

Assignment-4

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Write Code and connections in wokwi for ultrasonic sensor. whatever distance is less than 100 cm send "Alert" to IBM cloud and display in device recent events.

PROGRAM:

```
//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!!");
        //}

}

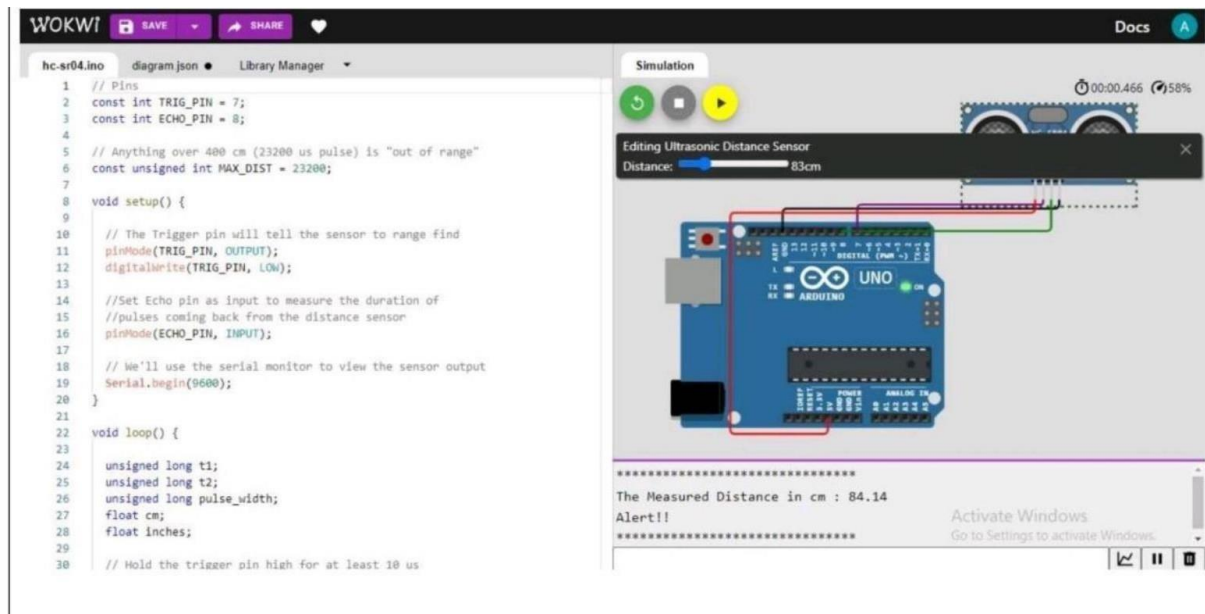
Serial.print("*****");
}

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

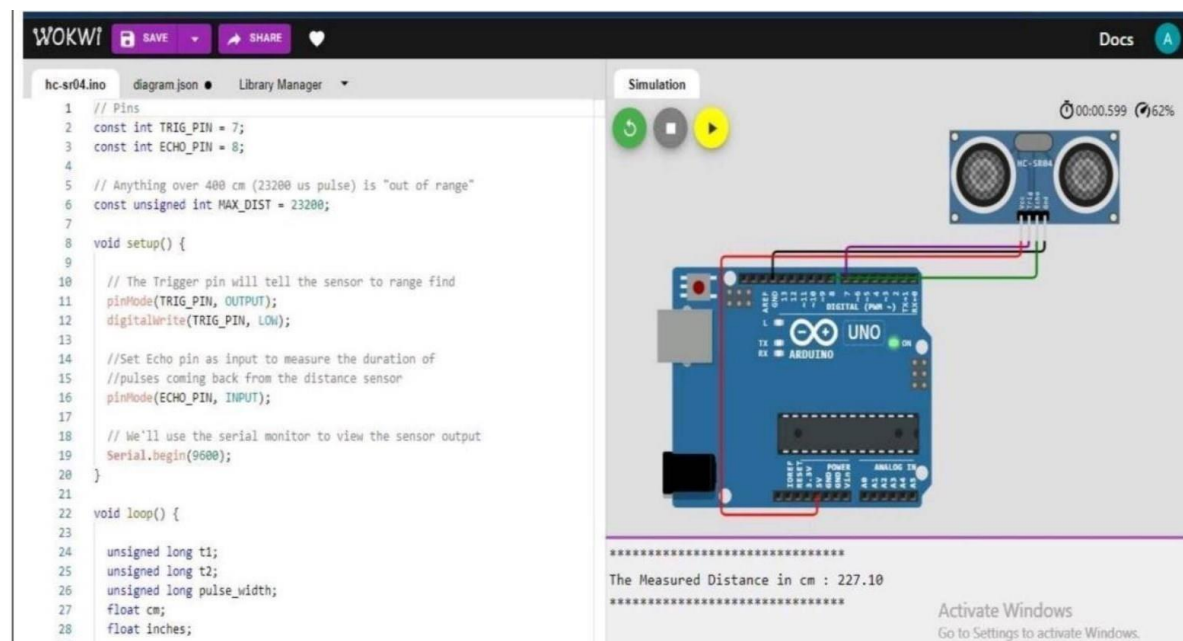
```

Output:

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



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



3.Simulation and code execution

01:38.369100%

Sending payload: {"Alert distance":93.96}
Publish OK

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