Research on Voice Control System

[1]Vikas Prasad, [2]Vishal Kumar, [3]Vishwadeep Rana, [4]S. Ponmaniraj
[1,2,3] Scholars, [4]Assistant Professor
SCSE, Galgotias University, Greater Noida, Uttar Pradesh

Abstract:- Virtual assistant is growing very fast in 21st century. This technology gives us a new way to interact with machines. It attracted most of the people and can be used by the people who are not very much comfortable with mobiles, laptop. Mini alexa software helps to bring the user and computer closer to the near world. It will interact with humans through speaker as it will say "How can i help you". With the help of mini alexa software human being can give command to the computer with human voice and computer perform the action that human beinggiven to it .For example: If human being gave the command like "can you please open chrome for me" or" launch the notepad for me" or "please terminate the program" it will perform that action. In this way it will establish a easy communication way between user and computer. It is implemented using 'python' language and some of its modules like OS, pyttsx3 etc.

Keywords:- Alexa, Application Program Interface, Modules, Intelligent Virtual Assistant, Internet of Things, Virtual Assistant, Voice Recognizer, Pyttsx3

I. INTRODUCTION

Voice-connected IVAs such as Siri, Google Assistant, Microsoft Cortana and Amazon Alexa are increasingly being used for cell phones and often homes (such as Amazon Echo and Google Home) and automobiles (such as Google Assistant Hyundai)) [1].

The objective for creating mini alexa is to reduce the technical interaction between human and computer and convert it to the simple interaction as human use to do. With the help of this software human can interact with computer using simple English language [2] . It also save lots of time as we can achieve our target in one go by commanding the system with our voice. Voice assistants helps us to do free-hand tasks, which is the main motive of virtual assistants. This motive makes this new technology to be widely used by the people and do the work in easy and efficient way [3, 4].

Executive summary: With the help of this software human can interact with computer using simple English language and it brings the computer and human relationship near to the real world [5].

Technological considerations: This software needs one microphone from which user send their command ,then OS retrieve the command and perform the similar task. All the

command interpreted by OS will done by python interpreter [6].

Existing marketplace: Their already exist one similar product in the existing market by the amazon named alexa. It is a Virtual Assistant Artificial Intelligence technology developed by Amazon. This feature was first used in the Echo Smart Speaker, which has the highest speed on the market. It has the capability to do voice interaction, play the music on request, setting the alarms , provide weather report, deliver the current news on sports, politics and other real time information [7].

Marketing Strategy: UseAudience Overlap Tool to find guest bloggingOpportunities. The ideal target audience are the people whose schedule is busy, who can utilize voice-command setting which can range from college students to parents and give them a faster way to accomplish their task [8].

II. LITERATURE REVIEW

A machine-based approach to delivering commands through a voice user interface in a subgroup of topics. The subgroup is selected from the source of the elements, each object type is associated with at least one shading field object type and has a corresponding value. A group of objects is stored in computer memory. Taken from an accent person and contains value for a command, object type selection, shading field selection and shading discipline. Receptive to pronunciation, at least one item is retrieved from the set of tools, the type of item selected by the user and the value in the user-selected shading area on the Shading Field Fee command obtained. Item. The object contains text content converted to voice output [1]. They imagined that one day the machine will accept natural language and rely on what we need, when we need it, where we need it and give it full authority on our behalf.

Speech recognition and machine learning were precisely managed and service-based records were modified by modules and content providers. We agree that machine systems are small and large everywhere [e.g. Internet of Things (IoT) [2]. The data is received from the person who agrees to edit the word transformation in a special process (e.g., text). A man, including a voice-receiver and a distinctive vernacular processor, revealed a co-worker. This piece of data can be planned for the day with data from the person's address book or data from the person's log book, such as a mobile number [3].

The best known use of the iPhone is "Siri", which is intended to inform the ultimate customer as a voice-friendly customer and it additionally considers customer voice charges. It is employed as a personal assistant with VRI (Voice Recognition Intelligence), which takes donations and processes the customer to type in voice or content and quietly returns the unequal framework during the operation or when the object is directed to the end customer. . Furthermore these proposed structures could modify the function for communication between the end customer and the mobile [4]. Open Data is currently gathering discussions to build foresight management, mostly in government, biological sciences and so on. Buyer management to find out what details the web crawler for open data, in order to continue their claim. Helps

This paper is Dillia Voicepear, which uses open data as a source for its practice. It is a spotlight by modifying the

accuracy according to customer rebuttal and purchasing unregistered details through customer support. We additionally describe an application for fieldwork assistance and announce its feasibility [5]. The paper gives an illustration of VPA applications and a simple general spotlight and future design. The paper gives a model of the equivalence that takes place in light of the importance of bias and a biased assessment of customer availability. Virtual Personal Assistant (VPA) is the future age of bearer management for free hand customers. [4].

III. OVERALL ARCHITECTURE

.

Fig.1 shows that overall functional flow of a mini alexa, which prominently shows that the flow of user input to alexa and fetching of outcoming responses from third party agents like google search engine.
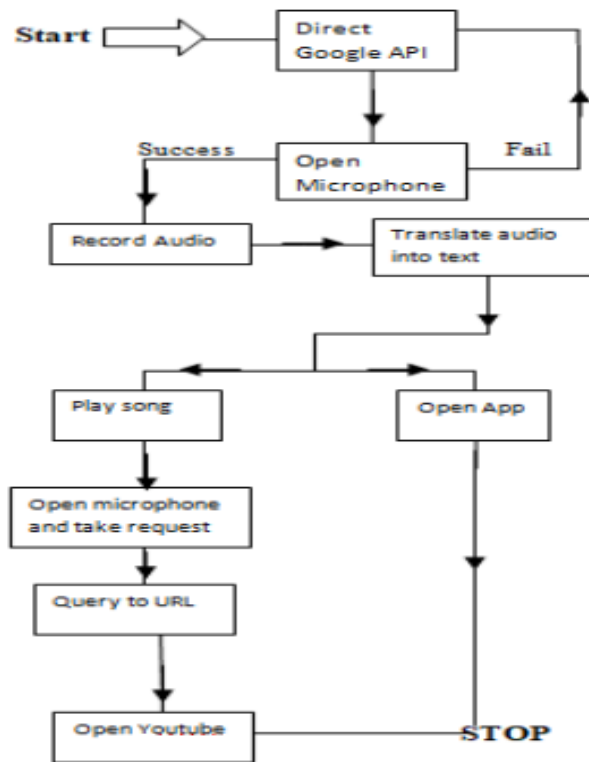

Fig. 1 Overall Activity Model For Alexa

The existing device is very costly which is not affordable for everyone. Dot and reverberation will cycle through about 25 clauses that you'll need to speak out loudly. This allows virtual assistant to better acknowledge your voice and resonance. The device is not very costly which is affordable for everyone. There is not such problem of echoing in our proposed system. Can communicate with simple English language. The Operating system will also interact with us through speaker. It is capable of playing songs or videos online from youtube and we can even terminate the program through our voice. The response by operating system will be faster. If technical error occur in the device , then rectification of the error and its solution does not cost high price .

IV. IMPLEMENTATION OF MINI ALEXA

Mini alexa software is created by using python as a programming language and some of its important modules like Os ,sub-process , pyttsx3 and many more. We can use the speaker of the computer by using pyttsx3 modules ,we can give our command to the operating system by using the microphone and OS will recognize our voice and follow our command by the help of OS or Sub-process modules. We can only give command to the OS through English language. This process need some initial setting such as setting the path of all the application in the environment variables of the operating system.

Processing flow of an Alexa:
1. Direct to google API with speech recognition module. (sr.Recognizer())
2. Open Microphone of the computer. (sr.Microphone())
3. Record audio for 5 seconds to get request from user. (r. record(source, duration=5))
4. Translate audio into text files with Google API. (r.recognize_google (audio))
5. If request is to play song , then open microphone again to record song name.
6. Change the song name to URL with urllib module. (urllib.parse.urlencode ({"search_query" : msg}))
7. Open youtube and play the requested song. (webbrowser.open_new(r"https:// www.youtube.com/"))
8. If request is to open application, then open that app with OS module.
9. After completion of current request , ask again for query/request.
10. If user ask to terminate, then stop the program.

Implementation Procedure:

Linear Search to find main word in whole string using in operator:-
Step 1:- while true
Step 2:-r equals speech_recognition()
Step 3:- with open microphone( )
Step 4:- audio equals record(5 seconds)
Step 5:- if song in string
Step 6:- open microphone( )
Step 7:- audio equals record(5 seconds)
Step 8:- song equals urlEncode (message)
Step 9 :- exception then continue
Step 10:- else if youtube in string
Step 11:- webBrowser.open(Youtube url)
Step 12:- else if facebook in string
Step 13:- webBrowser.open(Fb url)
Step 14:- else if amazon shopping in string
Step 15:- webBrowser.open(amazon url)
Step 16:- else if App in string
Step 17:- os.system(app name)
Step 18:- else continue

V. RESULT AND DISCUSSION

Voice control system is increasing at very high pace and playing an important role in our daily lives. Thanks to good access to smart phones most of us have at least one IVA either Siri on iPhone or Google Assistant on Android phones. Cortana also has good access due to the wide range of users of Windows 10 and Alexa as the home speaker. All 120 customers were given the same questions they should have asked all four assistants. IVAs are therefore limited in how many questions they try to answer and how many are right. From the whole framework it almost came to the conclusion that voice recognition requires a number of great variations such as nature, voice flexibility, frequency etc. The biggest challenge of voice recognition is that people's voices are different and they speak in different ways and in different numbers of languages.

All IVAs change over time. While all four IVAs were able to answer approximately 17.35% of the daily questionnaire, only the Google Assistant was found to be very effective in answering 59.80% of the question. Contrary to previous estimates, Siri has brought a little bit of injury by responding to only 46%. While Cortana could only answer one-third of the question. Alexa lost the race badly by turning only 7.91%. That, of course, was a terrible defeat. According to our study, IVAs have a very low memory rate, with only 26% of daily life clients. Alexa, Google Assistant, Siri, and Cortana are in good progress over the years. It is very likely that one day they will meet our appointment.
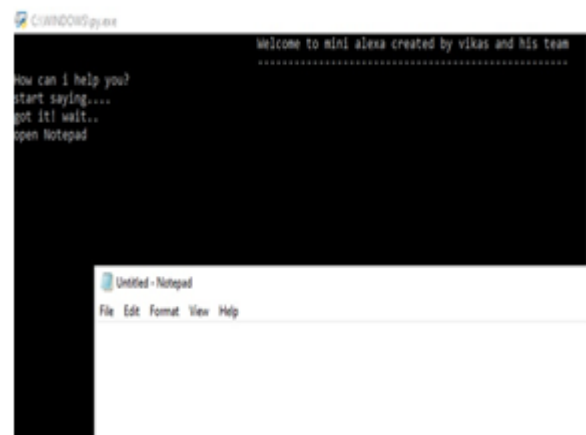

Fig. 2 Welcome mode
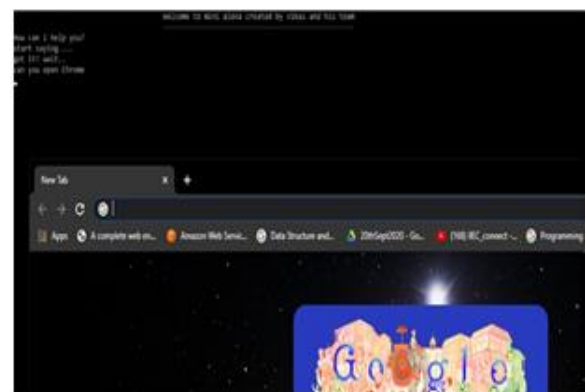

Fig. 3 Writing mode of an input

Fig. 4 Searching for the third party URL

VI. CONCLUSION

Voice recognition is gaining momentum in the market and in the coming years it will be much easier for humans to communicate with a machine in their own language. The challenge faced by the machine is that each person speaks different languages at different frequencies. But more the machine will trained with data more it will give accurate result.

REFERENCES

[1]. Lopez, G., Quesada, L., Guerrero, L.A.: Alexa vs Siri vs Cortana vs Google assistant: a comparison of speech-based natural user interfaces. Conference Paper, January 2018

[2]. developer.amazon.com/alexa

[3]. https://www.cnet.com/news/appliance-science-alexa-how-does-alexa-work-the-science-of-amazons-echo/

[4]. Kepuska, V., Bohouta, G.: Next generation of virtual personal assistants (Microsoft Cortana, Apple Siri, Amazon Alexa and Google Home). In: IEEE Conference (2018)

[5]. Kawamura, T., Ohsuga, A.: Flower voice: virtual assistant for open data

[6]. Google: Google Assistant. https://assisatnt.google.com

[7]. Tsiao, J.C.-S., Tong, P.P., Chao, D.Y.: Natural-Language Voice-Activated Personal Assistant, United States Patent (10), Patent No.: US 7,216,080 B2 (45), 8 May 2007.

[8]. Sirbi, K., Patankar, A.J.: Personal assistant with voice recognition intelligence. Int. J. Eng. Res. Technol. 10(1), 416–419 (2017). ISSN 0974-3154.

[9]. Elshafei, M.: Virtual personal assistant (VPA) for mobile users. Mitel Networks (2000–2002).

[10]. Chung, H., Iorga, M., Voas, J., Lee, S.: Alexa, can I trust you? In: 2017 IEEE Computer Security (2017).