

ASSIGNMENT 4

ULTRASONIC SENSOR SIMULATION IN WOKWI

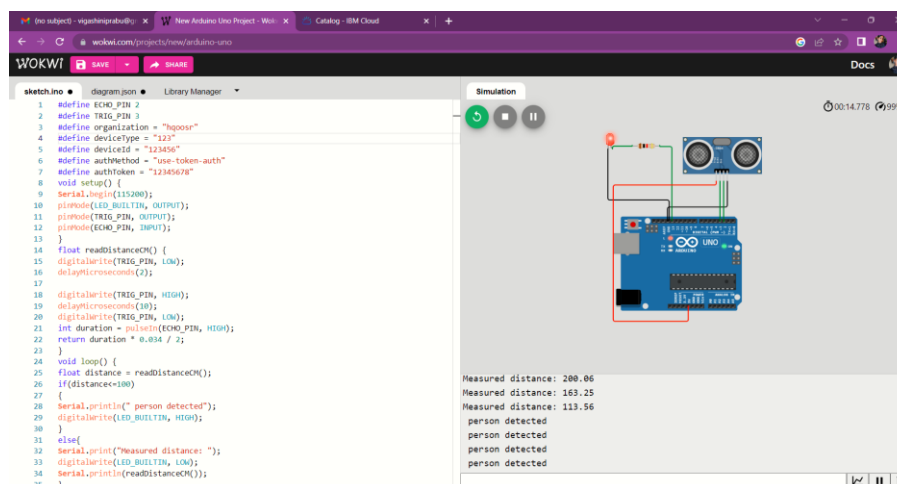
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QUESTION:

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/348399264144032340>

OUTPUT SCREENSHOT”



CODE:

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization = "hgoosr"
#define deviceType = "123"
#define deviceId = "123456"
#define authMethod = "use-token-auth"
```

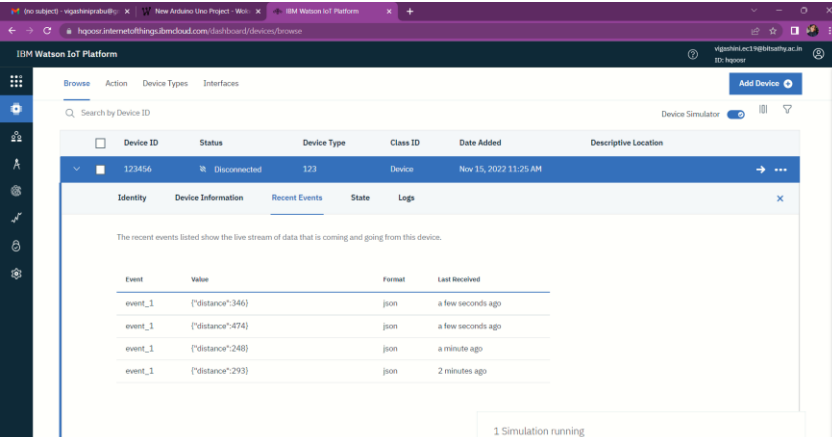
```

#define authToken = "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();
  if(distance<=100)
  {
    Serial.println(" person detected");
    digitalWrite(LED_BUILTIN, HIGH);
  }
  else{
    Serial.print("Measured distance: ");
    digitalWrite(LED_BUILTIN, LOW);
    Serial.println(readDistanceCM());
  }
  delay(1000);
}

```

IBM CLOUD OUTPUT:



The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes 'Browse', 'Action', 'Device Types', and 'Interfaces'. A search bar for 'Device ID' is present. The main content area shows a table of devices, with one device selected (ID: 123456, Status: Disconnected, Device Type: 123, Class ID: Device, Date Added: Nov 15, 2022 11:25 AM). Below the table, a 'Recent Events' section shows a stream of data from the device. The events are listed in a table with columns: Event, Value, Format, and Last Received.

Event	Value	Format	Last Received
event_1	("distance":346)	json	a few seconds ago
event_1	("distance":474)	json	a few seconds ago
event_1	("distance":248)	json	a minute ago
event_1	("distance":293)	json	2 minutes ago

At the bottom right, a status indicator shows '1 Simulation running'.