ASSIGNMENT – 4

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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.

CODE:

```
const int TRIG_PIN = 7;
const int ECHO_PIN = 8;
const unsigned int MAX_DIST = 23200;
void setup() {
pinMode(TRIG_PIN, OUTPUT);
digitalWrite(TRIG_PIN, LOW);
pinMode(ECHO_PIN, INPUT);
Serial.begin(9600);
}
void loop() {
unsigned long t1;
unsigned long t2;
unsigned long pulse_width;
float cm;
float inches;
digitalWrite(TRIG_PIN, HIGH);
delayMicroseconds(10);
digitalWrite(TRIG_PIN, LOW);
while (digitalRead( ECHO_PIN )==0 );
t1=micros();
while (digitalRead( ECHO_PIN )==1 );
t2=micros();
pulse_width=t2-t1;
cm=pulse_width/58;
inches=pulse_width/148.0;
if(pulse_width > MAX_DIST){
  Serial.println("Out of range");
}
else{
  Serial.println("The measured distance in cm: ");
```

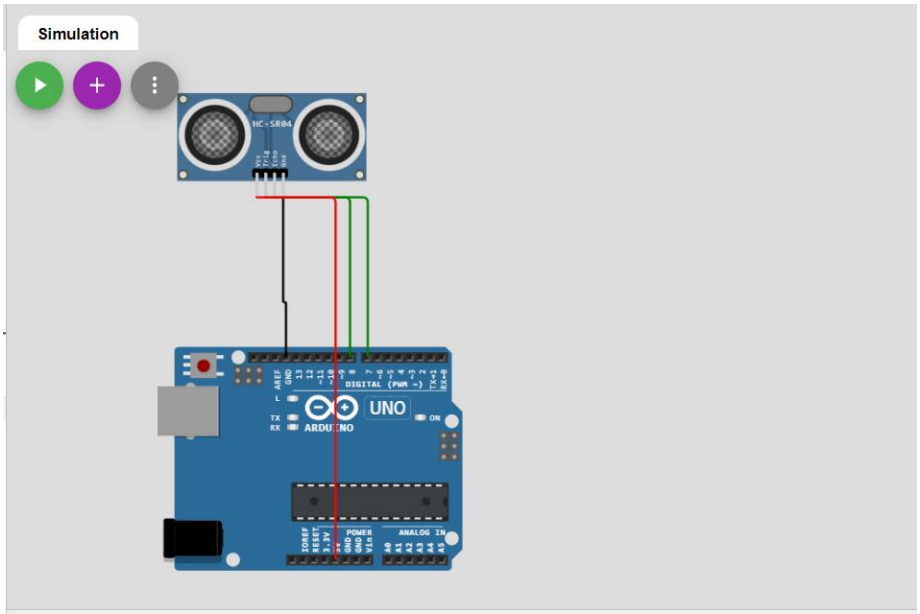
```
  Serial.println(cm);
  if(cm<100)
  Serial.println("Alert!");
  Serial.println("Sending to the cloud:{Distance:");
  Serial.println(cm);
  Serial.println("}");

}
delay(1000);
}
```

sketch.ino ● diagram.json ● Library Manager

```
1  const int TRIG_PIN = 7;
2  const int ECHO_PIN = 8;
3  const unsigned int MAX_DIST = 23200;
4  void setup() {
5  pinMode(TRIG_PIN, OUTPUT);
6  digitalWrite(TRIG_PIN, LOW);
7  pinMode(ECHO_PIN, INPUT);
8  Serial.begin(9600);
9  }
10 void loop() {
11 unsigned long t1;
12 unsigned long t2;
13 unsigned long pulse_width;
14 float cm;
15 float inches;
16 digitalWrite(TRIG_PIN, HIGH);
17 delayMicroseconds(10);
18 digitalWrite(TRIG_PIN, LOW);
19 while (digitalRead( ECHO_PIN )==0 );
20 t1=micros();
21 while (digitalRead( ECHO_PIN )==1 );
22 t2=micros();
23 pulse_width=t2-t1;
24 cm=pulse_width/58;
25 inches=pulse_width/148.0;
26 if(pulse_width > MAX_DIST){
27   Serial.println("Out of range");
28 }
29 else{
30   Serial.println("The measured distance in cm: ");
31   Serial.println(cm);
32   if(cm<100)
33   Serial.println("Alert!");
34   Serial.println("Sending to the cloud:{Distance:");
35   Serial.println(cm);
36   Serial.println("}");
37
38 }
39 delay(1000);
40 }
41
```

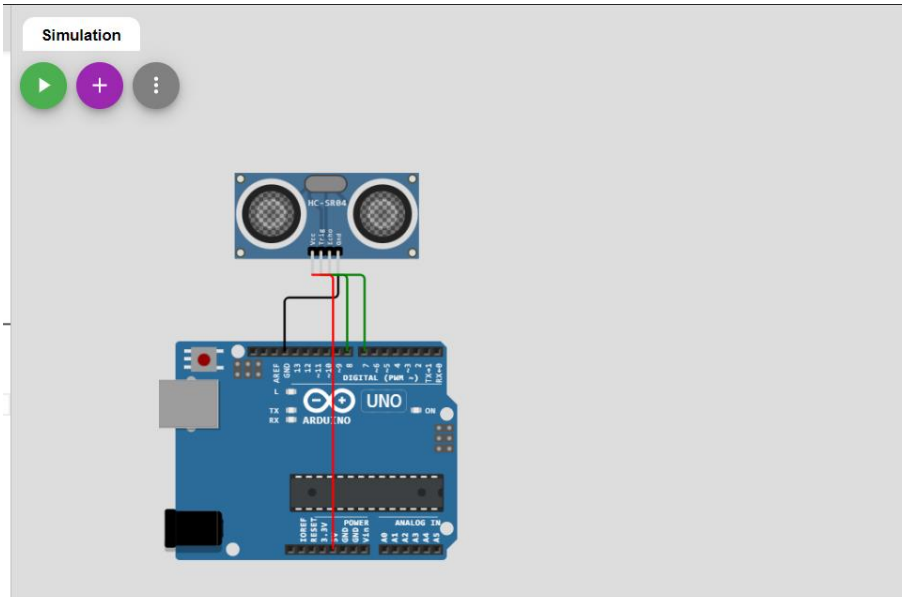
OUTPUT:

When distance is greater than 100 cm




```
The measured distance in cm: 198.00
Sending to the cloud:{Distance: 198.00}
```

When distance is less than 100 cm




```
The measured distance in cm: 79.00
Alert!
Sending to the cloud:{Distance: 79.00}
```