ASSIGNMENT – 4

1.Write Code and connections in wokwi for ultrasonic sensor. whatever distance is less than 100 cms send “Alert” to ibm cloud and display in device recent events.

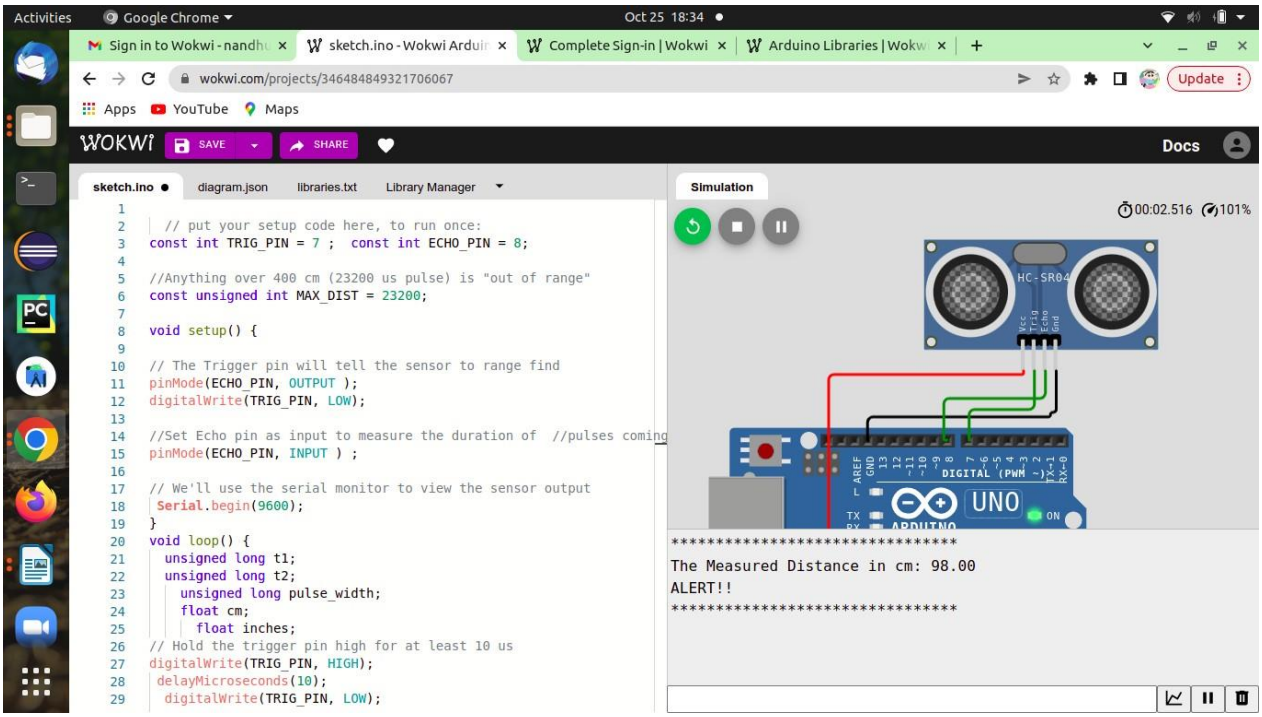
CODE:

```
// put your setup code here, to run once:
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
findpinMode(ECHO_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;
```

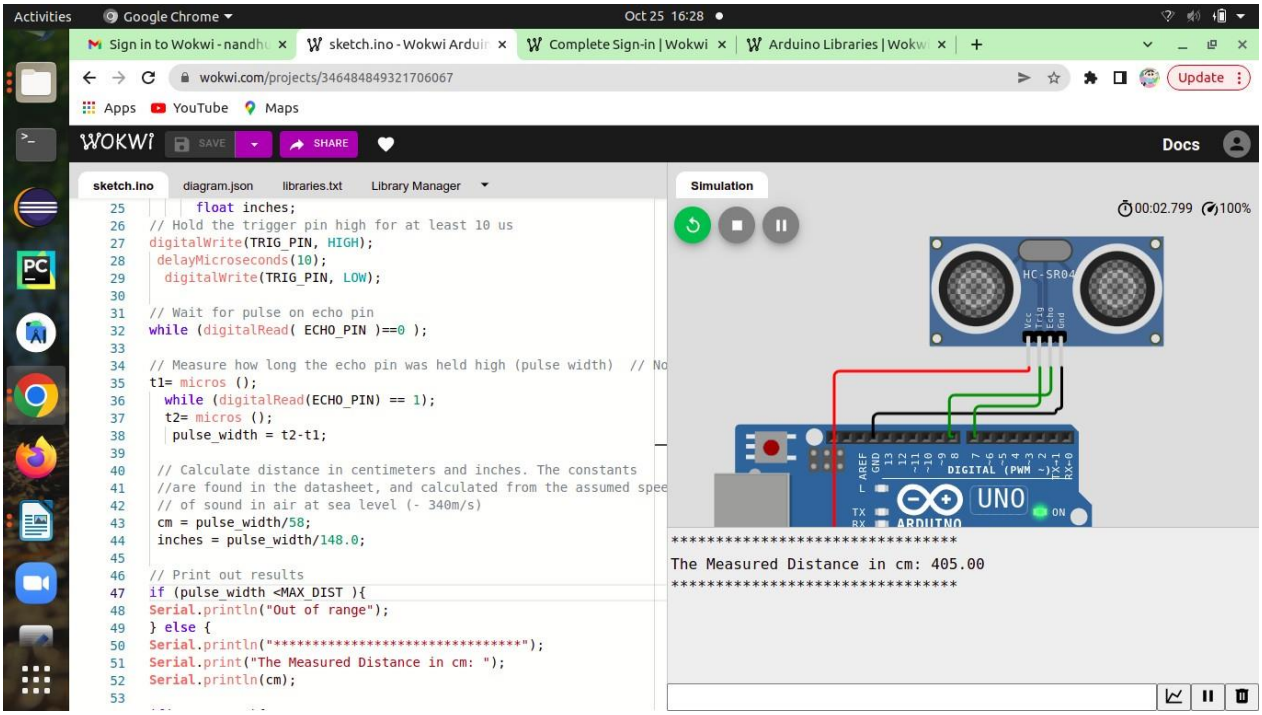
```
  float cm;
   float inches;
//Hold the trigger pin high for at least 10 us
digitalWrite(TRIG_PIN, HIGH);
delayMicroseconds(10);
digitalWrite(TRIG_PIN, LOW);

//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 (-
340m/s)cm = pulse_width/238;
 inches = pulse_width/34;

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 ){
 Serial.println("ALERT!!");

}
```

```
Serial.print("**********************************");
}
//wait at least 1000ms before next measurement
delay(1000);
}
```

If the distance is less than 100 cms ,it Alerts.



If the distance is more than 100 cms,it won’t Alert


Activities
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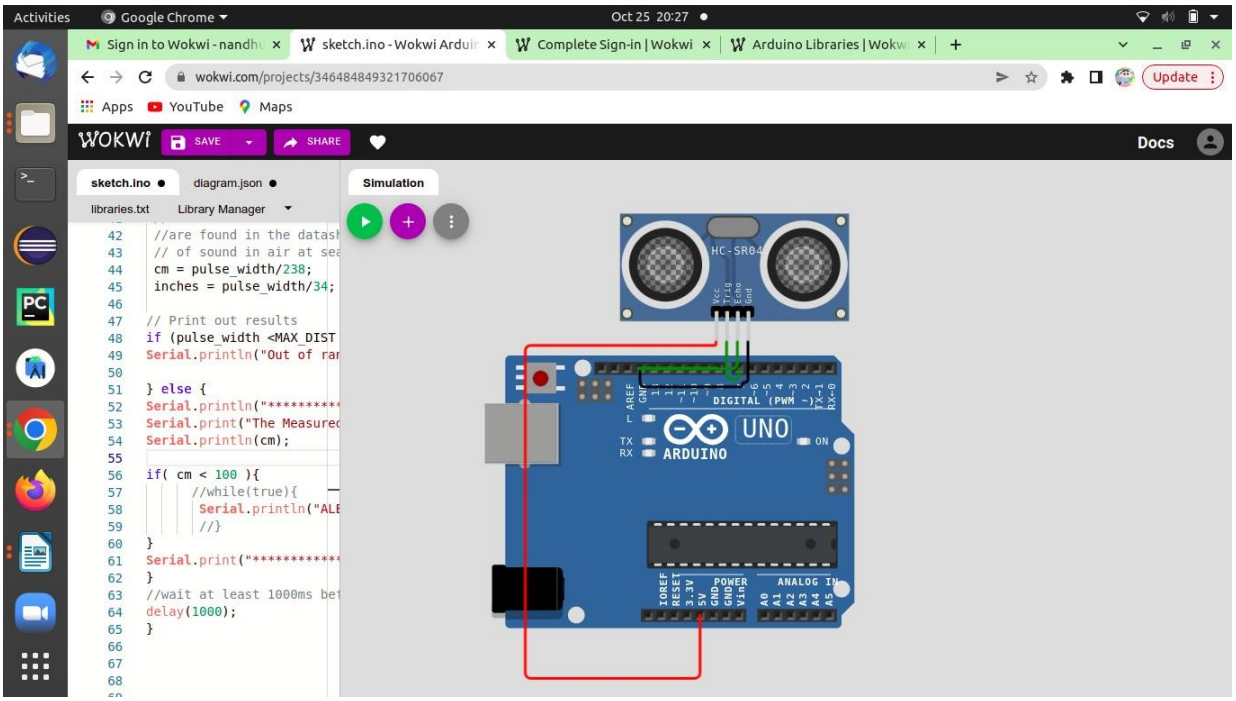
float inches;
// Hold the trigger pin high for at least 10 us
digitalWrite(TRIG_PIN, HIGH);
delayMicroseconds(10);
digitalWrite(TRIG_PIN, LOW);
// Wait for pulse on echo pin
while (digitalRead(ECHO_PIN)==0);
// Measure how long the echo pin was held high (pulse width)
t1= micros ();
while (digitalRead(ECHO_PIN) == 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 spee
// 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);
****
The Measured Distance in cm: 405.00
****

CONNECTION :


Activities
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libraries.txt
Library Manager
Simulation
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UNO
ARDUINO
//are found in the datash
// of sound in air at sea
cm = pulse_width/238;
inches = pulse_width/34;
// Print out results
if (pulse_width <MAX_DIST
Serial.println("Out of ran
} else {
Serial.println("**********
Serial.print("The Measured
Serial.println(cm);
if(cm < 100){
//while(true){
Serial.println("ALE
//}
}
Serial.print("**********
}
//wait at least 1000ms bet
delay(1000);
}