Assignment -4
WOKWI SIMULATION

Assignment Date	23 October 2022
Student Name	M.BALA SUBRAMANIAN
Student Roll Number	211419104037
Maximum Marks	2 Marks

Question-1:

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

Code:

link: [projecta - Wokwi Arduino and ESP32 Simulator]

```
#define ECHO_PIN 2
#define TRIG_PIN 3

void setup() {
  Serial.begin(115200);
  pinMode(LED_BUILTIN, OUTPUT);
  pinMode(TRIG_PIN, OUTPUT);
  pinMode(ECHO_PIN, INPUT);
}

float readDistanceCM() {
  digitalWrite(TRIG_PIN, LOW);
  delayMicroseconds(2);
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);
  int duration = pulseIn(ECHO_PIN, HIGH);
  return duration * 0.034 / 2;
}

void loop() {
  float distance = readDistanceCM();

  bool isNearby = distance < 100;
```

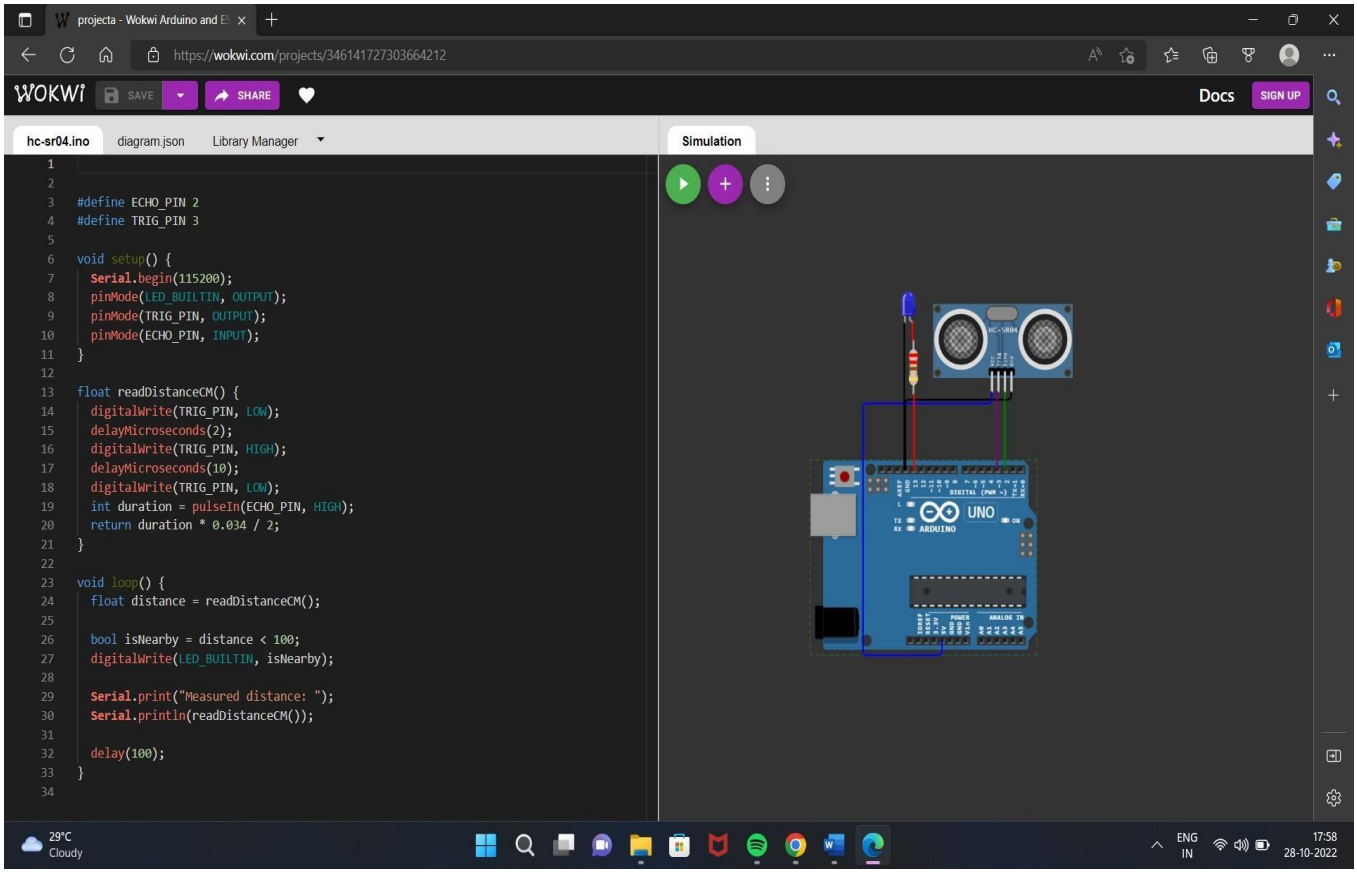
```
  digitalWrite(LED_BUILTIN, isNearby);

  Serial.print("Measured distance: ");
  Serial.println(readDistanceCM());

  delay(100);
}
```

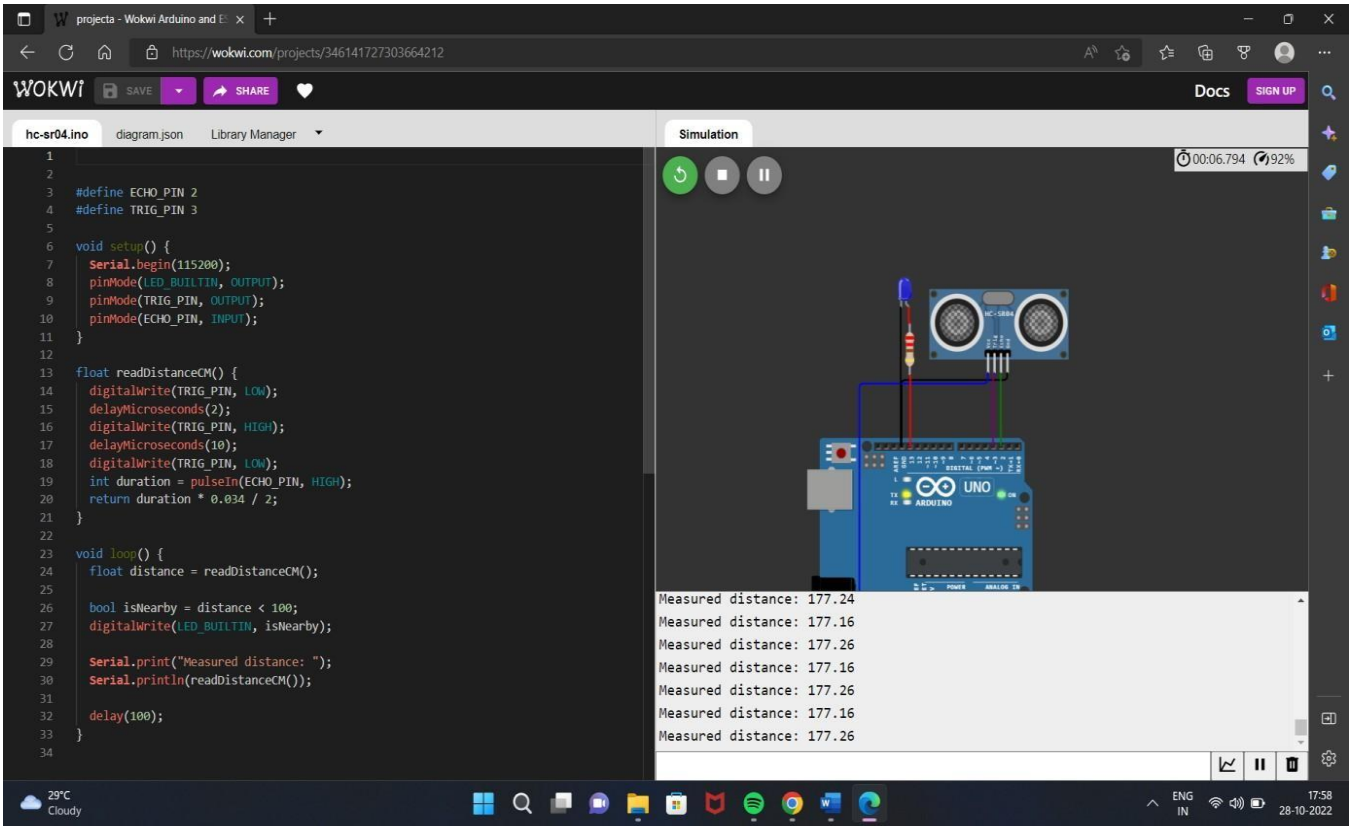
DIAGRAM.JSON:

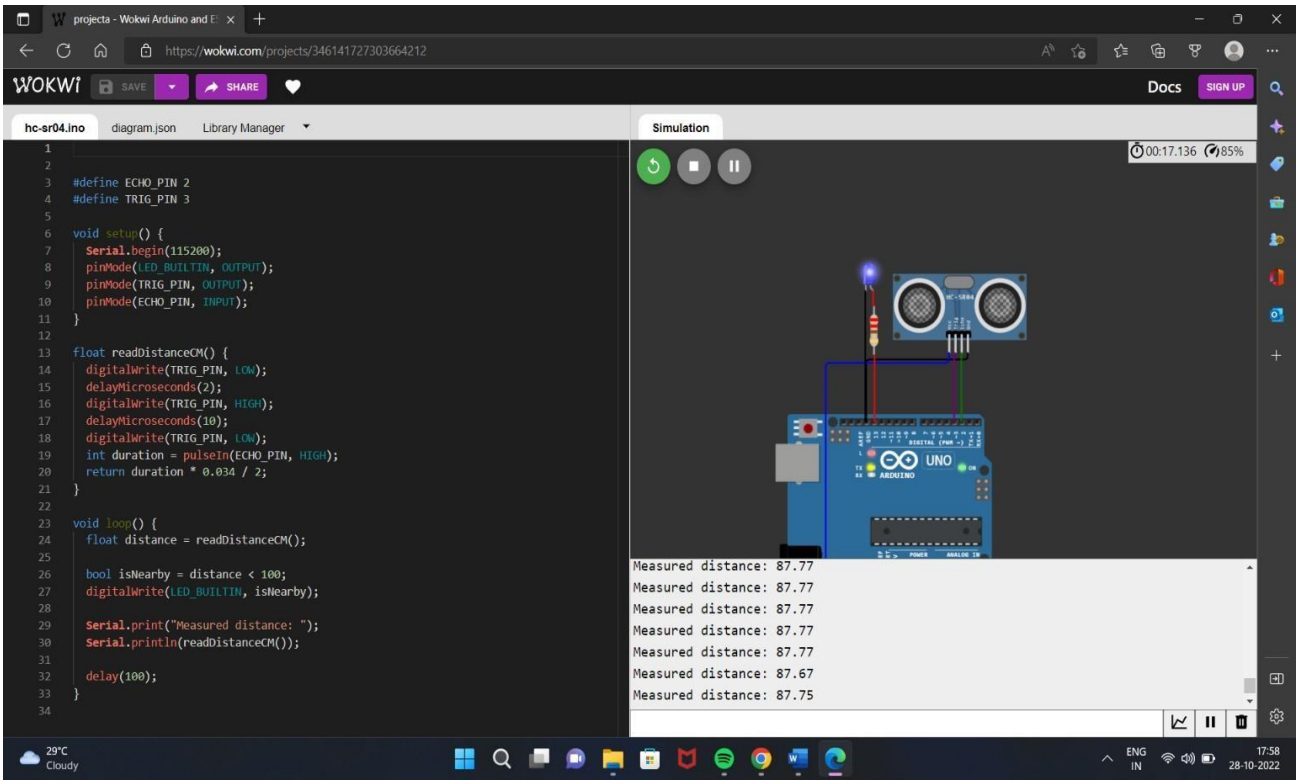
```
{
  "version": 1,
  "author": "sindhuja",
  "editor": "wokwi",
  "parts": [
    {
      "type": "wokwi-arduino-uno",
      "id": "uno",
      "top": 275.99,
      "left": 47.73,
      "rotate": 0,
      "hide": false,
      "attrs": {}
    },
    {
      "type": "wokwi-resistor",
      "id": "r1",
      "top": 165.87,
      "left": 142.81,
      "rotate": 90,
      "hide": false,
      "attrs": { "value": "220" }
    },
    {
      "type": "wokwi-led",
      "id": "led",
      "top": 87.29,
      "left": 147.05,
      "rotate": 0,
      "hide": false,
      "attrs": { "color": "blue" }
    },
    {
      "type": "wokwi-hc-sr04",
      "id": "ultrasonic",
```

```
      "top": 108.43,
      "left": 196.5,
      "rotate": 0,
      "hide": false,
      "attrs": { "distance": "180" }
    }
  ],
  "connections": [
    [ "uno:GND.1", "ultrasonic:GND", "black", [ "v-8", "*", "v8" ] ],
    [ "uno:2", "ultrasonic:ECHO", "green", [] ],
    [ "uno:3", "ultrasonic:TRIG", "purple", [ "*", "v4" ] ],
    [ "uno:5V", "ultrasonic:VCC", "blue", [ "v16", "h-96", "*", "v12" ] ],
    [ "uno:GND.1", "led:C", "black", [] ],
    [ "r1:1", "led:A", "red", [] ],
    [ "uno:13", "r1:2", "red", [] ]
  ]
}
```

OUTPUT:




projecta - Wokwi Arduino and E
https://wokwi.com/projects/346141727303664212
WOKWI
SAVE
SHARE
Docs
SIGN UP
hc-sr04.ino
diagram.json
Library Manager
Simulation
00:06.794
92%
#define ECHO_PIN 2
#define TRIG_PIN 3
void setup() {
Serial.begin(115200);
pinMode(LED_BUILTIN, OUTPUT);
pinMode(TRIG_PIN, OUTPUT);
pinMode(ECHO_PIN, INPUT);
}
float readDistanceCM() {
digitalWrite(TRIG_PIN, LOW);
delayMicroseconds(2);
digitalWrite(TRIG_PIN, HIGH);
delayMicroseconds(10);
digitalWrite(TRIG_PIN, LOW);
int duration = pulseIn(ECHO_PIN, HIGH);
return duration * 0.034 / 2;
}
void loop() {
float distance = readDistanceCM();
bool isNearby = distance < 100;
digitalWrite(LED_BUILTIN, isNearby);
Serial.print("Measured distance: ");
Serial.println(readDistanceCM());
delay(100);
}
Measured distance: 177.24
Measured distance: 177.16
Measured distance: 177.26
Measured distance: 177.16
Measured distance: 177.26
Measured distance: 177.16
Measured distance: 177.26
29°C
Cloudy
ENG
IN
17:58
28-10-2022


projecta - Wokwi Arduino and E
https://wokwi.com/projects/346141727303664212
WOKWI
SAVE
SHARE
Docs
SIGN UP
hc-sr04.ino
diagram.json
Library Manager
Simulation
00:17.136
85%
#define ECHO_PIN 2
#define TRIG_PIN 3
void setup() {
Serial.begin(115200);
pinMode(LED_BUILTIN, OUTPUT);
pinMode(TRIG_PIN, OUTPUT);
pinMode(ECHO_PIN, INPUT);
}
float readDistanceCM() {
digitalWrite(TRIG_PIN, LOW);
delayMicroseconds(2);
digitalWrite(TRIG_PIN, HIGH);
delayMicroseconds(10);
digitalWrite(TRIG_PIN, LOW);
int duration = pulseIn(ECHO_PIN, HIGH);
return duration * 0.034 / 2;
}
void loop() {
float distance = readDistanceCM();
bool isNearby = distance < 100;
digitalWrite(LED_BUILTIN, isNearby);
Serial.print("Measured distance: ");
Serial.println(readDistanceCM());
delay(100);
}
Measured distance: 87.77
Measured distance: 87.77
Measured distance: 87.77
Measured distance: 87.77
Measured distance: 87.77
Measured distance: 87.67
Measured distance: 87.75
29°C
Cloudy
ENG
IN
17:58
28-10-2022