

IBM ASSIGNMENT

Project Title: Signs with Smart Connectivity for Better Road Safety

IBM GitHub Repo: [IBM-EPBL/IBM-Project-29724-1660128910](#)

Team Member:

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Question:

Write code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100 cms send an "alert" to the IBM cloud and display in the device recent events.

Python Code:

```
#define ECHO_PIN 2
#define TRIG_PIN 3

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);  
}
```

OUTPUT:

Assignment 4 - aru01208@gmail.com x Your Projects on Wokwi x wokwi-resistor Reference | Wokwi x +

wokwi.com/projects/new/arduino-uno

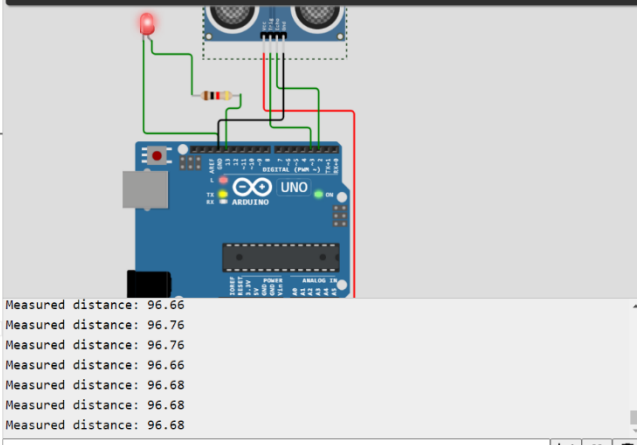
WOKWI SAVE SHARE Docs

sketch.ino diagram.json Library Manager

```
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4 void setup() {
5   Serial.begin(115200);
6   pinMode(LED_BUILTIN, OUTPUT);
7   pinMode(TRIG_PIN, OUTPUT);
8   pinMode(ECHO_PIN, INPUT);
9 }
10
11 float readDistanceCM() {
12   digitalWrite(TRIG_PIN, LOW);
13   delayMicroseconds(2);
14   digitalWrite(TRIG_PIN, HIGH);
15   delayMicroseconds(10);
16   digitalWrite(TRIG_PIN, LOW);
17   int duration = pulseIn(ECHO_PIN, HIGH);
18   return duration * 0.034 / 2;
19 }
20
21 void loop() {
22   float distance = readDistanceCM();
23
24   bool isNearby = distance < 100;
25   digitalWrite(LED_BUILTIN, isNearby);
26
27   Serial.print("Measured distance: ");
28   Serial.println(readDistanceCM());
29   delay(100);
30 }
```

Simulation 01:00.943 100%


Editing Ultrasonic Distance Sensor
Distance: 99cm



Measured distance: 96.66
Measured distance: 96.76
Measured distance: 96.76
Measured distance: 96.66
Measured distance: 96.68
Measured distance: 96.68
Measured distance: 96.68

30°C Cloudy Search ENG IN 01:10 15-11-2022

IBMcloud Output



Event	Value	Format	Last Received
event_1	{"distance":7,"Alert":"Distance less than 10"}	json	a few seconds ago
event_1	{"distance":9,"Alert":"Distance less than 10"}	json	a few seconds ago
event_1	{"distance":8,"Alert":"Distance less than 10"}	json	a few seconds ago
event_1	{"distance":9,"Alert":"Distance less than 10"}	json	a few seconds ago