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ASSIGNMENT IV

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Solution:

WOWKI LINK: https://wokwi.com/projects/346235465961046612

```
#include <WiFi.h>
#include
<PubSubClient.h>
#define TRIGGER 2
#define ECHO 15
#define sound_speed
0.034 int distance;
void callback(char* subscribetopic, byte* payload,
```

```
unsigned int payloadLength);
//-------credentials of IBM Accounts------
#define ORG "wp72r7"
#define DEVICE_TYPE "iot-
device-1" #define DEVICE_ID
"123456789"
#define TOKEN "987654321"
String data3;
//-------- Customise the above valueschar server[] = ORG
".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-
2/evt/Data/fmt/json"; char subscribetopic[] =
"iot-2/cmd/test/fmt/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); void setup()
{
Serial.begin(115200);
pinMode(TRIGGER,
OUTPUT);
pinMode(ECHO, INPUT);
delay(10);
Serial.printl
n();
wificonnect(
);
mqttconnec
t();
}
void loop()
{
digitalWrite(TRIGGER, HIGH);
delayMicroseconds(10);
digitalWrite(TRIGGER, LOW);
int
duration=pulseIn(ECHO,HIGH);
distance=(duration*sound_speed
)/2; Serial.print("Distance:");
Serial.print(distance);
Serial.println("cms");
if(distance<100){

}
```

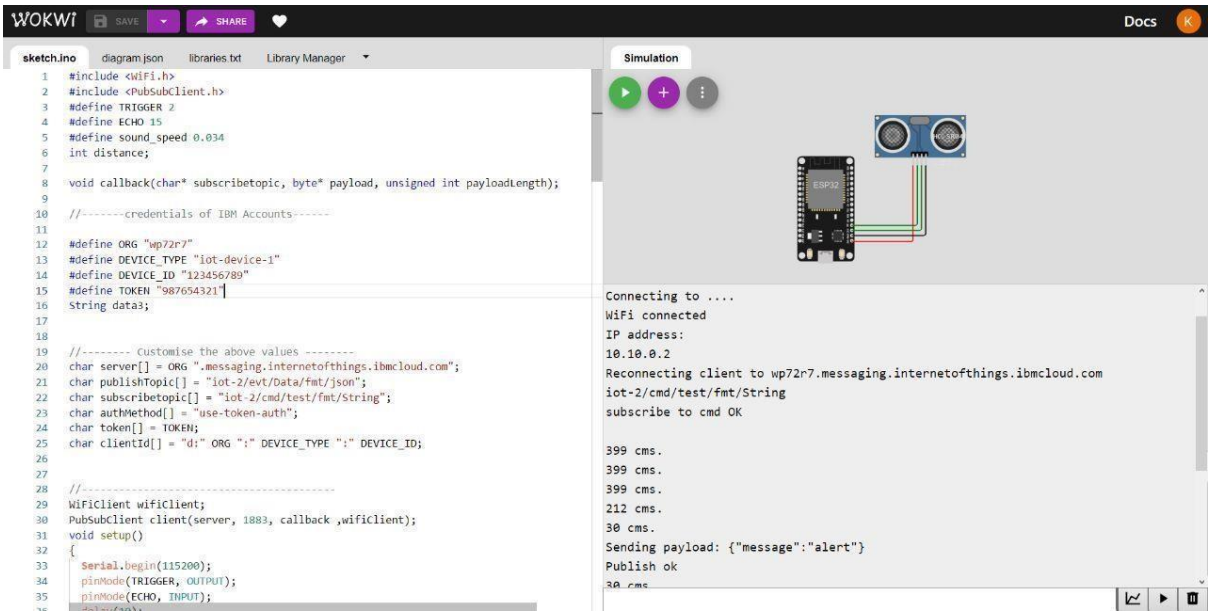
```
PublishData(distance);
}
delay(1000)
;               if
(!client.loop()
)               {
mqttconnect
();
}
}
/.....retrieving to Cloud ...../
void
PublishData(int d) {
mqttconnect();
String payload =
"{\"message\":alert}";
Serial.print("Sending payload:
"); Serial.println(payload);
if (client.publish(publishTopic, (char*)
payload.c_str())) { Serial.println("Publish ok");
} else {
Serial.println("Publish failed");
}
}
```

```
void mqttconnect() { if
(!client.connected()) {
Serial.print("Reconnecting
client to ");
Serial.println(server);
while (!!!client.connect(clientId, authMethod,
token)) { Serial.print(".");
delay(500);
}
initManagedDevic
e();
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 cmd 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++)
{ data3 += (char)payload[i];









}
```

```
Serial.println("data: "+
data3); data3="";
}
```

CIRCUIT DIAGRAM:



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