Write code and connections in wokwĭ for ultrasonic sensor. Whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events.

Code:

```
#include <WiFi.h>
#include <PubSubClient.h>
void callback(char* subscribetopic, byte *payload,unsigned int payloadLength);
#define ORG "ytluse"//IBM ORGANITION ID
#define DEVICE_TYPE "2782"//Device type mentioned in ibm watson IOT Platform
#define DEVICE_ID "12345"//Device ID mentioned in ibm watson IOT Platform
 #define TOKEN "O+n) Eh+1NX0y3?rG!8" //Token
String data3;
char server[] ORG ".messaging. internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/fmt/json"; char subscribetopic[] = "iot-2/cmd/test/fot/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
WiFiClient wifiClient;
PubSubClient client (server, 1883, callback,wifiClient);
const int trigPin = 5;
const int echoPin = 18;
#define SOUND SPEED 0.034
long duration;
```

```
float distance;
void setup() {
Serial.begin(115200);
pinMode(trigPin, OUTPUT);
pinMode(echopin, INPUT);
wificonnect();
mattconnect();
}
void loop()
{
digitalWrite(trigpin, LOW);
delayMicroseconds(2); digitalWrite(trigPin, HIGH);
delayMicroseconds(10);)
digitalWrite(trigpin, LOW); duration pulseIn(echopin, HIGH); distance duration
SOUND SPEED/2; Serial.print("Distance (ca): ");
Serial.println(distance):
if(distancec100)
{
Serial.println("ALERT!!");
delay(1000);
 PublishData(distance);
delay(1000);
if (client.loop()) {
 mattconnect();
}
}
```

```
delay(1000);
}
void PublishData(float dist) {
 mattconnect();
String payload="{\"Distance\":"; payload + dist;
payload",\"ALERT!!\":\"Distance less than 100ces\"";
payload + ")";
Serial.print("Sending payload: ");
Serial.println(payload);

if (client.publish(publishTopic, (char*) payload.c_str())) { Serial.println("Publish ok");
} else {
Serial.println("Publish failed");
}
}
void mattconnect()
if (client.connected()) {
Serial.print("Reconnecting client to "); Serial.println(server);
While (!!!client.connect (Client Id,authmethod,token)){
Serial.print(".");
 delay(500);
initManagedDevice();
 Serial.println();
}
}
```

```
void wificonnect()
{
Serial.println();
Serial.print("Connecting to ");
 WiFi.begin("Wokwi-GUEST", "", 6); while (WiFi.status() != WL_CONNECTED) {
delay(500);
Serial.print(".");
}
Serial.println("");
Serial.println("WiFi connected");
Serial.println("IP address: ");
serial.println(WiFi.localIP());
{
void initManagedDevice() {
if (client, subscribe(subscribetopic)) { Serial.println((subscribetopic));
Serial.println("subscribe to cmd OK");

} else {
Serial.println("subscribe to cnd FAILED");
}
}
void callback(char* subscribetopic, byte payload, unsigned int payloadLength)
{
Serial.print("callback invoked for topic: ");
Serial.println(subscribetopic);
```

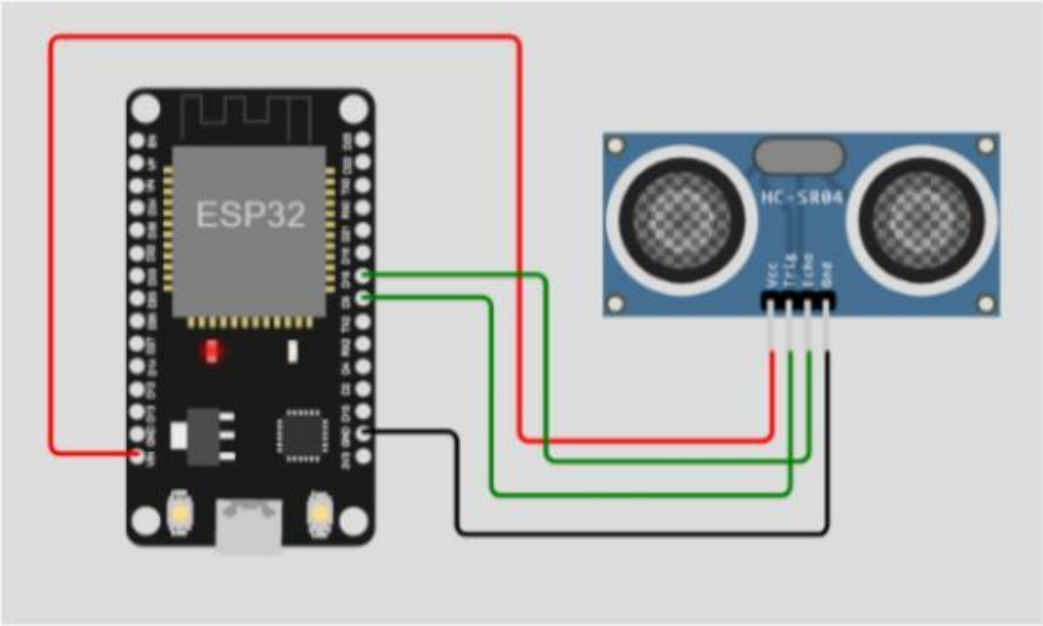
```
 for (int i=0; i < payloadLength; i++) {
//Serial.print((char)payload[1]); data3 (char) payload[1];
}
Serial.println("data: "+ data3);
data3"";
}
```

Diagram.json:

```
{
"version": 1,
"author": "PAVITHRA P 191T815",
"editor": "wow",
"parts": [
{ "type": "wokwi-esp32-devkit-y1", "id": "esp", "top": -4.67, "left": -114.67,
"attrs": () ), { "type": "wokwi-hc-sr04", "id": "ultrasonic1", "top": 15.96, "left": 89.17,
"attrs": () }
"connections": [
["esp:TX0", "$serialMonitor: RX", "", [] ],
["esp:RX@", "$serialMonitor:TX", "", [] ],
"esp:VIN",
"ultrasonici:VCC",
"red",
["h-37.16", "v-178.79", "h20e", "v173.33", "h100.67" ]
],
["esp:GND.1", "ultrasonici:GND", "black", ["h39.87", "v44.84", "h170" ] ] ,
```

["esp:D5", "ultrasonic1: TRIG", "green", ["h54.54", "v85.87", "h130.67"]] ,
["esp:D18", "ultrasonici:ECHO", "green", ["h77.87", "v88.01", "h110"]]
]
}

Circuit Diagram:



Wokwi output:

```
Connecting to ...
WiFi connected
IP address:
10.10.0.2
Reconnecting client to ytluse.messaging.internetofthings.ibmcloud.com
iot-2/cmd/test/fmt/String
subscribe to cmd OK

Distance (cm): 399.96
Distance (cm): 399.94
Distance (cm): 399.94
Distance (cm): 399.94
Distance (cm): 399.96
Distance (cm): 399.94
Distance (cm): 399.94
Distance (cm): 399.94
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Distance (cm): 399.94
```