

VOICE RECOGNITION

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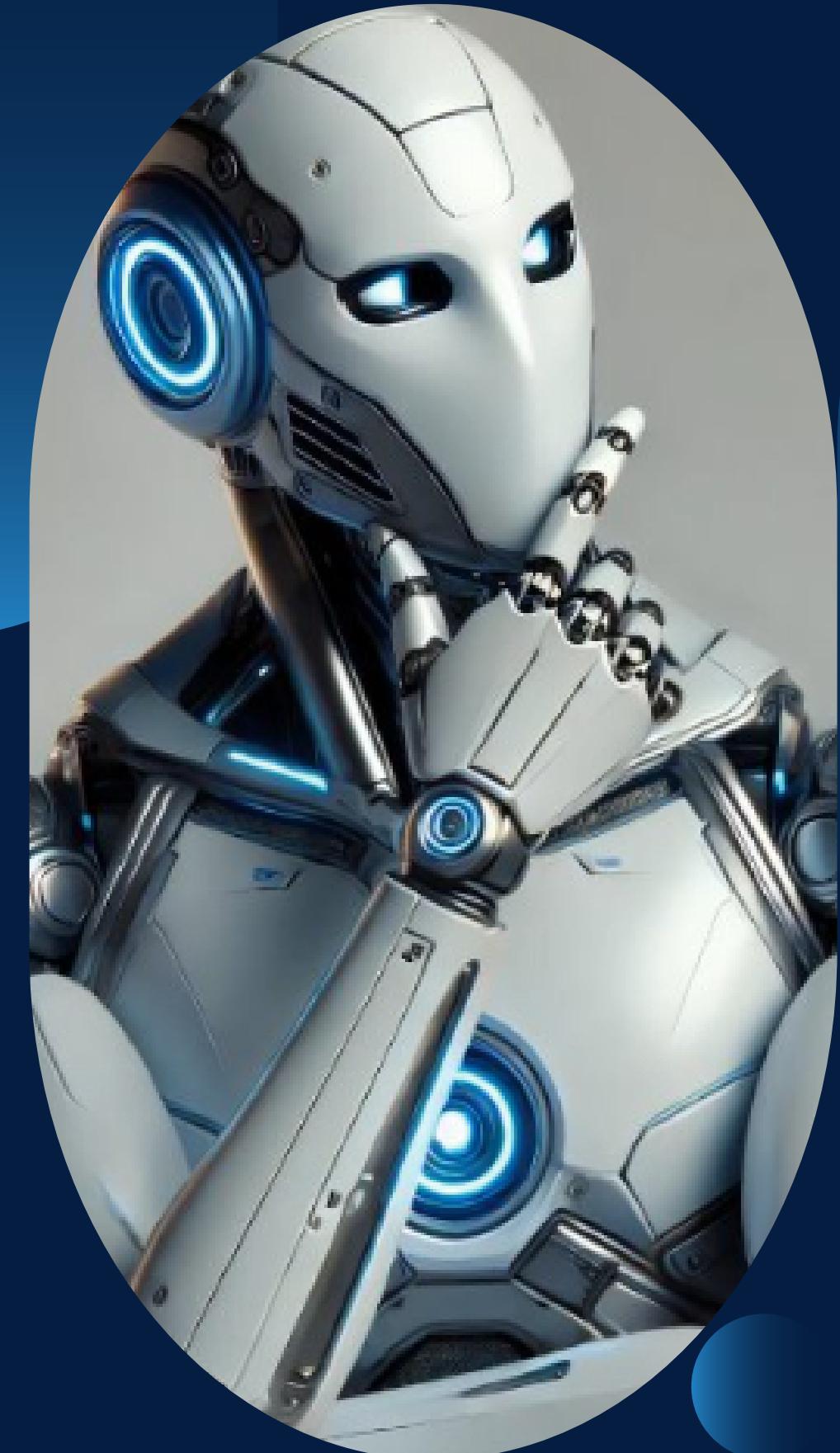
Applications

01

WHAT IS VOICE RECOGNITION?

Voice recognition is the ability of a machine or program to receive and interpret dictation or to understand and perform spoken commands.

Voice recognition systems let consumers interact with technology simply by speaking to it, enabling hands-free requests, reminders and other simple tasks like converting speech to text and text to speech.



02

OUR PROJECT'S IDEA

in this project we aimed to make a large language model voice recognition speech to text system such that a user gives the computer a voice input and a text output of what was said is displayed, and we managed to do this using google's text to speech api (application programming interface) and python's vast assortment of libraries and features

CODE REVIEW

03

```
1 while True:
2     try:
3         # Use the microphone as source for input
4         with sr.Microphone() as source:
5
6             print("\nPlease say something... ", end=' ')
7
8             engine.say("Please say something")
9             engine.runAndWait()
10
11            # Adjust the recognizer to surrounding noise
12            r.adjust_for_ambient_noise(source)
13
14            # Listen to the audio input
15            audio = r.listen(source)
16
17            # Recognize the text using Google Web Speech API
18            MyText = r.recognize_google(audio)
19
20            MyText = MyText.lower()
21
22            # Exit the loop if certain keywords are spoken
23            if MyText in ["exit", "end", "stop", "finally", 'finish']:
24                break
25
26            print(f" {MyText}")
27
28            engine.say(MyText)
29            engine.runAndWait()
30
31        except sr.UnknownValueError:
32            print("Sorry, I did not understand that. Please try again.")
33
34        except sr.RequestError as e:
35            print(f"Could not request results from Google Speech Recognition service; {e}")
36
37        except Exception as e:
38            print(f"An error occurred: {e}")
39
40    finally:
41        # Add a small delay before restarting
42        time.sleep(1)
```

```
1 # Import libraries
2 import speech_recognition as sr
3 import pyttsx3
4 import time
5
6 # Initialize the recognizer and text-to-speech engine
7 r = sr.Recognizer()
8 engine = pyttsx3.init()
9
10 # Configure the speech rate
11 engine.setProperty('rate', 134)
12
13
14 # Welcome message
15 def get_name():
16     """Function to get and return the user's name."""
17     name = input("Please enter your name: ")
18     return name
19
20
21 user_name = get_name()
22 print(f"Welcome, {user_name}!")
```

```
1 # Exit message
2 print("\n\nFinally, thanks everyone.")
3 engine.say("finally, thanks everyone")
4 engine.runAndWait()
5
6 print("\nThank you Dr. Hany Salem.\n\n")
7 engine.say("Thank you Dr. Hany Salem")
8 engine.runAndWait()
```

first off the code imports some important libraries like speech_recognition and time then we defined some settings for the text to speech bot like speed then we used a simple loop to make sure the code connects to the computer's microphone device and adjust the sound coming into set microphone to reduce surrounding noise (focuses on talker) then we tell the computer to listen in to the voice of the one talking and we send the result to google's speech to text api which turns the simple sound waves into words depending on its library and we put some keywords to signify the loops end like if the computer heard end, and finally we did made sure any text to speech operation was followed by a speech to text one for the tts voice to say and we put in multiple checks on the code to make sure nothing malfunctions and that it resets every a few seconds if it doesnt detect someone speaking

04 SPEECH TO TEXT

Speech to text is a speech recognition software that enables the recognition and translation of spoken language into text through computational linguistics

It typically combines artificial intelligence-powered speech recognition technology, also known as automatic speech recognition, with transcription. A computer program picks up audio in the form of sound wave vibrations and uses linguistic algorithms to convert the audio input into digital characters, words and phrases.

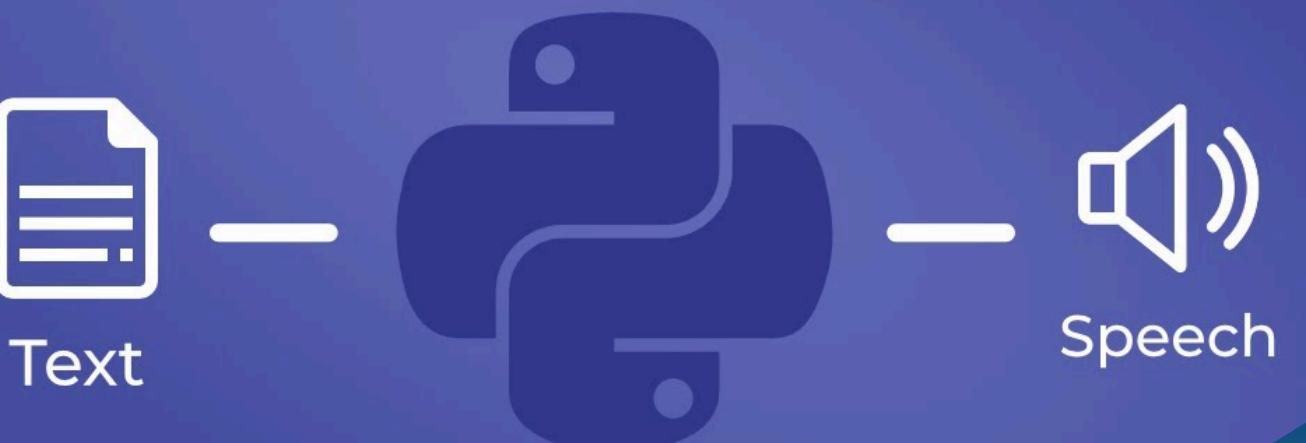


05 TEXT TO SPEECH

a computerized, algorithmic process that converts digital text to audio output resembling human speech.

The voice in TTS is computer-generated, and reading speed can usually be sped up or slowed down. Voice quality varies

Convert Text to Speech



06 APPLICATIONS

1

EDUCATION

2

CHATBOTS

3

HEALTHCARE

4

BANKING
AND
FINANCE

5

SMART
HOME
SYSTEMS

6

ENTERTAINMENT

9

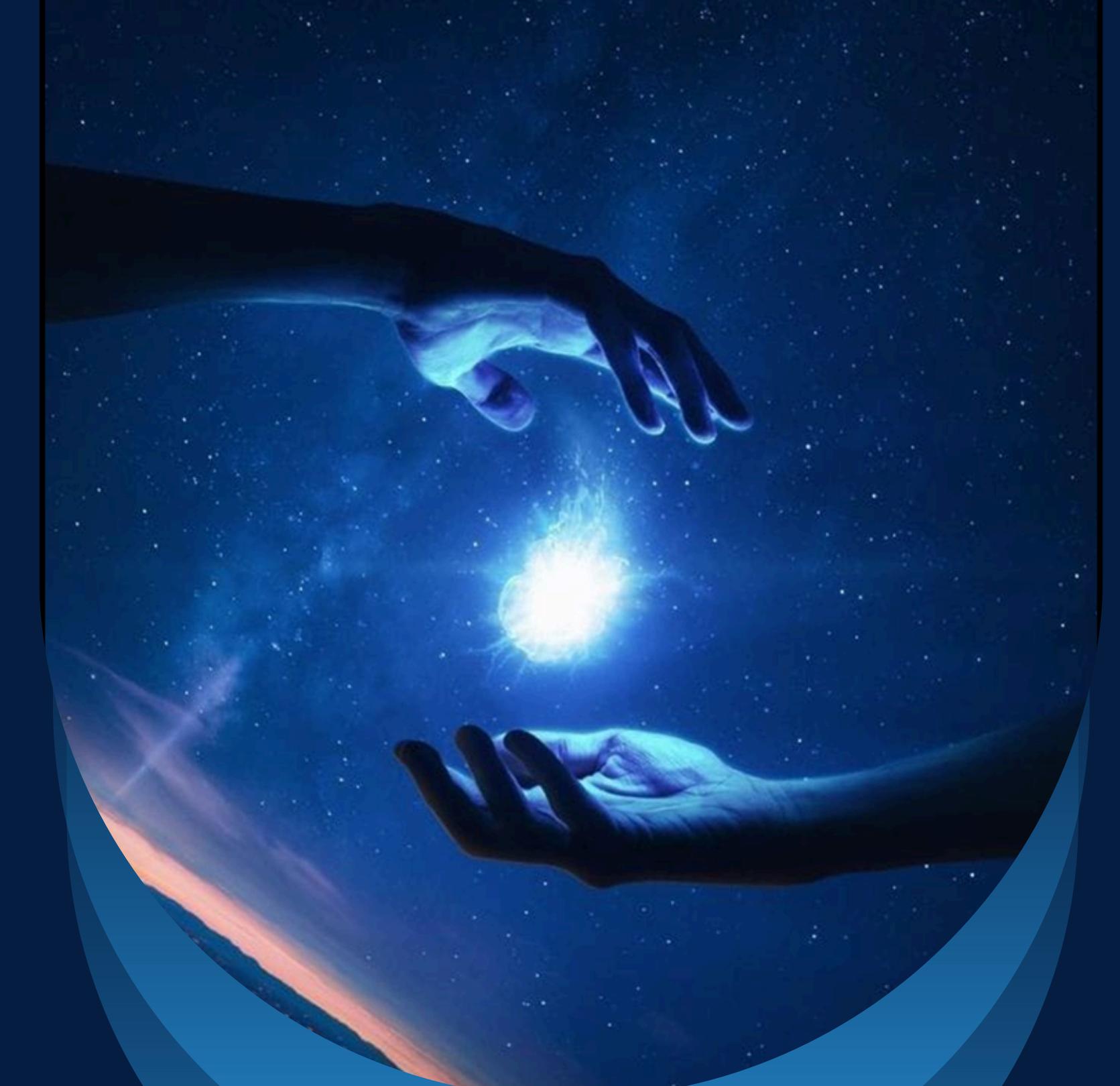
07 OUR TEAM



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THANK YOU





ANY
QUESTIONS?

