

IBM PROJECT

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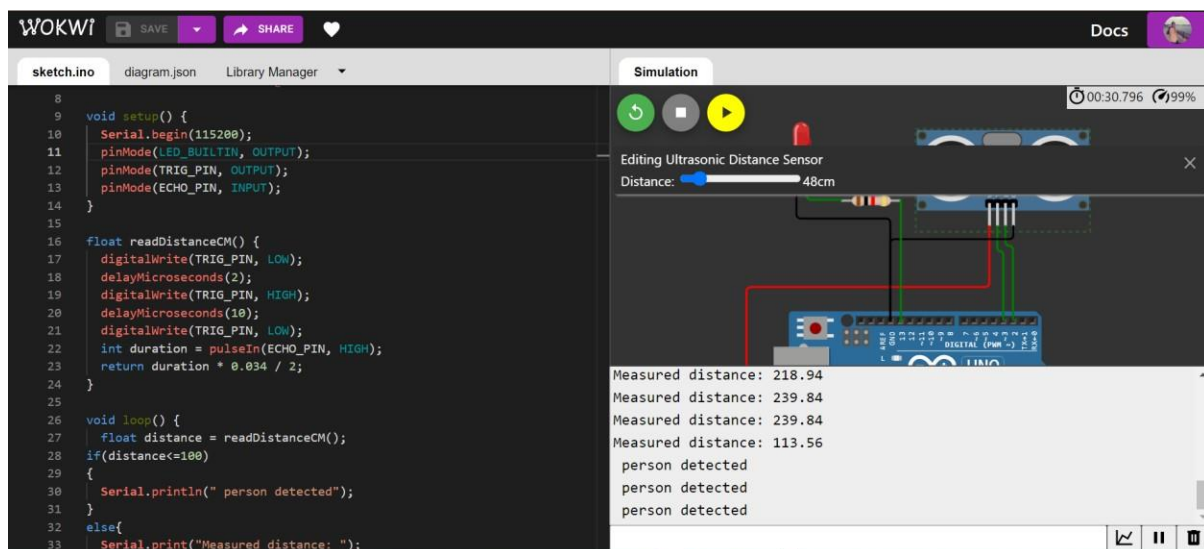
ASSIGNMENT 4

Ultrasonic sensor simulation in Wokwi

Question : Write a code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100cms send an “Alert” to IBM cloud and display in the device recent events.

Wokwi simulation link: <https://wokwi.com/projects/347124503089775188>

WOKWI OUTPUT SCREENSHOT:



CODE:

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization = "md8rdq"
#define deviceType = "123"
#define deviceId = "123456"
#define authMethod = "token"
#define authToken = "Titik@2002"

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();
    if(distance<=100)
    {
        Serial.println(" person detected");
    }
    else{
        Serial.print("Measured distance: ");
        Serial.println(readDistanceCM());
    }

    delay(1000);
}

```

The screenshot displays the IBM Watson IoT Platform interface. On the left, a sidebar contains navigation icons. The main area is titled 'Device Type: 123' and includes a search bar 'Search by Device ID'. Below this is a table with columns 'Device ID', 'Status', and 'Device Type'. A device with ID '123456' and status 'Disconnected' is highlighted. Below the table, there are tabs for 'Identity', 'Device Information', and 'Recent Events'. The 'Recent Events' tab is active, showing a list of events with columns 'Event' and 'Value'. Two events are listed: 'event_1' with value '{\"randomNumber\":92,\"distance\":11}' and 'event_1' with value '{\"randomNumber\":45,\"distance\":56}'. On the right, a configuration panel for 'Device Type: 123' is open, showing 'Event type name' as 'event_1', a 'Schedule' of 'Every Minute', and a 'Payload' editor. The payload editor contains a JSON object: {\"randomNumber\": random(0, 100), \"distance\": random(0, 150)}. There is an 'Upload a CSV file' button and a link 'What functions can I apply?'.

Device ID	Status	Device Type
123456	Disconnected	123

Event	Value
event_1	{\"randomNumber\":92,\"distance\":11}
event_1	{\"randomNumber\":45,\"distance\":56}

IBM Watson IoT Platform

Browse Action Device Types Interfaces

Search by Device ID

Device ID	Status	Device Type
123456	Disconnected	123

Identity Device Information Recent Events

Device ID: 123456
Device Type: 123
Date Added: Nov 1, 2022 3:43 PM
Added By: titiksha.ec19@bitsathy.ac.in
Connection Status: Disconnected

Device Type: 123

Event type name: event_1 [Send](#)

Schedule: 1 Every Minute

Payload: Specify the event payload in the editor window or by uploading a [CSV file](#).

```
0 {  
1   "randomNumber": random(0, 100),  
2   "distance": random(0, 150),  
3 }  
4
```

[Upload a CSV file](#)

[What functions can I apply?](#)

IBM Watson IoT Platform

ultrasonic sensor

Line chart

1 minute now

Device Type: 123

Events 1 [New event type](#)

Event type name: event_1 [Send](#)

Schedule: 2 Every Minute

Payload: Specify the event payload in the editor window or by uploading a [CSV file](#).

```
0 {  
1   "randomNumber": random(0, 100),  
2   "distance": random(0, 150),  
3 }  
4
```

[Upload a CSV file](#)