A Project Report

on

Ur Info: JARVIS VOICE ASSISTANT USING PYTHON

Submitted in partial fulfillment of the
requirement for the award of the degree of

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Under The Supervision of
Name of Supervisor: Mr. Bibhas Kumar Rana
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CANDIDATE'S DECLARATION

I/We hereby certify that the work which is being presented in the thesis/project/dissertation, entitled **"Ur Info: JARVIS VOICE ASSISTANT USING PYTHON"** in partial fulfillment of the requirements for the award of the **Bachelor of Technology in Computer Science and Engineering** submitted in the School of **Computing Science and Engineering** of Galgotias University, Greater Noida, is an original work carried out during the period of month **JULY 2021 to DECEMBER 2021**, under the supervision of **Mr. Bhibhas Kumar Rana, Assistant Professor, Department of Computer Science and Engineering** of School of Computing Science and Engineering , Galgotias University, Greater Noida

The matter presented in the thesis/project/dissertation has not been submitted by me/us for the award of any other degree of this or any other places.

Bhaskar Singh, 20SCSE1010290

Shubham Gupta, 20SCSE1010380

This is to certify that the above statement made by the candidates is correct to the best of my knowledge.

Supervisor

(Mr. Bhibhas Kumar Rana,

Assistant Professor)

CERTIFICATE

The Final Thesis/Project/ Dissertation Viva-Voce examination of **BHASKAR SINGH, 20SCSE1010290, SHUBHAM GUPTA, 20SCSE1010380** has been held on _____ and his/her work is recommended for the award of **Bachelor of Technology in Computer Science andEngineering.**

Signature of Examiner(s)   **Signature of Supervisor(s)**

Signature of Project Coordinator   **Signature of Dean**

Date:

Place:

Abstract

Technology has progressed at an unfathomable rate over time. We've come a long way in terms of technical innovation, from Eniac's first digital computer with a clock speed of 100 kHz to the US Department of Energy's Summit, which has a performance of 148.6 peta Flops.

It's not worth it in this day and age if consumers are still having difficulty interacting with their machines using a variety of input devices. As a result, a slew of voice assistants have been developed and are continually being refined for increased performance and efficiency. A voice assistant's primary function is to reduce the use of input devices such as keyboards, mice, and touch pens. This lowers the hardware cost as well as the amount of space it consumes. The most well-known iPhone app is "SIRI," which allows users to communicate with their phones using voice commands and responds to voice commands.

A similar application developed by Google is called "Google Voice Search" and is used in: android phone. Personal Assistant with Voice Recognition Intelligence takes user input in the form of speech or text, processes it, and returns output in a variety of formats, such as actions or search results required by the end user. The proposed system could also change the way end users interact with mobile devices.

Keywords: Desktop Assistant, Python, machine learning, text-to-speech, speech-to-text, language. Processing, speech recognition, artificial intelligence, Internet of Things (IoT), virtual assistants.

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Acronyms

B.Tech.	Bachelor of Technology
M.Tech.	Master of Technology
BCA	Bachelor of Computer Applications
MCA	Master of Computer Applications
B.Sc. (CS)	Bachelor of Science in Computer Science
M.Sc. (CS)	Master of Science in Computer Science
SCSE	School of Computing Science and Engineering

CHAPTER-1

Introduction

Today, almost all work has been digitized. We have smartphones in our hands, and these are the world's only possessions at your fingertips. We don't even use our fingers these days. We just have to talk about the work and we're done there is a system You can say "Throw daddy" here. "I will be late today." And the text was sent. This is the job of the virtual assistant. It also supports specialized tasks such as booking flights online or finding the cheapest book on a variety of e-commerce sites, and then provides an order booking interface that helps you automate searches, searches, and online ordering tasks. A virtual assistant is a program that helps make everyday tasks easier, such as displaying the weather forecast, creating reminders, creating a shopping list, and more, and can receive commands via text (online chatbot) or voice. voice based The intelligent assistant needs a challenge or wake word to activate the command next to the listener. for me A design in which the awakening word is JARVIS. There are as many virtual assistants as Apple's Siri, Amazon's Alexa, and Microsoft's Cortana. Wake word JARVIS was chosen for this project. This system is designed for efficient use on desktop computers. Personal Assistant software increases user productivity by managing day-to-day user tasks and providing information to users from online sources. JARVIS is easy to use. Invoke the JARVIS wake up word and then call the command. And it starts in seconds. Voice search takes precedence over text search. Internet search queries on mobile devices slightly outperformed search queries. Analysts already predict that by 2022, 50% of searches will be through voice queries. Virtual assistants are getting smarter than ever. Let your smart assistant act on your email. Identify intent, select sensitive information, automate processes, and deliver personalized responses. The project started with the assumption that there is a sufficient amount of public data and information on the web that can be used to create virtual assistants that can make intelligent decisions in everyday life.

1.1 BACKGROUND

Virtual assistants, such as Siri or Alexa, have become household names — literally. Just by calling for them, they can do a variety of tasks, from adding items to grocery lists to activating home security systems.

Though voice recognition technology has been around since the 1960s, virtual assistants as we know it didn't come around until the 2010s.

Virtual home assistant technology has come a long way since Apple first introduced Siri in 2011. How have popular home assistants, such as Siri, Alexa, Cortana and others evolved over the past decade?

Siri's introduction with the iPhone 4s in 2011 was polarizing. While some were amazed by its ability to respond to user's questions and commands, others brought up concerns about security, and whether or not artificial intelligence had come too far.

In 2012, Google officially launched Google Now on Android phones, which came with a more accurate voice to text function, the ability to understand 18 languages and the ability to connect with a user's search history and calendar.

In the next couple of years, both Microsoft and Amazon would also introduce their own voice assistants, Cortana and Alexa.

A few distinctions can be made between how different companies chose to expand their voice assistants. While Siri and Cortana are built into different operating systems, Alexa and Google Home are smart speakers.

By the end of 2016, voice assistant technology was commonplace. Amazon launched their second generation Amazon Echo and Google launched Google Home and their smartphone, Google Pixel. Other companies also started capitalizing on voice recognition, such as when Samsung acquired the virtual assistant startup Viv and Chinese company LingLong launched a competitor to Amazon Echo, DingDong.

To keep up with the growing competition, smart speakers are constantly improving. In 2017, Google Home acquired multi-user support, meaning the device was now able to understand up to six different voices. Google Home users were also able to shop from Walmart at home, through voice shop. By 2018, Google announced that Google Home would be able to understand up to 30 languages.

Meanwhile, Amazon Echo introduced calling and messaging features, the Echo Look, a camera and speaker, the Echo spot, a smart alarm clock and Echo Plus, a speaker offering higher quality and sleeker design. Amazon and Microsoft announced the integration of Cortana and Alexa. The merger allowed Alexa to access some Windows functions and vice versa.

Watsky talks music, creative ventures ahead of Majestic showIn an elite group with the likes of DJ Khaled, T-Pain and Pikachu, George Watsky's last name is typically shouted Read…

At the same time, smart speakers launched internationally on a larger scale. Google Home launched in the UK, Germany, France, Australia, Canada, Japan and China. Amazon Echo, already available in the U.S., UK and Germany, was being shipped to over 89 countries by the end of 2017.

More and more electronic devices also began integrating voice assistant technology. In 2017, Sonos released an Alexa activated speaker, the Sonos 1. Bose launched wireless earbuds with both Google Assistant and Siri. The following year, Roku announced the Roku entertainment assistant.

All the while, additional companies were launching competitive technology, such as Alibaba's Genie X1 smart speaker, Baidu's Xiaodu smart speaker and the Apple Homepod. Samsung would also announce plans for a Bixby powered smart speaker, the Galaxy Home and the Galaxy Home mini, with a February 2020 release date.

Regardless of how you may feel about them, voice assistants have worked their way into most aspects of our lives. They are in mobile apps and devices and found in many industries, such as retail, education and healthcare. With the projected number of users by the end of 2021 being set to 843 million, it's time we cozy up to our electronic friends.

CHAPTER-2 Literature Survey

2.1 Technical overview:

A. Python:

Python is a high-level interpreted programming language based on object-oriented programming. that It is a powerful and very useful language focused on Rapid Application Development (RAD). Python is easy to write code execution. Python can implement the same logic with 1/5 code compared to other OOPs. language. Python provides tremendous benefits to everyone. The use of Python cannot be limited to one thing. activity. As his popularity grew, he was able to get into some of the most popular and complex processes: There are many things in Python including artificial intelligence (AI), machine learning (ML), natural language processing, and data science. A library for all your needs in this project. JARVIS uses Pyttsx3, a speech recognition library for speech recognition. Text-to-speech, selenium for web automation, etc. Python is very efficient. For small examples, efficiency is usually not an issue. If not Python code If it's effective enough, the general procedure for improving it is to find the one that takes the most time and implement it exactly. The parts are more efficient in some low-level languages. This will lead to much less programming and more efficient code. than writing everything in a low-level language (because it takes more time to optimize)

B. Quepy:

Quepy is a Python environment for converting natural language queries into database query language queries. it can Easily customizable for different types of natural language questions and database queries. So, you have some code You can create your own system to access natural language databases.

C. Pyttsx3:

Pyttsx3 stands for Python Text to Speech. A cross-platform Python wrapper for text and speech synthesis. that A Python package that supports common text and speech engines on Mac OS X, Windows, and Linux. both work Python2.x and 3.x. The main advantage is that it works offline.

D. Speech Recognition:

A speech recognition library that supports multiple engines and APIs online and offline. that Supports APIs such as Google Cloud Speech API, IBM Speech to Text, and Microsoft Bing Voice Recognition.

E. SQLite:

SQLite is a functional library that provides an in-process relational database for efficiently storing small to medium-sized data sets. With a few exceptions, most common features of Structured Query Language (SQL) are supported.

2.2 Voice Assistant The Future:

Voice search is implemented as a two-step search procedure in which ASR-generated string candidates are re-evaluated to determine the best fit in a potentially very large database for a particular application. This study provides a good example of how domain-specific complementary knowledge sources can be used in conjunction with domain-independent ASR systems to facilitate voice access to online search indexes. As more data becomes available for a given speech recognition task, a natural way to improve recognition is the International Journal of Engineering Research and Technology. Accuracy lies in training larger acoustic models.

The reason for going towards AI and voice assistants

Millennial consumers are fueling the shift towards voice assistants powered by artificial intelligence. Significant AI adoption is driving the move to voice applications. Additionally, IoT devices such as thermostats, speakers, and smart appliances are making voice assistants ever more useful in the lives of everyday users. What's more, reports indicate that the market for voice recognition technology will reach almost $11 billion USD in 2019 and that it will increase by about 17% by the year 2025.

Five key predictions in voice assistants and AI tech

1. **Streamlined conversations:** Google and Amazon recently announced that their voice assistants will stop requiring the user to say 'wake' words such as 'Alexa' or 'Google' to start a conversation. This new facility is making interacting with these assistants more natural for users—not to mention much more convenient. Such devices are also expected to get better at understanding contextual factors that make conversations more efficient.
2. **Change in search behaviours:** The market value of Voice-based shopping will reach 40 billion by 2022, according to industry projections. · Not surprisingly by 2022, voice-based ad revenues are expected to reach $19 billion.
   The statistics show an unprecedented increase in voice searches on mobile devices. The primary way to gain visibility for most brands will still be organic search, but Amazon and Google will likely update their paid messaging platforms to cater to marketers, too. more natural for users—not to mention much more convenient. Such devices are also expected to get better at understanding contextual factors that make conversations more efficient

3. **Personalized experiences:** Digital assistants and voice-enabled devices such as Amazon's Alexa and Google Home to let customers engage through speech—the most natural form of communication. Perhaps this is why voice-enabled devices saw 39% increase year-over-year in online sales. Pretty soon, voice assistants will start providing even more personalized experiences as they become better at distinguishing different voices and tailoring results according to each individual user's information.

4. **Compatibility and integration:** A wide range of products will likely integrate voice assistants in the near future. Samsung has already started this with its release of its Family Hub refrigerator. Google also recently rolled out a new product called Google Assistant Connect, which allows manufacturers to build custom devices integrated with this technology.

5. Focus on security: Some 41% of voice device users claim that they are concerned about confidentiality while using their devices. This is why Amazon and Google introduced a number of security measures (including speaker ID and verification) to their voice assistant technologies. New solutions are also in the pipeline to make it more secure for customers to buy things using voice.

Why adopt a mobile voice strategy?

As useful as they are, mobile phones have very limited screen spaces, making it difficult for many users to search for what they need or to navigate the web. This can be solved by voice apps, which have large product directories as well as more information, thereby enabling users to use natural language to reduce (if not eliminate) manual effort. Voice is indeed the future of mobile experience.

Voice user interface will continue to advance

Voice technology will become increasingly accessible to developers in the coming years. Amazon, for its part, offers an automatic speech recognition service called Transcribe that lets developers add speech-to-text capabilities to their apps. Google also offers Actions, which lets developers integrate voice into their own AI products.

With all these advancements in voice technology and AI, businesses need to start learning how they can best leverage these technologies to improve their interactions with their customers. Contact a Custom software Lab today to explore opportunities in this area. Our custom web development and custom software company is ready to help

CHAPTER-3 . EXISTING SYSTEM:

Desktop Personal Assistant is built using artificial intelligence technology. Here, Jarvis supports end-users in daily activities such as communicating with people, querying on various search engines such as Google, searching for YouTube videos, searching for images, and files on local disk. , playing songs on desktop using imported modules like pyttsx3 is a standalone module used to convert text to speech in Python, DateTime module is imported to support date and time functions, web browsers, Wikipedia, Google bring it to Retrieve the user's results. We provide an optimal solution by analyzing the user's sentences/commands with artificial intelligence.

CHAPTER-4. PROPOSED SYSTEM:

The proposed system has the following features. (a) The system continues to receive commands and the reception time may vary. Modified according to user requirements. (b) (b) continue with the repeat request if the system is unable to collect information from user input. Once with the number you want. (c) The system can have both male and female voices according to the user's needs. (d) Features supported in the current version include playing music, email, text, searching Wikipedia, and opening. Everything from web browsers etc.
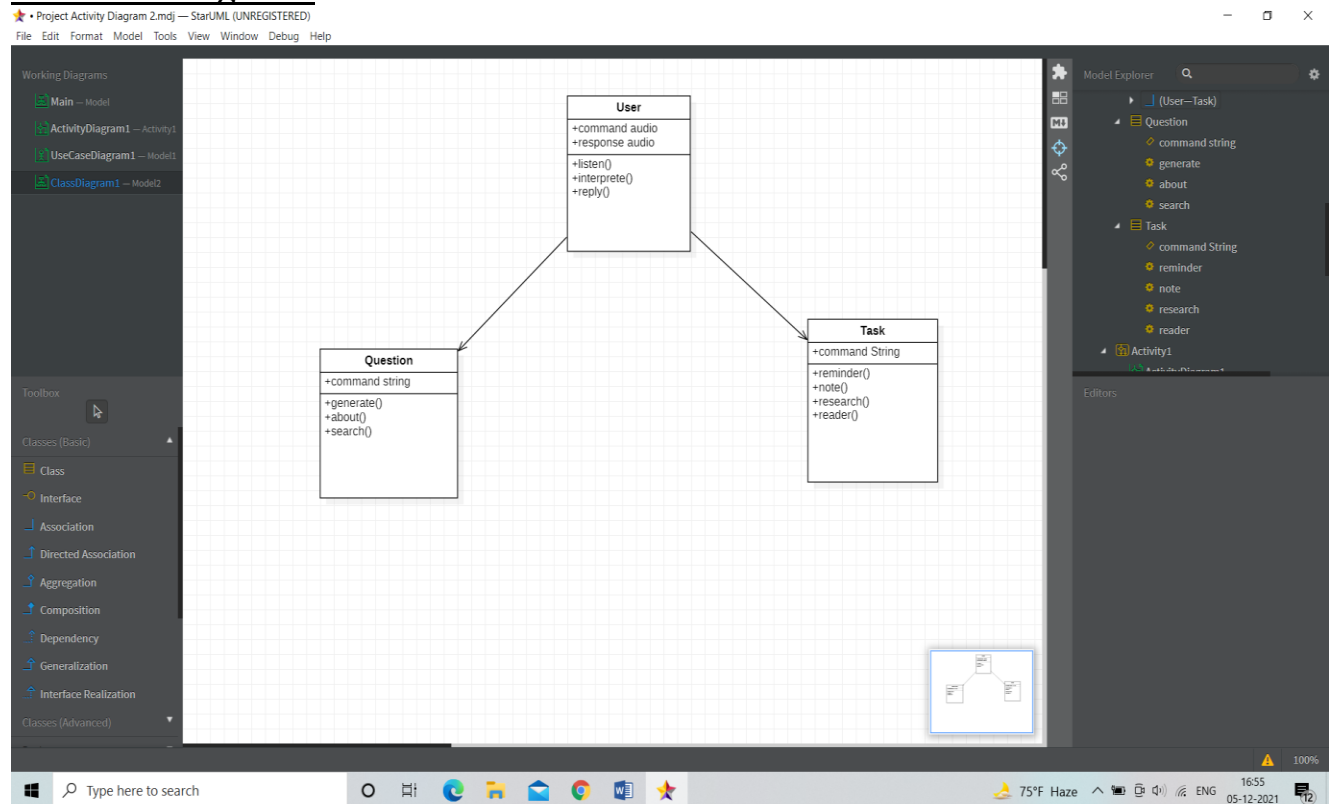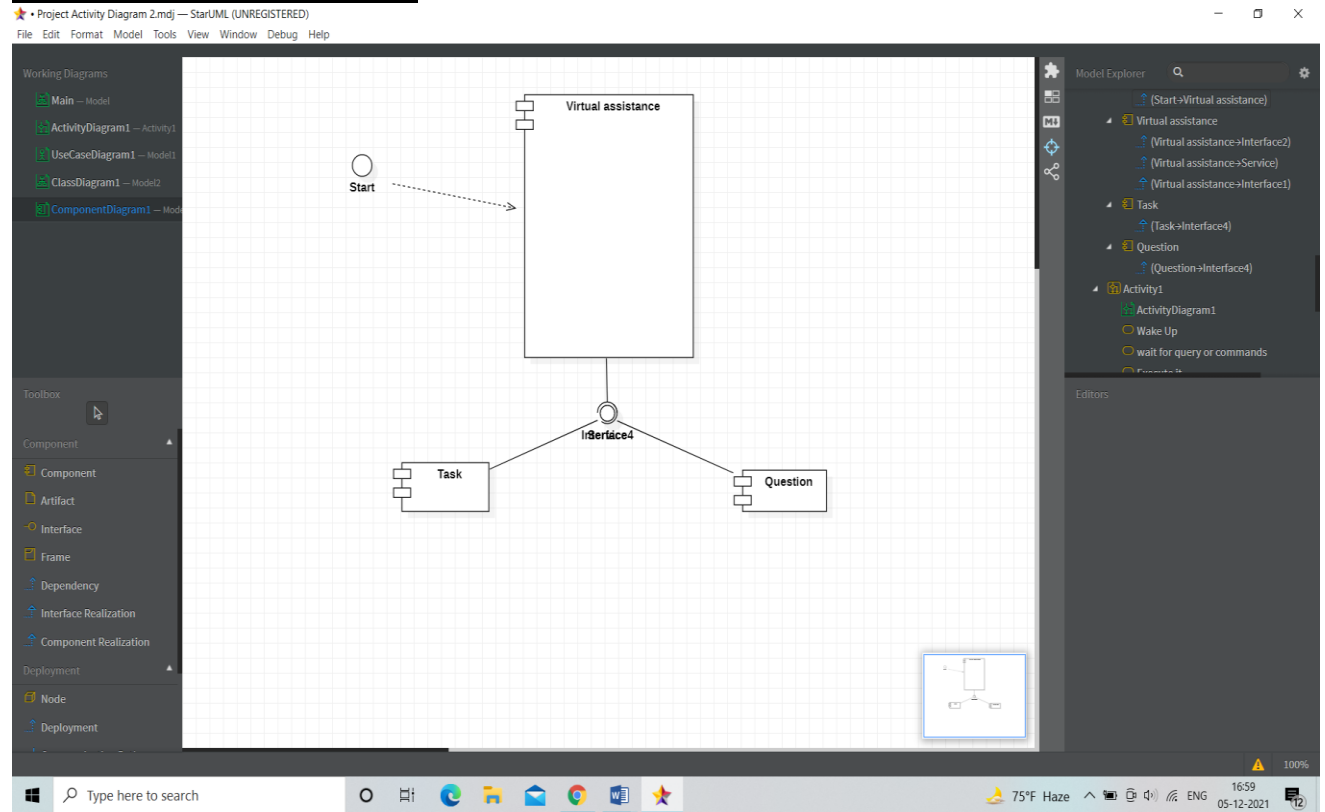
4.1 Activity Diagram:
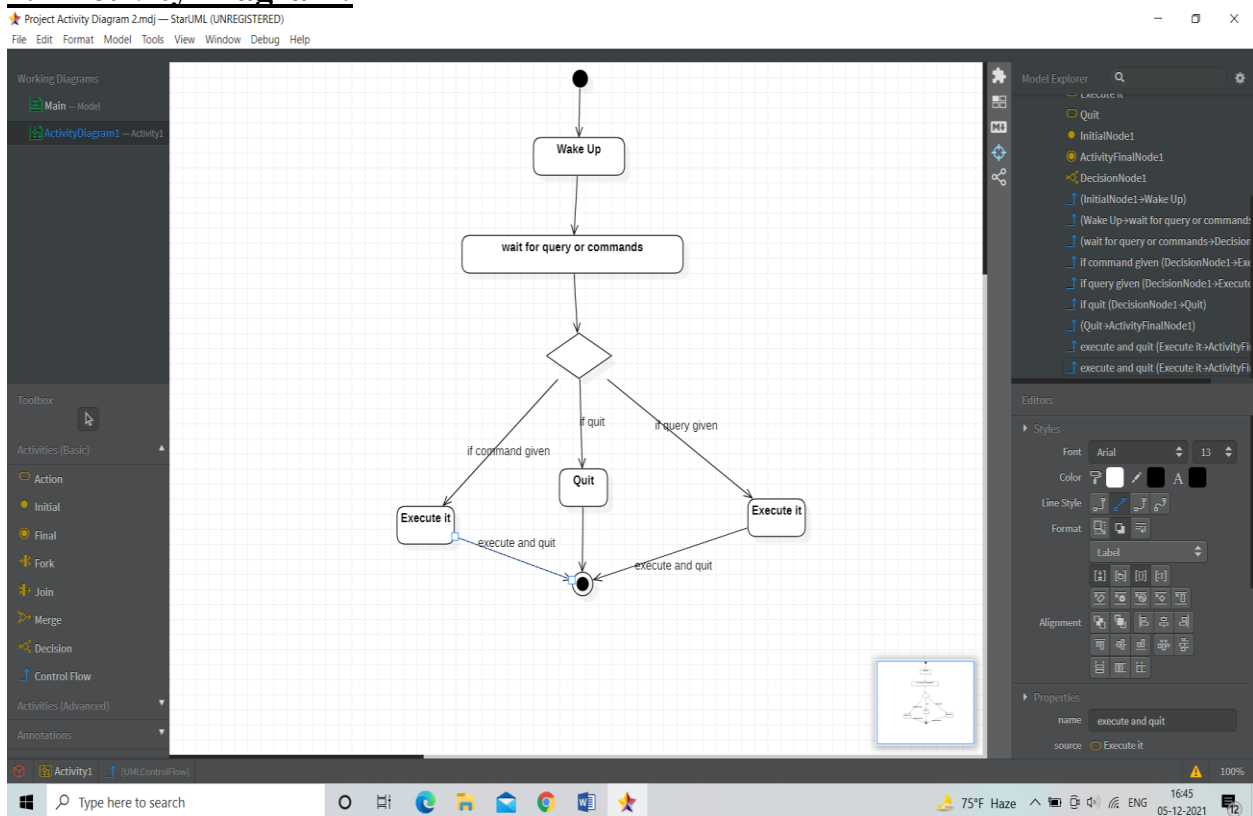
4.2 Use-Case Diagram:
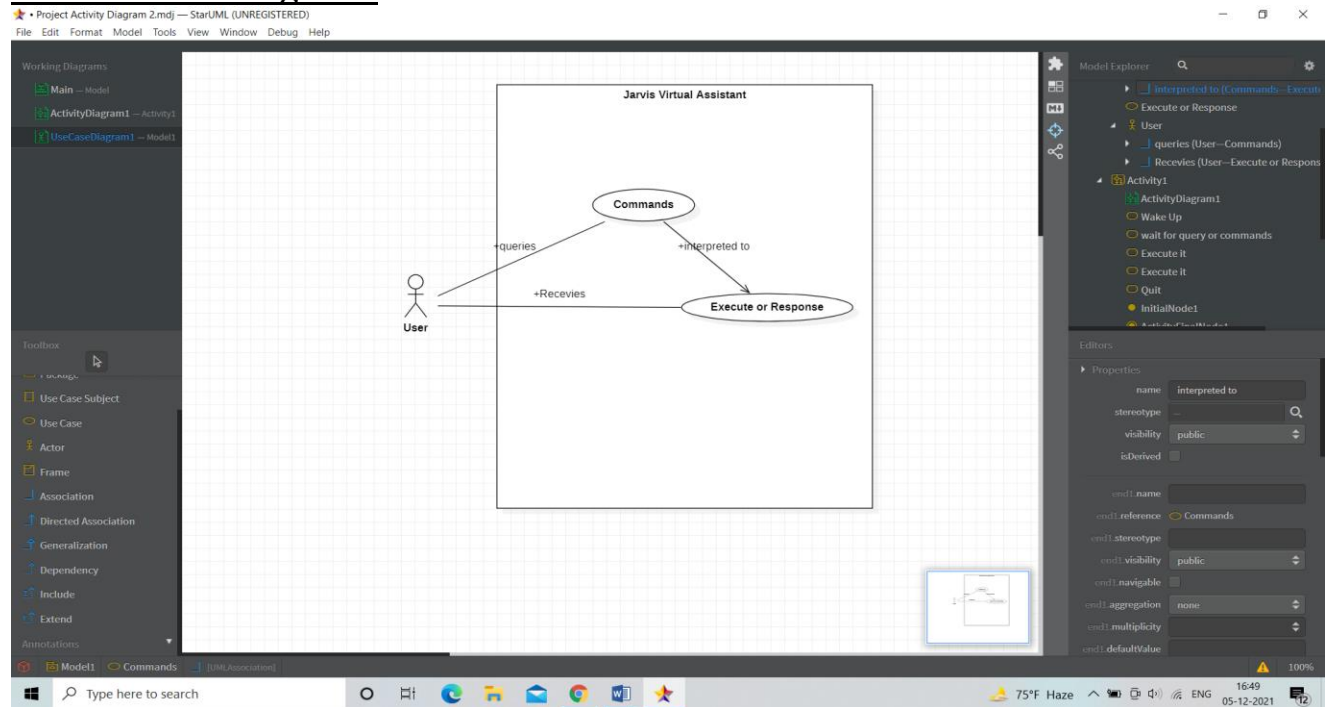
4.3 Class Diagram:

4.4 Component Diagram:

CHAPTER- 5 IMPLEMENTATION

```
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

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 Sir. 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...")
```

```python
        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('youremail@gmail.com', 'your-password')
    server.sendmail('youremail@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")
```

```python
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:\\Non Critical\\songs\\Favorite Songs2'
    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\\Haris\\AppData\\Local\\Programs\\Microsoft VS Code\\Code.exe"
    os.startfile(codePath)

elif 'email to harry' in query:
    try:
        speak("What should I say?")
        content = takeCommand()
        to = "harryyourEmail@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")
```
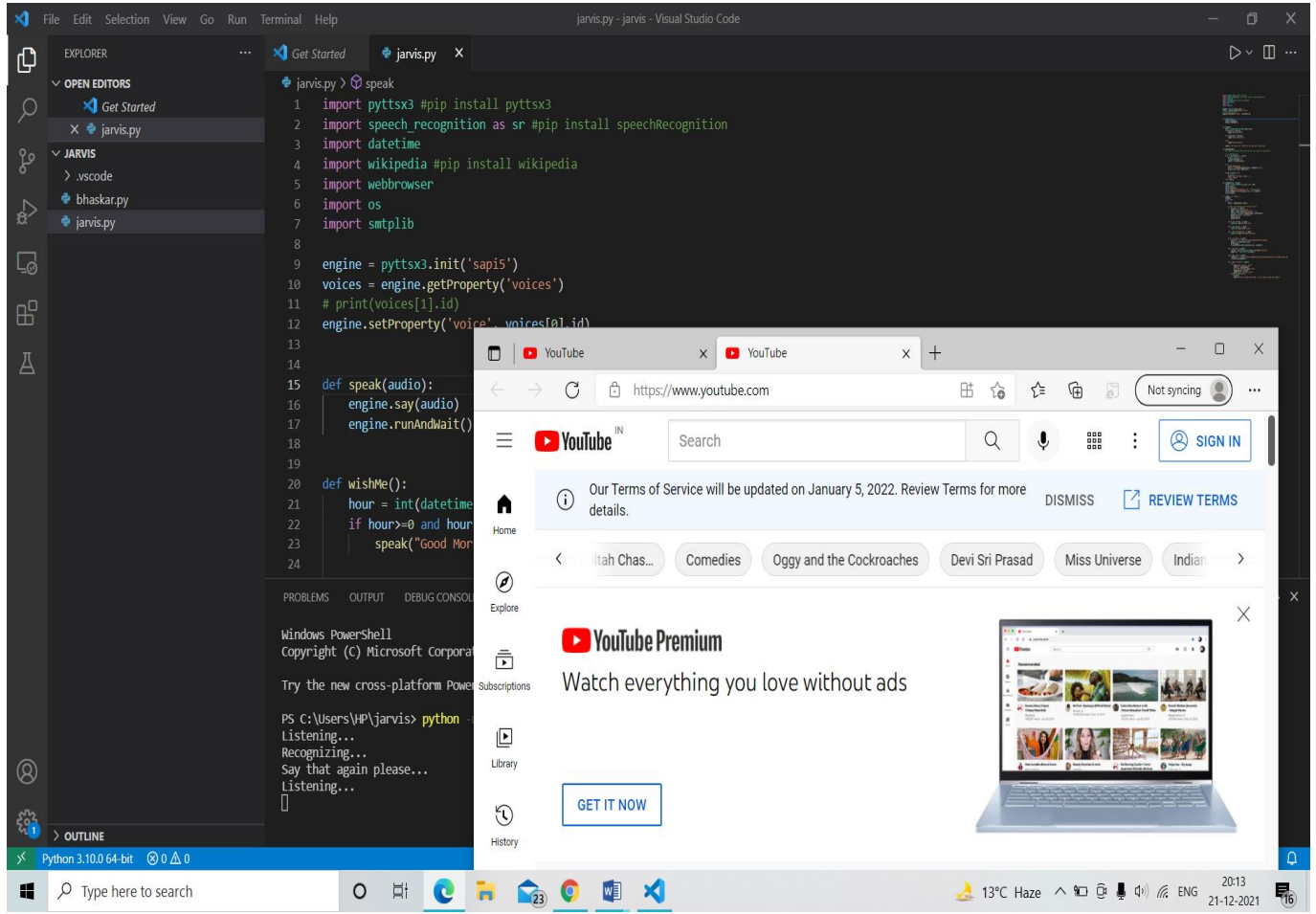
CHAPTER-6 RESULT

CHAPTER- 7 FUTURE SCOPE:

Virtual assistants available today are fast and responsive, but still have a long way to go. There is a need to significantly improve the understanding and reliability of existing systems. Currently available helpers are still unreliable in critical scenarios. In the future, these assistants will have virtual assistants combined with IoT and artificial intelligence including machine learning, neural networks, and more. The introduction of these technologies will allow us to reach new heights. What virtual assistants can achieve is beyond what we have achieved so far. Most of us have seen Jarvis, a virtual assistant developed by Iron Man that sets new standards for what can be achieved with a virtual voice assistant.

CHAPTER-8 CONCLUSION:

In this article, we discussed the design and implementation of digital support. The project is built using open source software modules supported by Visual Studio that may include updates in the near future. The modular nature of this project makes it more flexible and easier to add additional functions without interfering with the current functionality of the system. This exam culminates in virtual teams as an initial step in exploring the possibilities of remote assistants working on programming improvement projects. This project will be useful for blind and disabled people. Instead, we will see the emergence of fragmented markets. It will be a marketplace where native AI providers can be used based on hardware purchases. This leads to consumer friction and third-party solutions to eliminate current solutions.

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