Assignment -4

Assignment Date	9 October 2022
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Maximum Marks	2 Marks

Question:

Write code and connections in working 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.

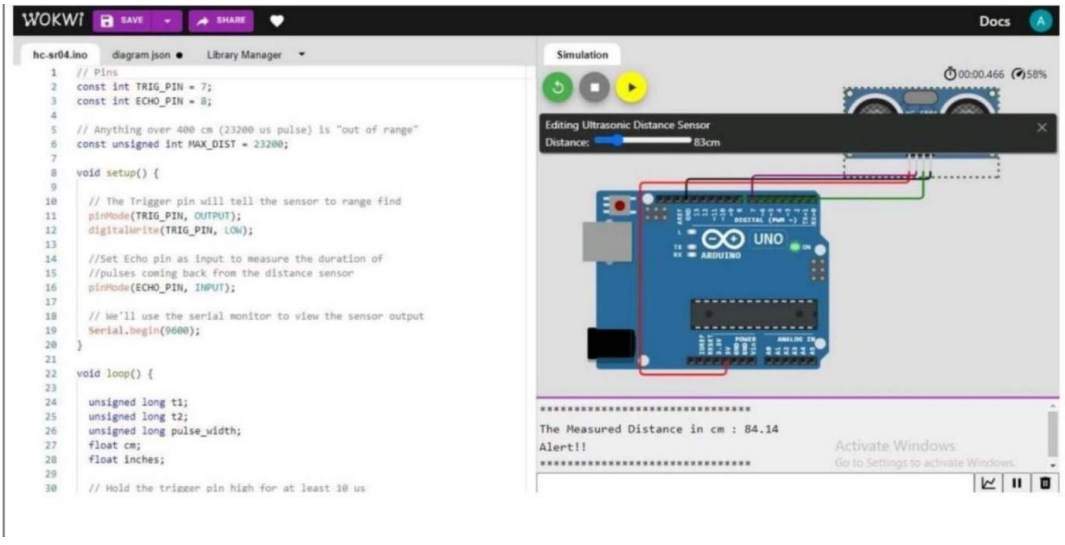
Code:

```
//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 Pin Mode(TRIG_PIN,
OUTPUT); digital Write(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 );
```

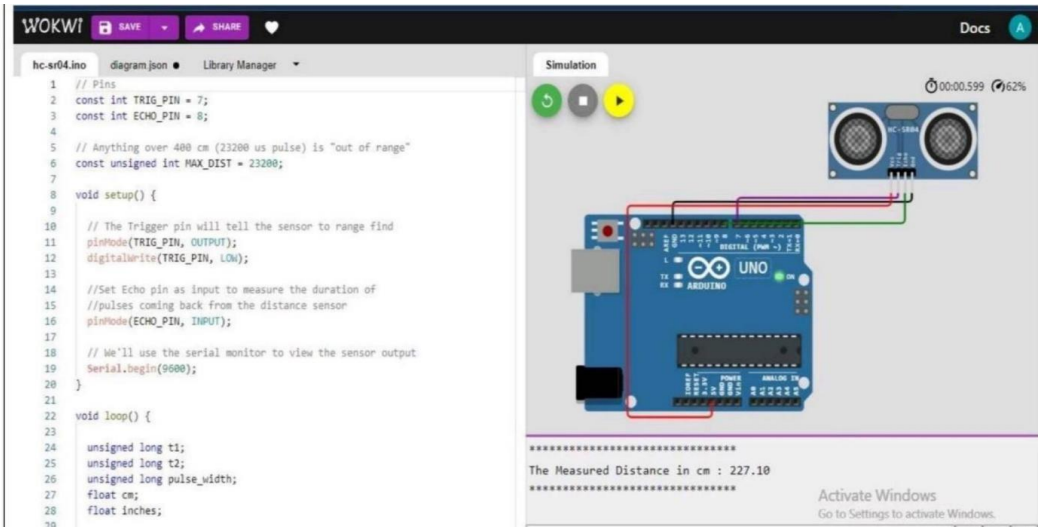
```
// Measure how long the echo pin was held high (pulse width) // Note: the micros() counter will
overflow after-70 min  t1= micros ();
  while (digitalRead(ECHO_PIN) == 1);    t2= micros ();
pulse_width = t2-t1;


 // 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 (- 340m/s) cm=pulse_Width / 58 ;
inches = pulse_width/148.0;

// Print out results if (pulse_width >MAX _ DIST ){
Serial.println("Out of range");
} else {
Serial.println("*******************************”);
Serial.print("The Measured Distance in cm: ");
Serial.println(cm);


if( cm < 100 ){
      //while(true){
       Serial.println(“Alert!!”);
       //}
}
Serial.print(“***********************************”);
}
//wait at least 1000ms before next measurement
Delay(1000);
}
```

Output:

1. If the distance is less than 100 centimeters,it alerts.



2.If the distance is more than 100 centimeters,it won't alert



3.Simulation and Code execution