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 ijircce@gmail.com

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Jarvis AI Voice Assistant

Sakshi Thorbole¹, Vedant Pednekar², Neandra Robert³, Falak Malik⁴, Chintamani Chavan⁵

Diploma Student, Dept. of I.T., Zagdu Singh Charitable Trust's Thakur Polytechnic, Mumbai, India^{1,2,3,4}

Lecturer, Dept. of I.T., Zagdu Singh Charitable Trust's Thakur Polytechnic, Mumbai, India⁵

ABSTRACT: Jarvis aims to develop a personal-assistant. Jarvis 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. Users can interact with the assistant either through voice commands or using keyboard input. As a personal assistant, Jarvis assists the end-user with day-to-day activities like general human conversation, searching queries in google, Bing or yahoo, 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.

KEYWORDS: Personal Assistant, Machine Learning, Voice Assistant, Python's Speech Recognition.

I. INTRODUCTION

First of all, what is J.A.R.V.I.S? In simple words, Jarvis which stands for just a rather very intelligent system is nothing but a fictional AI system which was first appeared in the Marvel movies. In today's world, everything is leaning towards automation, may it be your home or car. There is an unbelievable change rather advancement in technology over the last few years.

Believe it or not, in today's world you can interact with your machine. Well, I had the similar thought before I started making my very own "Digital" Personal Assistant. Though it is not as capable and high as like Amazon's Alexa or Google Assistant, Home or Apple's Siri. Nowadays, people are troubled by typing commands into the computer. Typing is a big obsolete process. The solution to this is that we switch over to an assistant which understands us and do the initial work for us. An assistant is the best replacement for typing commands. It's named as Jarvis Desktop Voice Assistant with voice recognition intelligence, which takes the user input in form of user's voice and processes it and return the output in various ways like an action to be performed or the search result is speaked out to the end user. An easy access to machine with voice commands is the revolutionary way of human system interaction.

The main purpose to make this project is to automate some tasks and make them easy to perform. Jarvis a system that can be placed anywhere in vicinity and you can ask it to help you do anything for you just by speaking with it. In addition to this, you can also connect two such devices through Wi-Fi and make them communicated with each other in future. Jarvis can be very handy for day to day use and it can help you function better by constantly giving you reminders and updates.

II. RELATED WORK

Everyone must be familiar with Siri, Cortana, Google Now or Watson or with any of the countless fictional virtual assistant. These real-life virtual assistants aren't as smart as Ironman's Jarvis, but their intended function is largely the same, voiceactivated computing powered by artificial intelligence. Ask a question, get an answer. Give a command, get results. Here is the insight of some of the Personal Assistant devices. Ivey Sleek is a voice-activated alarm clock by Interactive Voice that makes setting an alarm, changing an alarm sound, and turning an alarm on or off completely hands-free. Ivey Sleek has a variety of possible voice commands ranging from the current date and time to uncategorizable inquiries. Homey is a voice activated home automation hub created by Netherlands-based startup Athom. It comes with multiplatform Smartphone app and it can still communicate with a bunch of differently configured gadgets at once. It's multi-lingual and understands English, Dutch, Spanish, and French. It is compatible with a bunch of app-enabled smart home products. Amazon's Alexa is a "Virtual-Assistant" manages to set itself apart. Unlike mobile-based virtual assistants like Siri, Alexa is centralized within dedicated, in-home Amazon devices -- most notably the Amazon Echo, an always-on, always-listening Internet-connected speaker.

III. PROPOSED ALGORITHM

The main purpose of the software is to perform the tasks of the user at certain commands, provided in either of the ways, speech or text. It will ease most of the work of the user as a complete task can be done on a single command. Jarvis draws its inspiration from Virtual assistants like Cortana for Windows and Siri for iOS. Users can interact with the assistant either through voice commands or keyboard input. It can open different kind of websites like google, applications like visual studio, send an email with message or an email with attachment also, can play songs , the assistant is also able to greet us (good morning, good evening) according to whatever time it is, can also show short information on a particular subject through Wikipedia etc.

The part where I tell you what are the basic requirement for this project. You'll need Python 3.6. We'll be using the pyttsx3 package which is a text-to-speech library for Python. The basic reason why we use this is because it works offline. Another basic requirement of this project will be Python's Speech Recognition library. There are other requirements for the project which are listed below; we'll understand them as we go ahead.

The overall system design consists of following phases:

- (a) Data collection in the form of user's voice
- (b) Voice analysis and conversion to text
- (c) Data storage and processing
- (d) Generating the task to be done from the processed text output

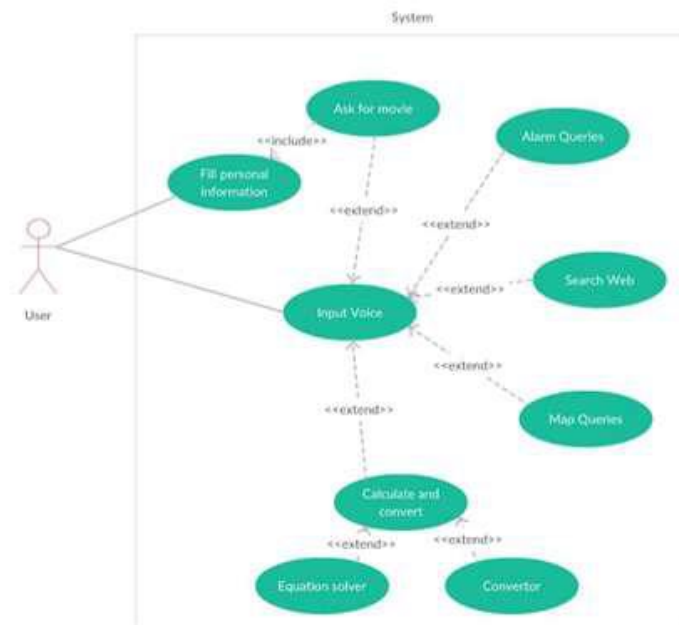


Fig-1

The data flow process in JARVIS takes place according to the following diagram:

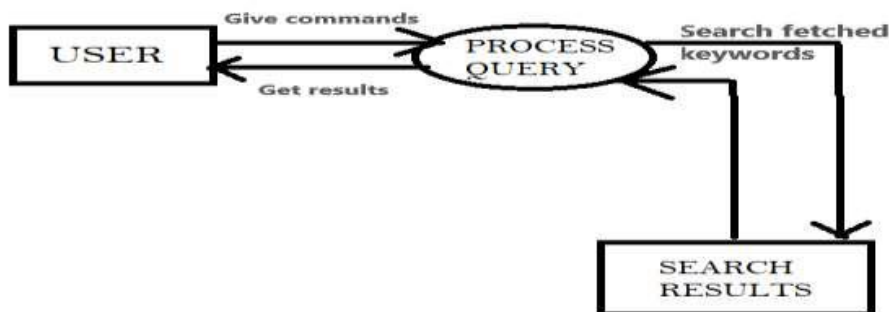


Fig-2



IV. PSEUDO CODE

```
import pyttsx3 #pip install pyttsx3
import speech_recognition as sr #pip install speechRecognition
import datetime
import wikipedia #pip install wikipedia
import webbrowser
import os
import smtplib
import pyjokes
import ctypes
import pywhatkit as kit

engine = pyttsx3.init('sapi5')
voices = engine.getProperty('voices')
# print(voices[1].id)
engine.setProperty('voice', voices[0].id)

def speak(audio):
    engine.say(audio)
    engine.runAndWait()

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!")

    speak("I am Jarvis Mam. Please tell me how may I help you")

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

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

    try:
        print("Recognizing...")
        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 query
```




```
def sendEmail(to, content):
    server = smtplib.SMTP('smtp.gmail.com', 587)
    server.ehlo()
    server.starttls()
    server.login('thorbolesakshi4@gmail.com', 'sakshi@24')
    server.sendmail('thorbolesakshi4@gmail.com', to, content)
    server.close()

if __name__ == "__main__":
    wishMe()
    while True:
        # if 1:
        query = takeCommand().lower()

        # Logic for executing tasks based on query
        if 'wikipedia' in query:
            speak('Searching Wikipedia...')
            query = query.replace("wikipedia", "")
            results = wikipedia.summary(query, sentences=2)
            speak("According to Wikipedia")
            print(results)
            speak(results)

        elif 'open youtube' in query:
            webbrowser.open("youtube.com")

        elif 'open google' in query:
            webbrowser.open("google.com")

        elif 'open stackoverflow' in query:
            webbrowser.open("stackoverflow.com")

        elif 'play music' in query:
            music_dir = 'D:\\Songs'
            songs = os.listdir(music_dir)
            print(songs)
            os.startfile(os.path.join(music_dir, songs[0]))

        elif 'the time' in query:
            strTime = datetime.datetime.now().strftime("%H:%M:%S")
            speak(f"Sir, the time is {strTime}")

        elif 'open code' in query:
            codePath = "C:\\Users\\Aishwarya Thorbole\\AppData\\Local\\Programs\\Microsoft VS Code\\Code.exe"
            os.startfile(codePath)

        elif 'email to sakshi' in query:
            try:
                speak("What should I say?")
                content = takeCommand()
                to = "thorbolesakshi4@gmail.com"
                sendEmail(to, content)
                speak("Email has been sent!")
            except Exception as e:
                print(e)
                speak("Sorry my friend harry bhai. I am not able to send this email")
```

elif 'joke' in query:

```
    speak(pyjokes.get_joke())
```

elif "why you came in the world" in query:

```
    speak("Thanks to Sakshi. further It's a secret")
```

elif 'change background' in query:

```
    ctypes.windll.user32.SystemParametersInfoW(20,0,"Location of wallpaper",0)
    speak("Background changed succesfully")
```

elif "send message" in query:

```
    kit.sendwhatmsg("+919702931140", "this is a testing protocol",10, 29)
```

elif 'exit' in query:

```
    speak("Thanks for giving me your time")
    exit()
```

V. SIMULATION RESULTS

Desktop assistant name is JARVIS. As soon as we start the application, the application wishes us according to the time and will ask that "how can I help you?". Then the user has to give the voice command to the assistant.

If the user gives voice command "Salman Khan Wikipedia", then JARVIS results with

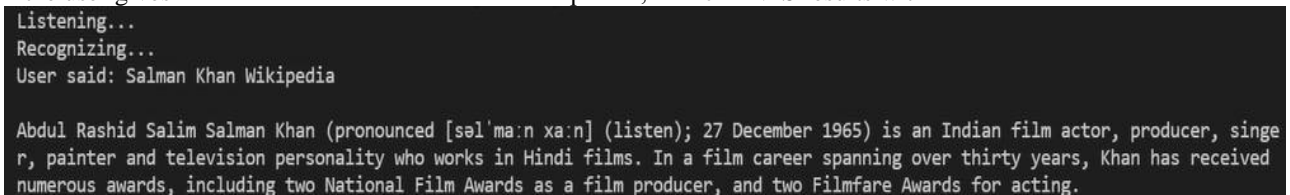


Fig-3

If the user gives voice command "Send Email", then JARVIS results with

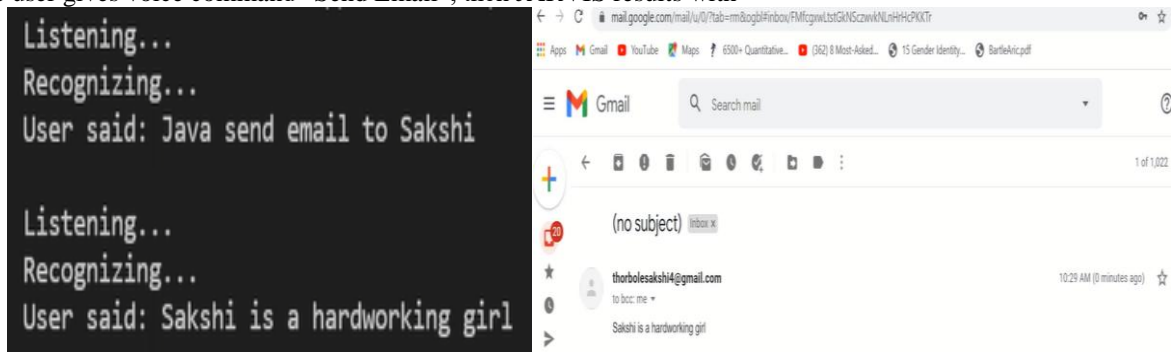


Fig-4

Similarly, the assistant JARVIS is able to do the following tasks:

1. Open any website in the browser.
2. JARVIS can open youtube application.
3. JARVIS can open google.
4. Tells you present time.
5. Play you a song.
6. Change desktop wallpaper.
7. Tells you jokes.



VI. CONCLUSION AND FUTURE WORK

Through this voice assistant, we have automated various services using a single line command. It eases most of the tasks of the user like searching the web, retrieving weather forecast details, vocabulary help and medical related queries. We aim to make this project a complete server assistant and make it smart enough to act as a replacement for a general server administration. We plan to Integrate Jarvis with mobile using react native, to provide a synchronized experience between the two connected devices. Further, in the long run, Jarvis 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 Jarvis.

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