

ASSIGNMENT - 4

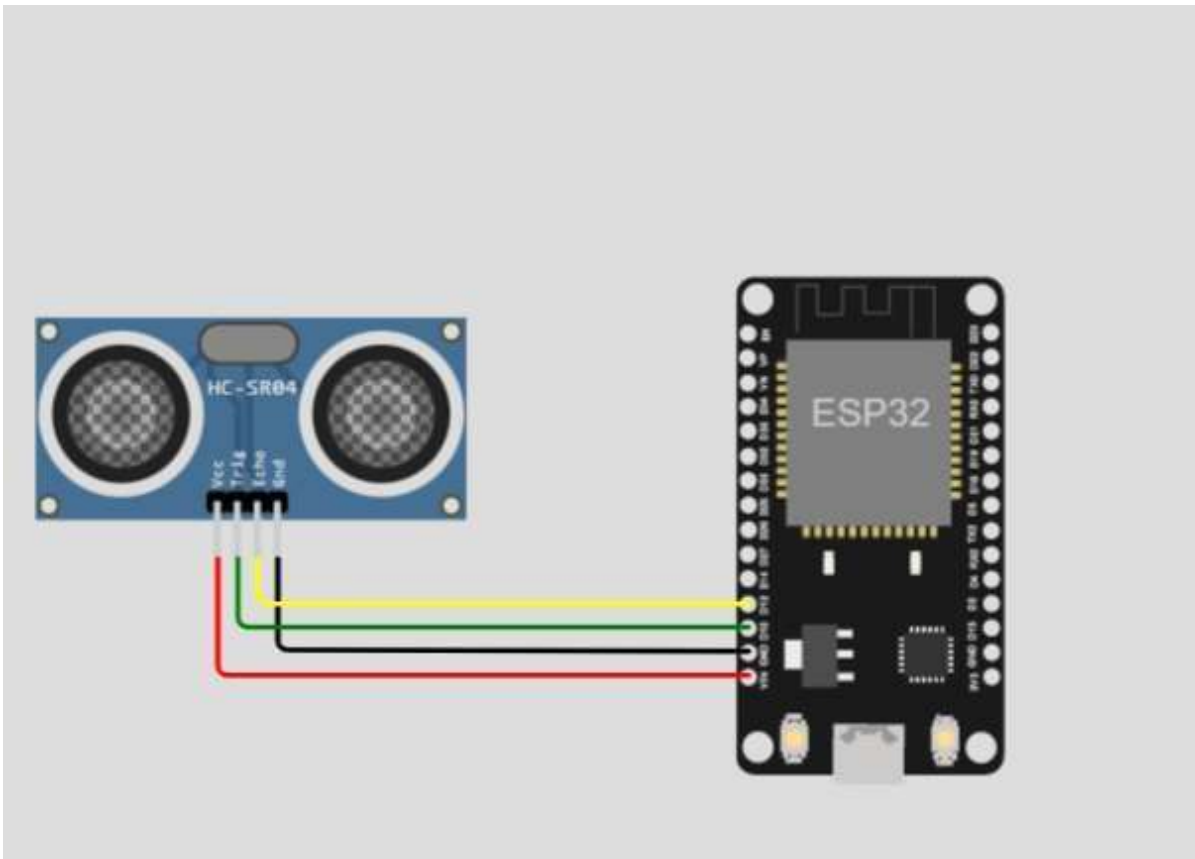
Date	19 September 2022
Student Name	Swetha k
Student Roll no	917719D134
Maximum Marks	2 Marks

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 ORGANIZATION 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

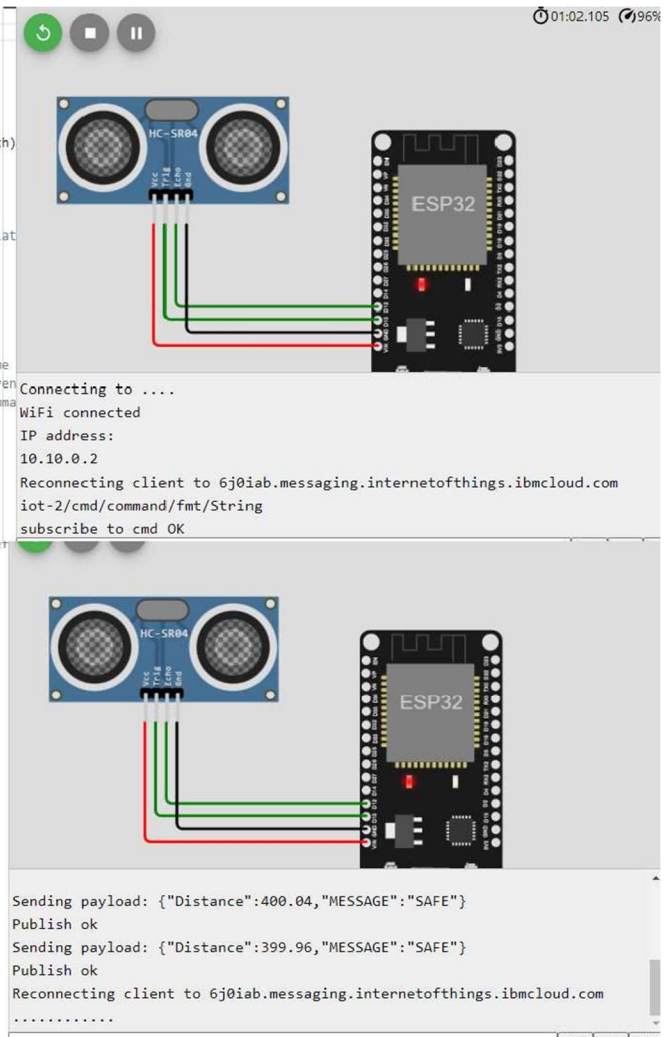
//----- Customise the above values -----
char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; // Server Name
char publishTopic[] = "iot-2/evt/Data/fmt/json"; // topic name and type of event
char subscribetopic[] = "iot-2/cmd/command/fmt/String"; // cmd REPRESENT comma
char authMethod[] = "use-token-auth"; // 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 proto

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



01:02.105 96%

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:

Browse Action Device Types Interfaces Add Device +

Search by Device ID Device Simulator

Device ID	Status	Device Type	Class ID	Date Added
Device1	Disconnected	rasperrypi	Device	Oct 31, 2022 7:49 PM

Identity Device Information Recent Events State Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
Data	{"Distance":399.96,"MESSAGE":"SAFE"}	json	a few seconds ago
Data	{"Distance":400.04,"MESSAGE":"SAFE"}	json	a few seconds ago