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PRAchi ArYa Ashutosh Sadhna (PRAAYAS) - An Intelligent Voice Bot.

Prachi Singhal
Computer Science and Engineering
Meerut institute of engineering and Technology
Meerut, India

Arya Sharma
Computer Science and Engineering
Meerut institute of engineering and Technology
Meerut, India

Deepika Gupta
Computer Science and Engineering
Meerut institute of engineering and Technology
Meerut, India

Sadhna
Computer Science and Engineering
Meerut institute of engineering and Technology
Meerut, India

Ashutosh Vashistha
Information Technology
Meerut institute of engineering and Technology
Meerut, India

Abstract - The primary aims of this project is to develop a personal-assistant for individuals or disabled people. Praayas takes its observations from other virtual assistants like Cortana for Windows, Siri for iOS, Google Assistant for Android, etc. The primary aim of this project is to minimize the use of input devices such as a keyboard, mouse, on a Personal Computer. It is a virtual software machine that can perform services for an individual. Virtual Personal Assistant (Praayas) is the next-generation service provider as giving commands using speech makes it user-friendly. These papers give details about the additional features of Virtual Personal Assistant (Praayas) that make it different from other Virtual Personal Assistant.

KEYWORDS - Google Assistant, Siri, Alexa, Desktop Assistant (Personal Computer), Amazon Web Services, Text- Speech translation.

INTRODUCTION

A virtual assistant is a freelance worker whose job is to provide its users technical or creative help, which includes jobs like playing music, making phone calls, sending emails, web browsing, managing email accounts, and other bunches. Virtual assistants are of the advantage of weakened (for advanced age, partially sighted people, juvenile) by ensuring intercourse with the machine is not an obstacle any more for the masses. It is all platform based Personal Voice Assistant, the actions of Virtual Personal Assistant can be substituted by the Client, consists a Voice client interface to load statistics into and collect statistics from the Personal Voice Assistant by Speech, a communication system, a Personal Voice Assistant application race on a remote Personal Computer being electronically integrated to the Client via the communication system wherein the conduct of the Personal Voice Assistant switch response to Client input. This latest technology attracts almost the entire globe in many ways like smartphones, Minicomputers, desktop computers, etc. [2, 4]

LITERATURE SURVEY

The domain of Virtual Personal Assistant having speech identification has seen major furtherance or originations. It is mainly because of its high request for devices like

wristwatches, fitness bands, speakers, Bluetooth devices, cell phones, minicomputers or personal computers, television set, etc. Almost all the digital devices which are coming these days and in this age are coming with Virtual Personal Assistants which help to control the device with speech recognition of the user only. A supplement set of methods is being germinated round the clock to improve the performance of voice search.[1]

With the use of Virtual Personal Assistants, we can schedule the tasks easily, just by giving the input to the Virtual Personal Assistant(Praayas) in the speech form and all the tasks will be done by translating your speech into text form by taking out keywords from that text and accomplished the query to give solutions to the Client.

PROPOSED WORK

As of now a user can send a WhatsApp audio message by holding the WhatsApp audio button in the WhatsApp, but we have automated this process and now the user can send custom voice messages through the Virtual Personal Assistant to the particular contact number. By automating this process, it definitely speeds up the sending message in WhatsApp without typing a single word. We have also automated the email sending process by sending a pdf from your computer on mail to the other person by using voice command only with a body message as well.

Features:

1. Send a Custom Message to a particular person on the Whatsapp Web using Voice Command.[9]
2. Send PDF File in the mail with a pre-defined body text.
3. Weather Forecast of Specific City.[9]

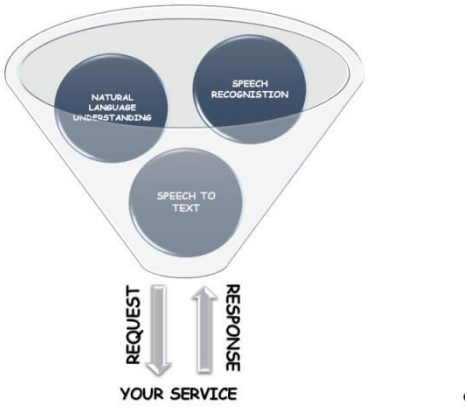

Figure 1: Architecture of Intelligent Voice Bot

Methodology

The overall design of our system comprises various phases
Which are:

- Initialize the device by calling its name, and it takes input from the client as voice and provides input to the client in voice and text.
- Task Manager is converting Speech to Text and Text to Speech.
- It processes the text which is converted now to get the expected solutions.
- The pre-defined command incorporates one or two keywords that determine which query is to be accomplished. If the user query does not make the keyword in the code, then the Virtual Personal Assistants (PRAAYAS)
- Inquires the user to utter it over again.
- It converts the Expected Solution, which is in the text format into Speech format to give the required result to the person accordingly.

The transferring and processing of data is done through a network adapter Application Programming Interface which is Built-in the system. The data generated by the system is stored in Amazon Web Services Cloud Storage[7] and that data is available to the main system for accessing.These tasks are done parallel to each other in the system. And all the data stored in the

AWS cloud server is accessible to the main system and it can be processed and retrieved as required by the user. The need for given data is also processed in parallel to continuous fetching of data from the server. AWS cloud server architecture

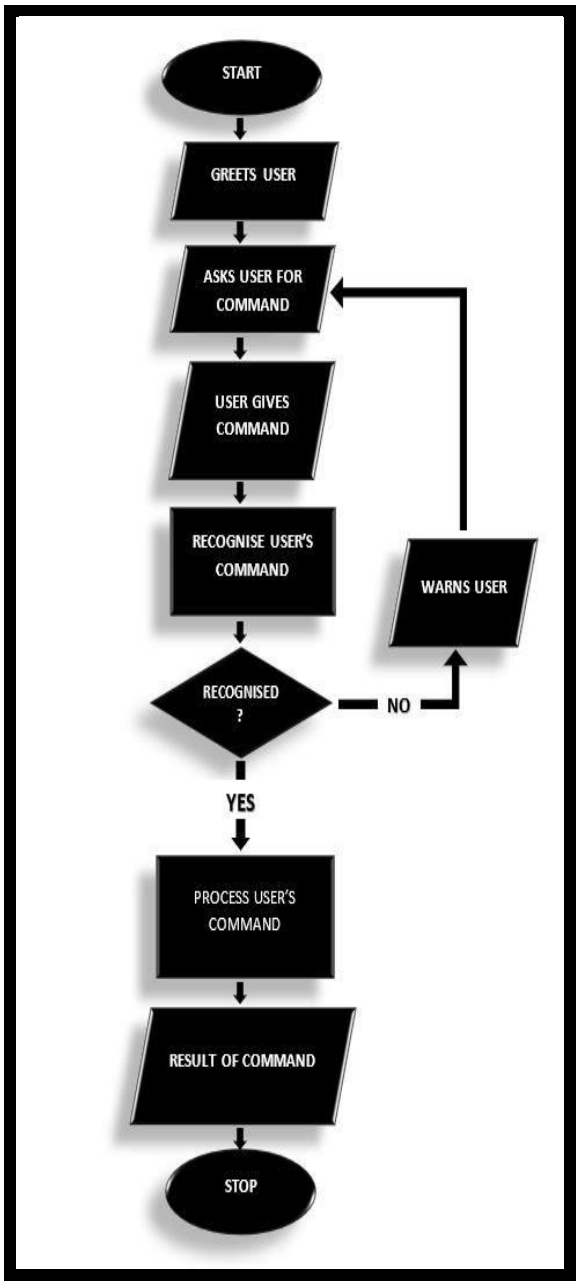

Figure 2: Flow of Intelligent Voice Bot

IMPLEMENTATION:

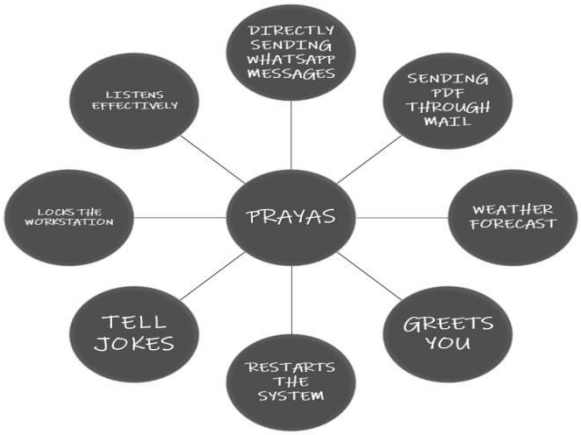

Figure 3: Circle Management of Features of Intelligent Voice Bot

Modules Used -

Speech Recognition - This Speech Recognition compartment uses the computer program Google Speech Recognition Acknowledgement Request Programming interface which is imported in python language. It allows the user to convert audio into text for Processing.

Pyttsx3 - It works offline for cross-platform text to speech which is platform-independent.
Web Browser - It allows users to display web-based documents.
Wikipedia - It is used to fetch a variety of information from the Wikipedia website.
Subprocess - Using this module one can get system sub process details which are different commands like Shutdown, Sleep, etc. It is an inbuilt module.
Pyjokes - It is a collection of Python Jokes over the Internet.
Datetime - This module is used to show date and Time. It is an inbuilt module.
Requests - This module is used for making 2 types of requests i.e. GET and POST requests.

WolframAlpha - This module is used for computing high-level results using the Wolfram Algorithms, Knowledgebase, and its AI field.

OS Module - OS module allows operating system depend on practicalities. If we desire to do operations on files data file like reading, writing, or handling paths, all these practicalities are accessible in this module.

SMTPLIB - This module Works with email and email servers. It delimitates an object recognised as an SMTP client session object which is used to send mails by the users.

Ctypes - This library is used in Python which is a foreign function library. It provides Data Types which are compatible with C and it allows function calling in Dynamic link library.

Json - This module is used for transmitting and receiving data between a server and web application in the Json format.

Pywhatkit - It is used for sending Whatsapp messages at a certain time and has other features too.

Shutil - This module helps us to automate the process of copying and removal of directories and files. It performs many functions of high-level operations on these files and on the collection of files.

English to Hindi - This module helps in converting English
sentences to Hindi.

Description Of the Modules

1. Initiating a function to greet the client:

The functionality of this module is to greet the client. We are defining a wishMe() function for the Virtual Personal Assistant and now().hour function to look at the hour from the actual time.
If the hour is greater than zero and less than 12, the voice assistant expresses the user with the message "Good Morning".
If the hour is greater than 12 and less than 18, the voice assistant expresses the user with the message "Good Evening".
Else greet with "Good Evening".

```
def wishMe():
    hour = int(datetime.datetime.now().hour)
    if hour>=0 and hour<12:
        speak("Good Morning!")

    elif hour>=12 and hour<18:
        speak("Good Afternoon!")

    else:
        speak("Good Evening!")

    assname =("Praayas ")
    speak("I am your Assistant")
    speak(assname)
    speak("How can I help you ?")
```

Figure 4: Wishing Algorithm

2. Command Function

In this module we are defining a take command function to interpret and capture the manlike language. The microphone represents the human being language and the recognizer recognizes the speech to give a reply.

The exception handling is used to handle the exception during the run time error and the recognize_google function uses google audio to recognize speech.

```
def takeCommand():
    #It takes microphone input from the user and returns string output

    r = sr.Recognizer()
    with sr.Microphone() as source:
        print("speak query...")
        r.pause_threshold = 1
        audio = r.listen(source)

    try:
        print("Processing the Command...")
        query = r.recognize_google(audio, language='en-in')
        print(f"User said: {query}\n")

    except Exception as e:
        # print(e)
        print("Say that again please...")
        return "None"  # return String
    return query
```

Figure 5: Speech Recognition Algorithm

3.Sending PDF File in Mail

In this module you can send a pdf file to the other person in mail using a voice command with a custom body message, and it will also notify you whether the message is sent or not.

```
elif "send pdf file in mail" in query:

    msg = MIMEMultipart()

    user_name = ("kittusharma0705@gmail.com ")
    passwd = ("Arya@123456 ")
    from_email = (" kittusharma0705@gmail.com")
    to_email = (" aryasharma0705@gmail.com")

    msg['From'] = from_email
    msg['To'] = to_email
    msg['Subject'] = 'This mail is generated by Prayaas virtual assistant '

    msg.attach( MIMEText("Hii I am sending you the pdf please have a look into it") )
    part = MIMEBase('application', "octet-stream")
    fo=open('C:/Users//HP//Downloads//notice.pdf',"rb")
    part.set_payload(fo.read() )
    encoders.encode_base64(part)
    part.add_header('Content-Disposition', 'attachment; filename="C:/Users//HP//Downloads//notice.pdf"')
    msg.attach(part)


    server = smtplib.SMTP('smtp.gmail.com', 587)
    server.ehlo()
    server.starttls()
    server.login(user_name, passwd)

    server.sendmail(from_email, to_email, msg.as_string())
    server.close()
    speak("message sent")
    print("message sent")
```

Figure 6: Sending PDF in mail algorithm

4.Sending Whatsapp Message

In this module you can send custom whatsapp messages using voice command directly from Virtual Personal Assistant and it will also notify you after sending a message in the whatsapp.

```
elif "send whatsapp message to prachi" in query:
    speak("what you want to say")
    content = takeCommand()
    to = ("+91 73109 [redacted]")
    pywhatkit.sendwhatmsg(to, content, 15,15)
    speak("message sent")
```

Figure 7: Sending PDF in mail algorithm

Results

When it gets the command it first tries to match the string with the command stored in the database if it matches it executes the command accordingly. If not then it checks the command for some hard coded flow, if matched then the relevant output is given to the user.

We conducted a survey comparing PRAAYAS and CORTANA in which we included 20 users (10 Male, 11 Female) out of the 9 were frequent users of Virtual Personal Assistant while 12 were infrequent users of Virtual Personal Assistant. Everyone was a native English speaker. We are focusing on the best Virtual Personal Assistants.

Only 1 Stage is involved in our survey. Virtual Personal Assistant users were provided with 10 Multiple-Choice Questions. These interrogatives were based on Electronic mail, Electronic messaging, Weather condition, Whatsapp, Browsing, YouTube, Music How frequently they use Cortana, etc.[2]

Survey on Virtual Assistant

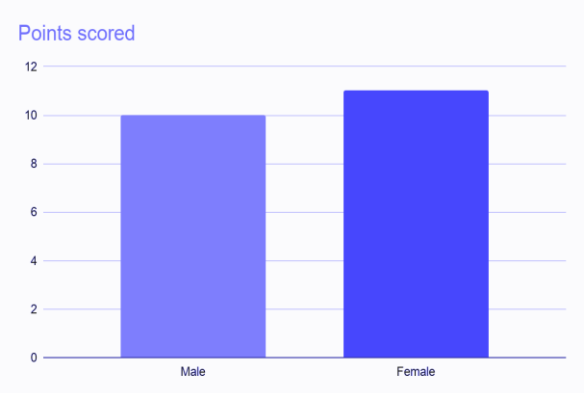

Figure 8: Number of Male User and Female User

Table 1: Number of Male User and Female User

Total Number of Users	Male	Female
21	10	11

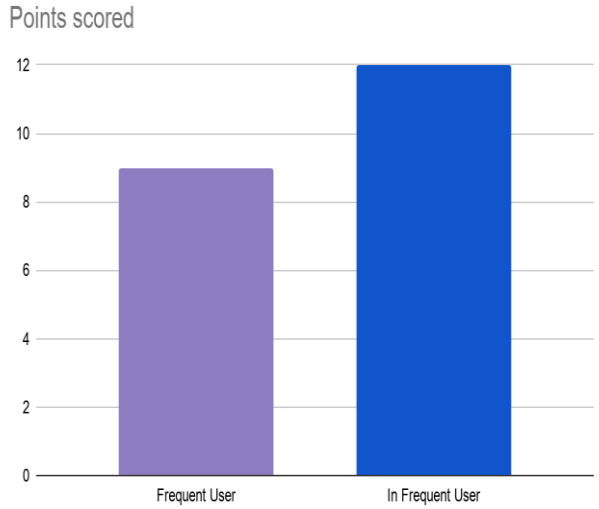

Figure 9: Number Of Common User and Rare Users

Table 2: Number Of Frequent User and Infrequent Users

Total Number of User	Frequent User	Infrequent User
21	9	12

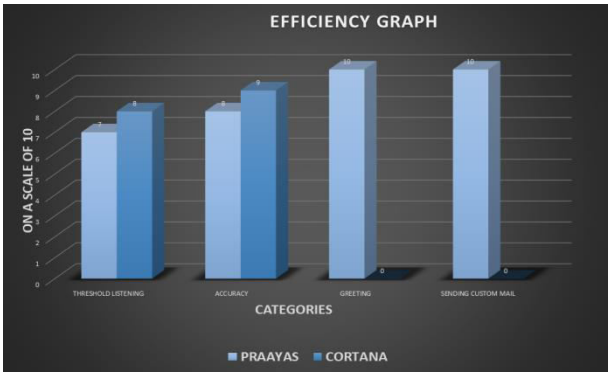

Figure 10 : Comparison on different Parameters between Praayas and Cortana

Table 3: Comparison on different Parameters between Praayas and Cortana

CATEGORY	PRAAYAS	CORTANA
THRESHOLD LISTENING	7	8
ACCURACY	8	9
GREETING	10	0
SENDING CUSTOM MAIL	10	0

Click the Links below to see the Response of Survey Conducted
Link of Google Forms

Questions asked by users in survey: Does it greet you ?

How good was the Answer?

How accurately answered?
Does it send custom whatsapp messages directly using voice assistant?
Does it send Pdf File in mail directly using voice assistant?
Which is more Effective?

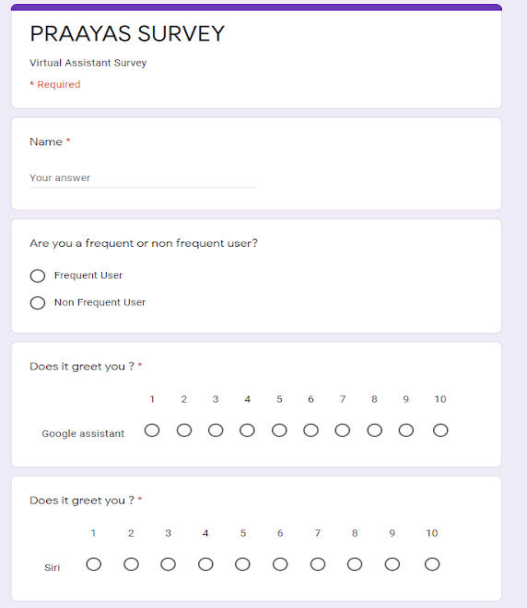

Figure 11 : Questionaire Form

Forthcoming Sphere

The Virtual Personal Assistants that are presently available in the market are very rapid and highly active, but we still have to go a far-off. The reliability and understanding of the instrumentations needs improvement in many aspects. The Virtual Personal Assistants that are available in the market now-a-days are still not that much reliable in various condemning scenarios. By incorporating these types of technologies we will achieve new heights in the future. What the Virtual Personal Assistants can attain in the future is much on the far side what we have attained till now in this field.

Conclusion

Voice Controlled Virtual Personal Assistants use Natural Language Processing and that can is designed to minimize efforts of humans to interact with some other Subsystems, which would otherwise have to be executed manually. By achieving this scenario, we will make human life more comfortable. We come to the conclusion that the system also keeps us organized. Still there are a lot of fields that need to be covered in the world

of automation, but the skills of these devices can help to build a new generation of voice-controlled devices and bring everlasting change in the field of automation. For the Future we are planning to include IoT devices, getting personalized data saved previously on the system, etc.

References

[1] Yogendra Kumar Sharma and Neeraj Sharma. A Review Paper on Smart Personal Assistant, 2018

[2] Dr. Kshama V. Kulhalli, Dr.Kotrappa Sirbi, Mr. Abhijit J. Patankar. Personal Assistant with Voice Recognition Intelligence, International Journal of Engineering Research and Technology. ISSN 0974-3154 Volume 10, 2017

[3] Amrita Sunil Tulshan, Survey on Virtual Assistant: Google Assistant, Siri, Cortana, Alexa: 4th International Symposium SIRS 2018, Bangalore, India, September 19–22, 2018

[4] Harkishen Singh, Muskan Khedia, Jayashree Panda, Subham Mishra, Ankit Singh, JARVIS: The Personal Linux Assistant, 2017

[5] Tushar Gharge, Chintan Chitroda, Nishit Bhagat, Kathapriya Giri,AI-Smart Assistant, International Research Journal of Engineering and Technology (IRJET), 2019

[6] Naazneen Jatu, Project Report on Virtual Assistant , 2019