

Assignment-4

Wokwi code for Ultrasonic sensor

Assignment Date	21 October 2022
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Maximum Marks	2 Marks

Write code and connections in Wokwi for the ultrasonic sensor.

Whenever the distance is less than 100cms 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:

<https://wokwi.com/projects/348036570083755602>

The screenshot displays the Wokwi IDE interface. On the left, the 'sketch.ino' file is open, showing the following code:

```
1
2
3 #include <WiFi.h>
4 #include <PubSubClient.h>
5 WiFiClient wifiClient;
6 #define ORG "vwdw2h"
7 #define DEVICE_TYPE "ESP32"
8 #define DEVICE_ID "1618"
9 #define TOKEN "12345678"
10 #define speed 0.034
11 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
12 char publishTopic[] = "iot-2/evt/Data/fmt/json";
13 char topic[] = "iot-2/cmd/home/fmt/String";
14 char authMethod[] = "use-token-auth";
15 char token[] = TOKEN;
16 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
17 PubSubClient client(server, 1883, wifiClient);
18 void publishData();
19
20
21 const int trigpin=5;
22 const int echopin=18;
23 String command;
24 String data="";
25
26 long duration;
27 float dist;
28
29
30
31 void setup()
32 {
33   Serial.begin(115200);
34   pinMode(trigpin, OUTPUT);
```

On the right, the 'Simulation' window shows a visual representation of the circuit. An ESP32 microcontroller is connected to an HC-SR04 ultrasonic sensor. The sensor's VCC pin is connected to the ESP32's 5V pin, and its GND pin is connected to the ESP32's GND pin. The trig pin is connected to pin 5, and the echo pin is connected to pin 18. A status bar at the top right of the simulation window shows a timer at 01:34.917 and a battery level at 72%.

Below the simulation window, a log window displays the following messages:

```
Sending payload: {"Normal Distance":140.95}
Publish OK

Sending payload: {"Normal Distance":140.96}
Publish OK

Reconnecting MQTT client to vwdw2h.messaging.internetofthings.ibmcloud.com
..
```

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	
Data	{"Alert distance":61.97}	json	a few seconds ago	
Data	{"Normal Distance":233.97}	json	a few seconds ago	
Data	{"Normal Distance":233.97}	json	a few seconds ago	
Data	{"Normal Distance":233.95}	json	a few seconds ago	
Data	{"Normal Distance":233.97}	json	a few seconds ago	