Assignment - 4	
Assignment Date	**22 October 2022**
Student Name	JACKSON J
Student Roll Number	**610819205015**
Maximum Marks	**2 Marks**

Question-I:

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;

DIST = 23200; void setup() {

 // The Trigger pin    will tell the sensor to range find

 PINMODE(TRIG_PIN, OUTPUT);LOW;

 DigitalWrite(TRIG_PIN)

 pinMode(ECHO_PIN, INPUT);

 void loop() {

 unsigned long tl ; unsigned long t2; unsigned long
 pulse_width;       float   cm;
 float inches;
```

```
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 40    digitalRead(ECHO_PIN) ==.    .
min tl = micros(); while (
        1); t2 = micros(); pulse_width = t2 - tl;

// 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("*******************************");
}

delay(1000);
```

Output:

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

WOKWt VB SAVE Docs

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- // Pins Öoo:00A66
- const int TRIG_PIN 7; 00 >
- const int EGO PIN 8;

4

5 // Anything over cm (232eø us pulse) is "out of range" Editing Uttrasoruc Distance

6 const unsigned int PAX_DIST • 232ee•, Distance. 83an

7 Distance. 83an

8 void setup() {

9 // The Triggerpin will tell the sensor to range find

11 A-JTPUT);

12 UNO

13

14 Set Echo pin as input to measure the duration of . AROUINO

15 pulses coning back fron the distance sensor

16 IWUT);

17

18 we wil use the serial mnitor to view the sensor output

19 Serial.begin(96ee);

20

21

23 void loop() {

23

24 unsigned long t1

25 unsigned long t2;

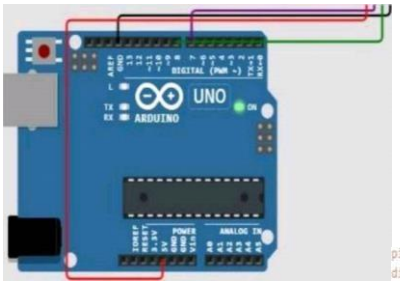
26 unsigned long pulse_width The Measured Distance in cm : 84.14
27 float cm; Alert ! !
28 float inches;
29 If the distance is more than 100 cms, it won't alert.

WORK		SHARE		

hc-sr04.ino 'agramjson Library Manager Simulation

- // Pins Öoo:oo.599
- const int TRIG PIN 00 >
- const int ECHO PIN 8;
- s // Anything over 40B cm (23200 us pulse) is "out of range6 const unsigned int PAX_DIST 2320e;

7



- pinMode(TRIG_PIN, OUTPUT); digitalWrite(TRIG_PIN, LOW);void setup() {
- le // The Trigger pin will tell the sensor to range find

11

12

13

14 //Set Echo pin as input to measure the duration of

15 //pulses coning back from the distance sensor

16 IIPUT);

17

18 // We'll use the serial monitor to view the sensor output

19 Serial.

20 begin(96ee);

21

22 void loop() {

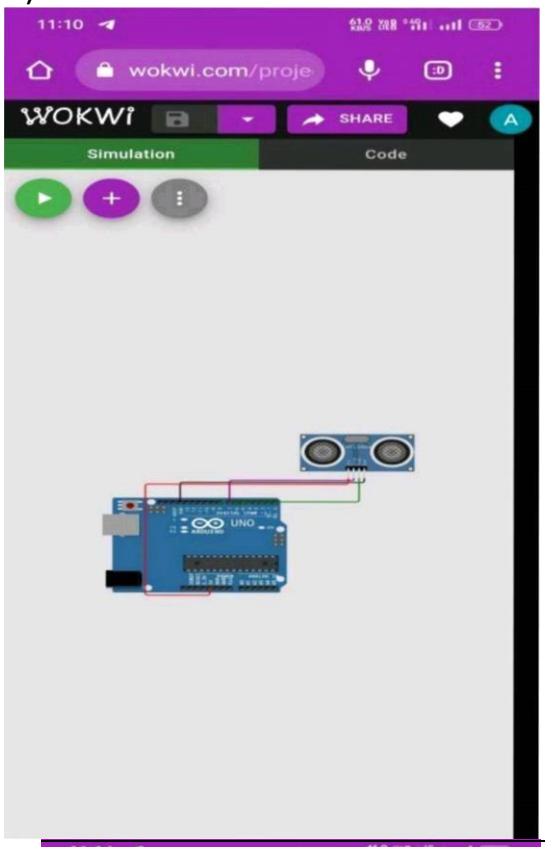
23

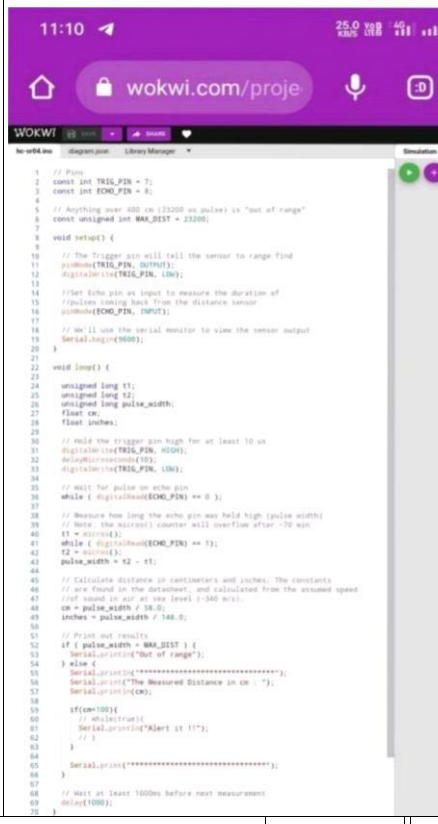
- unsigned long tl;
- unsigned long t2; The Measured Distance in cm : 227.10
- unsigned long pulse_width;

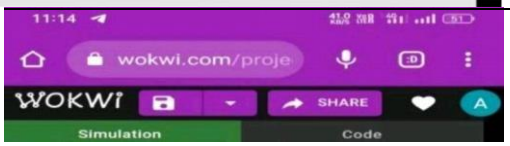
- float cm;Activate Windows
- float inches; Go to Settings to activa te Windows

		ld	11

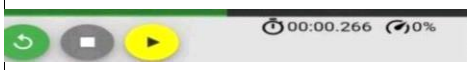
3) Simulation and code execution







Simulation	Code



Editing Ultrasonic Distance Sensor

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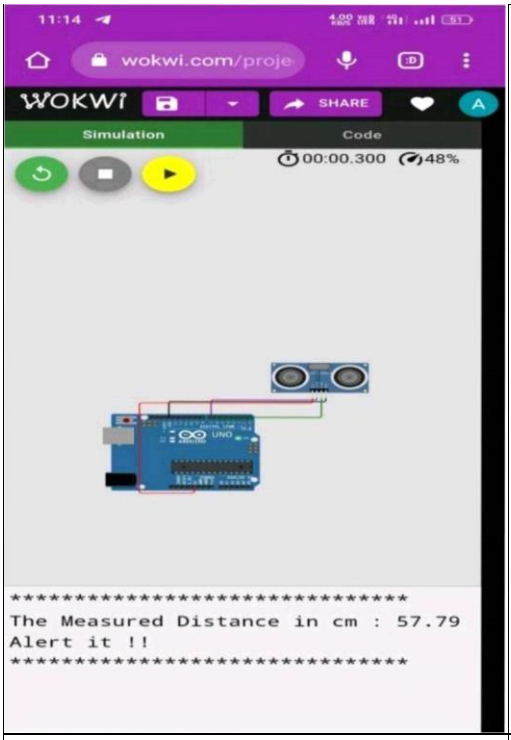
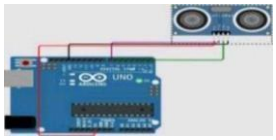
<td> 
</td>
<td>Distance: 199cm</td>
</tr>
<tr>
<td></td>
<td> 
The Measured Distance in cm201 .79</td>
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