

## ASSIGNMENT-4

Date	02 OCTOBER 2022
Team ID	PNT2022TMID47521
Project Name	IOT based smart crop protection system for agriculture
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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("*****");

}

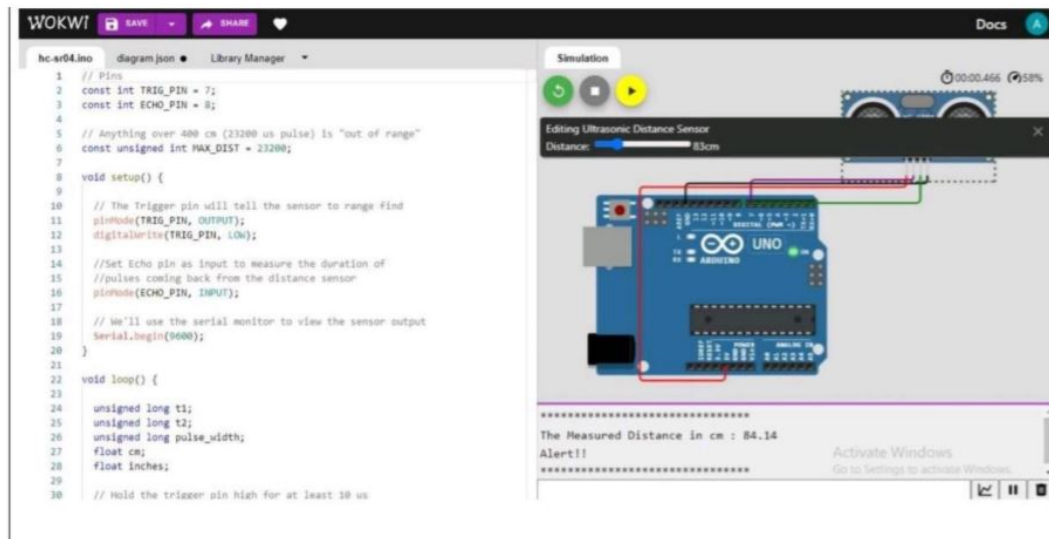
//wait at least 1000ms before next measurement

Delay(1000);

}
```

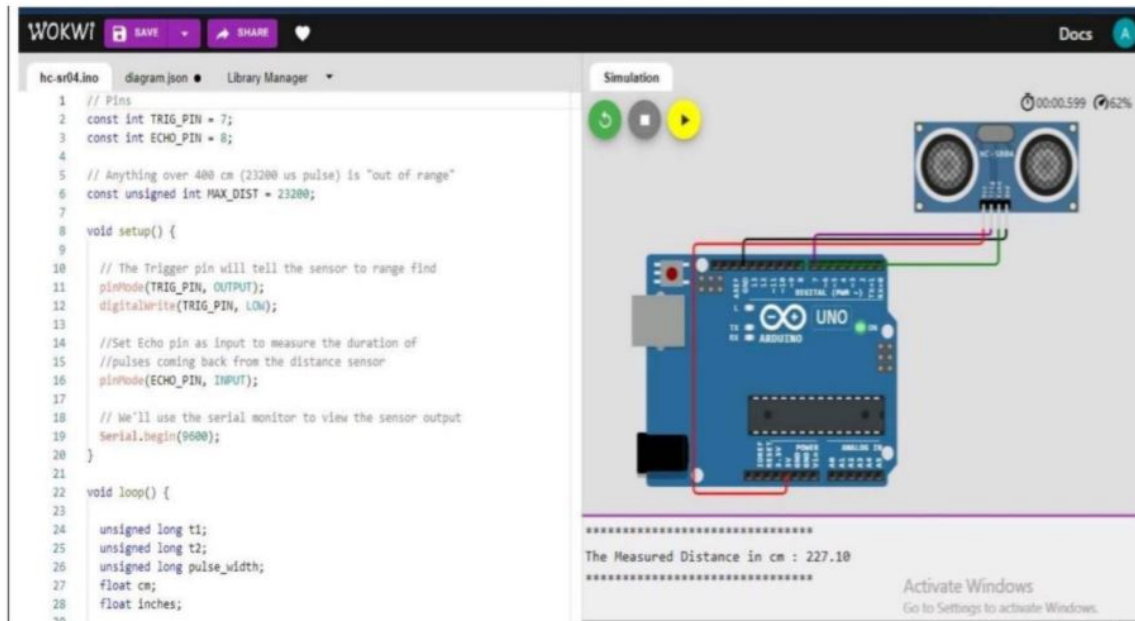
## **OUTPUT:**

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



Activate Windows

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



### 3.Simulation and code execution

