iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** III **Month of publication:** March 2022

DOI: https://doi.org/10.22214/ijraset.2022.41024

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue III Mar 2022- Available at www.ijraset.com

Virtual Desktop Assistant

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Abstract: ***Voice Assistants are becoming immensely popular feature that has changed the way user interact with devices. Voice assistants are used in many devices like mobile phones, laptops. These voice assistants are based on Artificial-Intelligence and Natural Language Processing. They take human voices as input and give output in integrated voices. This voice assistant takes voice through microphone, we have used libraries like pyttsx3 to convert text-to-speech.***
Keywords: Voice Assistant, python, pyttsx3, Artificial Intelligence, Speech Recognition

I. INTRODUCTION

In this age of Digital Revolution technology is growing at a rapid pace. There are various voice assistants like Siri of Apple Alexa of Amazon Cortona of Microsoft and Google Assistant. Voice assistants have evolved a lot as its usage have also increased in recent times. As voice assistants are using technologies like Artificial intelligence the results that we are getting are highly efficient and accurate. These assistants help to reduce human efforts required to perform same tasks. In our project input is taken from the user in the form of voice after receiving the input it needs to be processed so for that purpose various APIs are used.

Computer systems is designed in such a way that typically requires interaction from human. As we know Python is an emerging language so it becomes easy to write a script for Voice Assistant in Python. We have implemented Libraries like Speech Recognition, pyttsx3, Datetime, Wikipedia, pywhtatkit with the help of these packages and libraries development of software becomes easy. The main reason behind using pyttsx3 is its library which can work offline as well. In Python there is package called Speech Recognition which allows us to convert speech into text. Voice assistant Keeps listening continuously and perform tasks until user decide to quit. We have also implemented sleep mode, when user gives sleep command to the voice assistant it continues listening but does not recognize or act.

II. LITERATURE REVIEW

It was after the recognition of importance of voice commands in day-to-day life that we have aimed to develop a personal assistant for desktop which will do every work from playing music to sending messages. We start our literature survey by first understanding existing systems like Google assistant, Cortona, Alexa. which are similar to proposed system.

Ankush Yadav, Aman Singh, Aniket Sharma, Ankur Sindhu, Umang Rastogi have proposed their work on “Desktop Voice Assistance for Visually Impaired” in 2020.In this work, they used voice command to input the data into the system for that the microphone is used to convert acoustic energy into electrical energy. After taking the input there is a requirement to understand the audio signal for this google API is used [2].

Subhash S, Prajwal N Srivatsa, Siddesh S, Ullas A, Santosh B have proposed their work on “Artificial Intelligence Based Voice Assistant**”** in 2020. They have used gTTS Google text to speech package to make voice assistant speak like normal people. gTTS takes input through voice in audio form then and searches in the browser required response and convert that response into text. It is mainly used to convert audio string into text.

III.PROPOSED SYSTEM

Virtual Voice Assistant is different from other traditional voice assistants in terms that it is specific to desktop and user does not need to make account to use this. The IDE used in this project is PyCharm. For this project following modules and libraries were used i.e., pyttsx3, Speech Recognition, Datetime, Wikipedia, Smtplib, pywhatkit, pyjokes, pyPDF2, pyautogui, pyQt etc. Our program receive input in audio format through microphone then that audio or speech get recognise by Speech Recognition module which use recognize google API and then convert it into text then our program analyses that text and look for Hot-Keyword which is present in if-else ladder wherever that Hot-Keyword finds, our program runs that particular elif(else-if) block get triggered. In our assistant we don’t need to click on button to give commands once activated it continuously keeps listening.

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IV. METHODOLOGY

Virtual Desktop Assistant (VDA) is written in Python Programming Language. Our VDA take audio as an input and perform task accordingly. We have tried to build a simple AI model which majorly works on Hot-Keyword and if-else ladder. This model not only performs online tasks but also perform offline tasks too.

A. Working

1) In our project there is an if-else ladder which contains various features with a specific Hot-Keyword like today's weather, play music, open favourite folder.

2) Now, when program receives an input from user through microphone our python Speech Recognition package take that input and try to recognize through recognize google API. There are various Speech Recognition APIs are available in market like recognize Bing, recognize IBM, recognize wit, etc.

3) Once the input/query is recognized by recognizer the, Program check that does query contain any Hot-Keyword which is present in if-else ladder?

4) If query contain any Hot-Keyword then checks that whether it's online or offline command and then particular else-if block get triggered and run the code which is in that block. But if it doesn't contain any Hot-Keyword it will return "null".

B. Architecture

The system is designed using the concept of Artificial Intelligence and with the help of necessary packages of Python. The data in this project is nothing but user input, whatever the user says, the assistant performs the task accordingly. The user input is nothing specific but the list of tasks which a user wants to get performed in human language i.e., English.

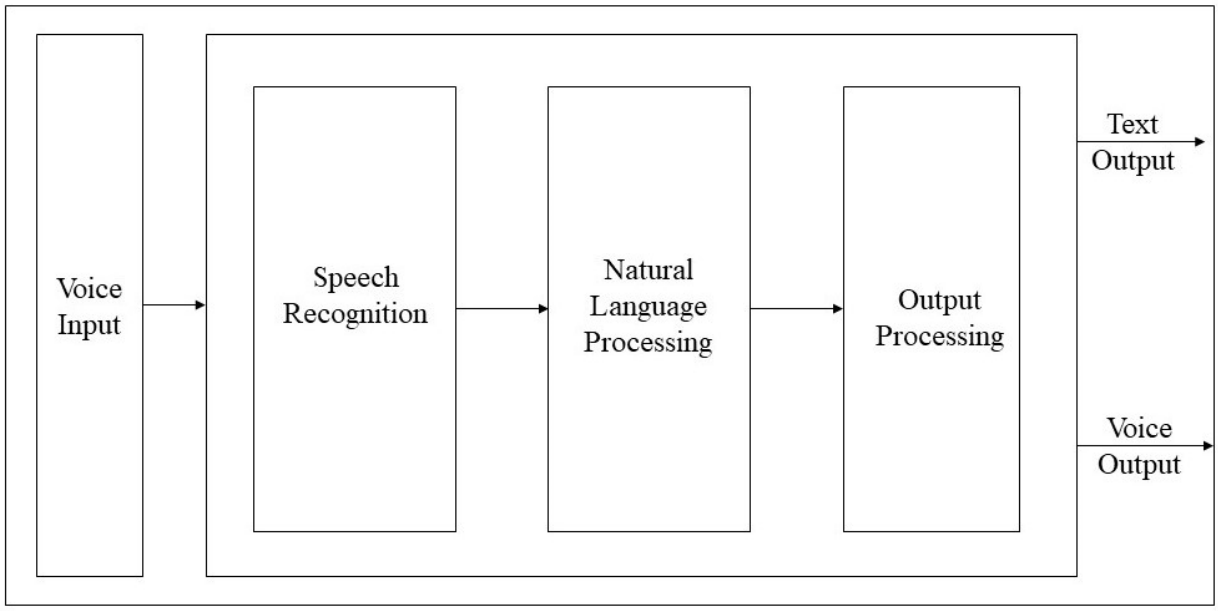


Fig 1. Block Diagram of Virtual Desktop Assistant

C. Features

1) It always in listening mode until it gets "Sleep" Command and it will be activated on "Wake Up "Command.

2) User able to make Video Call, Voice Call and Send messages through WhatsApp using simple voice command.

3) It not only able to perform online tasks but also perform offline tasks like, Play Music, Open Favourite Folder, Open Notepad, etc.

4) Switching Window: - As name suggest it can switch window

5) Sends text messages: - This program also sends normal text message.

There are other useful features such as Open YouTube, Open Google, Get Information from Wikipedia, Volume (UP/DOWN/MUTE/UNMUTE), etc.

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V. RESULTS

1) User can send WhatsApp Message using voice command.

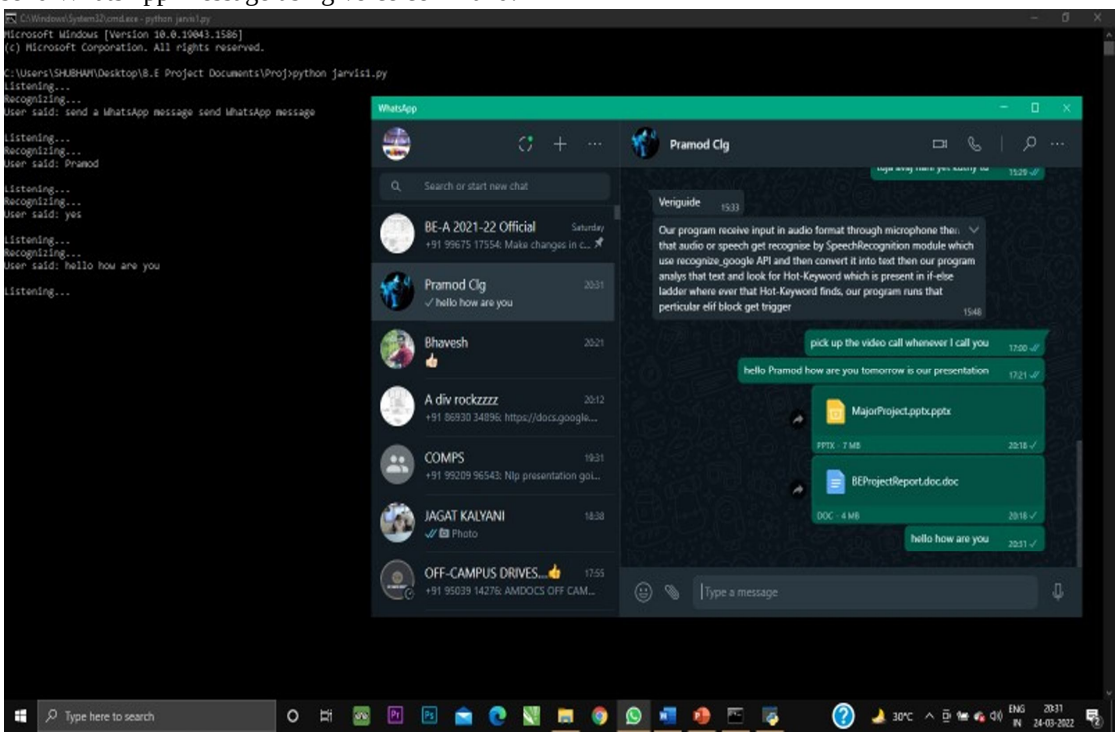


Fig.2 Sending Whatsapp Message

2) Our program can play music available on device.

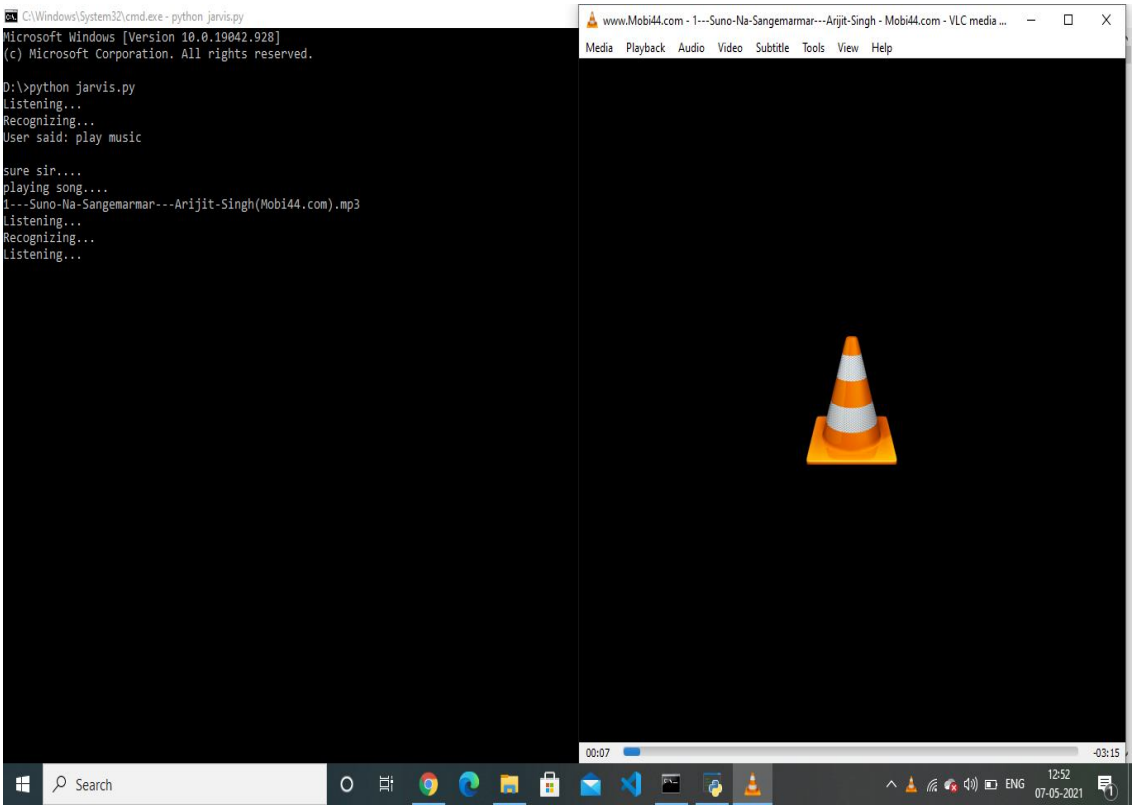


Fig3. Playing music

3) System allows to open different applications just using voice command

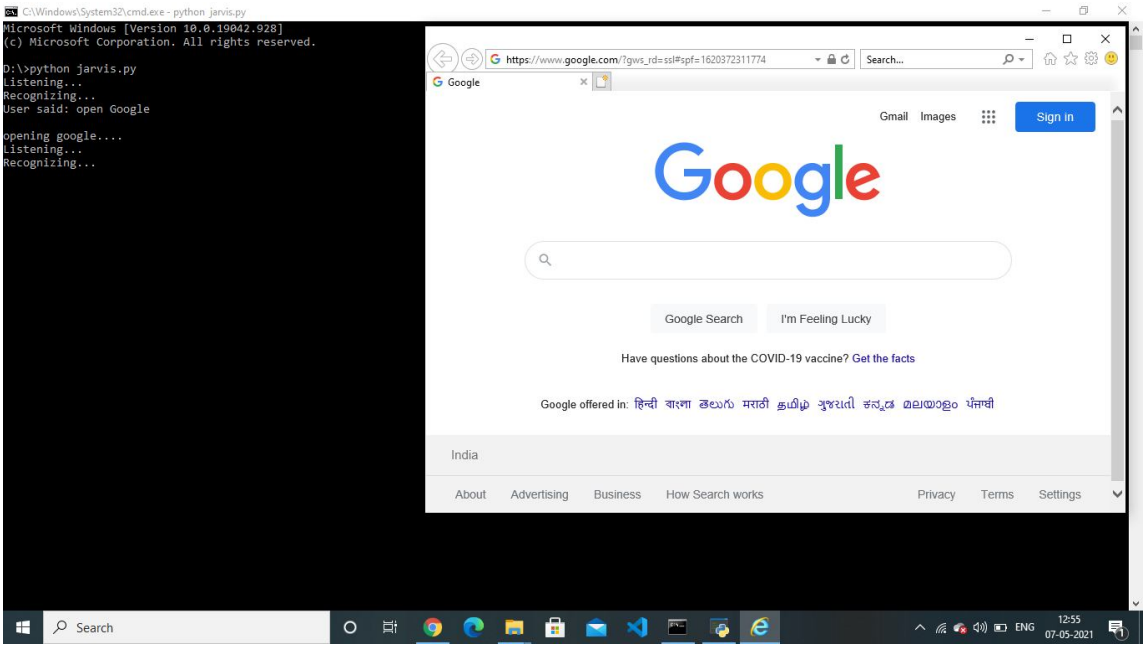


Fig4. Opened Google chrome

4) We can launch applications Notepad using simple voice command

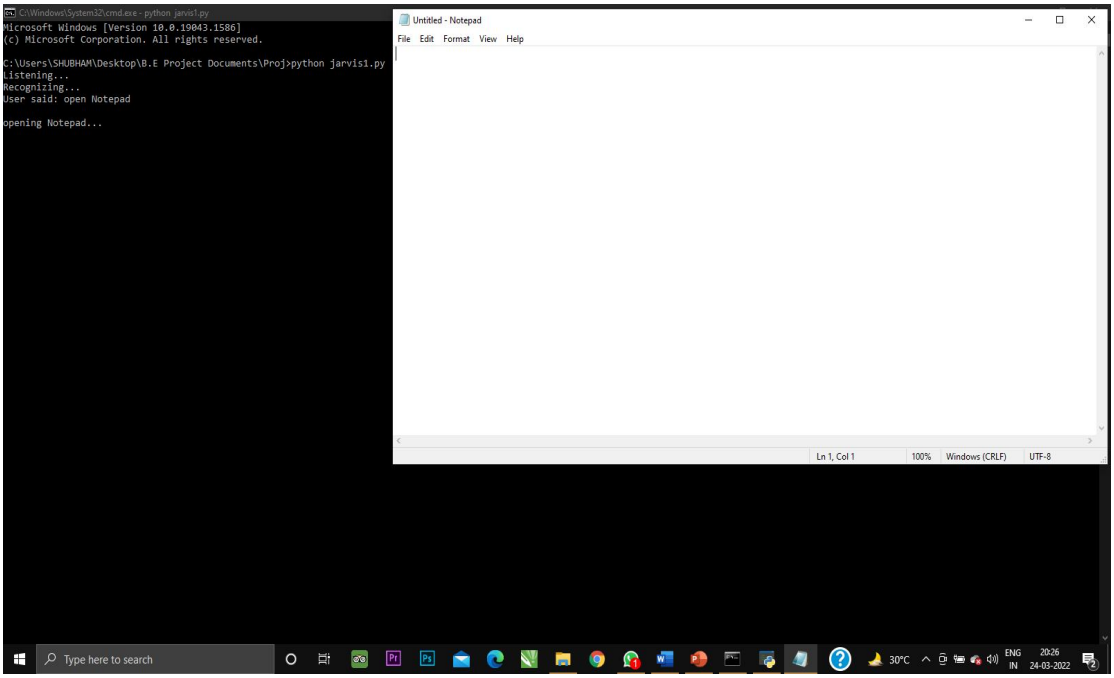


Fig5. Opening Notepad

VI. CONCLUSION

Now a days it is very useful in human life because it is a hands-free application. It will be a very simple application. As well as it will be used in a business field also, for example in laboratory, the person wears gloves and body suits for their safety purpose so it is difficult to type, through voice assistant they can get any information so that their work becomes easy.

Voice assistants are useful in many fields such as education, daily life application, home appliances etc. and voice assistant is also useful for the illiterate people they can get any information just by saying to the assistant, luxury is available for people, thanks to AI based voice assistants.

Voice assistants have had a huge impact in user's interaction with technologies used in their devices. Like any other technology of such magnitude, they have changed the way we work. While this has largely created a better world with drastic benefits for communities, which were before kept in dark with reference to technological innovations, they have posed new kind of threats with respect to user's privacy and security.

In future we aim to make Virtual Desktop Assistant to learn on its own and also encrypt the voice commands to maintain security. We aim to make assistant for android and develop more voice assistant terminals.

VII. ACKNOWLEDGMENT

We sincerely wish to thank our guide Prof.Deveshree Wankhede for her encouraging and inspiring guidance helped us to make our project a success. Our guide makes us endure with her expert guidance, kind advice and timely motivation which helped to us determine our work.

We also express our deepest thanks to our HOD Dr. Uttara Gogate whose benevolent help us making available the computer facilities to us for our project in our laboratory and making it true success. Without his kind and keen co-operation our project would have been stifled to standstill.

Lastly, we would like to thank our college principal Dr. Pramod R. Rodge for providing lab facilities and permitting to go on with our project. We would also like to thank our colleagues who helped us directly or indirectly during our project.

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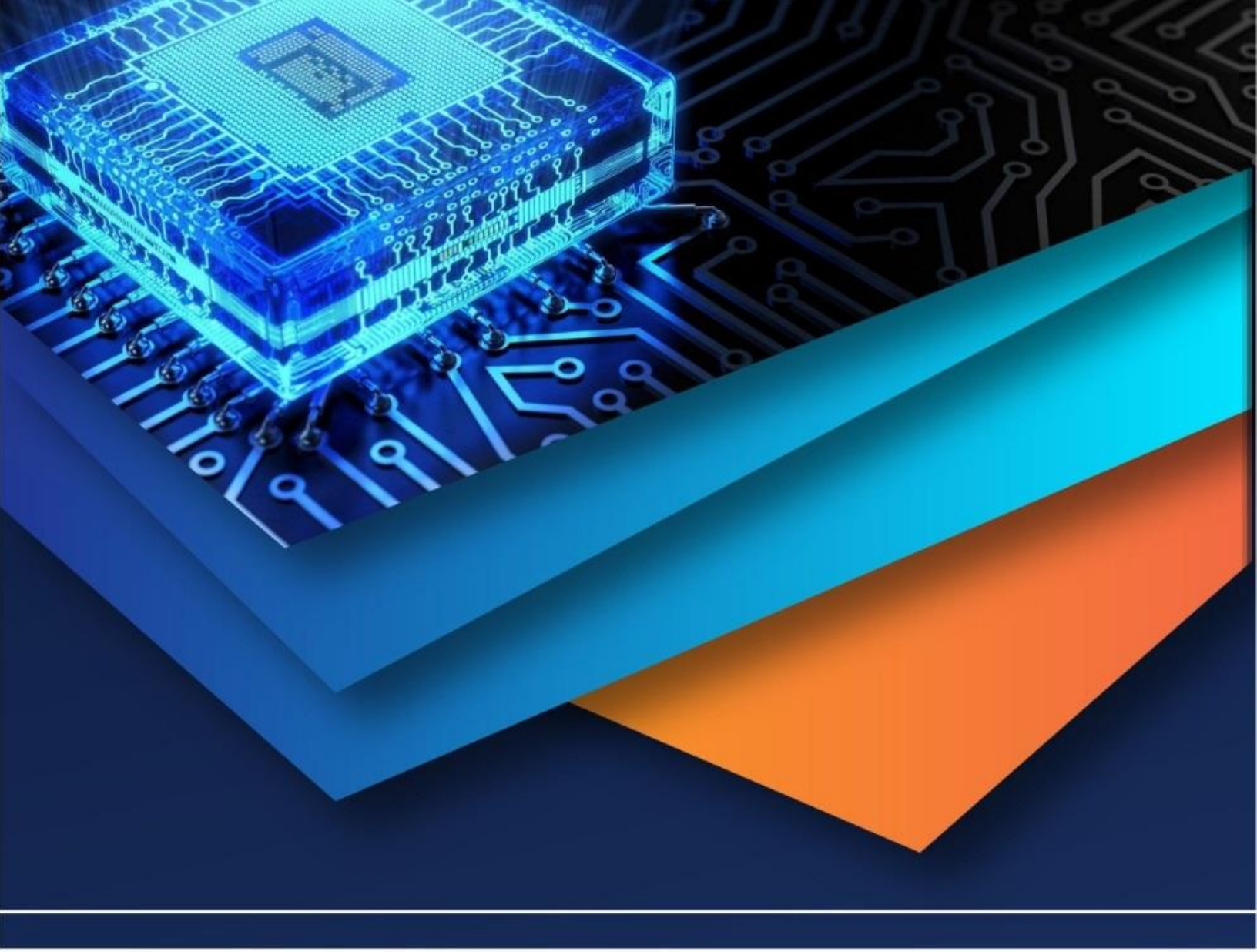
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