IBM ASSIGNMENT - 4

TEAM ID : PNT2022TMID26570

NAME : LOUIS AKASH J

ROLL NO : 212919104027

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;
```
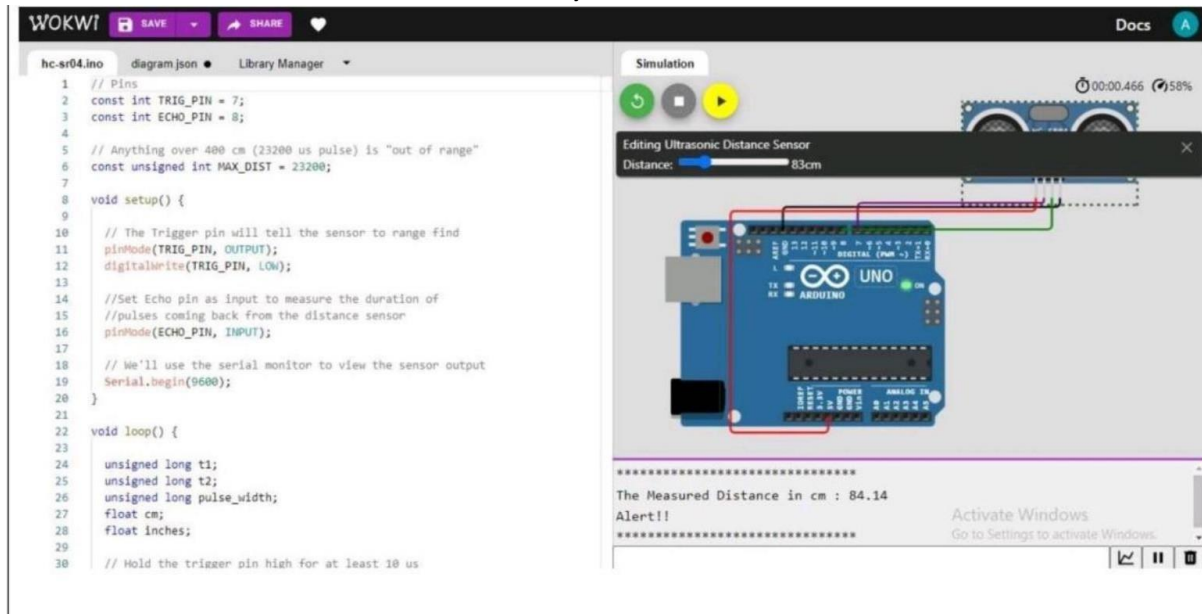
```
// Print out results

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);

}
```
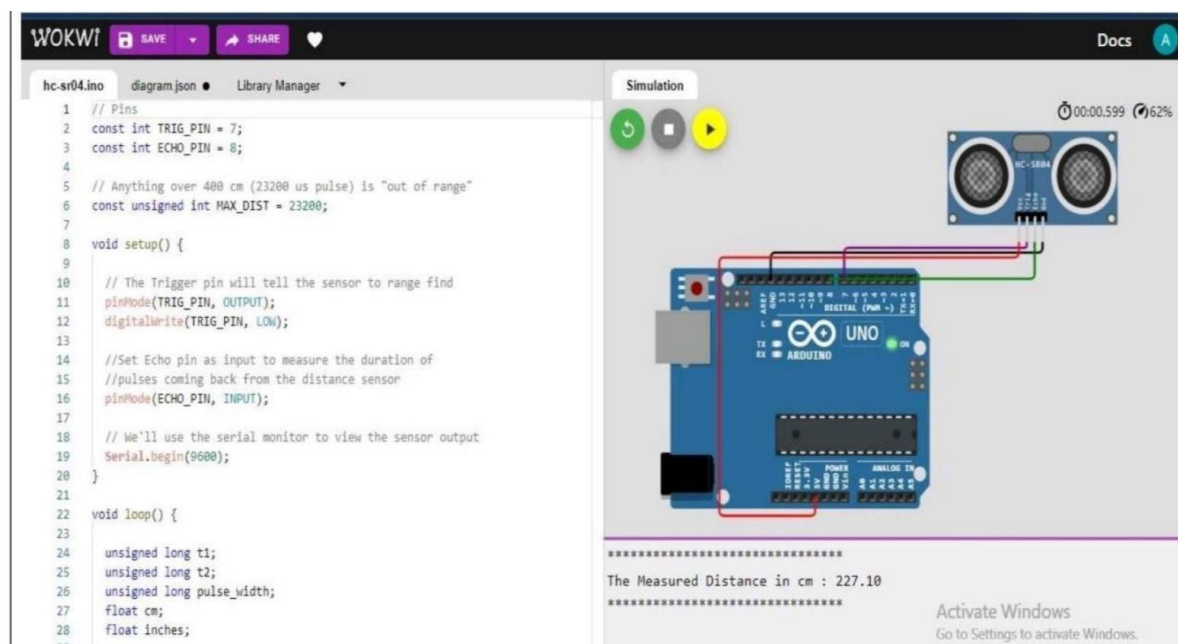
Output:

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