IJIREEICE ISSN (O) 2321-2004, ISSN (P) 2321-5526

International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering

ISO 3297:2007 Certified ⁜ Impact Factor 7.047 ⁜ Vol. 10, Issue 6, June 2022

DOI: 10.17148/IJIREEICE.2022.10645

UNIQUE REQUEST TO PERSONAL VIRTUAL ASSISTANCE OF WINDOWS VIA GSM

Sri Lakshmi S[1], Tejashree A[2], Varshitha R[3], Yashwanth B N[4], Mrs. Semma J[5]

Student, Department of Computer Science And Engineering, AMC Engineering College, Bengalure, India[1-4]

Assistant Professor, Department of Computer Science and Engineering, AMC Engineering College, Bengalure India[5]

Abstract: The main goal of Artificial intelligence [AI] is to relate between machines and humans. There are many IT companies have using the dialogue systems to have various personal virtual assistance based on their applications. As we know that nowadays everything is shifting to virtual and all the technologies are interconnected to each other. Sending calls using Arduino and GSM module via registered number, in this we are using SIM900 it is a GSM Modem this allows GPRS transmission and receives the calls. We have many personal virtual Assistance for windows these days like cortana , Braina , Siri , Google Assistance and Siri Shortcuts etc. This Project works on sending unique requests to our personal virtual assistance via GSM . The main Theme of this project is to give otimized output to the people request instantly , making them to think smarter, helps in multitasking , home automation.

1. INTRODUCTION

The digital life is decided by innovations. Especially in recent years, more innovative technologies were developed to ease the professional lifestyle. Intelligent Personal Assistant is proved to be the most vital innovation in terms of easing lives and providing a hands-free experience.

The PC Personal Assistant works on voice commands and executes the user query. This project, PC Personal Assistant is built mainly using python. The software uses a device's microphone to accept voice requests via GSM and Arudino while the output takes place at the system's speaker.

It's a mixture of varied technologies: voice recognition, voice analysis, and language processing , GPRS transmission. When a user calls to GSM module where SIM is inserted in it and asks an assistant to perform a task, the natural language audio signal is converted into digital data which will be analyzed by the software. Once digitized, several models are used to transcribe the audio signal to textual data. Tasks that the virtual assistant can perform are searching the information from Wikipedia and reading the information, fetching top trending news and reading the news, telling the present weather of a particular city, computational task, telling the present time and date etc.

Various APIs are used to perform the task. For instance, Wolfram Alpha API is employed to perform computational tasks. Python also provides various libraries. Speech Recognition library is employed to perform speech to text conversion, Wikipedia library is employed to fetch information from Wikipedia, pyttsx3 library is employed to perform the text to speech conversion, etc. All the tasks are within the textual form which is then converted into an audio signal. A Text-to-speech Engine converts the text into phonemic representation, and then it converts the phonemic representation to waveforms which will be output.

2.EXISTING AND PROPOSED SYSTEM

EXISTING SYSTEM

In some existing projects Google assistant is used to recognize the voice command, through IFTTT website and the Adafruit account is also linked to it. In this home automation, user has to give commands to the Google assistant. Home appliances like Bulb, Fan and Motor etc., are controlled according to the given commands. The commands given through the Google assistant are decoded and then sent to the microcontroller and it control the relays. The device connected to the respective relay turned "On" or "OFF" as per the users request to the Google Assistant and it doesn't support any other function like automating PC tasks. Based on the survey either the project is completely based on Home automation or it's

IJIREEICE ISSN (O) 2321-2004, ISSN (P) 2321-5526

International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering

ISO 3297:2007 Certified ⁜ Impact Factor 7.047 ⁜ Vol. 10, Issue 6, June 2022

DOI: 10.17148/IJIREEICE.2022.10645

only supports automating PC tasks and functions. The main aim of this project is to combine two functions i.e. IoT home automation and virtual assistant to automate computer's tasks and appliances.

PROPOSED SYSTEM

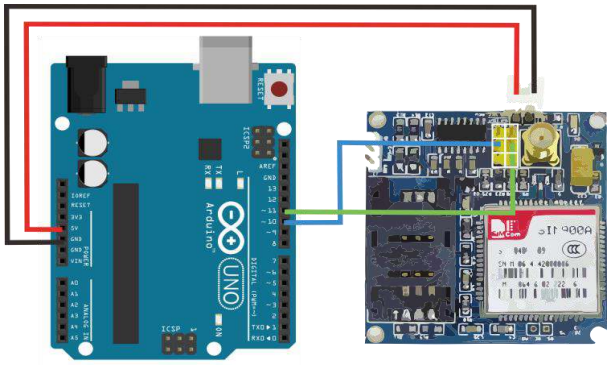
The project aims to develop a private assistant for Computer. PC Personal Assistant draws its inspiration from virtual assistants like Google Assistant for Android, Siri for iOS. It provides a user-friendly interface for completing a spread of tasks by employing certain well-defined commands. Users can interact with the assistant through voice commands via making call through GSM . As a private assistant, it assists the end-user with day-to-day activities like searching queries, reading the latest news, live weather, sending mail through voice and also supports integration with IoT based components which includes Node MCU based microcontroller for automating home-appliances. The software uses a device's microphone to receive voice requests while the output takes place at the system's speaker. It's a mixture of various technologies: voice recognition, voice analysis, and language processing. PC Personal assistant is built mainly using python.

3. PROPOSED PLAN OF WORK

Automatic Call answering Machine by using Arduino and GSM module. All the calls request of the user will be automatically answered by this machine and your recorded voice will be played to Personal virtual assistance and our assistance will give the required output.

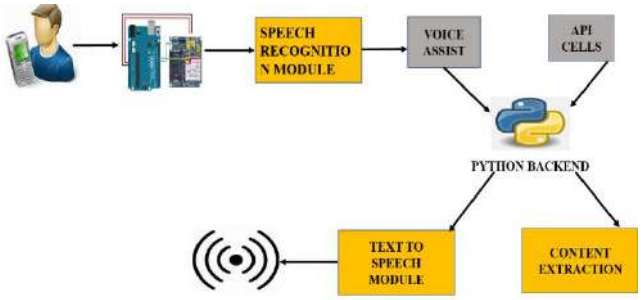
Materials Required:

1. Arduino Uno
2. GSM module – Flyscale SIM 900
3. ISD 1820 Voice Module
4. 12V adapter to power GSM module
5. 9V battery to power Arduino
6. Connecting wires
7. Personal virtual assistance of windows



Connection to auto receive the call via GSM

4. BLOCK DIAGRAM AND WORKING



User calls to the GSM module where unique SIM is insterted, The GSM Module will auto receive the call, The Arduino board allows to connect to the internet and helps in auto receiving the call. The GSM and Ardunio connect to the personal

IJIREEICE ISSN (O) 2321-2004, ISSN (P) 2321-5526

International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering

ISO 3297:2007 Certified ⁜ Impact Factor 7.047 ⁜ Vol. 10, Issue 6, June 2022

DOI: 10.17148/IJIREEICE.2022.10645

voice assistance through the external port. Through the speech recognition module the user request breaks into the segments for clearing the background noises through API cells and the related content will be extracted in the backend using python and the required output is given.

5. RESULTS

1. Intially Arduino is connected to power source and user calls GSM and send a request to virtual assistance.

Connection of ardunio and GSM and PC

2. Personal assistance responding to user request.

a.

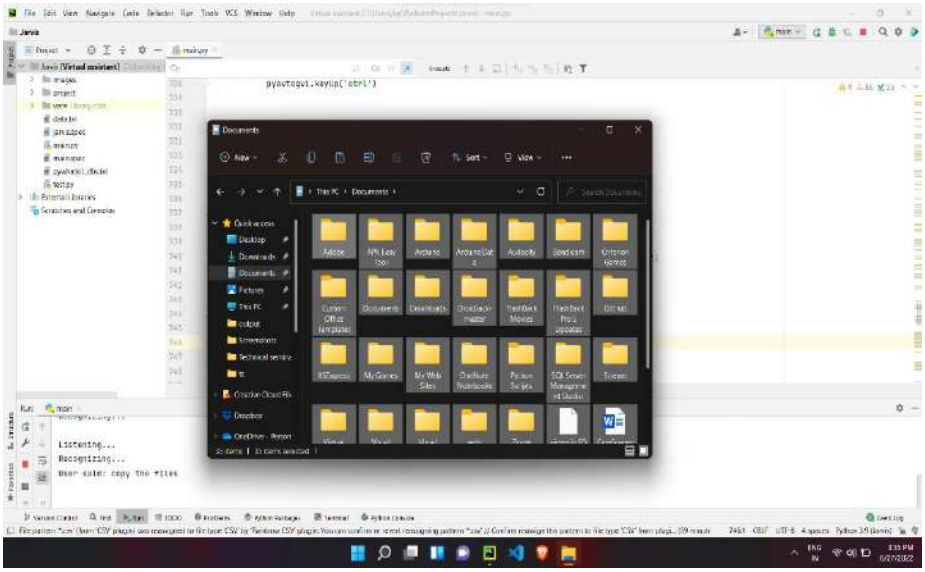
Calculating function request

If the keyword “calculate” matches with user given phrase such as “system turn on calculate”. The virtual assistant asks the user for the mathematical expression to perform the calculation and outputs the results through the pycharm console and speaker.

b.

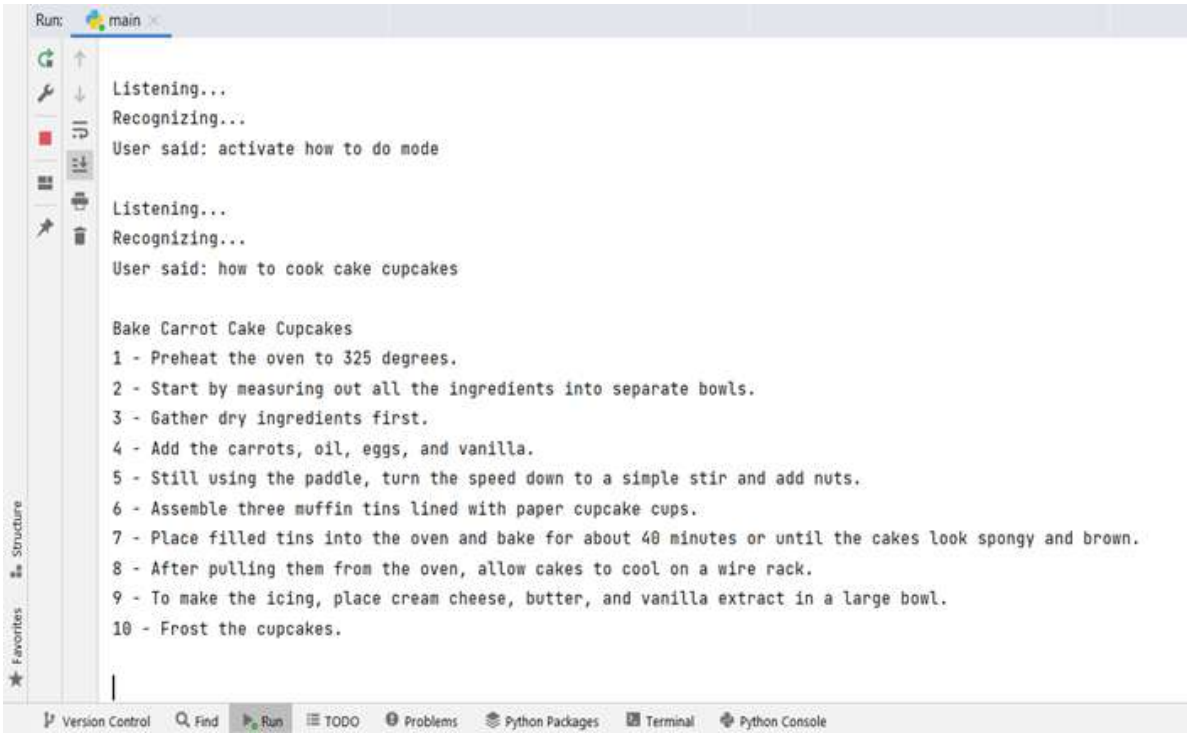
turn off the light function results

If the keyword “off light” matches with user given phrase such as “Turn off light”. The virtual assistant sends an http request to the node MCU to turn off the LED light.



3. Virtual assistance responding for user requests

a.



copy the files function results

If the keyword “copy file” matches with user given phrase such as “Copy the file”. The virtual assistant copies the selected files to the clipboard for further use.

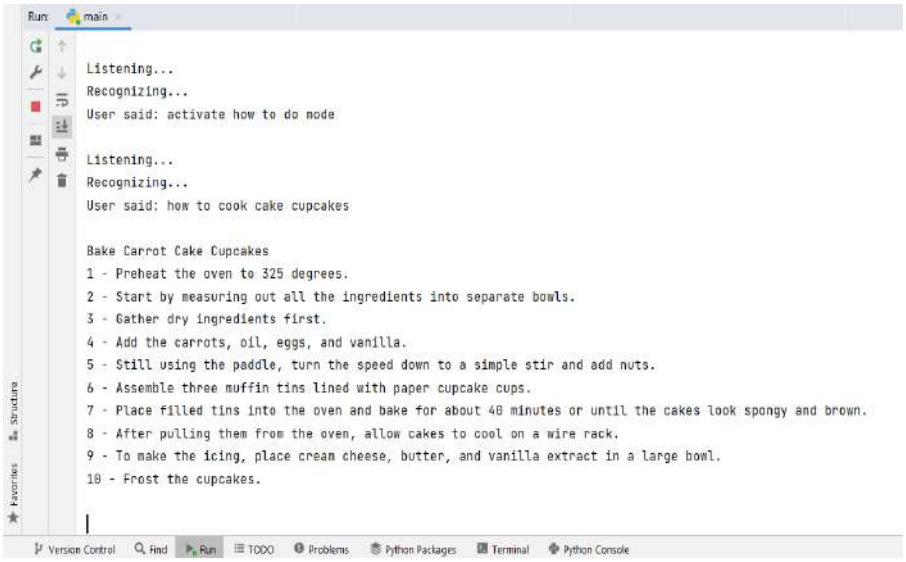
IJIREEICE ISSN (O) 2321-2004, ISSN (P) 2321-5526

International Journal of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering

ISO 3297:2007 Certified ⁜ Impact Factor 7.047 ⁜ Vol. 10, Issue 6, June 2022

DOI: 10.17148/IJIREEICE.2022.10645

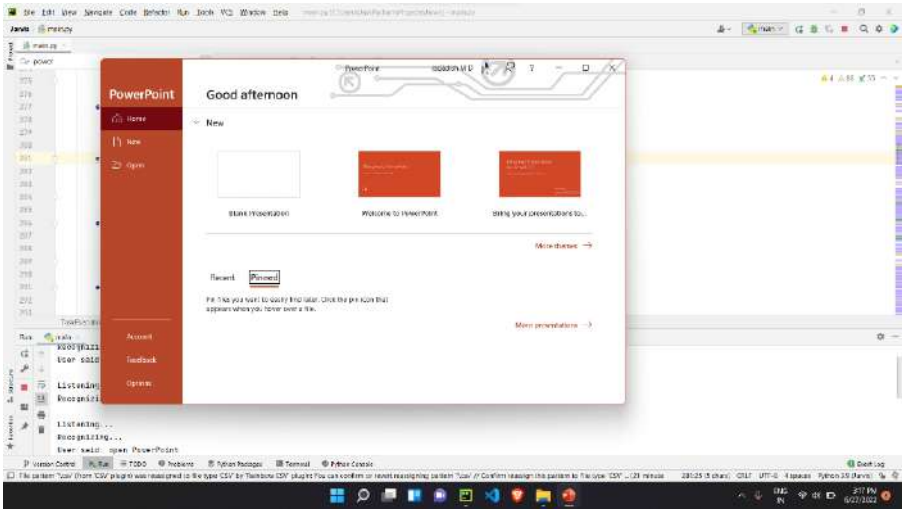
b.



How to do mode function results

If the keywords “how to do mode” matches with user given phrase such as “System activate how to do mode”. The virtual assistant asks the user for the dish name and after querying the results. Recipe is displayed on the console and also it tells through speaker.

c.



open application function results

If the keyword “open” matches with user given phrase such as “open power presentation”. The virtual assistant opens the application requested by user. In the above example MS office PowerPoint application is launched on user request.

6. CONCLUSION

Voice assistants are useful in many fields such as education, daily life application, home appliances, etc. and the voice assistant is also useful for illiterate people. They can get any information just by saying to the assistant, luxury is available for people, thanks to AI-based voice assistants. 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, getting trending news, geo location of the device, and connecting IoT devices like bulb, fan etc. accessing YouTube videos, and solving computational queries. We aim to make this project a complete User friendly and offer up to 20 function to automate daily tasks and also integration with IoT network. With the advancements in technology, particularly

DOI: 10.17148/IJIREEICE.2022.10645

in Artificial Intelligence, we can extend the scope of the project with Home Automation. In home and building automation systems, the use of wireless technologies gives several advantages which cannot be achieved by using a wired network.

- Reduced installation costs.
- Easy deployment, installation, and coverage.
- System scalability and easy extension.
- Aesthetical benefits.
- Integration for personnel computer.

REFERENCES

1. Author: Anthony Zhang, Library for performing speech recognition, with support for several engines and APIs, online and offline. Released: December 5, 2017, link: https://pypi.org/project/SpeechRecognition/
2. Author: Natesh M Bhat.pyttsx3 is a text-to-speech conversion library in Python. Unlike alternative libraries, it works offline and is compatible with both Python 2 and 3. Released: July 14, 2021 link: https://pyttsx3.readthedocs.io/en/latest/
3. Author: ASHUTOSH PANDEY, News API is a simple JSON-based REST API for searching and retrieving news articles from all over the web. Using this, one can fetch the top stories running on a news website or can search top news on a specific topic (or keyword). Released: 26 May, 2022 link: https://www.geeksforgeeks.org/fetching-top-news-using-news-api/
4. Author: Martin Majlis, Wikipedia-API is easy to use Python wrapper for Wikipedia's API. It supports extracting texts, sections, links, categories, translations, etc. from Wikipedia. Released: Jan 27, 2020, link: https://pypi.org/project/Wikipedia-API/
5. Author: Al Sweigart, PyAutoGUI lets the Python scripts control the mouse and keyboard to automate interactions with other applications. The API is designed to be simple. PyAutoGUI works on Windows, macOS, and Linux, and runs on Python 2 and 3. Released: 2019, link: https://pyautogui.readthedocs.io/en/latest/
6. ESP8266 Arduino Core, Author: Ivan Grokhotkov, allows coding, debugging and uploading Arduino sketch to node Mcu using c/c++ programming language. Released: 2017, link:https://arduino-esp8266.readthedocs.io/en/latest/installing.html
7. Author: A Kenneth Reitz, Requests is an elegant and simple HTTP library for Python, built for human beings. Released: 2016 link: https://requests.readthedocs.io/en/latest/
8. Author: Jarbasai, Allows the user to fetch the step by step instruction from WikiHow website for the recipes. Released: Jul 6, 2020, link: https://pypi.org/project/pywikihow/
9. Author Wolfram Inc., This API makes it easy to translate free-form linguistic queries into in-depth, formatted results for users with little coding effort. It is implemented in a standard REST protocol using HTTP GET requests. Released: 2017, link: https://products.wolframalpha.com/simple-api/documentation/
10. V. Mitra, H. Franco, M. Graciarena and D. Vergyri, "Medium-duration modulation cepstral feature for robust speech recognition," 2014 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Florence, Italy, 2014, pp. 1749-1753, doi: 10.1109/ICASSP.2014.6853898.
11. Acero, "An overview of text-to-speech synthesis," 2000 IEEE Workshop on Speech Coding. Proceedings. Meeting the Challenges of the New Millennium (Cat. No.00EX421), Delavan, WI, USA, 2000, pp. 1-, doi: 10.1109/SCFT.2000.878372. T. Kim, "Short Research on Voice Control System Based on Artificial Intelligence Assistant," 2020 International Conference on Electronics, Information, and Communication (ICEIC), Barcelona, Spain, 2020, pp. 1-2, doi: 10.1109/ICEIC49074.2020.9051160.
12. J in He, Rui Yu, Xinsheng Wang and Lina Huang, "Validation of query expression based on Regular Expression," 2011 International Conference on Computer Science and Service System (CSSS), Nanjing, China, 2011, pp. 1879-1882, doi: 10.1109/CSSS.2011.5974145. I. Budiselic, S. Srbljic, and M. Popovic, "RegExpert: A Tool for Visualization of Regular Expressions," EUROCON 2007 – The International Conference on "Computer as a Tool", Warsaw, Poland, 2007, pp. 23872389, doi: 10.1109/EURCON.2007.4400374.
13. D. M. Thomas and S. Mathur, "Web Scraping using Python," 2019 3rd International Conference on Electronics, Communication, and Aerospace Technology (ICECA), Coimbatore, India, 2019, pp. 450- 454, doi: 10.1109/ICECA.2019.8822022.