

J.PAVITHRA Assignment -4

Question-1: Write code and connections in wokwi for ultrasonic sensor.
Whenever distance is less than 100 cms send “alert” to ibm cloud and display in device recent events.

Solution:

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization ="ar6zly"
#define deviceType=" Arduino1"
#define deviceId ="56805"
#define authMethod ="use-token-auth"
#define authToken ="9159377012"

void setup() {
  // put your setup code here, to run once:
  Serial.begin(9600);
  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() {  
    // put your main code here, to run repeatedly:  
    float distance = readDistanceCM();  
    if(distance <= 100)  
    {  
        Serial.println("person detected ");  
    }  
    else{  
        Serial.print("Measured distance: ");  
        Serial.println(readDistanceCM());  
    }  
    delay(1000);  
  
}
```

Wokwi

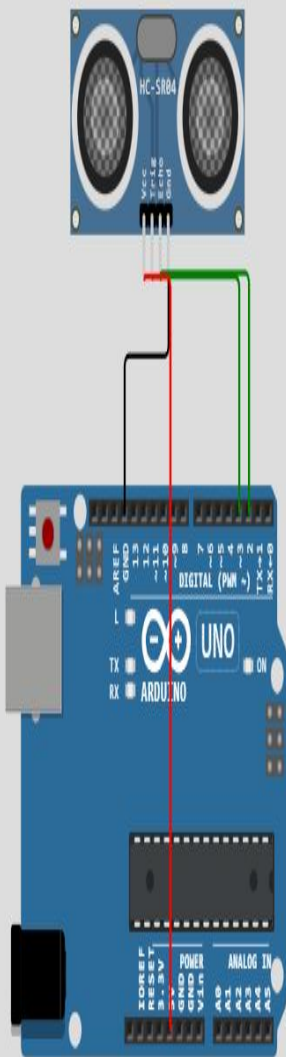
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sketch.ino diagram.json Library Manager

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization="ar6zly"
4 #define deviceType=" Arduino1"
5 #define deviceId="56805"
6 #define authMethod="use-token-auth"
7 #define authToken="9159377012"
8 void setup() {
9   Serial.begin(9600);
10  pinMode(TRIG_PIN,OUTPUT);
11  pinMode(ECHO_PIN, INPUT);
12 }
13
14 float readDistanceCM() {
15   digitalWrite(TRIG_PIN, LOW);
16   delayMicroseconds(2);
17   digitalWrite(TRIG_PIN, HIGH);
18   delayMicroseconds(10);
19   digitalWrite(TRIG_PIN, LOW);
20   int duration = pulseIn(ECHO_PIN, HIGH);
21   return duration * 0.034 / 2;
22 }
23 void loop() {
24   float distance = readDistanceCM();
25   if(distance <= 100)
26   {
27     Serial.println("person detected ");
28   }
29   else{
30     Serial.print("Measured distance: ");
```

Simulation



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Output:

The screenshot displays the Wokwi online Arduino IDE interface. On the left, the 'sketch.ino' file is open, showing an Arduino sketch for distance measurement using an HC-SR04 ultrasonic sensor. The sketch defines pins, initializes the serial port, and implements a loop that sends a pulse to the TRIG pin, measures the duration of the echo on the ECHO pin, and prints the measured distance to the serial monitor.

```
1 #define ECHO_PIN 2
2 #define TRIG_PIN 3
3 #define organization ="ar6zly"
4 #define deviceType=" Arduino1"
5 #define deviceId ="56805"
6 #define authMethod ="use-token-auth"
7 #define authToken ="9159377012"
8 void setup() {
9   Serial.begin(9600);
10  pinMode(TRIG_PIN, OUTPUT);
11  pinMode(ECHO_PIN, INPUT);
12 }
13
14 float readDistanceCM() {
15   digitalWrite(TRIG_PIN, LOW);
16   delayMicroseconds(2);
17   digitalWrite(TRIG_PIN, HIGH);
18   delayMicroseconds(10);
19   digitalWrite(TRIG_PIN, LOW);
20   int duration = pulseIn(ECHO_PIN, HIGH);
21   return duration * 0.034 / 2;
22 }
23 void loop() {
24   float distance = readDistanceCM();
25   if(distance <= 100)
26   {
27     Serial.println("person detected ");
28   }
29   else{
30     Serial.print("Measured distance: ");
```

On the right, the 'Simulation' tab shows a virtual representation of the Arduino Uno board connected to the HC-SR04 sensor. The simulation is running, as indicated by the play button and the timer showing 00:06.265 at 62% speed. The serial monitor at the bottom right displays the output of the sketch, showing the measured distance in centimeters.

Measured distance: 395.25
Measured distance: 395.27
Measured distance: 395.25
Measured distance: 395.27
Measured distance: 395.25
Measured distance: 395.25
Measured distance: 395.25

Wokwi link; <https://wokwi.com/projects/347192177134142036>

IBM CLOUD

Device Recent Events

Service Details - IBM Cloud x IBM Watson IoT Platform x IBM Watson IoT Platform x +

ar6zly.internetofthings.ibmcloud.com/dashboard/devices/drilldown/Arduino:56805?returnTo=/devices/browse

IBM Watson IoT Platform pavithra.jayamurugesan@gmail.com ID: ar6zly

← Back

Device Drilldown - 56805

- Device Credentials
- Connection Information
- Recent Events
- State
- Device Information
- Metadata
- Diagnostics
- Connection Logs
- Device Actions

Device Credentials

You registered your device to the organization. Add these credentials to the device to connect it to the platform. After the device is connected, you can navigate to view connection and event details.

Organization ID	ar6zly
Device Type	Arduino
Device ID	56805
Authentication Method	use-token-auth
Authentication Token	9159377012

⚠ Authentication tokens are non-recoverable. If you lose your authentication token.

0 Simulations running

Type here to search

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Navigation: Browse, Action, Device Types, Interfaces | Add Device

Device ID	Status	Device Type	Class ID	Date Added	
56805	Disconnected	Arduino	Device	Nov 4, 2022 12:29 PM	→ ...

Identity | Device Information | Recent Events | State | Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
event_1	{"version":1,"author":"Anonymous maker","edito...	json	a few seconds ago
event_1	{"version":1,"author":"Anonymous maker","edito...	json	a few seconds ago
event_1	{"version":1,"author":"Anonymous maker","edito...	json	a few seconds ago
event_1	{"version":1,"author":"Anonymous maker","edito...	json	a few seconds ago
event_1	{"version":1,"author":"Anonymous maker","edito...	j	1 Simulation running