Assignment - 4
Internet of Things (IoT)
IOT Based Crop Protection System For Agriculture

Assignment Date	14 November 2022
Student Name	KISHORE KUMAR
Student Register Number	312319106083
Maximum Marks	2 Marks

1.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.

Solution:

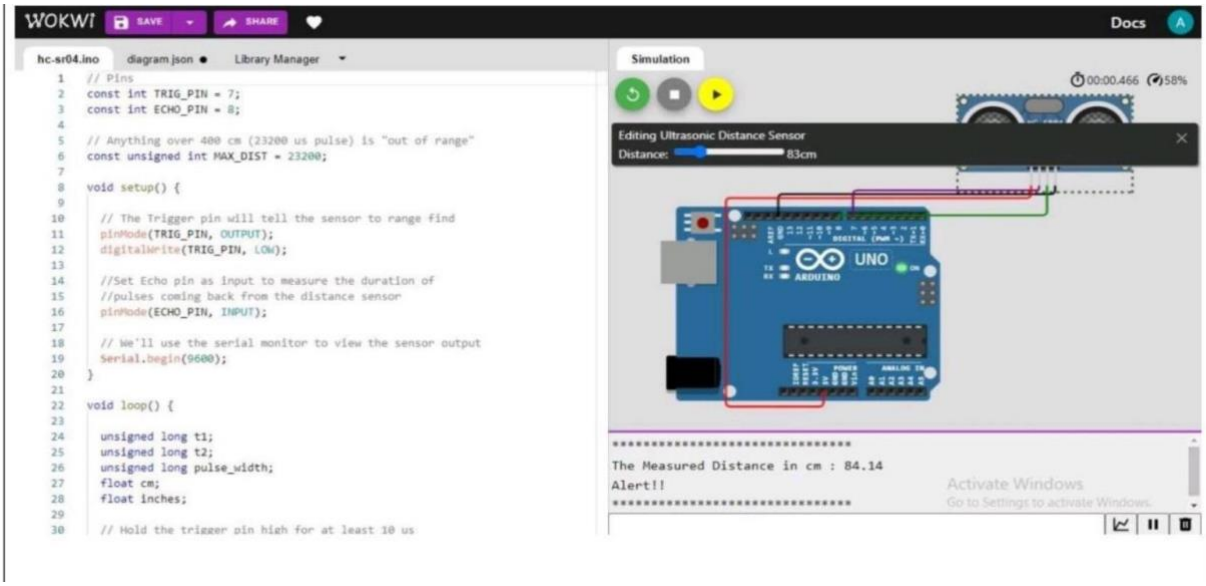
```
//Pins
const int TRIG_PIN = 7 ;
const int ECHO_PIN = 8;

//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;
```

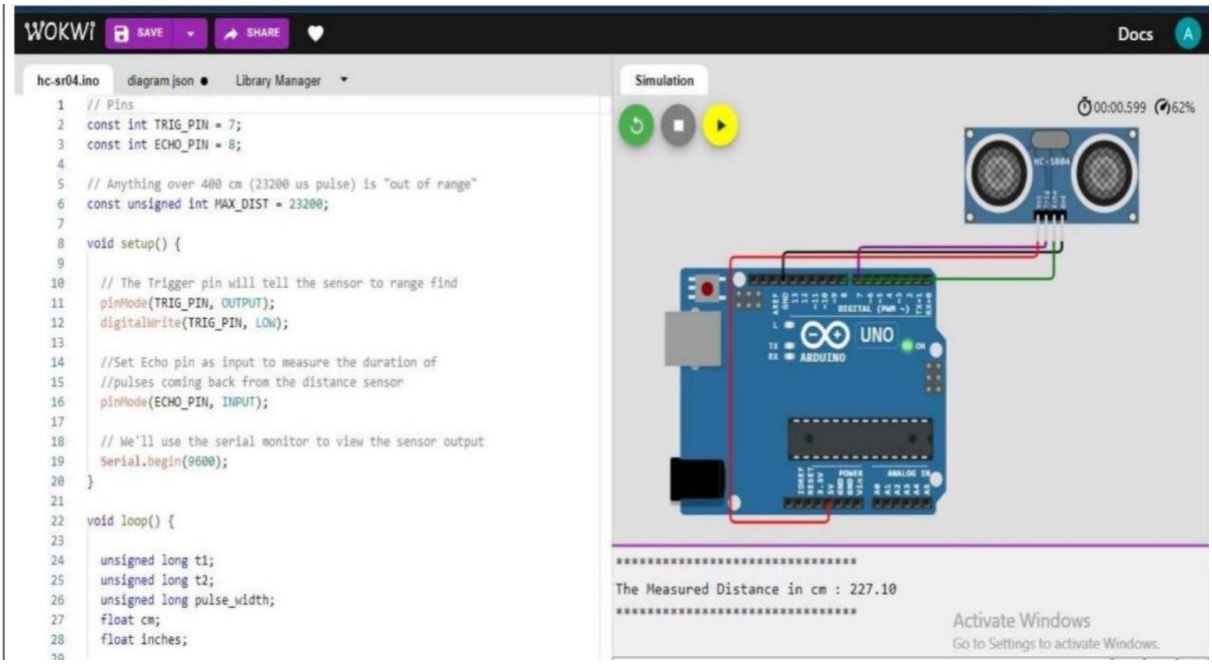
```
// Print out results
if (pulse_width >MAX _ DIST ){
Serial.println("Out of range");
} else { Serial.println("**********”);
Serial.print("The Measured Distance in cm: "); Serial.println(cm);

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

Output:

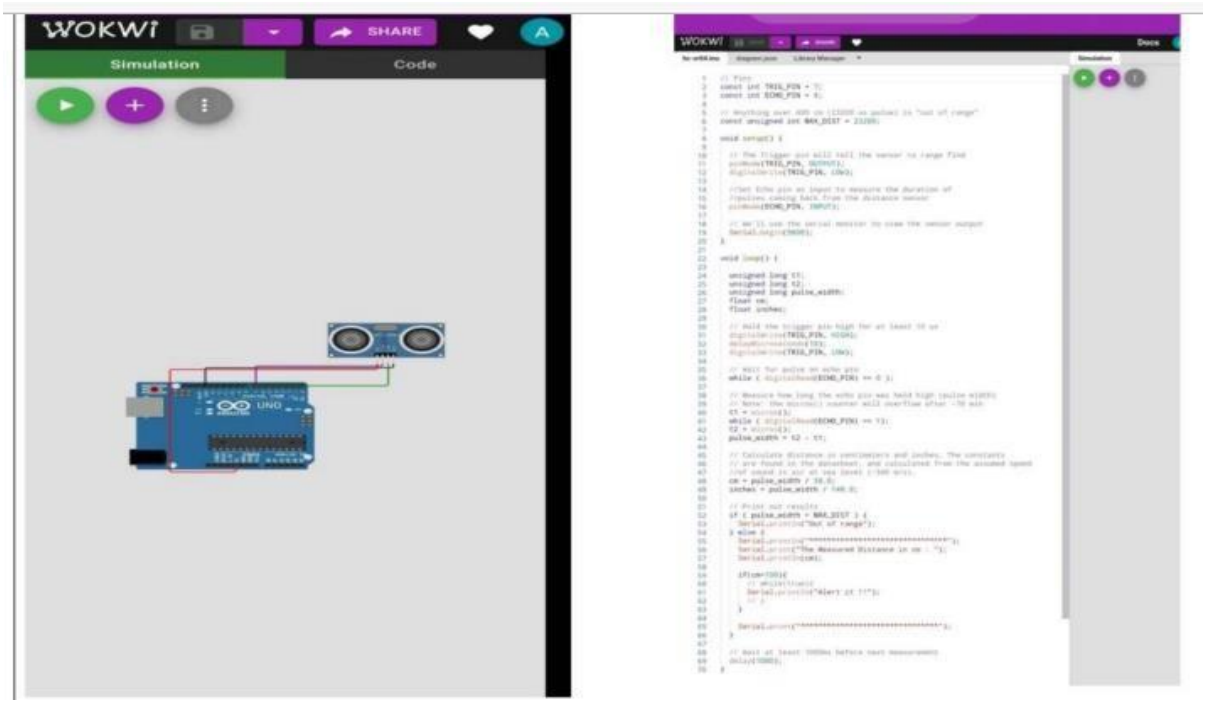
1.If the distance is less than 100 cms, it alerts.



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



3.Simulation and code execution




WOKWI
SHARE
Simulation
Code
00:00.266
0%
Editing Ultrasonic Distance Sensor
Distance:
199cm
****
The Measured Distance in cm : 201.79
****


WOKWI
SHARE
Simulation
Code
00:00.300
48%
****
The Measured Distance in cm : 57.79
Alert it !!
****