ASSIGNMENT 4

DATE	3 NOV 2022
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PROJECT NAME	Project-IOT Based Safety Gadget For Child Safety Monitoring & Notification

Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100 cms send alert to ibm cloud and display in device recent events. Upload document with wokwi share link and images of ibm cloud

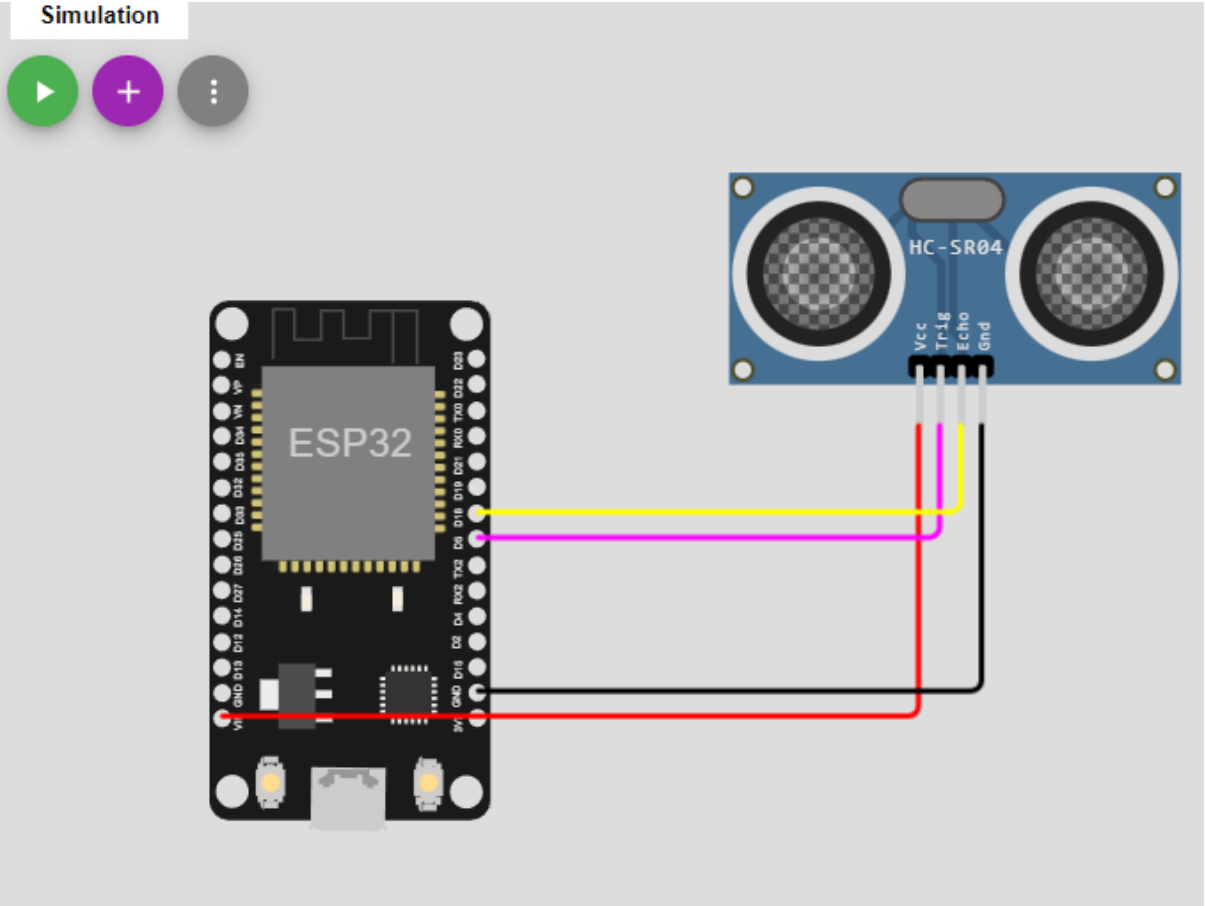
CODE

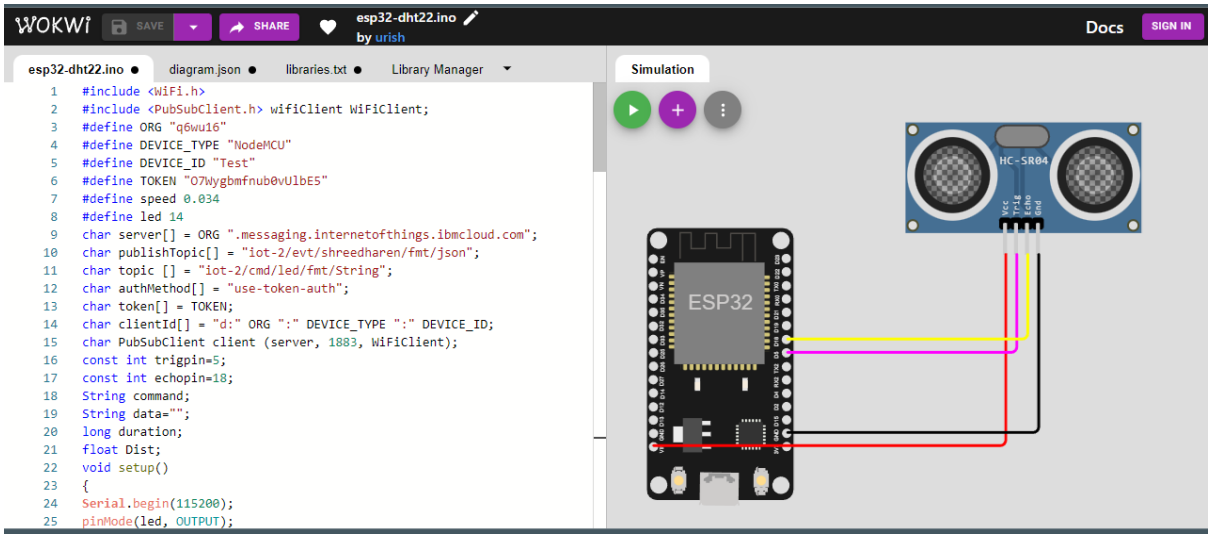
```
#include <WiFi.h>
#include <PubSubClient.h> wifiClient WiFiClient;
#define ORG "q6wu16"
#define DEVICE_TYPE "NodeMCU"
#define DEVICE_ID "Test"
#define TOKEN "O7Wygbmfnub0vUlbE5"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/shreedharen/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;
char 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");
}
}
}
```

CONNECTION


Simulation
HC-SR04
Vcc
Trig
Echo
Gnd
ESP32

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