

## ASSIGNMENT-4

|                 |                        |
|-----------------|------------------------|
| ASSESSMENT DATE | 05<br>November<br>2022 |
| NAME            | NISHA P                |
| REGISTER NUMBER | 621319106062           |
| MARKS           | 2 Marks                |

### PROBLEM:

Write code and connections in wokwi for ultrasonic sensors.

Whenever distance is less than 100cms send "alert" to ibm cloud and display in device recent events.

Upload document with wokwi share link and images of ibm cloud.

### CODE:

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define Device_Id "1234"
#define Device_type "wokwi"
#define Token "12345678"

void setup() {
    Serial.begin(115200);
    pinMode(LED_BUILTIN, OUTPUT);
    pinMode(TRIG_PIN, OUTPUT);
    pinMode(ECHO_PIN, INPUT);
}

float readDistanceCM() {
    digitalWrite(TRIG_PIN, LOW);
    delayMicroseconds(2);
    digitalWrite(TRIG_PIN, HIGH);
    delayMicroseconds(10);
    digitalWrite(TRIG_PIN, LOW);
    int duration = pulseIn(ECHO_PIN, HIGH);
    return duration * 0.034 / 2;
}

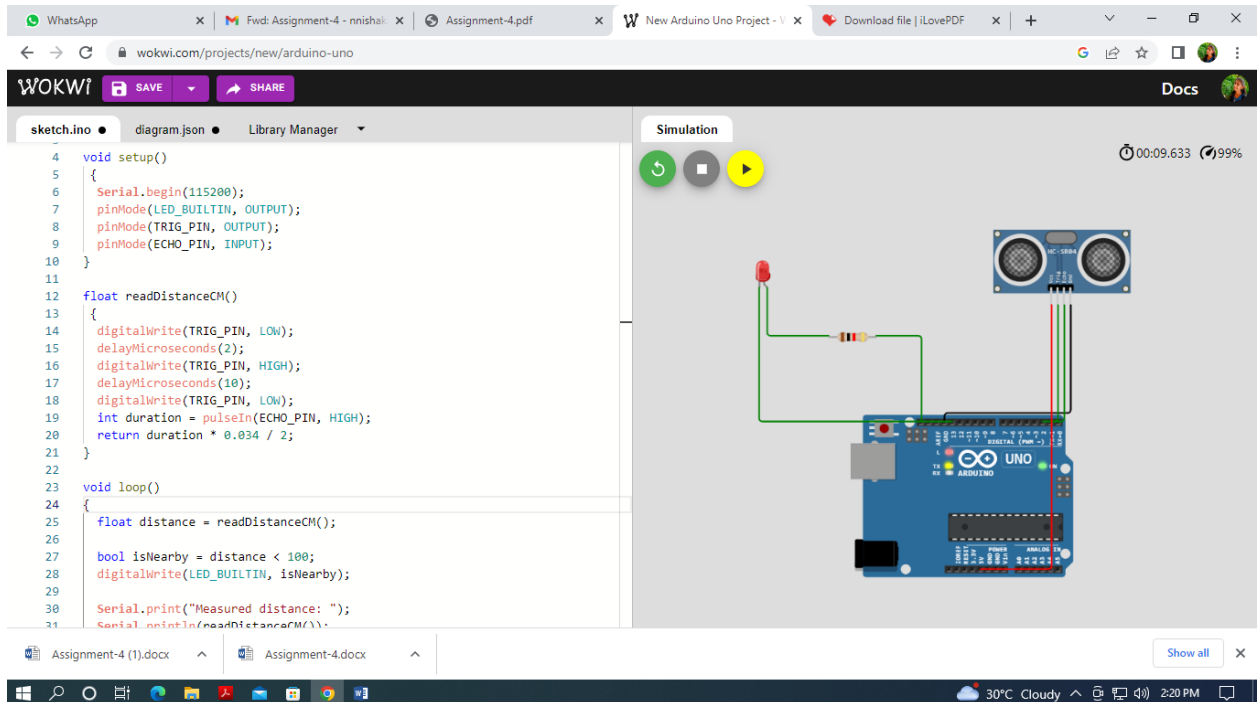
void loop() {
    float distance = readDistanceCM();

    bool isNearby = distance < 100;
    digitalWrite(LED_BUILTIN, isNearby);

    Serial.print("Measured distance: ");
    Serial.println(readDistanceCM());

    delay(100);
}
```

## SIMULATION SCREENSHOT:



## SIMULATION LINK:

<https://wokwi.com/projects/347476488390443604>

## WHEN OBJECT >100:

The recent events listed show the live stream of data that is coming and going from this device.

| Event   | Value                                | Format | Last Received     |
|---------|--------------------------------------|--------|-------------------|
| event_2 | {"Alert Distance":392,"Object":"No"} | json   | a few seconds ago |
| event_2 | {"Alert Distance":276,"Object":"No"} | json   | a few seconds ago |
| event_2 | {"Alert Distance":334,"Object":"No"} | json   | a few seconds ago |
| event_2 | {"Alert Distance":354,"Object":"No"} | json   | a few seconds ago |
| event_2 | {"Alert Distance":189,"Object":"No"} | json   | a few seconds ago |

12345 Disconnected NodeMCU

Items per page 50 | 1-2 of 2 items

1 Simulation running

**WHEN OBJECT <100:**

**Device Details**

Browse   Action   Device Types   Interfaces   Add Device +

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1234   Disconnected   wokwi   Device   Nov 5, 2022 10:48 AM   → ...

Identity   Device Information   Recent Events   State   Logs   X

The recent events listed show the live stream of data that is coming and going from this device.

| Event   | Value                                 | Format | Last Received     |
|---------|---------------------------------------|--------|-------------------|
| event_2 | {"Alert Distance":85,"Object":"near"} | json   | a few seconds ago |
| event_2 | {"Alert Distance":15,"Object":"near"} | json   | a few seconds ago |
| event_2 | {"Alert Distance":49,"Object":"near"} | json   | a few seconds ago |
| event_2 | {"Alert Distance":45,"Object":"near"} | json   | a few seconds ago |
| event_2 | {"Alert Distance":20,"Object":"near"} | json   | a few seconds ago |

1 Simulation running