ASSIGNMENT 4

Assignment Date :19 September 2022
Student Name :Kathiravan R
Student Roll no :622419104023
Maximum Marks : 2 marks
Project Title : IOT based safety gadget for child Monitoring& Notification

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

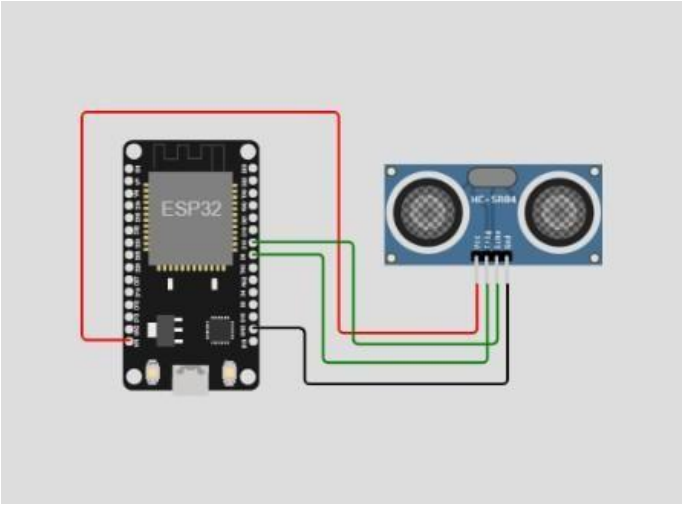
CODE:

```
#include
<WiFi.h>#include<PubSub
Client.h>
voidcallback(char*subscribetopic,byte*payload,unsignedintpayloa
dLength);
//-------credentialsofIBMAccounts------
#defineORG"Ashfaq1824"//IBMORGANITIONID
#defineDEVICE_TYPE"ESP32"//DevicetypementionedinibmwatsonIOTPlatform#defin
e DEVICE_ID "12345"//Device ID mentioned in ibm watson IOT
Platform#defineTOKEN"12345678"//Token
Stringdata3;
char server[] = ORG
".messaging.internetofthings.ibmcloud.com";charpublishTopic[]=
"iot-2/evt/Data/fmt/json";
charsubscribetopic[]= "iot-
2/cmd/test/fmt/String";charauthMethod[]="use-
token-auth";
chartoken[]=TOKEN;
charclientId[]="d:"ORG":"DEVICE_TYPE":"DEVICE_ID;
WiFiClientwifiClient;
PubSubClient client(server, 1883,
callback ,wifiClient);const inttrigPin=5;
constintechoPin=18;
#defineSOUND_SPEED0.034l
ongduration;
float
distance;voids
etup(){
```

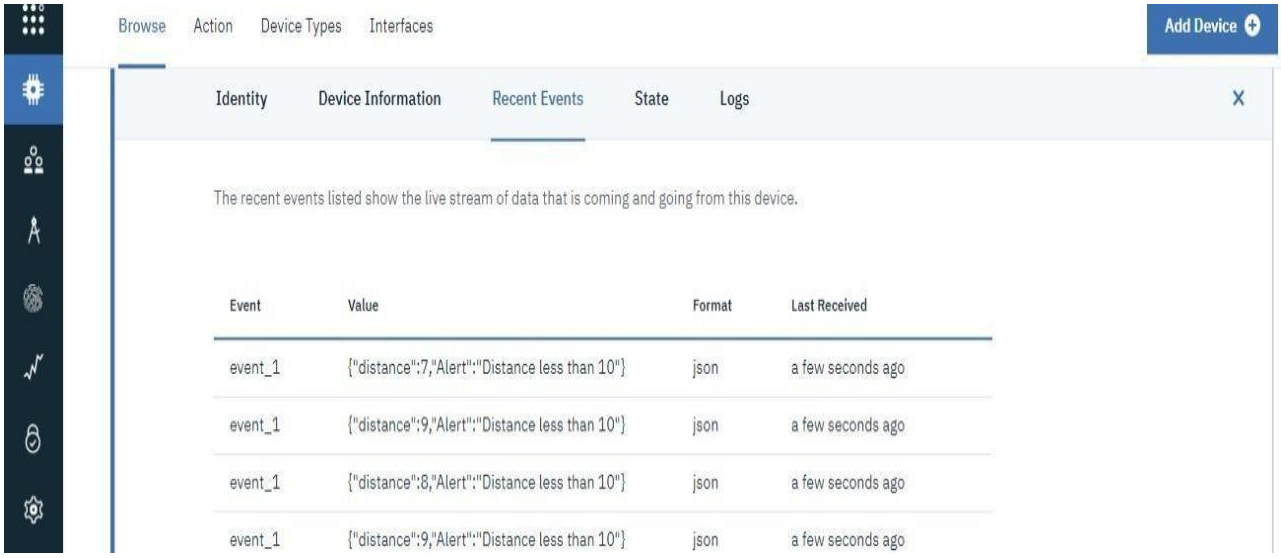
```
Serial.begin(115200);pinMo
de(trigPin,OUTPUT);pinMo
de(echoPin,
INPUT);wificonnect();
mqttconnect();
}
voidloop()
{
digitalWrite(trigPin,LOW);delayMi
croseconds(2);digitalWrite(trigPin,
HIGH);delayMicroseconds(10);digi
talWrite(trigPin,LOW);duration=pu
lseIn(echoPin,HIGH);
distance=
duration*SOUND_SPEED/2;Serial.print("Distan
ce(cm): ");Serial.println(distance);
if(distance<100)
{
Serial.println("ALERT!!");
delay(1000);PublishData(d
istance);delay(1000);
if(!client.loop())
{mqttconnect();
}
}
delay(1000);
}
voidPublishData(floatdist)
{mqttconnect();
String payload =
"{\"Distance\":";payload+=dist;
payload
+=",\"ALERT!!\":""\"Distancelessthan100cms\"";payload+="}";
Serial.print("Sendingpayload:");
Serial.println(payload);

if(client.publish(publishTopic,(char*)payload.c_str())){
Serial.println("Publishok");
}else{
Serial.println("Publishfailed");
}
}
voidmqttconnect(){
if(!client.connected())
{Serial.print("Reconnectingclientto");Serial.printl
n(server);
while(!!!client.connect(clientId,authMethod,token)){
Serial.print(".");
delay(500);
}
```

```
initManagedDevice();
Serial.println();
}
}
voidwificonnect()
{
Serial.println();Serial.print("Connect
ing to ");WiFi.begin("Wokwi-
GUEST","",6);
while(WiFi.status()!=WL_CONNECTED)
{delay(500);
Serial.print(".");
}
Serial.println("");Serial.println("
WiFiconnected");Serial.println("I
Paddress:
");Serial.println(WiFi.localIP());
}
voidinitManagedDevice(){
if (client.subscribe(subscribetopic))
{Serial.println((subscribetopic));Serial.println("su
bscribetocmdOK");
}else{
Serial.println("subscribetocmdFAILED");
}
}
voidcallback(char*subscribetopic,byte*payload,unsignedintpayloadLength)
{
Serial.print("callbackinvokedfortopic:");
Serial.println(subscribetopic);
for (inti=0; i<payloadLength;i++){
//Serial.print((char)payload[i]);
data3+=(char)payload[i];
}
Serial.println("data:"+data3);da
ta3="";
}
```

SCHEMATIC/CIRCUITDIAGRAM:



IBMCLOUDOUTPUT:



WOKWILINK:

https://wokwi.com/projects/322410731508073042