Assignment – 4

Assignment Date	28 October 2022
Student Name	Jagadish K
Student Roll Number	2019503018
Maximum Marks	2 Marks

Question-1:

Write code and connections in wokwi for ultrasonic sensor.Whenever distance is less than 100 cms send "Alert" to ibm cloud and display in device recent events.

Solution:

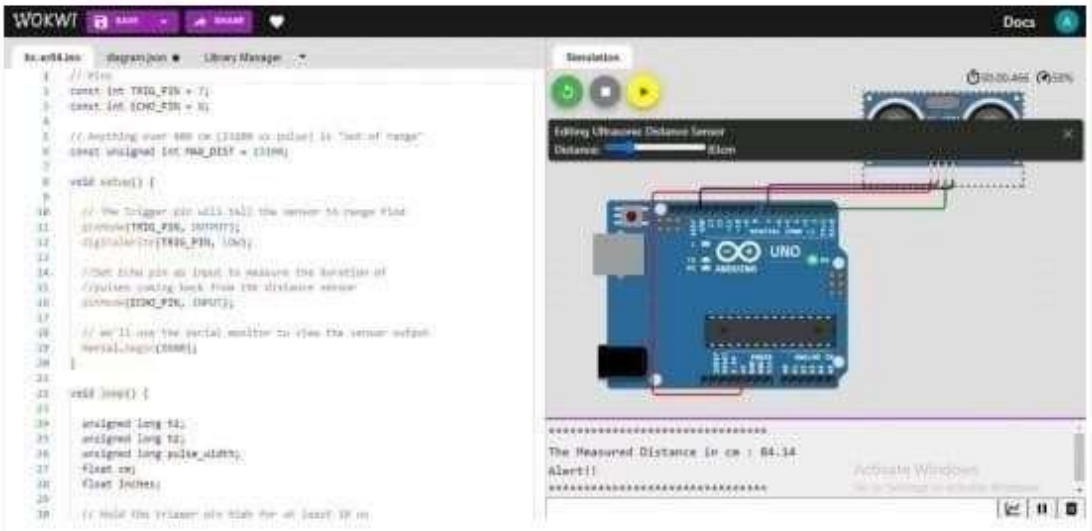
```
// Pins
const int TRIG_PIN = 7;
const int ECHO_PIN = 8;

// 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
pinMode(TRIG_PIN, OUTPUT);
digitalWrite(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
```

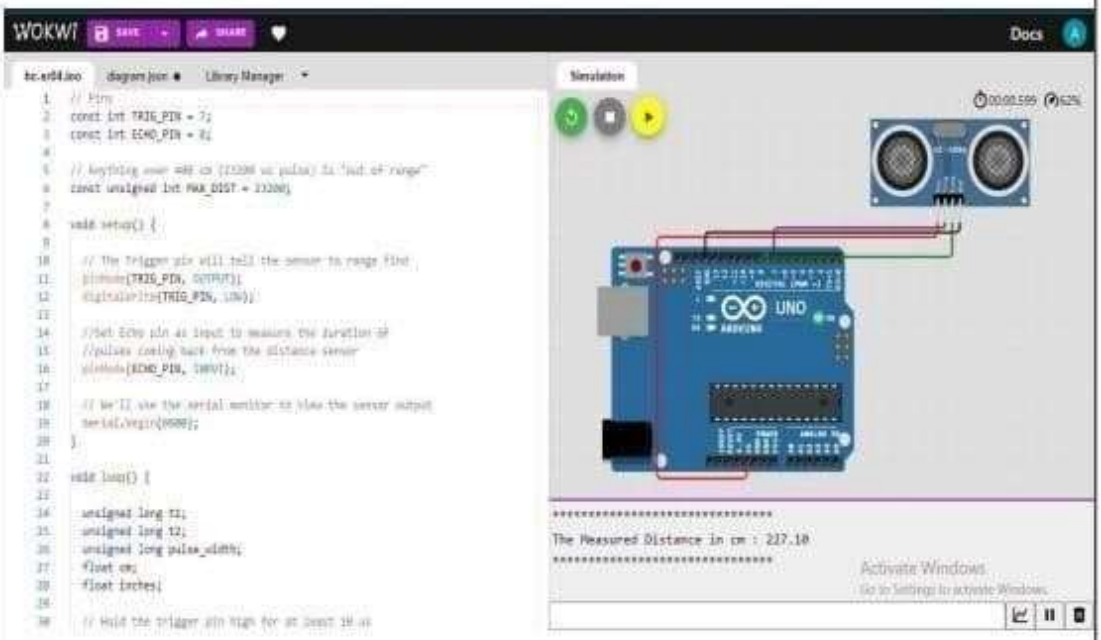
```
assumed speed //of sound in air at sea level (~340 m/s). cm =
pulse_width / 58.0; inches = pulse_width / 148.0;
 // Print out results if (
pulse_width > MAX_DIST ) {
Serial.println("Out of range");
} else {
Serial.println("*********************************");
Serial.print("The Measured Distance in 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