Assignment Date	27 OCT 2022
Student Name	Priyanka.k
Team id	PNT2022TMID46762
Project Title	IoT Based Safety Gadget for Child Safety Monitoring and Notification
Maximum Marks	2 marks

ASSIGNMENT 4

Write code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100 cm s send an "alert" to the IBM cloud and display in the device recent events. Upload document with wokwi share link and images of IBM cloud.

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "z6y378"
#define DEVICE_TYPE "priyanka"
#define DEVICE_ID "priyanka123"
#define TOKEN "123456789"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/priyanka/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);
void publishData();


const int trigpin=5;
const int echopin=18;
String command;
String data="";

long duration;
```

```cpp
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();
  }
}
```

```cpp
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("Warning crosses 110cm -- it automaticaly of
the loop");
      digitalWrite(led,HIGH);
    }

  }
    if(dist>101 && dist<111){
    String payload = "{\"Normal Distance\":";
    payload += dist;
    payload += "}";

    Serial.print("\n");
    Serial.print("Sending payload: ");
    Serial.println(payload);

    }

  }
```
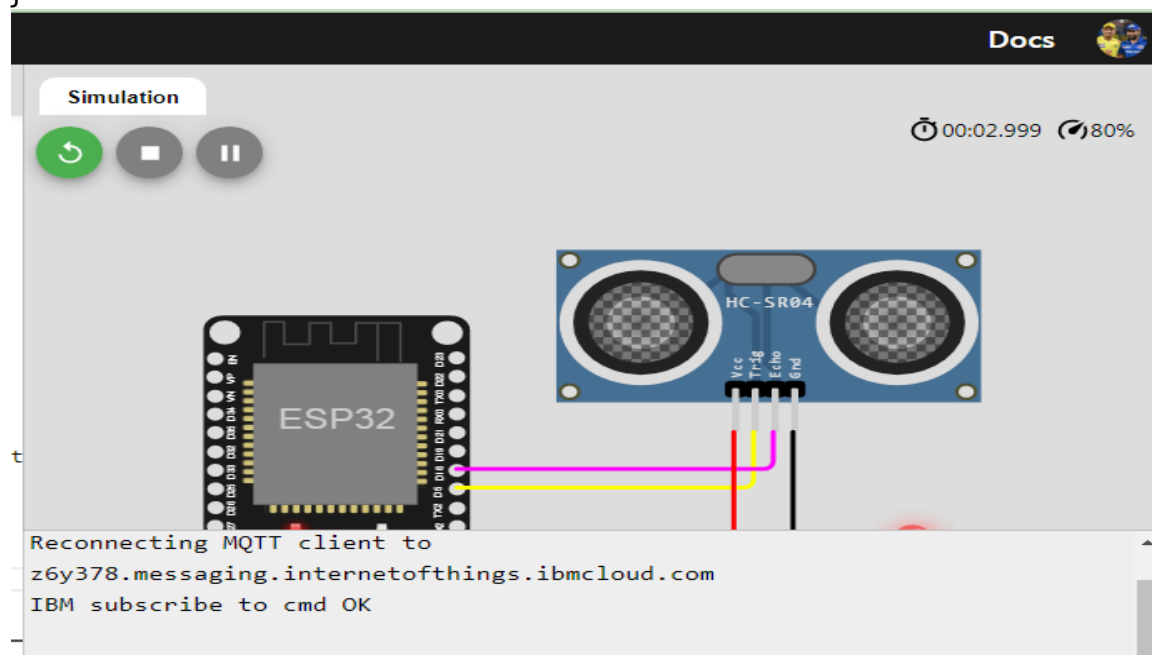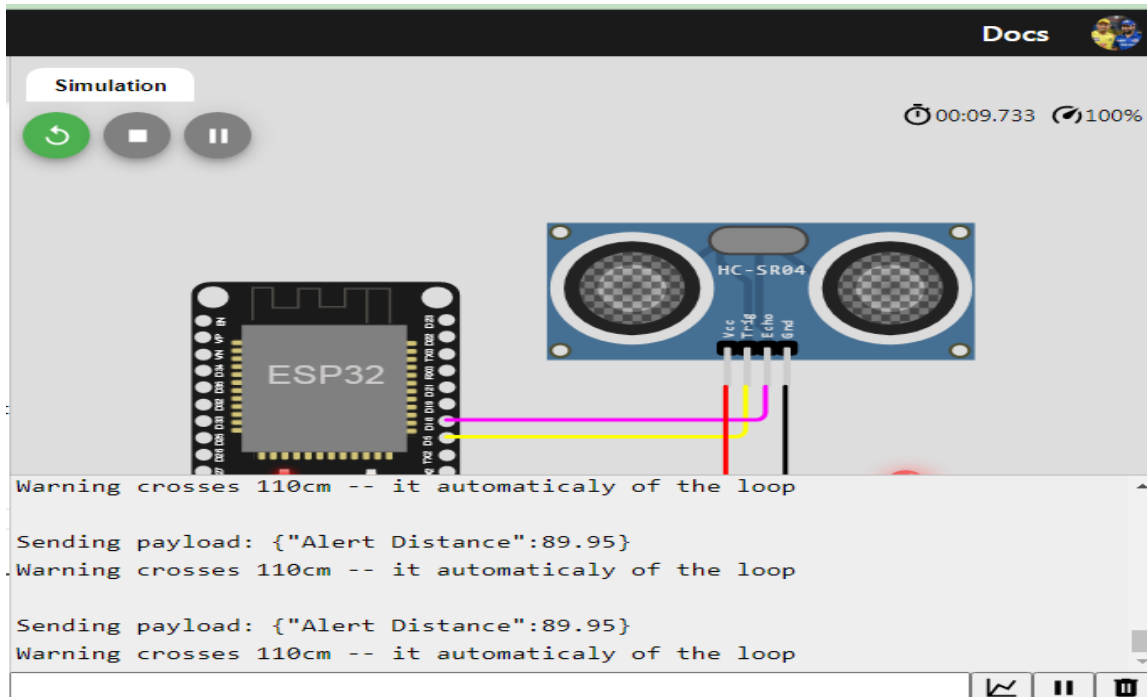
```
void callback(char* subscribeTopic, byte* payload, unsigned int
payloadLength){
  Serial.print("callback invoked for topic:");
  Serial.println(subscribeTopic);
  for(int i=0; i<payloadLength; i++){
    dist += (char)payload[i];
  }
  Serial.println("data:"+ data3);
  if(data3=="lighton"){
    Serial.println(data3);
    digitalWrite(led,HIGH);
  }
  data3="";
}
```


While Distance is greater than 100cm there is no alert message in the IBM cloud.

Warning crosses 110cm -- it automaticaly of the loop

Sending payload: {"Alert Distance":89.95}
Warning crosses 110cm -- it automaticaly of the loop

Sending payload: {"Alert Distance":89.95}
Warning crosses 110cm -- it automaticaly of the loop

When the distance is less than 100cm alert message will appear in the IBM cloud.

Device Drilldown - priyanka123

Connection Information

Connection Information

Basic connection information about this device.

Device ID	priyanka123
Device Type	priyanka
Date Added	Oct 29, 2022 1:19 PM
Added By	vanipriya835@gmail.com
Connection Status	Connected
	Connection Time: Nov 14, 2022 2:11 PM
	Client Address: 50.31.197.64 Insecure

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

Device Drilldown - priyanka123

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
priyanka	{"Alert Distance":89.95}	json	a few seconds ago
priyanka	{"Alert Distance":89.95}	json	a few seconds ago
priyanka	{"Alert Distance":89.95}	json	a few seconds ago
priyanka	{"Alert Distance":89.95}	json	a few seconds ago
priyanka	{"Alert Distance":89.95}	json	a few seconds ago

Connection Information

Recent Events

State

Device Information

Metadata

Diagnostics

Connection Logs

Device Actions

https://wokwi.com/projects/34828934532877576 4