import time

import speech\_recognition as voice\_recognition # Renamed for clarity

# Simulated autonomous vehicle class

class AutonomousVehicle:

def \_\_init\_\_(self):

self.position = [0, 0]

self.direction = 'NORTH'

def move\_forward(self):

if self.direction == 'NORTH':

self.position[1] += 1

elif self.direction == 'SOUTH':

self.position[1] -= 1

elif self.direction == 'EAST':

self.position[0] += 1

elif self.direction == 'WEST':

self.position[0] -= 1

print(f"Moving forward. Current position: {self.position}")

def turn\_left(self):

directions = ['NORTH', 'WEST', 'SOUTH', 'EAST']

self.direction = directions[(directions.index(self.direction) + 1) % 4]

print(f"Turned left. Now facing: {self.direction}")

def turn\_right(self):

directions = ['NORTH', 'EAST', 'SOUTH', 'WEST']

self.direction = directions[(directions.index(self.direction) + 1) % 4]

print(f"Turned right. Now facing: {self.direction}")

def stop(self):

print("Vehicle stopped.")

# NLP parser

def parse\_command(command):

command = command.lower()

if "forward" in command or "move" in command:

return "move\_forward"

elif "left" in command:

return "turn\_left"

elif "right" in command:

return "turn\_right"

elif "stop" in command or "halt" in command:

return "stop"

else:

return "unknown"

# Voice input

def get\_voice\_command():

recognizer = voice\_recognition.Recognizer()

with voice\_recognition.Microphone() as source:

print("🎤 Listening for a command...")

audio = recognizer.listen(source)

try:

text = recognizer.recognize\_google(audio)

print(f"🗣️ You said: {text}")

return text

except voice\_recognition.UnknownValueError:

print("⚠️ Sorry, I didn't catch that.")

return ""

except voice\_recognition.RequestError:

print("⚠️ Speech recognition service is unavailable.")

return ""

# Main program

def main():

vehicle = AutonomousVehicle()

mode = input("Choose input mode (text/voice): ").strip().lower()

print("Say or type commands like 'go forward', 'turn left', 'stop'...")

while True:

if mode == "text":

user\_input = input(">> ")

elif mode == "voice":

user\_input = get\_voice\_command()

else:

print("Invalid mode.")

break

action = parse\_command(user\_input)

if action == "move\_forward":

vehicle.move\_forward()

elif action == "turn\_left":

vehicle.turn\_left()

elif action == "turn\_right":

vehicle.turn\_right()

elif action == "stop":

vehicle.stop()

break

else:

print("❓ Unknown command. Please try again.")

if \_\_name\_\_ == "\_\_main\_\_":

main()