

SMART FARMER – IoT ENABLED SMART FARMER APPLICATION

ASSIGNMENT – 4

1. Write Code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100 centimetres send an '*alert*' to the ibm cloud and display in device recent events.

Program:

```
#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);
}

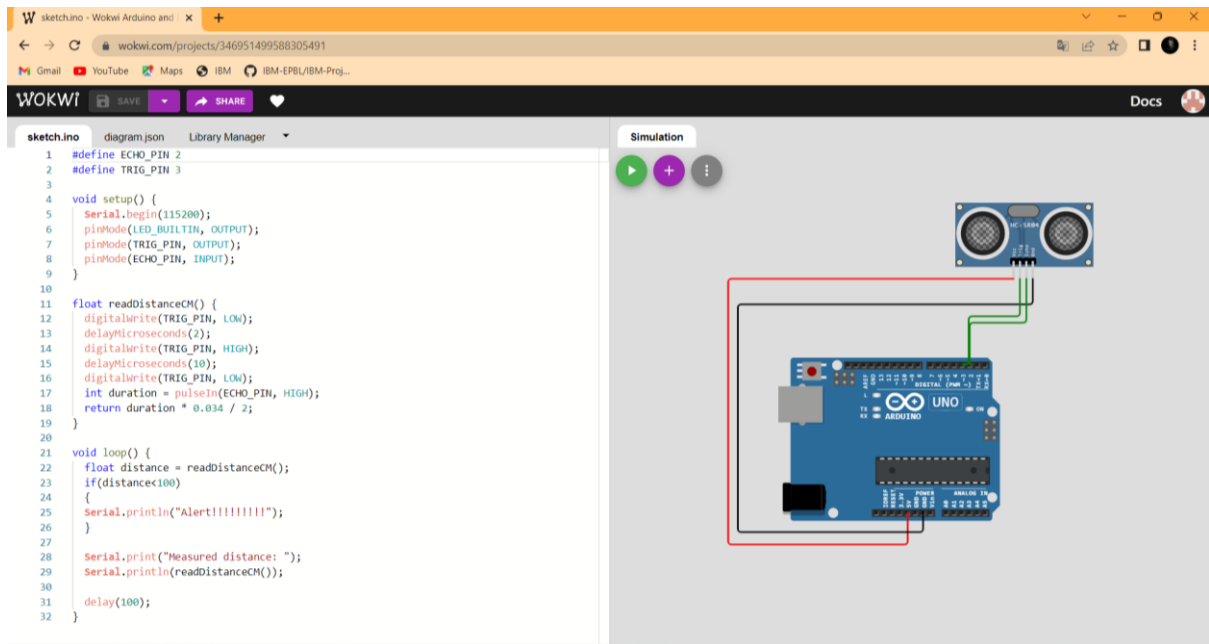
float readDistanceCM() {
  digitalWrite(TRIG_PIN, LOW);
  delayMicroseconds(2);
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);
  int duration = pulseIn(ECHO_PIN, HIGH);
  return duration * 0.034 / 2;
}

void loop() {
  float distance = readDistanceCM();
  if(distance<100)
  {
    Serial.println("Alert!!!!!!!!!!");
  }

  Serial.print("Measured distance: ");
  Serial.println(readDistanceCM());

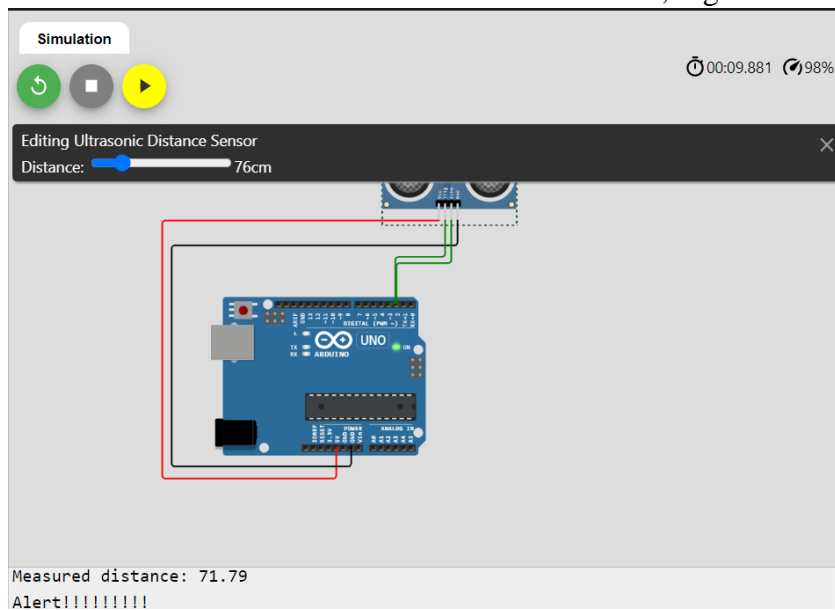
  delay(100);
}
```

Wokwi Editor window:



Results:

1. The measured distance is less than 100 centimetres, it gives alert message



2. The measured distance is more than 100 centimetres, it will not give alert message

W sketchino - Wokwi Arduino and x +

wokwi.com/projects/346951499588305491

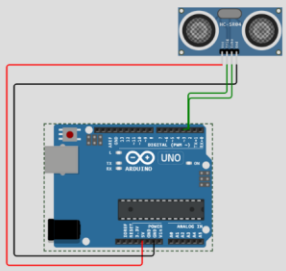
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sketch.ino diagram.json Library Manager

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3
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   if(distance < 100)
24   {
25     Serial.println("Alert!!!!!!!!!!!!");
26   }
27
28   Serial.print("Measured distance: ");
29   Serial.println(readDistanceCM());
30
31   delay(100);
32 }
```

Simulation



Measured distance: 177.24
Measured distance: 177.16
Measured distance: 177.26
Measured distance: 177.16
Measured distance: 177.24