically existing on Windows OS is the Cortana which is completely online based system and requires high speed fast internet and also a regular Microsoft account for login and other existing system is Ok-Google voice assistant which is browser dependent.

3. EXISTING SYSTEM

The current voice assistant system basically existing on Windows OS is the Cortana which is completely online based system and requires high speed fast internet and also a regular Microsoft account for login and other existing system is Ok-Google voice assistant which is browser dependent.

I. Cortana :

Cortana is Microsoft's personal productivity assistant that helps you save time and focus attention on what matters most.

- Manage your calendar and keep your schedule up to date
- Join a meeting in Microsoft Teams or find out who your next meeting is with
- Create and manage lists
- Set reminders and alarms
- Find facts, definitions, and info
- Open apps on your computer

II. Siri

Siri is the voice assistant on Apple devices, equivalent to Amazon's Alexa, Microsoft's Cortana, and Google's Google Assistant. Siri is available across most of Apple's devices, including iPhone, iPad, Mac, Apple Watch, Apple TV, and HomePod.

- Read messages and email.
- Call numbers, contacts, set alarms, reminders, and set up meetings with your contacts. It can also assign relationships - you can say, "Mom is my mother", and Siri adds the relationship to your contact list
- Switch on/off Wi-Fi, Bluetooth, Do Not Disturb, etc.
- Open apps (just speak the name of the app).
- Search Google (default Siri search is Bing and there's no way to change that).
- Unit and currency conversions.
- Solve maths problems (and calculate percentage tips on restaurant bills)
- Wikipedia searches: Try, "Tell me about..." followed by the name of a famous person or event.

4. PROPOSED SYSTEM

The proposed system will have the following functionality:
(a) The system will keep listening for commands and the time for listening is variable which can be changed according to user requirements.
(b) 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.
(c) The system can have both male and female voices according to user requirements.
(d) Features supported in the current version include playing music, emails, texts, search on Wikipedia, or opening system installed applications, opening anything on the web browser, etc. (e)The system will keep listening for commands and the time for listening is variable which can be changed according to user requirements.
(f) 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.
(g) The system can have both male and female voices according to user requirements.

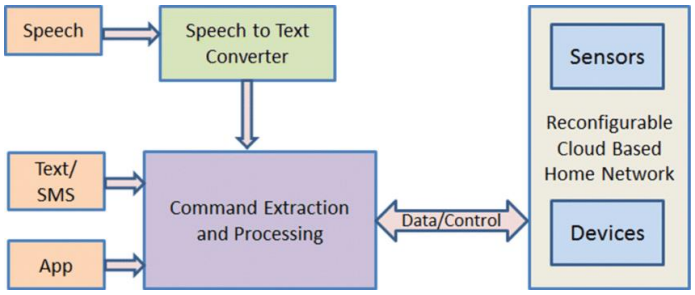

Fig -1: Basic Workflow

5. SALIENT FEATURES

A. QUERIES FROM THE WEB

Making queries is an essential part of one's life, and nothing changes even for a developer working on Windows. We have addressed the essential part of a netizen's life by enabling our voice assistant to search the web. It supports a plethora of search engines like Google, Bing and Yahoo and displays the result by scraping the searched queries.

B. ACCESSING YOUTUBE VIDEOS

Videos have remained as a main source of entertainment, one of the most prioritized tasks of virtual assistants. They are equally important for entertainment as well as educational purposes as most teaching and research activities in present times are done through YouTube. This helps in making the learning process more practical and out of the four walls of the classroom.

C. WEATHER REPORT

Getting live weather conditions about a place remains an important task of virtual assistants. It helps the user charter the course of their action. It addresses this issue with the help of Python.

D. RETRIEVE IMAGES

Users could get images directly through the user interface. The images are derived from the entire web code received from Google images. These are formatted according to use and displayed in a compact manner in the user interface.

E. DICTIONARY MEANING

One of the usages of the web is to find word meaning and its usage in our day-to-day life. Instead of going through the bulky books, our users can simply search for it using the voice assistant and get the meaning within a fraction of seconds.

F. SET REMINDERS

One of the main features of a voice assistant is to set a reminder for the user accordingly. It is no different when it comes to this feature. The user can set reminders to be notified about a task at a particular time. This will help users, especially developers to schedule their time and resources easily. All the user has to do is to input Set reminder to the assistant.

G. SEND E-MAILS

Integrating mailing features to eases the job of mailing, which otherwise would have to be done by opening the concerned email address. Here, you do not need to go for another tab to do one of the major tasks of your day-to-day affairs. The user can send emails to the desired receiver.

6. CONCLUSIONS

In this paper we have discussed a Voice Assistant developed using python. This assistant currently works as an application based and performs basic tasks like weather updates, stream music, search Wikipedia, open desktop applications, etc. The functionality of the current system is limited to working on application based only. The upcoming updates of this assistant will have machine learning incorporated in the system which will result in better suggestions with IoT to control the nearby devices similar to what Amazon's Alexa does.

The future plans include integrating our software with mobile to provide a synchronized experience between the two connected devices. Further, in the long run, it is planned to feature auto deployment supporting elastic beanstalk, backup files, and all operations which a general Server Administrator does. The functionality would be seamless enough to replace the Server Administrator with our software

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