

## ASSIGNMENT - 4

# ULTRASONIC SENSOR SIMULATION IN WOKWI

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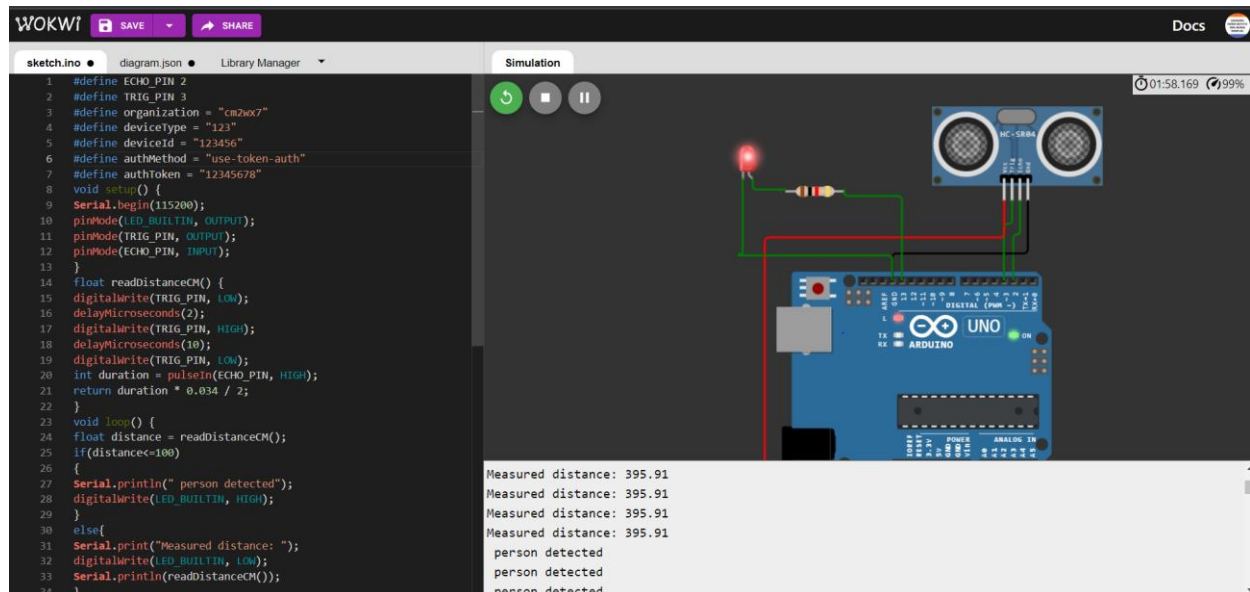
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### QUESTION:

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/348372673956414036>

### OUTPUT SCREENSHOT:



### CODE:

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization = "cm2wx7"
#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'. The main content area shows a device with ID 123456, which is currently 'Disconnected'. The 'Recent Events' tab is selected, showing a live stream of data events. The events are listed in a table with columns for Event, Value, Format, and Last Received. The events show a sequence of distance measurements in JSON format, such as {"distance":406}, {"distance":261}, {"distance":144}, {"distance":325}, and {"distance":263}. A status bar at the bottom right indicates '1 Simulation running'.

Event	Value	Format	Last Received
event_1	{"distance":406}	json	a few seconds ago
event_1	{"distance":261}	json	a few seconds ago
event_1	{"distance":144}	json	a few seconds ago
event_1	{"distance":325}	json	a few seconds ago
event_1	{"distance":263}	json	a few seconds ago