Assignment -4

Assignment Date	21 October 2022
Student Name	Mr. Mohamed Ameen A
Student Roll Number	813819205036
Maximum Marks	2 Marks

Question-1:

To write a code and connection in wokwi for ultrasonic sensor. Whenever distanceislessthan100cms send alert to IBM cloud to display in device recent events

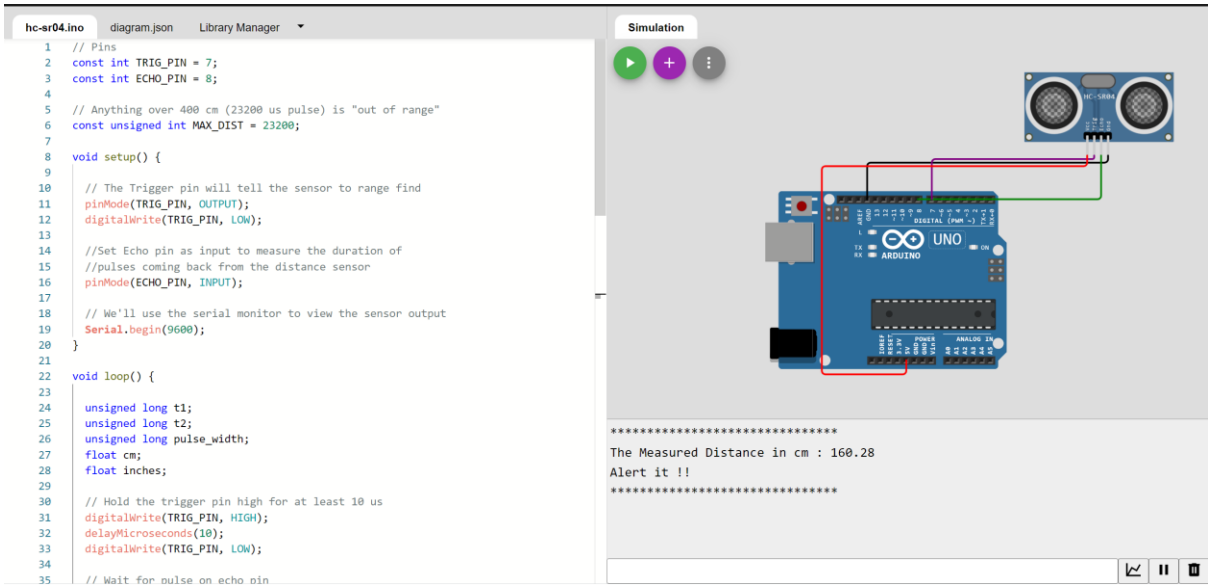
Code:

```
// Pins
const int TRIG_PIN = 7;
const int ECHO_PIN = 8;

// Anything over 400 cm (23200 us pulse) is "out of range"
const unsigned int MAX_DIST = 23200;

void setup() {

  // The Trigger pin will tell the sensor to range find
  pinMode(TRIG_PIN, OUTPUT);
  digitalWrite(TRIG_PIN, LOW);

  //Set Echo pin as input to measure the duration of
  //pulses coming back from the distance sensor
  pinMode(ECHO_PIN, INPUT);

  // We'll use the serial monitor to view the sensor output
  Serial.begin(9600);
}

void loop() {

  unsigned long t1;
  unsigned long t2;
  unsigned long pulse_width;
  float cm;
  float inches;

  // Hold the trigger pin high for at least 10 us
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);
```

```
  // Wait for pulse on echo pin
  while ( digitalRead(ECHO_PIN) == 0 );

  // Measure how long the echo pin was held high (pulse
width)
  // Note: the micros() counter will overflow after ~70 min
  t1 = micros();
  while ( digitalRead(ECHO_PIN) == 1);
  t2 = micros();
  pulse_width = t2 - t1;

  // Calculate distance in centimeters and inches. The
constants
  // are found in the datasheet, and calculated from the
assumed speed
  //of sound in air at sea level (~340 m/s).
  cm = pulse_width / 58.0;
  inches = pulse_width / 148.0;

  // Print out results
  if ( pulse_width > MAX_DIST ) {
    Serial.println("Out of range");
  } else {
    Serial.println("******************************");
    Serial.print("The Distance in cm is: ");
    Serial.println(cm);

    if(cm>100){
      // while(true){
      Serial.println("Alert!!");
      // }
    }
    else{
      Serial.println("Don't Alert it !!");
    }

    Serial.print("******************************");
  }

  // Wait at least 1000ms before next measurement
  delay(1000);
}
```

Output:

For distance greater than 100



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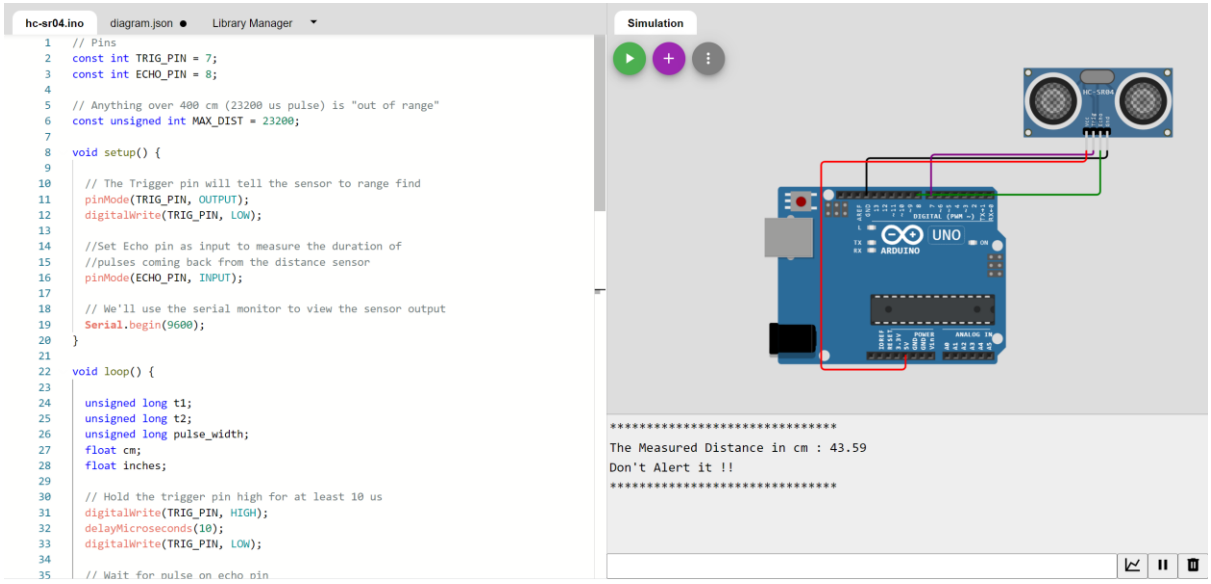
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);

  // Wait for pulse on echo pin
```

```
**********
The Measured Distance in cm : 160.28
Alert it !!
**********
```

For distance less than 100



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  float cm;
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  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);

  // Wait for pulse on echo pin
```
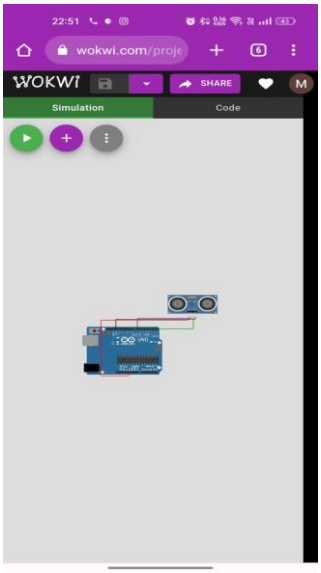
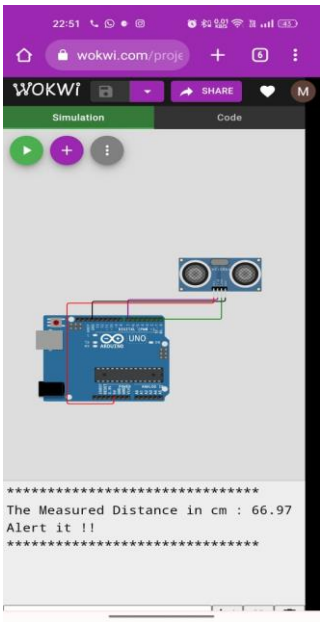
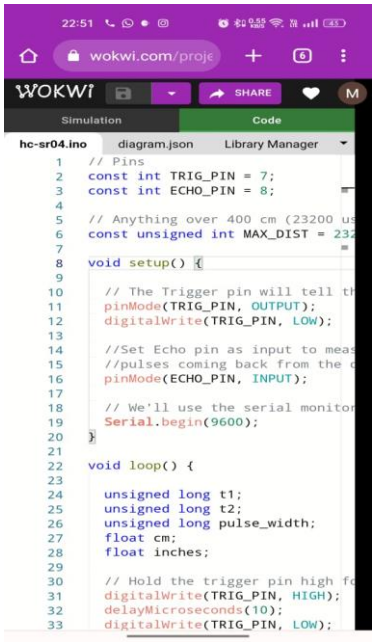
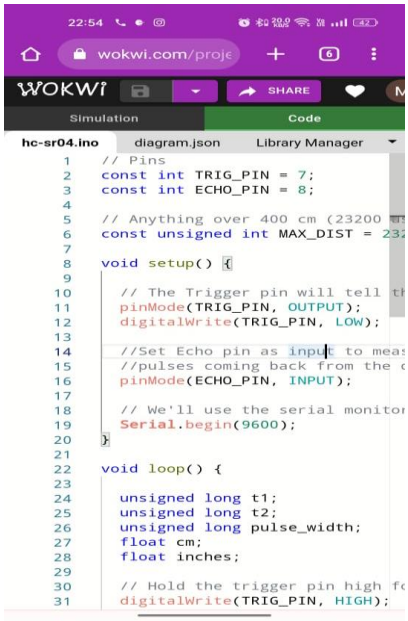

```
**********
The Measured Distance in cm : 43.59
Don't Alert it !!
**********
```

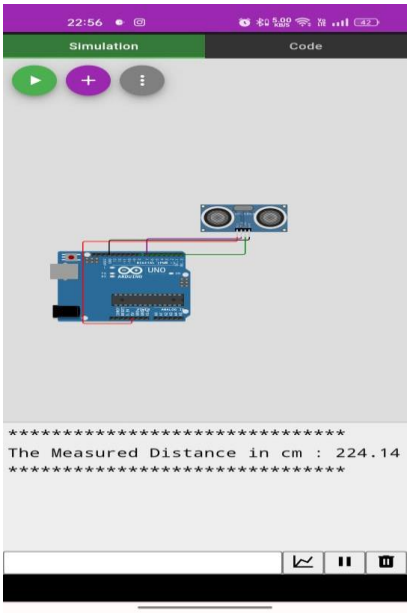
Stimulation and Code Execution











Project Link: https://wokwi.com/projects/346139032040768084