Assignment 4

wokwi for the ultrasonic sensor.

Assignment Date	29 OCT 2022
Student Name	N.K.Sowmiya
Student Roll Num	910619104084
Maximum Marks	2 Marks

QUESTION 1

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 image of ibm cloud

Code:

```
#include"WiFi.h"

#include"WiFiclient.h"

#define DEVICE_TYPE"ESP32_controller"

#define DEVICE_ID"Assignment_4"

#define TOKEN"&S?LQdLRzh3n2gkyDt"

char server[]=ORG".meassaging.internertofthings.ibmcloud.com";

char pubTopic1[]="iot-2/evt/status1/fmt/json";

char authMethod[]="use-token-auth";

char token[]=TOKEN;

char clientId[]="d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;

long now;

wificlient wificlient;

pubsubclient client(server, 1883, NULL, wificlient);


#define echoPin 2 // attach pin D2 Arduino to pin Echo of HC-SR04

#define trigPin 3 //attach pin D3 Arduino to pin Trig of HC-SR04
```

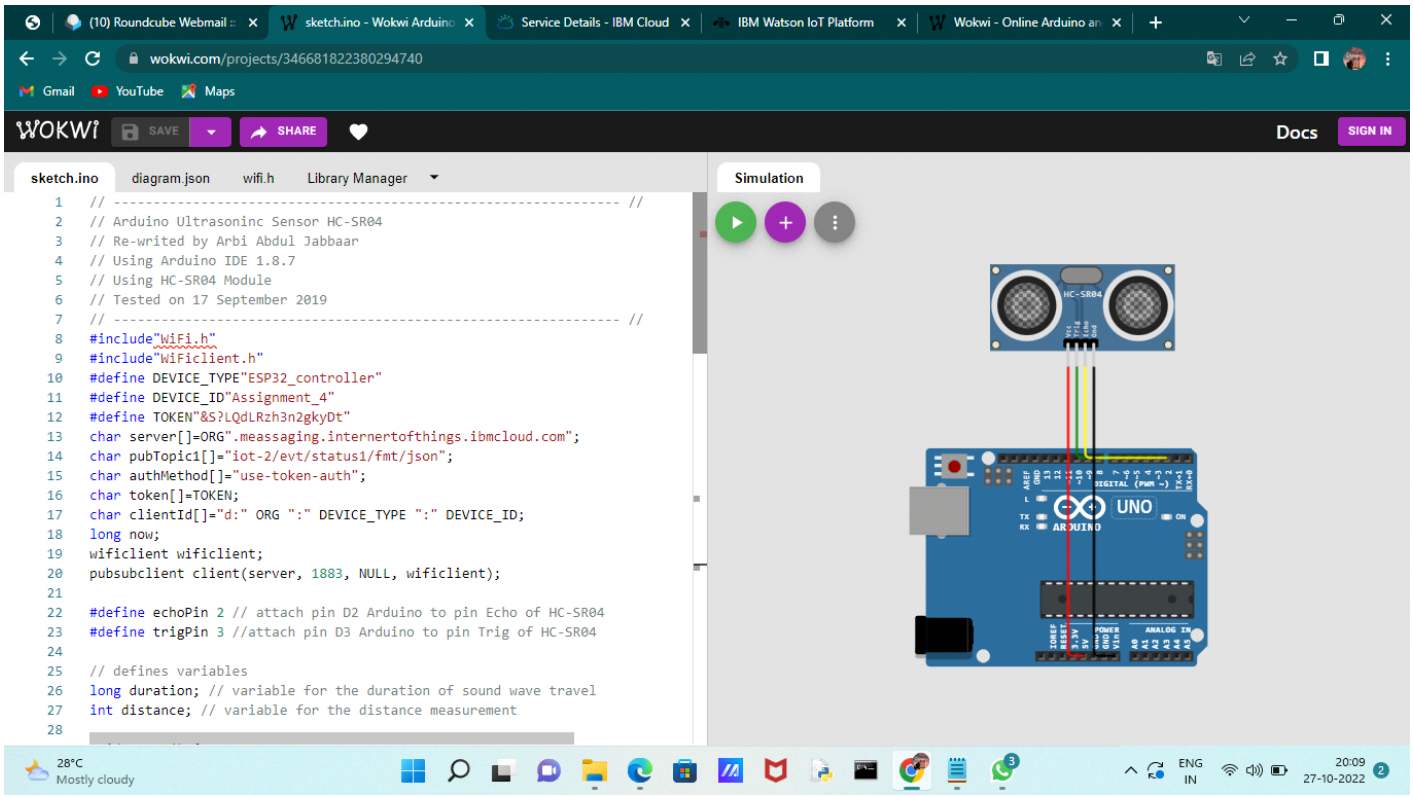
```
// defines variables
long duration; // variable for the duration of sound wave travel
int distance; // variable for the distance measurement


void setup() {
  pinMode(trigPin, OUTPUT); // Sets the trigPin as an OUTPUT
  pinMode(echoPin, INPUT); // Sets the echoPin as an INPUT
  Serial.begin(9600); // // Serial Communication is starting with 9600 of baudrate speed
  Serial.println("Ultrasonic Sensor HC-SR04 Test"); // print some text in Serial Monitor
  Serial.println("with Arduino UNO R3");
}
void loop() {
  // Clears the trigPin condition
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  // Sets the trigPin HIGH (ACTIVE) for 10 microseconds
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  // Reads the echoPin, returns the sound wave travel time in microseconds
  duration = pulseIn(echoPin, HIGH);
  // Calculating the distance
  distance = duration * 0.034 / 2; // Speed of sound wave divided by 2 (go and back)
  // Displays the distance on the Serial Monitor
  Serial.print("Distance: ");
```

```
  Serial.print(distance);
  Serial.println(" cm");
  delay(500);
  if(distance<=100)
  {
    string payload ="{\"d\":{\"Name\":\"" DEVICE_ID"\"";
    payload += ",\"Distance\":";
    payload += distance;
    payload += "}}";
    Serial.print("sending payload: ")
    Seerial.println(payload);
    if (client.publish(pubTopic1, (char*) payload.c_str()))
    {
        Serial.print("***ALERT***");
    }

  }

}
```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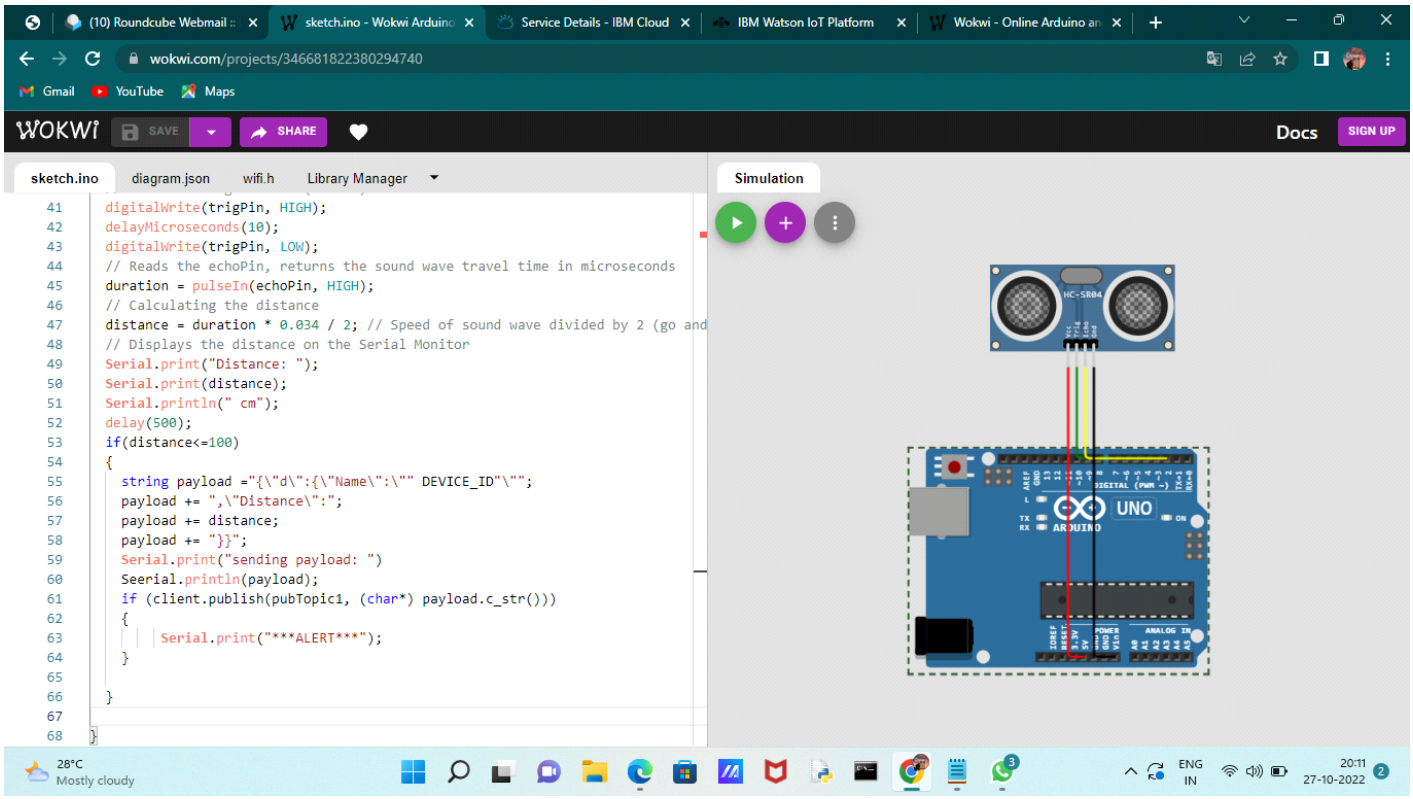
wokwi.com/projects/346681822380294740
Gmail YouTube Maps
WOKWI SAVE SHARE Docs SIGN IN
sketch.ino diagram.json wifi.h Library Manager
Simulation
// ---------- //
// Arduino Ultrasonic Sensor HC-SR04
// Re-writed by Arbi Abdul Jabbaar
// Using Arduino IDE 1.8.7
// Using HC-SR04 Module
// Tested on 17 September 2019
// ---------- //
#include"WiFi.h"
#include"WiFiClient.h"
#define DEVICE_TYPE"ESP32_controller"
#define DEVICE_ID"Assignment_4"
#define TOKEN"&S?LQdLRzh3n2gkyDt"
char server[]=ORG".meassaging.internertofthings.ibmcloud.com";
char pubTopic1[]="iot-2/evt/status1/fmt/json";
char authMethod[]="use-token-auth";
char token[]=TOKEN;
char clientId[]="d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
long now;
wificlient wificlient;
pubsubclient client(server, 1883, NULL, wificlient);
#define echoPin 2 // attach pin D2 Arduino to pin Echo of HC-SR04
#define trigPin 3 //attach pin D3 Arduino to pin Trig of HC-SR04
// defines variables
long duration; // variable for the duration of sound wave travel
int distance; // variable for the distance measurement
HC-SR04
UNO
ARDUINO
28°C Mostly cloudy
ENG IN
20:09 27-10-2022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WOKWI SAVE SHARE Docs SIGN UP
sketch.ino diagram.json wifi.h Library Manager
Simulation
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);
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// Calculating the distance
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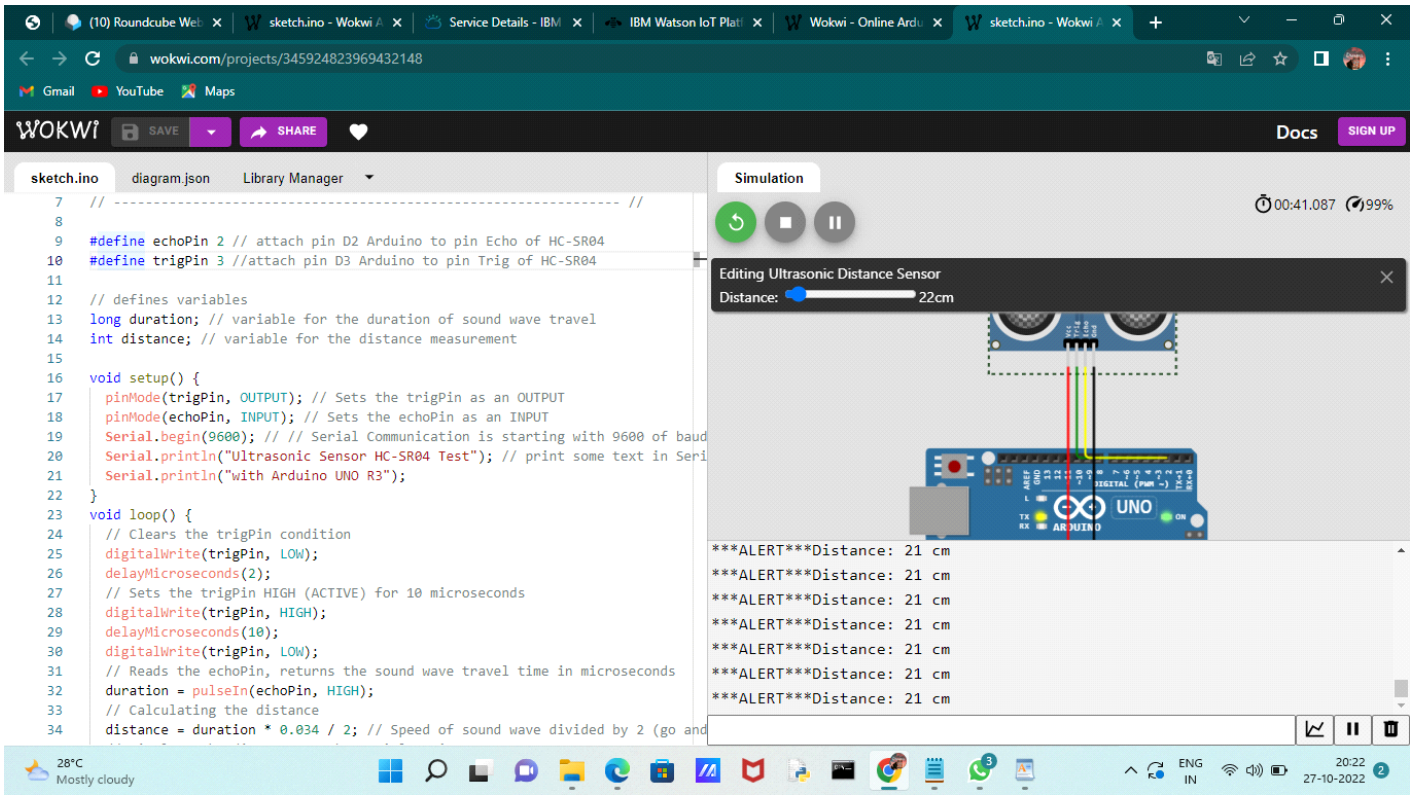
// Displays the distance on the Serial Monitor
Serial.print("Distance: ");
Serial.print(distance);
Serial.println(" cm");
delay(500);
if(distance<=100)
{
string payload ="{\"d\":{\"Name\":\"" DEVICE_ID"\"";
payload += ",\"Distance\":";
payload += distance;
payload += "}}";
Serial.print("sending payload: ")
Seerial.println(payload);
if (client.publish(pubTopic1, (char*) payload.c_str()))
{
Serial.print("***ALERT***");
}
}
HC-SR04
UNO
ARDUINO
28°C Mostly cloudy
ENG IN
20:11 27-10-2022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WOKWI
SAVE
SHARE
Docs
SIGN UP
sketch.ino
diagram.json
Library Manager
Simulation
00:41.087
99%
Editing Ultrasonic Distance Sensor
Distance:
22cm
// ---------- //
#define echoPin 2 // attach pin D2 Arduino to pin Echo of HC-SR04
#define trigPin 3 //attach pin D3 Arduino to pin Trig of HC-SR04
// defines variables
long duration; // variable for the duration of sound wave travel
int distance; // variable for the distance measurement
void setup() {
pinMode(trigPin, OUTPUT); // Sets the trigPin as an OUTPUT
pinMode(echoPin, INPUT); // Sets the echoPin as an INPUT
Serial.begin(9600); // // Serial Communication is starting with 9600 of baud
Serial.println("Ultrasonic Sensor HC-SR04 Test"); // print some text in Seri
Serial.println("with Arduino UNO R3");
}
void loop() {
// Clears the trigPin condition
digitalWrite(trigPin, LOW);
delayMicroseconds(2);
// Sets the trigPin HIGH (ACTIVE) for 10 microseconds
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);
// Reads the echoPin, returns the sound wave travel time in microseconds
duration = pulseIn(echoPin, HIGH);
// Calculating the distance
distance = duration * 0.034 / 2; // Speed of sound wave divided by 2 (go and
ALERTDistance: 21 cm
ALERTDistance: 21 cm
ALERTDistance: 21 cm
ALERTDistance: 21 cm
ALERTDistance: 21 cm
ALERTDistance: 21 cm
ALERTDistance: 21 cm
28°C
Mostly cloudy
ENG
IN
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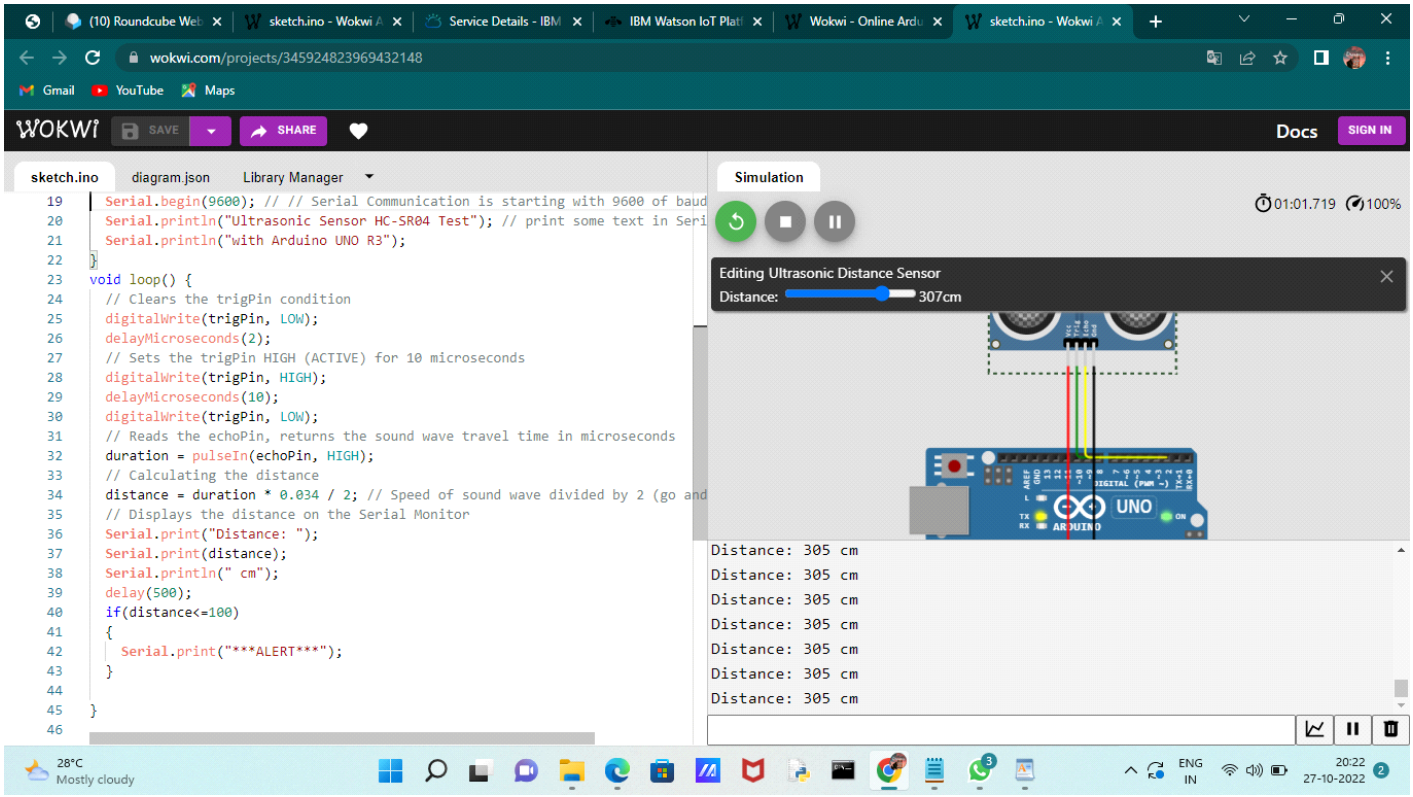
27-10-2022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WOKWI
SAVE
SHARE
Docs
SIGN IN
sketch.ino
diagram.json
Library Manager
Simulation
01:01.719
100%
Editing Ultrasonic Distance Sensor
Distance:
307cm
Serial.begin(9600); // // Serial Communication is starting with 9600 of baud
Serial.println("Ultrasonic Sensor HC-SR04 Test"); // print some text in Seri
Serial.println("with Arduino UNO R3");
}
void loop() {
// Clears the trigPin condition
digitalWrite(trigPin, LOW);
delayMicroseconds(2);
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delayMicroseconds(10);
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// Reads the echoPin, returns the sound wave travel time in microseconds
duration = pulseIn(echoPin, HIGH);
// Calculating the distance
distance = duration * 0.034 / 2; // Speed of sound wave divided by 2 (go and
// Displays the distance on the Serial Monitor
Serial.print("Distance: ");
Serial.print(distance);
Serial.println(" cm");
delay(500);
if(distance<=100)
{
Serial.print("***ALERT***");
}
}
Distance: 305 cm
Distance: 305 cm
Distance: 305 cm
Distance: 305 cm
Distance: 305 cm
Distance: 305 cm
Distance: 305 cm
28°C
Mostly cloudy
ENG
IN
20:22
27-10-2022

OUTPUT:

Distance: 305 cm

Distance: 40 cm

ALERTDistance: 40 cm