Assignment-4
Wowki Simulation

Assignmet Date	**5 th November**
Student Name	**M.Anusha**
Student Roll Number	**960219106028**
Maximum Mark	**2 Mark**

Question :

Write a code and make a connection in WOKWI for ultrasonic sensor. Whenever distance is less than 100 , send “alert” to IBM cloud and display in device recent events.

Program:

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "zc30p5"
#define DEVICE_TYPE "b11m3edevicetype"
#define DEVICE_ID "b11m3edeviceid"
#define TOKEN "H68iZ)!7uKKD_fvOb1"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Anusha/fmt/json";
char topic[] = "iot-2/cmd/led/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);
const int trigpin=5;
const int echopin=18;
String command;
String data="";
long duration;
float dist;
void setup()
```

```
{
 Serial.begin(115200);
 pinMode(led, OUTPUT);
 pinMode(trigpin, OUTPUT);
 pinMode(echopin, INPUT);
 wifiConnect();
 mqttConnect();
}
void loop() {
 bool isNearby = dist < 100;
 digitalWrite(led, isNearby);
 publishData();
 delay(500);
 if (!client.loop()) {
 mqttConnect();
 }
}
void wifiConnect() {
 Serial.print("Connecting to "); Serial.print("Wifi");
 WiFi.begin("Wokwi-GUEST", "", 6);
 while (WiFi.status() != WL_CONNECTED) {
 delay(500);
 Serial.print(".");
 }
 Serial.print("WiFi connected, IP address: "); Serial.println(WiFi.localIP());
}
void mqttConnect() {
 if (!client.connected()) {
 Serial.print("Reconnecting MQTT client to "); Serial.println(server);
 while (!client.connect(clientId, authMethod, token)) {
 Serial.print(".");
 delay(500);
 }
 initManagedDevice();
 Serial.println();
 }
}
void initManagedDevice() {
 if (client.subscribe(topic)) {
```

```
  // Serial.println(client.subscribe(topic));
 Serial.println("IBM subscribe to cmd OK");
 } else {
 Serial.println("subscribe to cmd FAILED");
 }
}
void publishData()
{
 digitalWrite(trigpin,LOW);
 digitalWrite(trigpin,HIGH);
 delayMicroseconds(10);
 digitalWrite(trigpin,LOW);
 duration=pulseIn(echopin,HIGH);
 dist=duration*speed/2;
 if(dist<100){
 String payload = "{\"Alert Distance\":";
 payload += dist;
 payload += "}";
 Serial.print("\n");
 Serial.print("Sending payload: ");
 Serial.println(payload);
 if (client.publish(publishTopic, (char*) payload.c_str())) {
 Serial.println("Publish OK");
 }

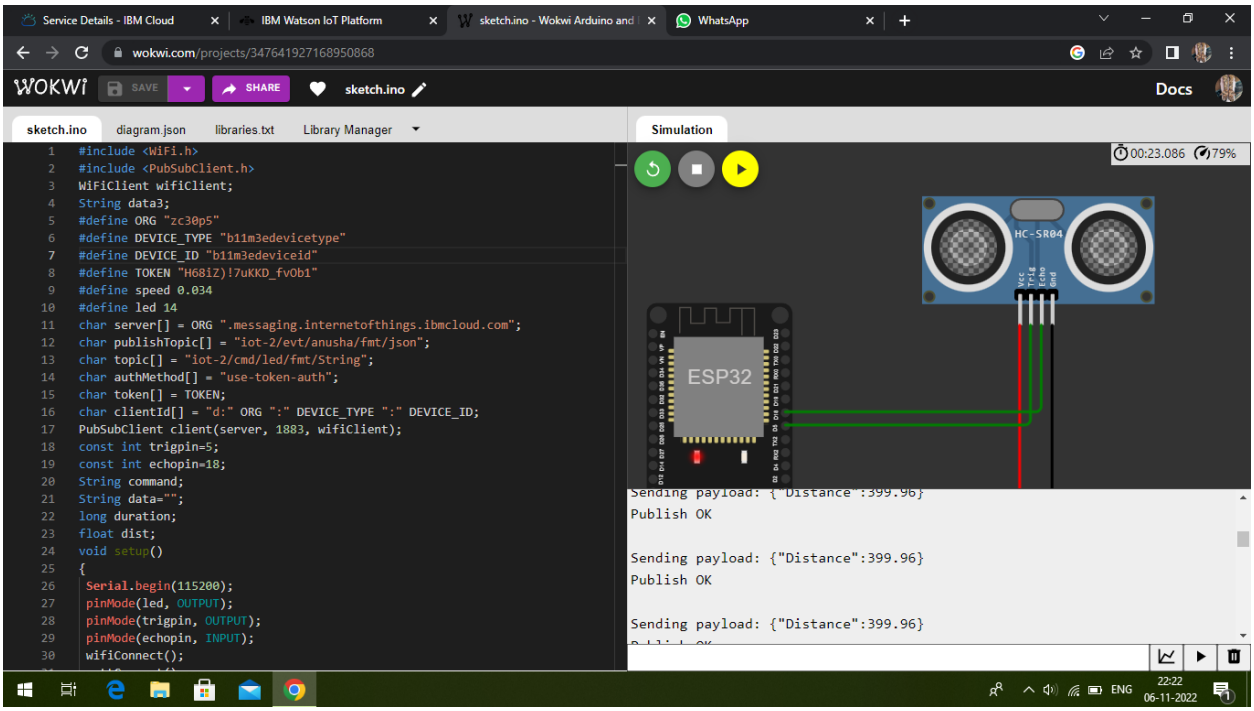
 }
 if(dist>100){
 String payload = "{\"Distance\":";
 payload += dist;
 payload += "}";
 Serial.print("\n");
 Serial.print("Sending payload: ");
 Serial.println(payload);
 if(client.publish(publishTopic, (char*) payload.c_str())) {
 Serial.println("Publish OK");
 }else {
 Serial.println("Publish FAILED");
 }
```

```
}

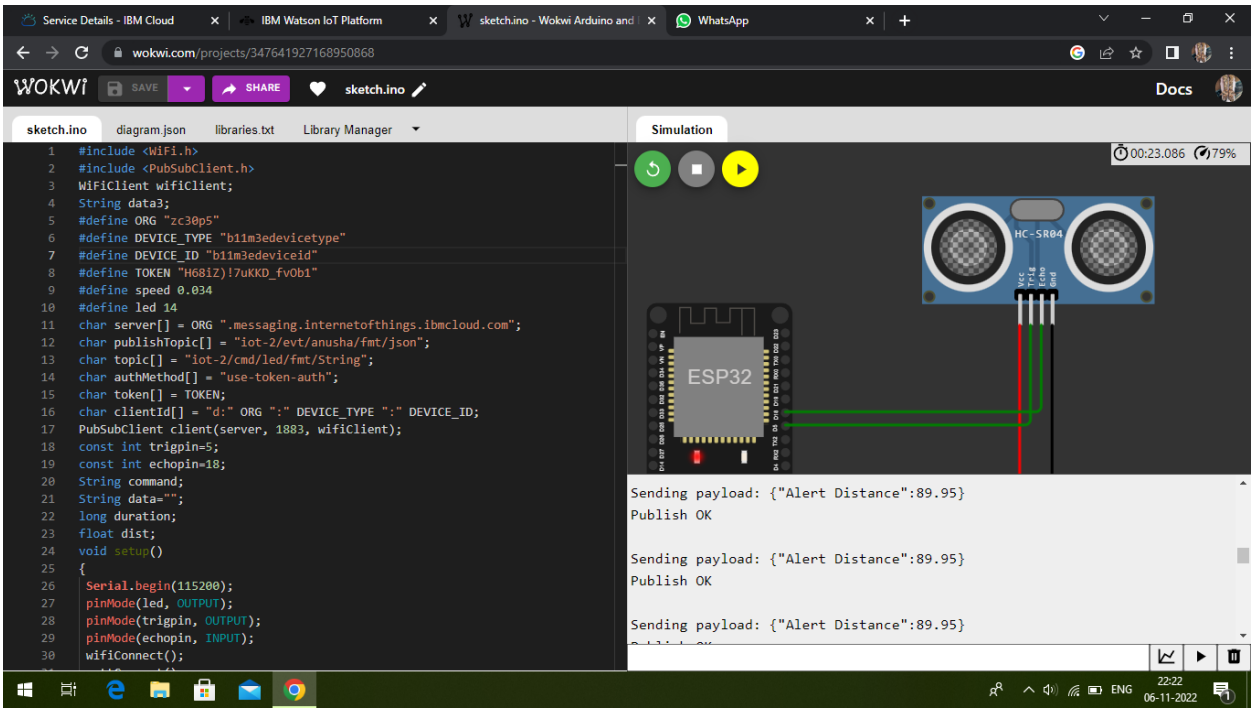
}
```

OUTUPUT:

WOKWI SIMULATION :



When Distance < 100

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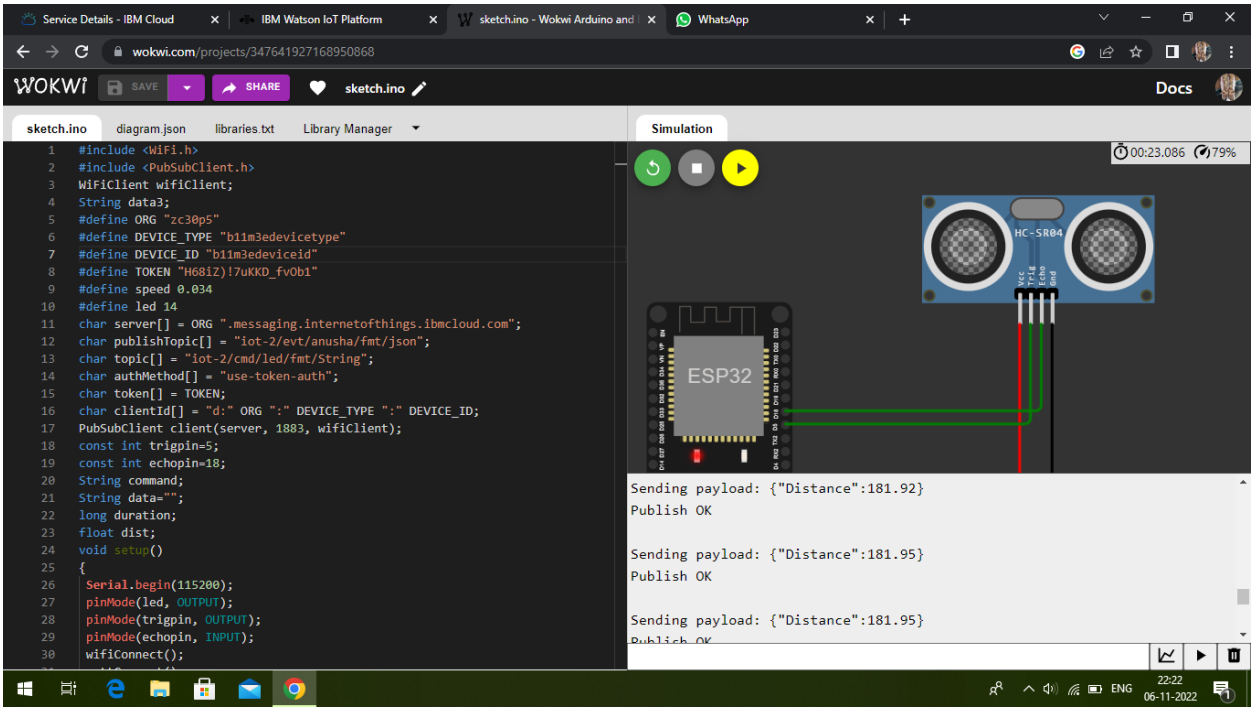
```

When Distance >100

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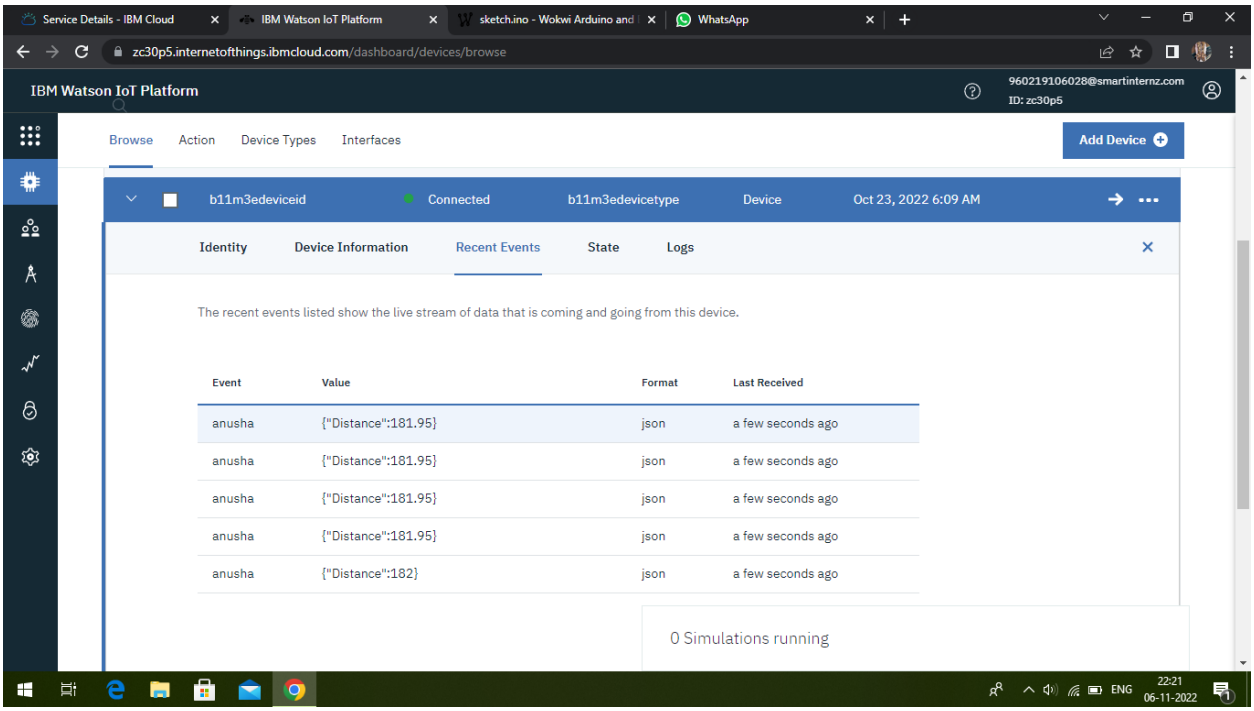
IBM CLOUD OUTPUT



WOKWI LINK:

https://wokwi.com/projects/347641927168950868