

ASSIGNMENT-4

Assignment Date	16 November 2022
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Maximum marks	2 marks

QUESTION:

Write Code and connections in wokwi for ultrasonic sensor. whatever distance is less than 100 cms send “Alert” to ibm cloud aand display in device recent events

CODING:

```
//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);

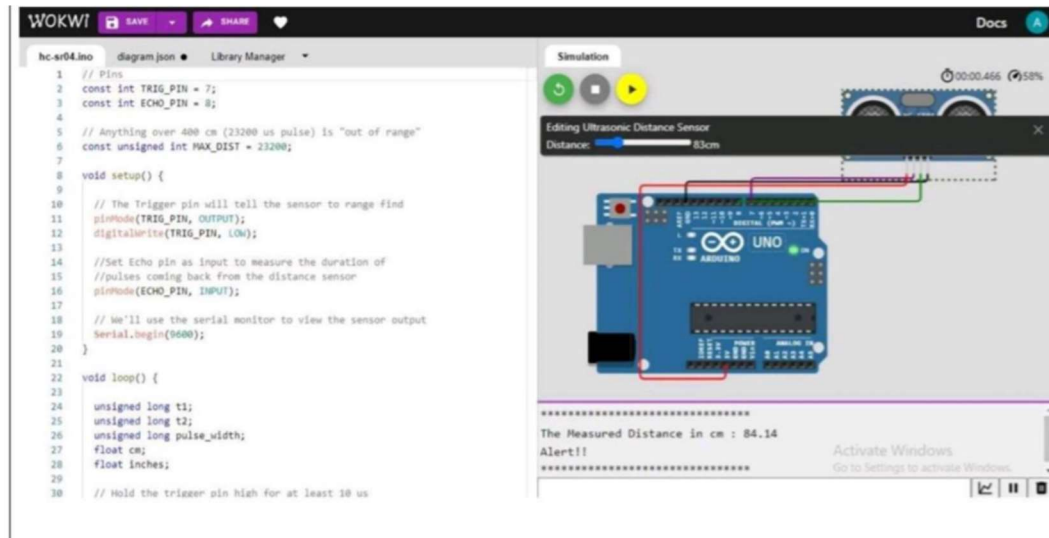
  if( cm < 100 ){
    //while(true){
      Serial.println("Alert!!");
    //}
  }

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

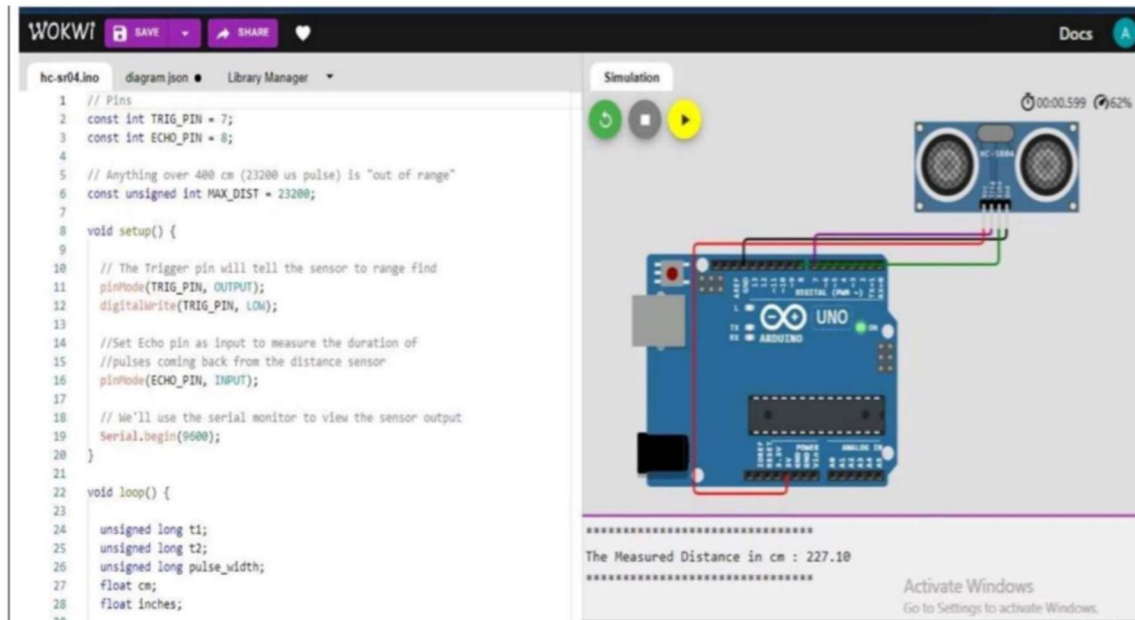
//wait at least 1000ms before next measurement
Delay(1000);
}
```

OUTPUT:

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



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



3.Simulation and code execution

