ASSIGNMENT - 4

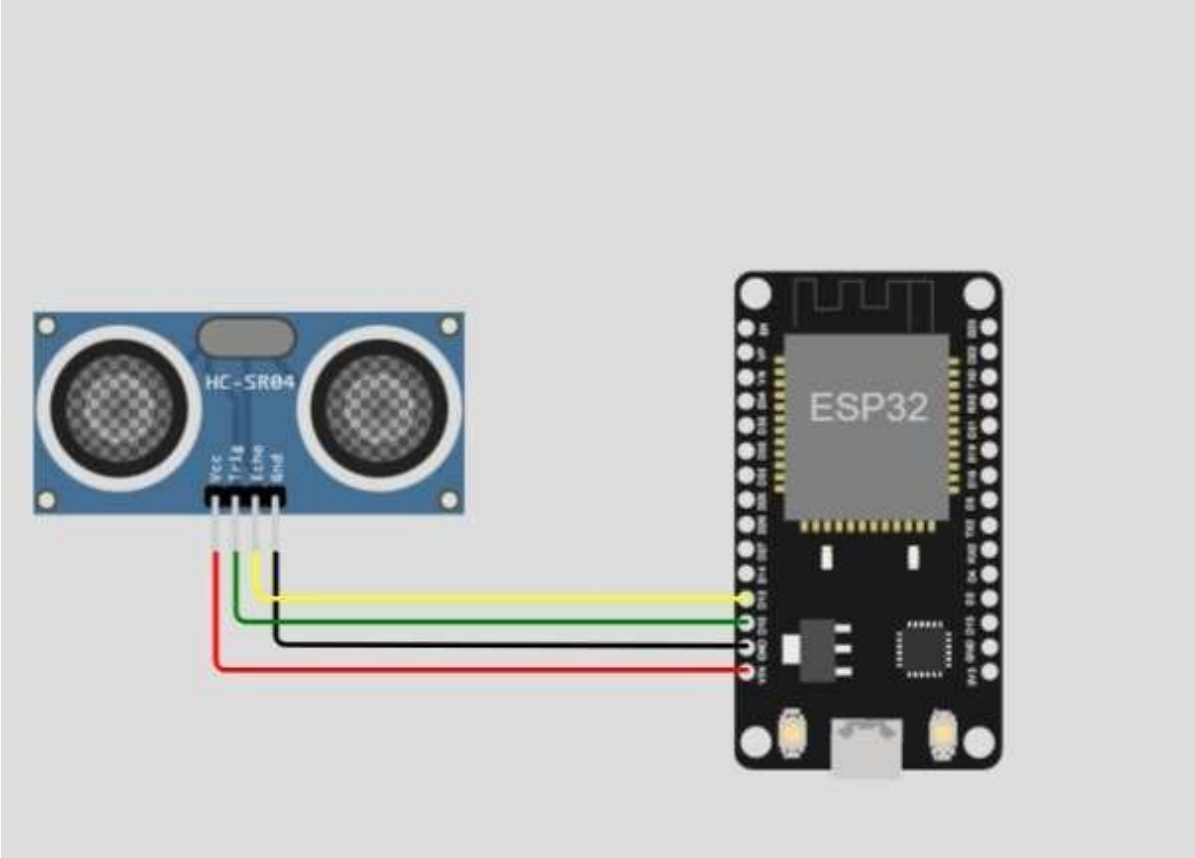
Date	19 September 2022
Student Name	Nandhini P
Student Roll no	917719D054
Maximum Marks	2 Marks

Objective:

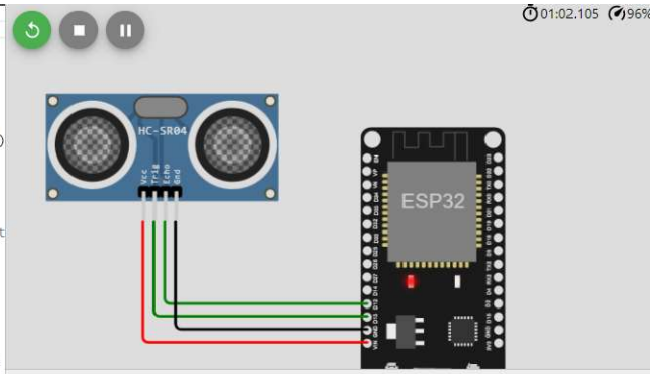
Write code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100 cms send an "alert" to the IBM cloud and display in the device recent events.

Circuit Diagram:

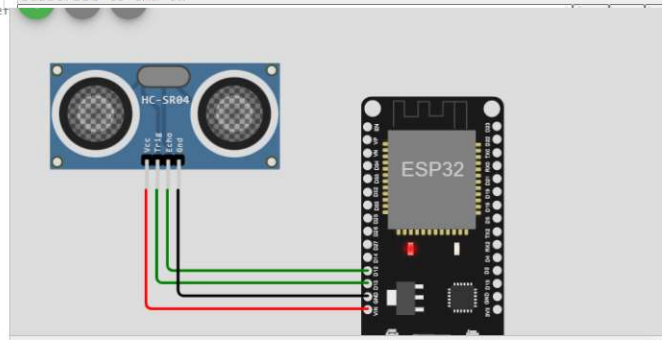
Link: https://wokwi.com/projects/346775166279221842



```
#include <WiFi.h>//library for wifi
#include <PubSubClient.h>//library for MQtt
#define TRIG_PIN 13
#define ECHO_PIN 12



void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)

//-------credentials of IBM Accounts------

#define ORG "6j0iab"//IBM ORGANITION ID
#define DEVICE_TYPE "rasperrypi"//Device type mentioned in ibm watson IOT Plat
#define DEVICE_ID "Device1"//Device ID mentioned in ibm watson IOT Platform
#define TOKEN "123456789"      //Token



//-------- Customise the above values --------
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of even
char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd  REPRESENT comma
char authMethod[] = "use-token-auth";// authentication method
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id


//-----------------------------------------
WiFiClient wifiClient; // creating the instance for wificlient
PubSubClient client(server, 1883, callback ,wifiClient);  //calling the predef


void setup()// configureing the ESP32
{
  Serial.begin(115200);
  pinMode(TRIG_PIN, OUTPUT);
  digitalWrite(TRIG_PIN, LOW);
  pinMode(ECHO_PIN, INPUT);
  delay(10);
  Serial.println();
  wificonnect();
  mqttconnect();
}

void loop()// Recursive Function
{
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);
  float duration_us = pulseIn(ECHO_PIN, HIGH);
  float distance = 0.017 * duration_us;

  if(distance<100)
  {
    PublishData(distance,"ALERT");
  }else{
    PublishData(distance,"SAFE");
```




```
Connecting to ....
WiFi connected
IP address:
10.10.0.2
Reconnecting client to 6j0iab.messaging.internetofthings.ibmcloud.com
iot-2/cmd/command/fmt/String
subscribe to cmd OK
```




```
Sending payload: {"Distance":400.04,"MESSAGE":"SAFE"}
Publish ok
Sending payload: {"Distance":399.96,"MESSAGE":"SAFE"}
Publish ok
Reconnecting client to 6j0iab.messaging.internetofthings.ibmcloud.com
............
```

OUTPUT: