# ASSIGNMENT4

## WOKWI PROGRAM

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| ASSIGNMNET DATE | 23 OCTOBER 2022 |
| STUDENT NAME | SRI RAJAM M |
| STUDENT ROLL NUMBER | 110519106029 |
| MAXIMUM NUMBER | 2 MARKS |
| TEAM ID | PNT2022TMID36201 |

**CODE :**

```
#include <WiFi.h>
#include <PubSubClient.h>
void callback(char* subscribetopic,byte* payload, unsigned int payloadLength);
#define ORG "wzdjmr"
#define DEVICE_TYPE "srirajam29"
#define DEVICE_ID "6029"
#define TOKEN "JuumcCh6v&As9SK5K1"
String data3;


char server[]= ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[]="iot-2/evt/srirajam29/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;
```

```
WiFiClientwifiClient;
PubSubClient client(server,1883,callback,wifiClient);

#define ECHO_PIN 12
#define TRIG_PIN 13
#define led 14

void setup() {
  // put your setup code here, to run once:
Serial.begin(115200);
pinMode(led, OUTPUT);
pinMode(TRIG_PIN, OUTPUT);
pinMode(ECHO_PIN, INPUT);
wificonnect();
mqttconnect();
}
float readDistanceCM() {
digitalWrite(TRIG_PIN, LOW);
delayMicroseconds(2);
digitalWrite(TRIG_PIN, HIGH);
delayMicroseconds(10);
digitalWrite(TRIG_PIN, LOW);
  int duration=random(1,200);
```

```
  //Serial.println(duration);
  //duration = pulseIn(ECHO_PIN, HIGH);
  return duration ;
  //Serial.println(duration);

}

void loop() {
  float distance = readDistanceCM();
  //Serial.println(distance);

  bool isNearby = distance < 100;
digitalWrite(led, isNearby);

Serial.print("Measured distance: ");
Serial.println(distance);
  if(distance<100){
    PublishData2(distance);

}else{
    PublishData1(distance);

  }
  //PublishData(distance);
```

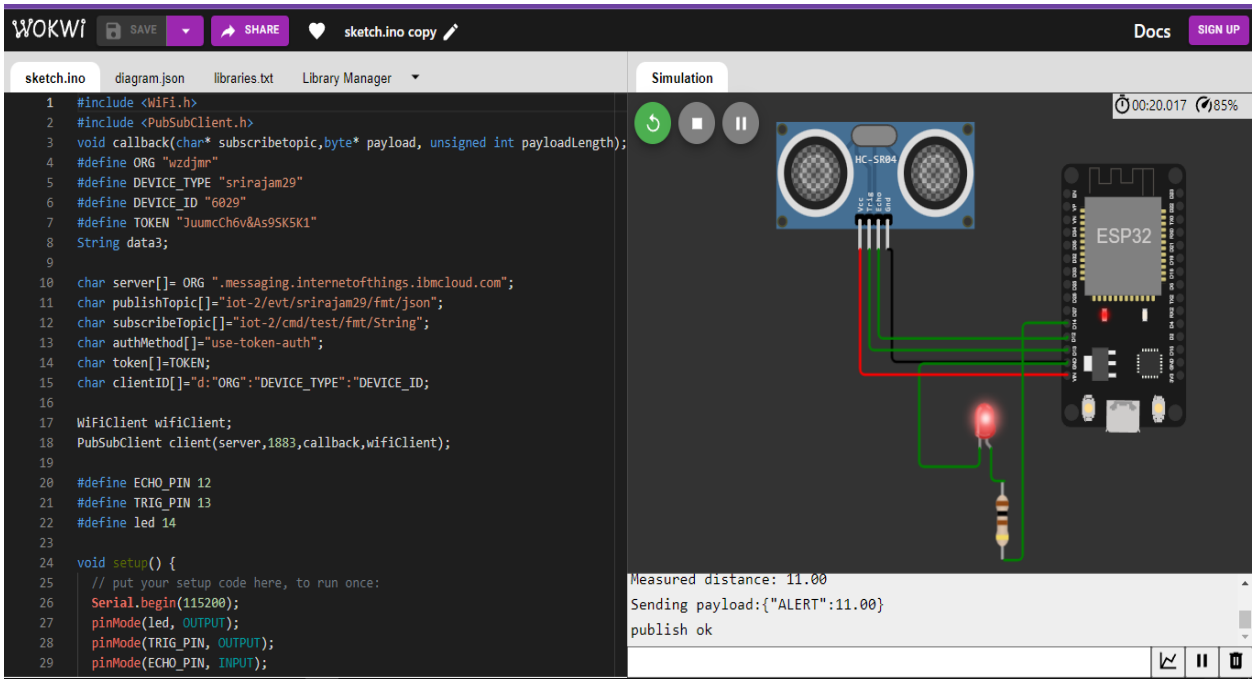
```
delay(1000);
  if(!client.loop()){
mqttconnect();
  }

  //delay(2000);
}
void PublishData1(float dist){
mqttconnect();
  String payload= "{\"distance\":";
  payload += dist;
  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 PublishData2(float dist){
mqttconnect();
```

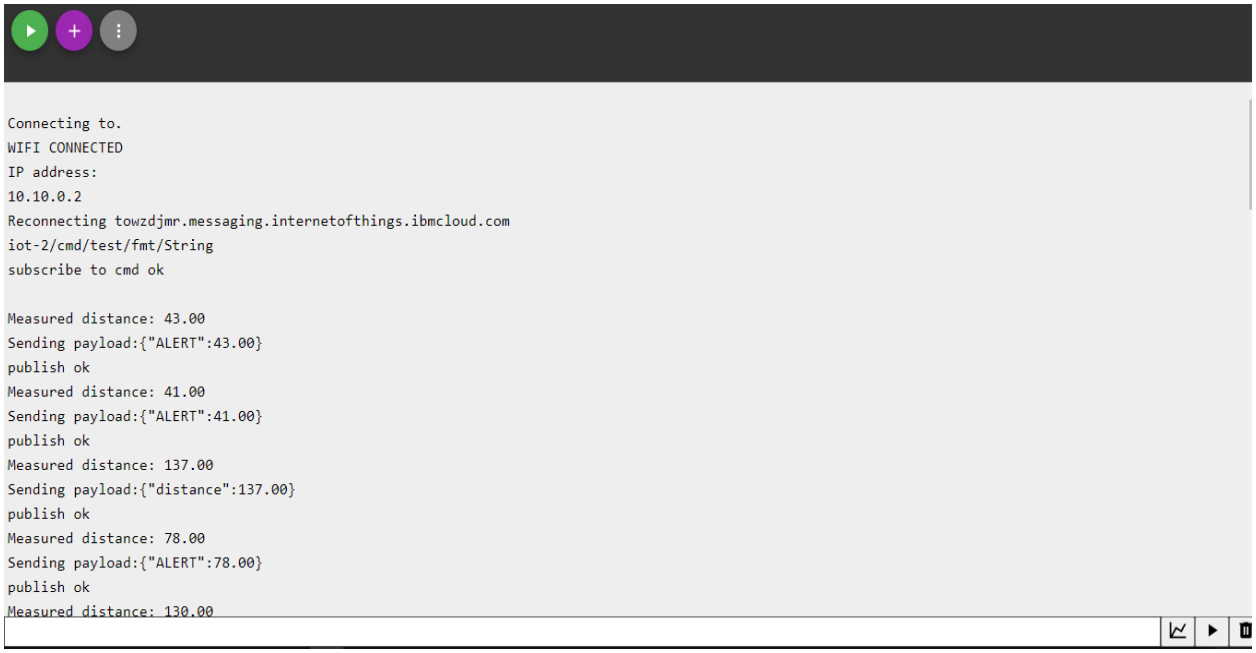
```
  String payload= "{\"ALERT\":";
  payload += dist;
  payload+="}";

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 mqttconnect(){
  if(!client.connected()){
Serial.print("Reconnecting to");
Serial.println(server);
while(!!!client.connect(clientID, 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 cmd failed");
  }
```

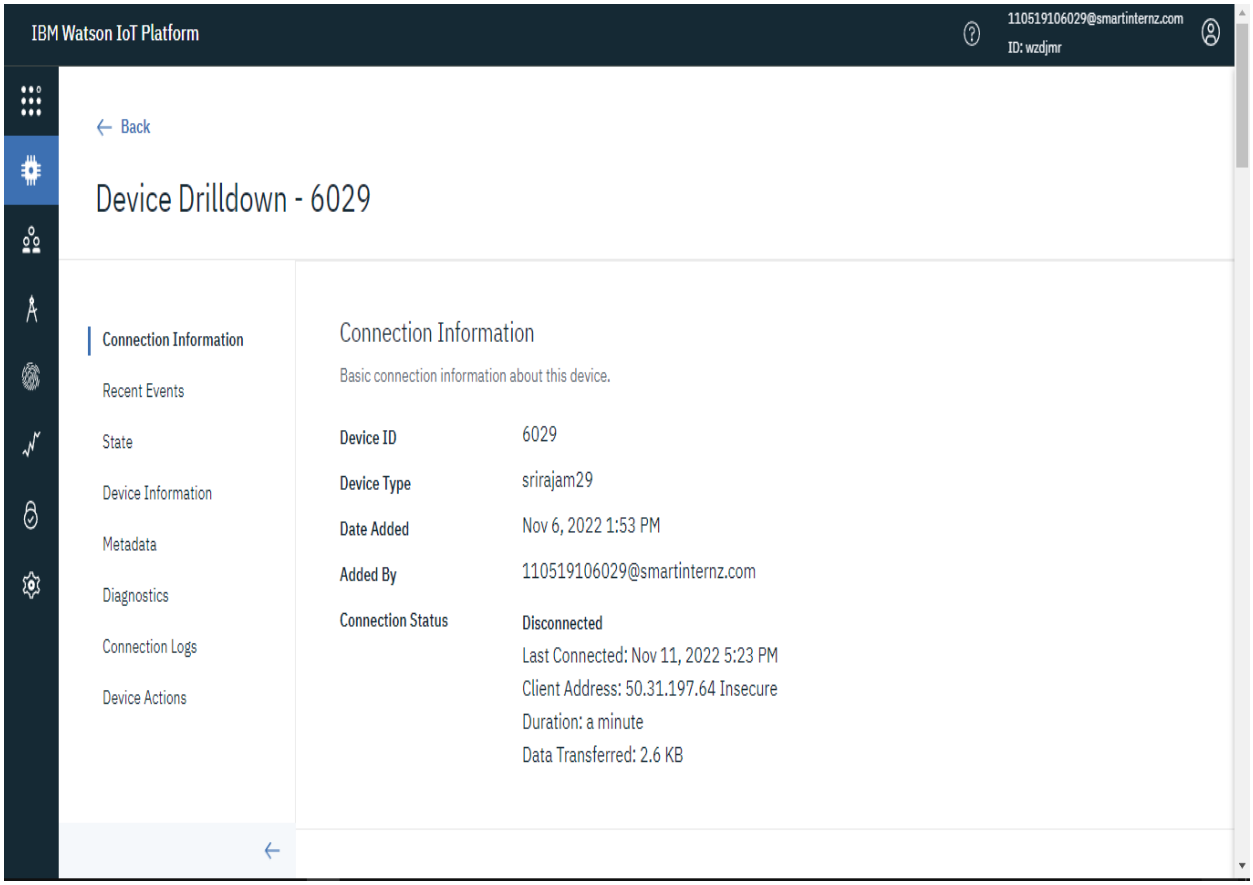
```
}

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);
 if(data3=="lighton"){
Serial.println(data3);
digitalWrite(led,HIGH);
}else{
Serial.println(data3);
digitalWrite(led,LOW);
 }
 data3="";
}
```

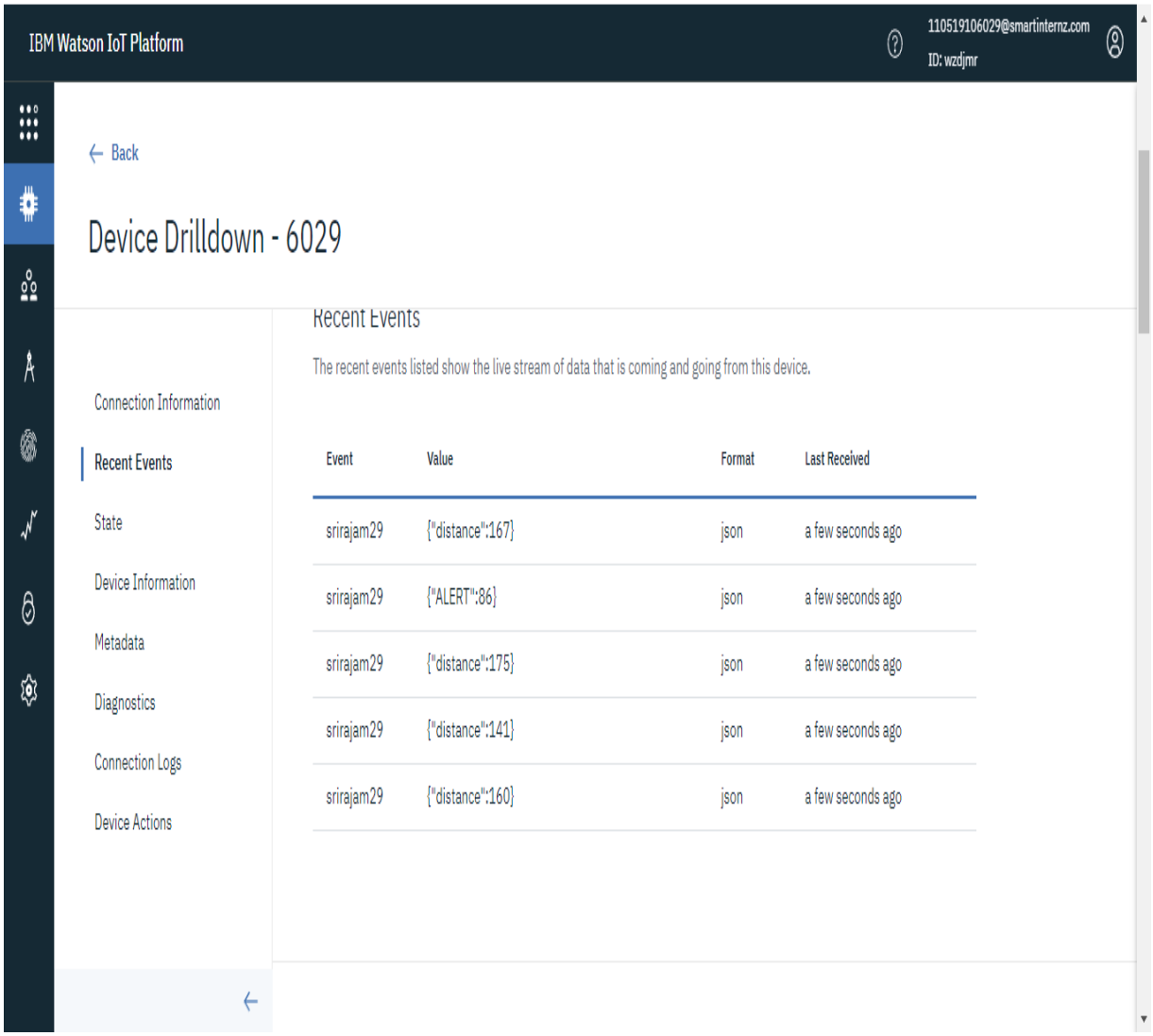
# OUTPUT :


WOKWI
SAVE
SHARE
sketch.ino copy
Docs
SIGN UP
sketch.ino
diagram.json
libraries.txt
Library Manager
Simulation
00:20.017
85%
HC-SR04
ESP32
#include <WiFi.h>
#include <PubSubClient.h>
void callback(char* subscribetopic,byte* payload, unsigned int payloadLength);
#define ORG "wzdjmr"
#define DEVICE_TYPE "srirajam29"
#define DEVICE_ID "6029"
#define TOKEN "JuumcCh6v&As9SK5K1"
String data3;
char server[]= ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[]="iot-2/evt/srirajam29/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);
#define ECHO_PIN 12
#define TRIG_PIN 13
#define led 14
void setup() {
// put your setup code here, to run once:
Serial.begin(115200);
pinMode(led, OUTPUT);
pinMode(TRIG_PIN, OUTPUT);
pinMode(ECHO_PIN, INPUT);
Measured distance: 11.00
Sending payload:{"ALERT":11.00}
publish ok


Connecting to.
WIFI CONNECTED
IP address:
10.10.0.2
Reconnecting towzdjmr.messaging.internetofthings.ibmcloud.com
iot-2/cmd/test/fmt/String
subscribe to cmd ok
Measured distance: 43.00
Sending payload:{"ALERT":43.00}
publish ok
Measured distance: 41.00
Sending payload:{"ALERT":41.00}
publish ok
Measured distance: 137.00
Sending payload:{"distance":137.00}
publish ok
Measured distance: 78.00
Sending payload:{"ALERT":78.00}
publish ok
Measured distance: 130.00

# IBM CLOUD OUTPUT:




IBM Watson IoT Platform
110519106029@smartinternz.com
ID: wzdjmr
Back
Device Drilldown - 6029
Connection Information
Recent Events
State
Device Information
Metadata
Diagnostics
Connection Logs
Device Actions
Recent Events
The recent events listed show the live stream of data that is coming and going from this device.
Event
Value
Format
Last Received
srirajam29
{"distance":167}
json
a few seconds ago
srirajam29
{"ALERT":86}
json
a few seconds ago
srirajam29
{"distance":175}
json
a few seconds ago
srirajam29
{"distance":141}
json
a few seconds ago
srirajam29
{"distance":160}
json
a few seconds ago