Olivia- A Personal Virtual Assistant

Project Report

B.Tech.

Computer Science and Engineering

Under the Supervision of

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and

Ms.

By

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Department of Computer Science & Engineering

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Declaration

This is to certify that Mini Project Entitled "CHATBOT IN PYTHON" which is submitted in partial fulfillment of the requirement for the award of degree Bachelor of Technology (B. Tech) in Computer Science and Engineering to R.K.G.I.T, Ghaziabad, Dr. A.P.J. Abdul Kalam Technical University, Lucknow comprises only original work and studies carried out by students himself. The matter embodied in this synopsis has not been submitted for the award of any other degree.

Date

Approved By

Signature of Mini-Project Coordinator

Mrs. Sonam kumari (Assistant Professor) Mini-Project Coordinator(2nd Year) CSE Department Raj Kumar Goel Institute Of Technology, Ghaziabad

Countersign By

Signature of HOD

Dr. Sachi Gupta (Professor) HOD, CSE Department Raj Kumar Goel Institute Of Technology, Ghaziabad

VISION OF THE INSTITUTE

To continually develop excellent professionals capable of providing sustainable solutions to challenging problems in their fields and prove responsible global citizens.

MISSION OF THE INSTITUTE

We wish to serve the nation by becoming a reputed deemed university for providing value based professional education.

VISION OF THE DEPARTMENT

To be recognized globally for delivering high quality education in the ever-changing field of computer science & engineering, both of value & relevance to the communities we serve.

MISSION OF THE DEPARTMENT

1. To provide quality education in both the theoretical and applied foundations of Computer Science and train students to effectively apply this education to solve real world problems.
2. To amplify their potential for lifelong high-quality careers and give them a competitive advantage in the challenging global work environment.

PROGRAM EDUCATIONAL OUTCOMES

PEO 1: Learning

Our graduates to be competent with sound knowledge in the field of Computer Science & Engineering.

PEO 2: Employable

To develop the ability among students to synthesize data and technical concepts for application to software product design for successful careers that meet the needs of Indian and multinational companies.

PEO 3: Innovative

To develop research oriented analytical ability among students to prepare them for making technical contributions to the society.

PEO 4: Entrepreneur / Contribution

To develop excellent leadership quality among students which they can use at different levels according to their experience and contribute for progress and development in the society.

PROGRAM OUTCOMES

Engineering Graduates will be able to:

PO1: Engineering knowledge

Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis

Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions

Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage

Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society

Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability

Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and teamwork

Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication

Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance

Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning

Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES

PSO1

The ability to use standard practices and suitable programming environments to develop software solutions.

PSO2

The ability to employ the latest computer languages and platforms in creating innovative career opportunities

COURSE OUTCOMES

CO	Course Outcomes	Bloom's Knowledge Level(KL)
CO 1	Students acquire a 'real' working environment and get acquainted with the organization structure, business operations and administrative functions.	K6
CO 2	Students develop hands-on experience in the student's related field so that they can relate and reinforce what has been taught at the institute.	K1, K2, K3
CO 3	Students acquire knowledge of cooperation and to develop synergetic collaboration between industry and the institute in promoting a knowledgeable society.	K1, K6
CO 4	Students get a stage for the future recruitment by the potential employers and get awareness of the social, cultural, global and environmental responsibility as an engineer.	K5, K6
CO 5	Students acquire presentation and demonstration skills to effectively communicate the progress of the work to peers and superiors using audio/video, software tools.	K3

CO-PO MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C209.1	3	2	2	2	3	3			3	2	2	3
C209.2	3	3	2	3	3	3	3	3	2	2	2	3
C209.3	3	3	2	2	3	3		3	2	2	2	3
C209.4	3	3	3	2		3	3		2	2		3
C209.5	3	2	2		3			3	3		2	
C209	3	3	2	2	3	3	3	3	3	2	2	3

CO-PSO MAPPING

CO	PSO1	PSO2
C209.1	3	3
C209.2	3	3
C209.3	3	3
C209.4	3	3
C209.5	3	3
C209	3	3

Table of Contents of the Synopsis

Abstract

Personal Assistants Virtual Assistant that redesign a new way for us to interact with Computers. Computers have advanced so much from a simple calculator to a powerful tool for many people, but it is not always easy to use. This application is designed to help people to interact with computers in a more comfortable way. A Virtual Assistant allows a customer to ask for queries in the similar that they would have with a human, and are even capable of doing some basic tasks like opening apps, reading out news, taking notes, Playing video and pausing and play them etc., with just a voice command. Personal Assistants using Artificial intelligence, Machine Learning and Natural Language Processing in Text to speech and speech to Text in speech recognition. The Artificial Intelligence, Machine Learning and The Natural Language Processing is used to understand the user's text and convert it into voice. The Personal Assistant help to minimize the time spent on the task and make the task more efficient. It also minimizes the use of input devices like keyboard, mouse, touch pens, etc. This will decrease the cost of the hardware and the space taken by it. The Personal Assistants Virtual Assistant is designed to be very useful for people who are busy and don't have time to spend on their daily tasks. The Personal Assistants Virtual Assistant is a free software, and it is open source. It is developed by Chirag Singhal. It is available for free download from GitHub. Furthermore, it is also very useful for people who are not able to use the keyboard or mouse such as people with cognitive disabilities, listening disabilities, physical disabilities, visual disabilities etc. The Personal Assistant is designed especially for such people who want to interact with their machines and systems using voice.

Features

1. Fully customizable
2. A lot of features
3. Built-in voice recognition
4. Dynamic voice recognition
5. Easy to use
6. Great UI
7. Intuitive
8. Just a bit of magic
9. Keyboard-controlled
10. Lightweight
11. Minimal
12. No need for a database
13. Open source
14. Powerful
15. Quick
16. Simple
17. Transparent
18. User-friendly

19. Voice-controlled
20. Speech synthesis
21. Speech recognition
22. Natural language processing
23. Intuitive interface
24. Customizable
25. Open source
26. Free to use
27. Free to modify
28. Free to redistribute

Requirements

Hardware requirements

1. Computer and processor - 1.6 GHz or faster, 2-core
2. Memory - 1 GB RAM
3. Hard disk space - 10 GB
4. Display - 1280 x 720 or higher

Software requirements

1. Operating system - Windows 11, Windows 10, Windows 8.1, Windows Server 2019, Windows Server 2016

Other requirements

1. Internet connection - Speed of at least 1 Mbps
2. Ping - At most 100 ms
3. Jitter - At most 10 ms
4. Signal strength - At most -90 dBm
5. Noise - Silent or very low Background noise

Consequences of bad internet connection

1. Starting will take time.
2. Recognizing will take time.
3. The program may fail to connect to the server.
4. The program may fail to Recognizing the spoke saying.

Consequences of background noise

1. Background Noise may make the program fail to connect to the server.
2. Background noise may make the program fail to Recognize the spoke command or query.

User Manual

just click on the software icon in the taskbar to open the software (If you don't know how to open the software, please refer to the Installation instruction section.)

Application of the software

1. The main task of a voice assistant is to minimize the use of input devices like keyboard, mouse, touch pens, etc. This will reduce both the hardware cost and space taken by it.
2. The Olivia Personal Assistant is a voice assistant that can be used to perform tasks like playing music, playing games, playing videos, taking screenshots, sending emails, sending WhatsApp messages, etc.
3. The Olivia saves the user time and energy by providing a variety of functions.
4. The software is designed to be very useful for people with visual disabilities.
5. The software is designed to be very useful for people with physical disabilities like hand movements, hand-eye coordination, hand loss, etc.
6. The software is designed to be very useful for people with listening disabilities like hearing loss too.
7. The software is designed to be very useful for people with cognitive disabilities like autism, autism spectrum disorder, autism spectrum disorder, etc.
8. The software is designed to be very useful for people with speech disabilities like stuttering, speech impairment, etc.
9. The software is designed to be very useful for people with reading disabilities like dyslexia, etc.
10. The software is designed to be very useful for people with language disabilities like aphasia, bilingualism, etc.

Assistant skills

1. Give description of anything according to Wikipedia just say "what is (the name of the thing) according to Wikipedia".

2. Give the CPU usage of the computer just say "CPU usage" or "CPU usage of the computer" or "usage of the CPU".

3. Present with the RAM usage of the computer just say "RAM usage" or "RAM usage of the computer" or "RAM usage of the 0computer".

4. Give the disk usage of the computer just say "disk usage" or "disk usage of the computer" or "disk usage of the computer".

5. Give the battery usage of the computer just say "battery usage" or "battery usage of the computer" or "battery usage of 0the computer".

6. Similarly, Give the current weather of the city just say "current weather" or "current weather of the city".

7. Search in chrome just say "search in chrome".

8. Tell you the time by saying "time" or "what time is it" or "what is the time" or "tell me the time".

9. Tell you the date by saying "date" or "what date is it" or "what is the date" or "tell me the date".

10. Generate a random password by saying "generate a password" or "generate a random password".

11. Generate a random number by saying "generate a number" or "generate a random number".

12. Change your name by saying "change my name to (your name)" or "call me (your name)".

13. Send a mail by saying "send a mail to (your mail ID)" or "send a mail to (your mail ID) with (your message)".

14. Lock the screen by saying "lock the screen" or "lock window" or "lock screen".

15. Shutdown the computer by saying "shutdown the computer" or "shutdown the computer now" or "shutdown system".

16. Empty the recycle bin by saying "empty the recycle bin" or "empty recycle bin".

17. Stop listening by saying "stop listening" or "stop listening now" or "don't listen" or "don't listen now".

18. Tell you the location of a place by saying "where is (the name of the place)".

19. Restart the computer by saying "restart the computer" or "restart the computer now" or "restart system" or "reboot the computer" or "reboot the computer now" or "reboot system".

20. Hibernate the computer system by saying "hibernate the computer" or "hibernate the computer now" or "hibernate system" .

21. Logout the computer by saying "logout the computer" or "logout the computer now" or "logout system" or "sign out the computer" or "sign out the computer now" or "sign out system".

22. Write a note by saying "write a note" or "write note" or "write a note now" or "write note now" with further of including the time and date by saying yes or no.

23. Read a note by saying "read a note" or "read note" or "read a note now" or "read note now".

24. Delete a note by saying "delete a note" or "delete note" or "delete a note now" or "delete note now".

25. Show all notes by saying "show all notes" or "show all notes now" or "show all notes now".

26. Tell location of a place by saying "where is (the name of the place)" or "where is (the name of the place) now" or "where is (the name of the place) now" etc. Example "where is Ghaziabad" will tell you the location of Ghaziabad by open the location of Ghaziabad in Google Maps.

27. Open word by saying "open word" or "open word now" and then type your document by saying "yes" or "no" when asked if "do you want me to type" and stop typing by saying "stop typing".

28. Launch an application by saying "launch (the name of the application)" or "launch (the name of the application) now" or "launch (the name of the application) now"

    1. Launch chrome just say "launch chrome" or "launch chrome now".
    2. Likewise, Launch notepad just say "launch notepad" or "launch notepad now".
    3. Open word just say "launch word" or "launch word now".
    4. Launch PowerPoint just say "launch PowerPoint" or "launch PowerPoint now".
    5. Launch Microsoft Excel just say "launch excel" or "launch excel now".
    6. Open outlook just say "launch outlook" or "launch outlook now".
    7. Launch Spotify just say "launch Spotify" or "launch Spotify now".
    8. Launch control panel just say "launch control panel" or "launch control panel now".
    9. Open task manager just say "launch task manager" or "launch task manager now".
    10. Launch paint just say "launch paint" or "launch paint now".

29. Play any a video on a specific topic by saying "play a video on (the name of the topic)" or "play (the name of the topic) video" or "play (the name of the topic)". Example are as following:

    1. Play a video on cricket just say "play a video on cricket" or "play cricket video" or "play cricket".
    2. Play a video on football just say "play a video on football" or "play football video" or "play football".
    3. Play a video on hockey just say "play a video on hockey" or "play hockey video" or "play hockey".
    4. Start a video on sensors just say "play a video on sensors" or "play sensors video" or "play sensors".
    5. Play a video on artificial intelligence just say "play a video on artificial intelligence" or "play artificial intelligence video" or "play artificial intelligence".
    6. Play a video on robotics just say "play a video on robotics" or "play robotics video" or "play robotics".
    7. Start a video on how to make a cake just say "play a video on how to make a cake" or "play how to make a cake video" or "play how to make a cake".
    8. Play a video on python just say "play a video on python" or "play python video" or "play python".

30. Play any song of your choice by saying "play (name of the song(maybe with the name of the singer if there are two or more song by the same name there will be no confusion.)) Examples are as follows:

    1. Play lonely by Justin Bieber just say "play lonely by Justin Bieber" or "play the song lonely by Justin Bieber".
    2. Likewise, Play love yourself just say "play love yourself" or "play the song love yourself".
    3. Open peaches just say "play peaches" or "play the song peaches".
    4. I hope you understand now.
    5. Play lonely by the Beatles just say "play lonely by the Beatles" or "play the song lonely by the Beatles".

31. You can control the video by saying "pause", "play","volume up", "volume down", "next". Saying "pause" pauses the video in the web browser, Saying "play" plays the video in

32. Open any website just say "open (the name of the website)" or "open (the name of the website) now" or "open (the name of the website) now" e.g.

    1. Open the Amazon website by saying "open Amazon" or "open Amazon website".
    2. Furthermore, Open the Bing website by saying "open Bing" or "open Bing website".
    3. Likewise, Open the code forces website by saying "open code forces" or "open code forces website".
    4. Furthermore, Open the code wars website by saying "open code wars" or "open code wars website".
    5. Open the DuckDuckGo website by saying "open DuckDuckGo" or "open DuckDuckGo website".
    6. Open the Facebook website by saying "open Facebook" or "open Facebook website".

33. Search many websites like YouTube, Google (with Google Images, Google News etc.), Bing, Yahoo, DuckDuckGo, Wikipedia, Wiktionary, and many more just by saying "search (the name of the website) on (the thing you want to search on the website.). For example,

    1. If you want to search for "Python" on YouTube, you can say "search Python on YouTube".
    2. If you want to search for "Python" on Google, you can say "search Python on Google".

3. Likewise, If you want to search for "Python" on Google Images, you can say "search Python on Google Images".

4. Weather you want to search for "Python" on Google News, you can say "search Python on Google News".

5. If you want to search for "Python" on Google Maps, you can say "search Python on Google Maps".

6. If you want to search for "Python" on Google Scholar, you can say "search Python on Google Scholar".

34. Translate the English to many other languages just saying "translate (the sentence you want to translate) to (the language to which you want to translate the sentence)" example "translate hello to Spanish" will translate the English sentence "hello" to Spanish. The supported languages are :

   1. Afrikaans
   2. Albanian
   3. Amharic
   4. Arabic
   5. Armenian
   6. Azerbaijani
   7. Basque
   8. Belarusian
   9. Bengali
   10. Bosnian
   11. Bulgarian
   12. Catalan
   13. Cebuano
   14. Chichewa
   15. Chinese (Simplified)
   16. Chinese (Traditional)
   17. Corsican
   18. Croatian
   19. Czech
   20. Danish
   21. Dutch
   22. English
   23. Esperanto
   24. Estonian
   25. Filipino
   26. Finnish
   27. French
   28. Frisian
   29. Galician
   30. Georgian
   31. German
   32. Greek
   33. Gujarati
   34. Haitian Creole

35. Hausa
36. Hawaiian
37. Hebrew
38. Hindi
39. Hmong
40. Hungarian
41. Icelandic
42. Igbo
43. Indonesian
44. Irish
45. Italian
46. Japanese
47. Javanese
48. Kannada
49. Kazakh
50. Khmer
51. Korean
52. Kurdish (Kurmanji)
53. Kyrgyz
54. Lao
55. Latin
56. Latvian
57. Lithuanian
58. Luxembourgish
59. Macedonian
60. Malagasy
61. Malay
62. Malayalam
63. Maltese
64. Maori
65. Marathi
66. Mongolian
67. Myanmar (Burmese)
68. Nepali
69. Norwegian
70. Odia
71. Pashto
72. Persian
73. Polish
74. Portuguese
75. Punjabi
76. Romanian
77. Russian
78. Samoan
79. Scots Gaelic
80. Serbian

81. Sesotho
82. Shona
83. Sindhi
84. Sinhala
85. Slovak
86. Slovenian
87. Somali
88. Spanish
89. Sundanese
90. Swahili
91. Swedish
92. Tajik
93. Tamil
94. Telugu
95. Thai
96. Turkish
97. Ukrainian
98. Urdu
99. Uzbek
100. Vietnamese
101. Welsh
102. Xhosa
103. Yiddish
104. Yoruba
105. Zulu

35. Answer to many questions like :-

    1. What is your name?
    2. What is your age?
    3. Who is your favorite animal?
    4. What is your job?
    5. What is your favorite color?
    6. How is your favorite food?
    7. Who is your favorite actress?
    8. What is your favorite movie?
    9. What is your favorite sport?
    10. Who is your favorite singer?
    11. What is your favorite game?
    12. What is your favorite book?
    13. Who is your favorite songwriter?
    14. Who is your favorite cartoon?
    15. What is your favorite cartoon character?
    16. Who is your favorite actor?
    17. And many more...

36. Type by saying "start typing" and then start typing by the instruction given.

37. Press many key by saying "press (the key you want to press) key" example "press space key" will press the space key on your keyboard or "press enter key" will press the enter key on your keyboard, "press tab key" will press the tab key on your keyboard and so on.

38. Exit the application just by saying "exit the application" or "exit" or "goodbye" or "bye".

39. If the Virtual assistant Don't know the answer to any of your questions, Olivia will ask you if he or she wants to search the query in google or YouTube or Wikipedia. If you say yes, then it will ask in which of these websites you want to search the query like if you YouTube it will search the query on YouTube. In last, If you say no, then it will do nothing and just say 'ok. Anything else sir?

40. Send WhatsApp messages.

Installation instruction

Directly download the executable file from the link below and run it. Release

How to use the application

1. Just open the software by double-clicking on the executable file.
2. Then just give the command or query to the software.

Precautions while using the software in the application

1. Please do not forget to say "close" after playing a video on YouTube.

Libraries used in the software

1. Ctypes library
2. DateTime library
3. JSON library
4. Math library
5. OS library
6. Platform library
7. Random library
8. Re library
9. Shutil library
10. Subprocess library
11. Sys library
12. Time library
13. Tkinter library
14. Webbrowser library
15. Numpy library
16. Psutil library
17. PyAutoGui library
18. Pyfiglet library
19. Pyperclip library
20. Pyttsx3 library
21. Pywhatkit library

22. SpeechRecognition library
23. Wikipedia library
24. Winshell library
25. Googletrans library
26. Pyowm library