import RPi.GPIO as GPIO

import time

# Set up GPIO pins for ultrasonic sensor and LEDs

TRIG\_PIN = 23

ECHO\_PIN = 24

LED\_GREEN = 17

LED\_RED = 27

GPIO.setmode(GPIO.BCM)

GPIO.setup(TRIG\_PIN, GPIO.OUT)

GPIO.setup(ECHO\_PIN, GPIO.IN)

GPIO.setup(LED\_GREEN, GPIO.OUT)

GPIO.setup(LED\_RED, GPIO.OUT)

# Function to measure distance using ultrasonic sensor

def measure\_distance():

GPIO.output(TRIG\_PIN, GPIO.LOW)

time.sleep(2) # To stabilize sensor

GPIO.output(TRIG\_PIN, GPIO.HIGH)

time.sleep(0.00001)

GPIO.output(TRIG\_PIN, GPIO.LOW)

while GPIO.input(ECHO\_PIN) == 0:

pulse\_start = time.time()

while GPIO.input(ECHO\_PIN) == 1:

pulse\_end = time.time()

pulse\_duration = pulse\_end - pulse\_start

distance = pulse\_duration \* 34300 / 2 # Speed of sound is 343 m/s

return distance

try:

while True:

distance = measure\_distance()

if distance < 10: # Adjust this threshold for your parking space

print("Parking spot occupied")

GPIO.output(LED\_GREEN, GPIO.LOW)

GPIO.output(LED\_RED, GPIO.HIGH)

else:

print("Parking spot vacant")

GPIO.output(LED\_GREEN, GPIO.HIGH)

GPIO.output(LED\_RED, GPIO.LOW)

time.sleep(2) # Delay between measurements

except KeyboardInterrupt:

GPIO.cleanup()