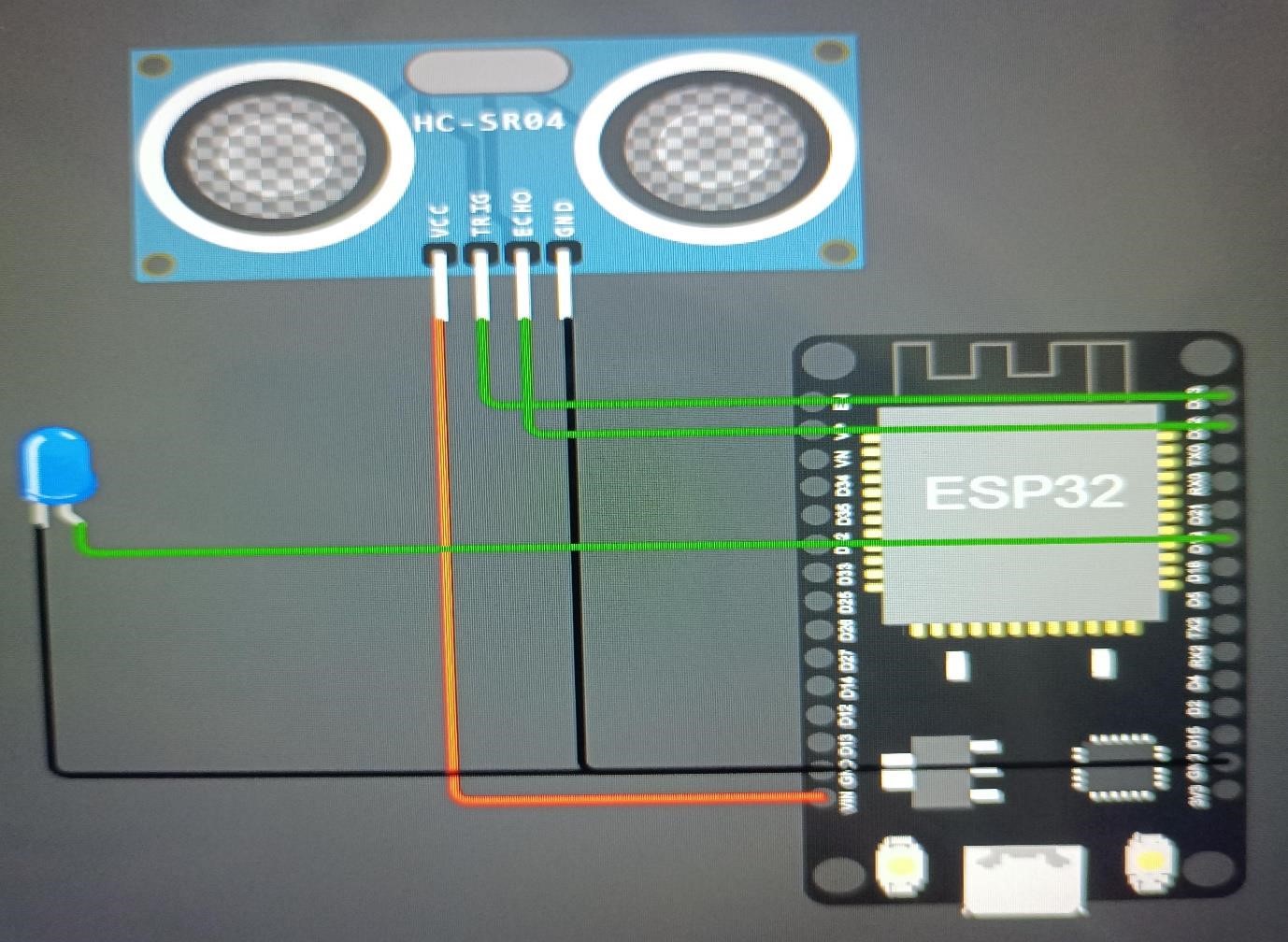
**PHASE 3:** Deploy IoT sensors (e.g., temperature sensors, pressure sensors) in public water fountains to monitor water flow and detect malfunctions. Develop a Python script on the IoT sensors to send real-time water fountain status data to the platform.



# Program

import machine import time

# Pin assignments for the ultrasonic sensor

TRIGGER\_PIN = 23 # GPIO23 for trigger

ECHO\_PIN = 22 # GPIO22 for echo

# Pin assignment for the LED

LEAK\_LED\_PIN = 19 # GPIO19 for the LED

# Set the pin modes

trigger =machine.Pin(TRIGGER\_PIN,machine.Pin.OUT)

echo = machine.Pin(ECHO\_PIN, machine.Pin.IN) leak\_led=machine.Pin(LEAK\_LED\_PIN,machine.Pin.OUT)

# Function to measure distance using the ultrasonic sensor def measure\_distance():

# Generate a short trigger pulse

trigger.value(0)

time.sleep\_us(5)

trigger.value(1)

time.sleep\_us(10)

trigger.value(0)

# Measure the echo pulse duration to calculate distance pulse\_start = pulse\_end = 0

while echo.value() == 0:

pulse\_start = time.ticks\_us() while echo.value() == 1:

pulse\_end = time.ticks\_us()

pulse\_duration = pulse\_end - pulse\_start

# Calculate distance in centimeters (assuming the speed of sound is 343 m/s) distance = (pulse\_duration \* 0.0343) / 2 # Divide by 2 for one-way travel

return distance

# Function to check for a waterleak def check\_for\_leak():

# Measure the distance from the ultrasonic sensor distance = measure\_distance()

# Set the threshold distance for detecting a leak (adjust as needed) threshold\_distance = 10 # Adjust this value based on your tank setup

if distance < threshold\_distance:

# If the distance is less than the threshold, a leak is detected return True else:

return False

# Main loop while True:

if check\_for\_leak():

# Blink the LED to indicate a leak leak\_led.value(1) #LED ON time.sleep(0.5)

leak\_led.value(0) # LED OFF time.sleep(0.5)

else:

leak\_led.value(0) # LED OFF time.sleep.(1) # Delay between measurements

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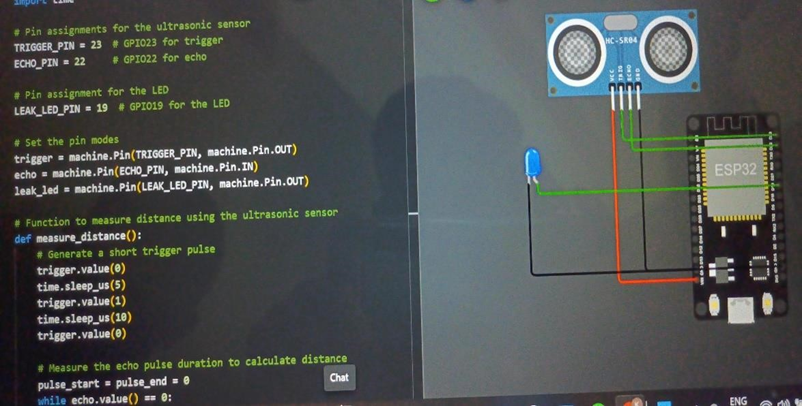
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SUBMITTED BY:

Sasikumar J