

ASSIGNMENT-4

ASSESSMENT DATE	05 November 2022
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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;
}

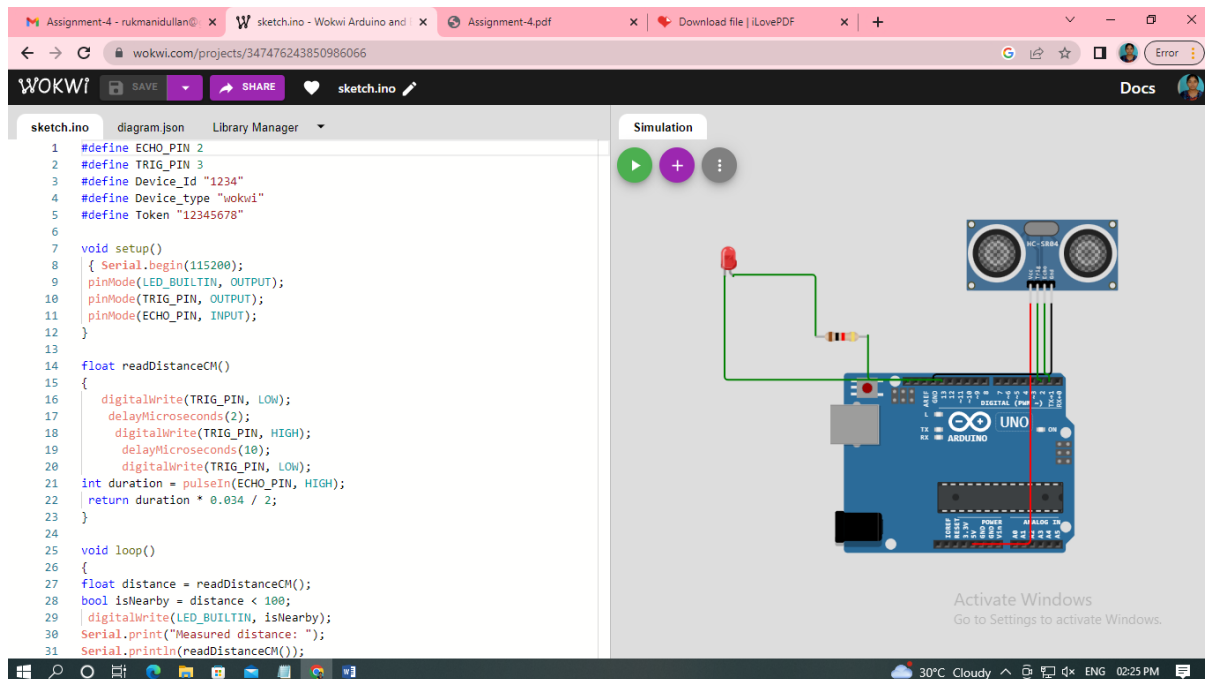
void loop() {
    float distance = readDistanceCM();

    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/347476243850986066>

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

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1 Simulation running

The screenshot shows the Wokwi IoT simulator interface. At the top, there's a navigation bar with 'Browse', 'Action', 'Device Types', and 'Interfaces'. A blue button labeled 'Add Device +' is on the right. Below this, a header bar displays the device ID '1234', status 'Disconnected', name 'wokwi', and timestamp 'Nov 5, 2022 10:48 AM'. A dropdown menu is open, showing tabs: 'Identity', 'Device Information', 'Recent Events' (selected), 'State', and 'Logs'. Under 'Recent Events', a message states: 'The recent events listed show the live stream of data that is coming and going from this device.' Below this is a table with four columns: 'Event', 'Value', 'Format', and 'Last Received'. It lists five events, each with a JSON object containing 'Alert Distance' and 'Object'.

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

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1 Simulation running