Assignment -4
ULTRASONIC SENSOR

Assignment Date	29 October 2022
Student Name	DEVAPRAKASH S
Student Roll Number	412519106026
Maximum Marks	2 Marks

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.

Upload document with wokwi share link and images of IBM cloud

SOLUTION:

```
#define ECHO_PIN 2
#define TRIG_PIN 3
#define organization = "9itocz"
#define deviceType = "devicetype_sathishvar"
#define deviceId = "deviceid_sat678910"
#define authMethod = "use-token-auth"
#define authToken = "Fm65S@fU@o7jkim@Xu"
void setup()
{
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()
{
float distance = readDistanceCM();
if (distance <= 100)
{
Serial.println("ALERT!!! Object Detected");
}
else
{
Serial.print("Measured distance: ");
Serial.println(readDistanceCM());
}
delay(1000);
}
```
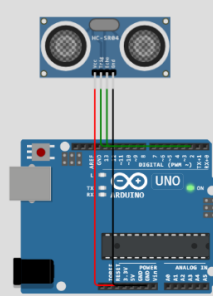
SIMULATION OUTPUT :


```
1  #define ECHO_PIN 2
2  #define TRIG_PIN 3
3  #define organization = "9itocz"
4  #define deviceType = "devicetype_sathishvar"
5  #define deviceId = "deviceid_sat678910"
6  #define authMethod = "use-token-auth"
7  #define authToken = "Fm65S@fU@o7jkim@Xu"
8  void setup()
9  {
10 Serial.begin(9600);
11 pinMode(TRIG_PIN, OUTPUT);
12 pinMode(ECHO_PIN, INPUT);
13 }
14 float readDistanceCM()
15 {
16 digitalWrite(TRIG_PIN, LOW);
17 delayMicroseconds(2);
18 digitalWrite(TRIG_PIN, HIGH);
19 delayMicroseconds(10);
20 digitalWrite(TRIG_PIN, LOW);
21 int duration = pulseIn(ECHO_PIN, HIGH);
22 return duration * 0.034 / 2;
23 }
24 void loop()
25 {
26 float distance = readDistanceCM();
27 if (distance <= 100)
28 {
29 Serial.println("ALERT!!! Object Detected");
30 }
31 else
32 {
33 Serial.print("Measured distance: ");
34 Serial.println(readDistanceCM());
35 }
36 delay(1000);
37 }
```

Measured distance: 134.13
Measured distance: 134.13
ALERT!!! Object Detected
ALERT!!! Object Detected
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ALERT!!! Object Detected

WOKWI SHARE LINK:

https://wokwi.com/projects/348276850068292179

IBM CLOUD DEVICE DETAILS :

		Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	Added By		
⌄	■	deviceid_sat678910	⚡ Disconnected	devicetype_sathishvar	Device	Nov 14, 2022 9:47 AM		sec19ec129@sairamtap.edu.in	→	⋯

Identity	Device Information	Recent Events	State	Logs	✕

Device ID	deviceid_sat678910
Device Type	devicetype_sathishvar
Date Added	Nov 14, 2022 9:47 AM
Added By	sec19ec129@sairamtap.edu.in
Connection Status	Disconnected

IBM CLOUD DEVICE RECENT EVENTS:

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	{"ALERT OBJECT DETECTED ":93}	json	a few seconds ago
event_1	{"ALERT OBJECT DETECTED ":25}	json	a few seconds ago
event_1	{"ALERT OBJECT DETECTED ":68}	json	a few seconds ago
event_1	{"ALERT OBJECT DETECTED ":79}	json	a few seconds ago
event_1	{"ALERT OBJECT DETECTED ":82}	json	a few seconds ago

LINE CHART OF IBM CLOUD DEVICE: