

Assignment 4

Wokwi link:

<https://wokwi.com/projects/346786452420428370>

Program code:

```
/*  
  HC-SR04 Ultrasonic Sensor Example.  
  Turn the LED on when an object is within 100cm range.  
  Copyright (C) 2021, Uri Shaked  
*/  
  
#define ECHO_PIN 2  
#define TRIG_PIN 3  
#define organization "mdqcea"  
#define device type "ajith"  
#define deviceId="99"  
#define authmethod="token"  
#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");  
}  
else{  
Serial. Print("Measured distance:");  
Serial.println(readDistanceCM());  
}  
delay(1000);  
}
```

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mdqcea.internetofthings.ibmcloud.com/dashboard/devices/browse

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Browse Action Device Types Interfaces

Device ID	Status	Device Type
99	Disconnected	ajith

Identity Device Information Recent Events State

Device ID: 99
Device Type: ajith
Date Added: 28 Oct 2022 22:37
Added By: 613519106004@smartinternz.com
Connection Status: Disconnected

Items per page 50 | 1-1 of 1 item

Device Type: ajith

Events 1 [New event type +](#)

Event type name: event_1 [Send](#) [Delete](#)

Schedule: 1 Every Minute

Payload: Specify the event payload in the editor window or by uploading a CSV file.

```
0 {  
1   "randomNumber": random(0, 100),  
2   "distance": random(50, 200)  
3 }  
4
```

[Upload a CSV file](#)

Type here to search

23:58 28-10-2022

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Browse Action Device Types Interfaces

Device ID	Status	Device Type
99	Disconnected	ajith

Identity Device Information Recent Events State

The recent events listed show the live stream of data that is coming and going

Event	Value
event_1	{*randomNumber*:81,*distance*:173}
event_1	{*randomNumber*:94,*distance*:99}
event_1	{*randomNumber*:15,*distance*:91}
event_1	{*randomNumber*:38,*distance*:115}
event_1	{*randomNumber*:80,*distance*:55}

json 7 minutes ago

Device Type: ajith

Events 1 [New event type +](#)

Event type name: event_1 [Send](#) [Delete](#)

Schedule: 1 Every Minute

Payload: Specify the event payload in the editor window or by uploading a CSV file.

```
0 {  
1   "randomNumber": random(0, 100),  
2   "distance": random(50, 200)  
3 }  
4
```

[Upload a CSV file](#)

Type here to search

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mdqcea.internetofthings.ibmcloud.com/dashboard/boards/a6006c55-b3c7-4eb7-9512-8c1d552627c8

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ajithk

Line chart

distance 23:25

Device Type: ajith

Events 1 [New event type](#)

Event type name event_1 [Send](#) [Delete](#)

Schedule 1 Every Minute

Payload

Specify the event payload in the editor window or by uploading a [CSV file](#).

```
0 {
1   "randomNumber": random(0, 100),
2   "distance": random(50, 200)
3 }
4
```

[Upload a CSV file](#)

Type here to search

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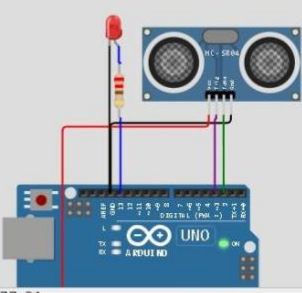
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hc-sr04.ino diagram.json Library Manager

```
1 /*
2 HC-SR04 Ultrasonic Sensor Example.
3 Turn the LED on when an object is within 100cm range.
4 Copyright (C) 2021, Uri Shaked
5 */
6 #define ECHO_PIN 2
7 #define TRIG_PIN 3
8 #define organization "mdqcea"
9 #define device type "ajith"
10 #define deviceId "99"
11 #define authMethod "token"
12 #define authToken "12345678"
13 void setup() {
14   Serial.begin(115200);
15   pinMode(LED_BUILTIN, OUTPUT);
16   pinMode(TRIG_PIN, OUTPUT);
17   pinMode(ECHO_PIN, INPUT);
18 }
19 float readDistanceCM() {
20   digitalWrite(TRIG_PIN, LOW);
21   delayMicroseconds(2);
22   digitalWrite(TRIG_PIN, HIGH);
23   delayMicroseconds(10);
24   digitalWrite(TRIG_PIN, LOW);
25   int duration = pulseIn(ECHO_PIN, HIGH);
26   return duration * 0.034 / 2;
27 }
28 void loop() {
29   float distance = readDistanceCM();
```

Simulation

00:07.665 70%



Measured distance:177.34
Measured distance:177.24
Measured distance:177.40
Measured distance:177.24
Measured distance:177.33
Measured distance:177.24
Measured distance:177.34

Type here to search

23:33
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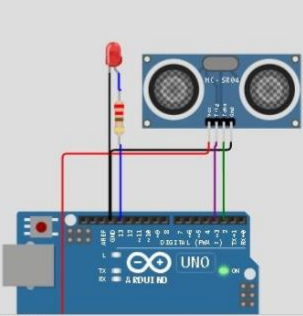
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hc-sr04.ino | diagram.json | Library Manager

```
16 pinMode(TRIG_PIN, OUTPUT);
17 pinMode(ECHO_PIN, INPUT);
18 }
19 float readDistanceCM() {
20   digitalWrite(TRIG_PIN, LOW);
21   delayMicroseconds(2);
22   digitalWrite(TRIG_PIN, HIGH);
23   delayMicroseconds(10);
24   digitalWrite(TRIG_PIN, LOW);
25   int duration = pulseIn(ECHO_PIN, HIGH);
26   return duration * 0.034 / 2;
27 }
28 void loop(){
29   float distance=readDistanceCM();
30   if(distance<=100)
31   {
32     Serial.println("person detected");
33   }
34   else{
35     Serial.print("Measured distance:");
36     Serial.println(readDistanceCM());
37   }
38   delay(1000);
39 }
```

Simulation

00:17.862 90%



Measured distance:177.24
Measured distance:177.33
Measured distance:177.24
Measured distance:177.33
Measured distance:177.34
Measured distance:177.24
Measured distance:177.40

Type here to search | 23:33 | 28-10-2022 | ENG