import time

import random

class SensorData:

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

self.obstacle\_distance = 100

self.traffic\_light = "green"

def update(self):

self.obstacle\_distance = random.randint(30, 200)

self.traffic\_light = random.choice(["green", "yellow", "red"])

class AutonomousVehicle:

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

self.speed = 0

self.steering\_angle = 0

def control\_logic(self, sensor\_data):

if sensor\_data.obstacle\_distance < 50:

self.stop()

elif sensor\_data.traffic\_light == "red":

self.stop()

else:

self.drive\_forward()

def drive\_forward(self):

self.speed = 40

self.steering\_angle = 0

print("Driving forward at", self.speed, "km/h")

def stop(self):

self.speed = 0

print("Stopping the vehicle")

class RoboticArm:

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

self.gripped = False  
 def pick\_object(self):

print("Picking up the object...")

time.sleep(1)

self.gripped = True

print("Object picked.")

def place\_object(self):

if self.gripped:

print("Placing the object...")

time.sleep(1)

self.gripped = False

print("Object placed.")

sensor = SensorData()

vehicle = AutonomousVehicle()

arm = RoboticArm()

for \_ in range(5):

sensor.update()

print("\n[Sensor] Distance:", sensor.obstacle\_distance, "cm | Light:", sensor.traffic\_light)

vehicle.control\_logic(sensor)

if sensor.obstacle\_distance < 50:

arm.pick\_object()

arm.place\_object()

time.sleep(2)