Assignment-4

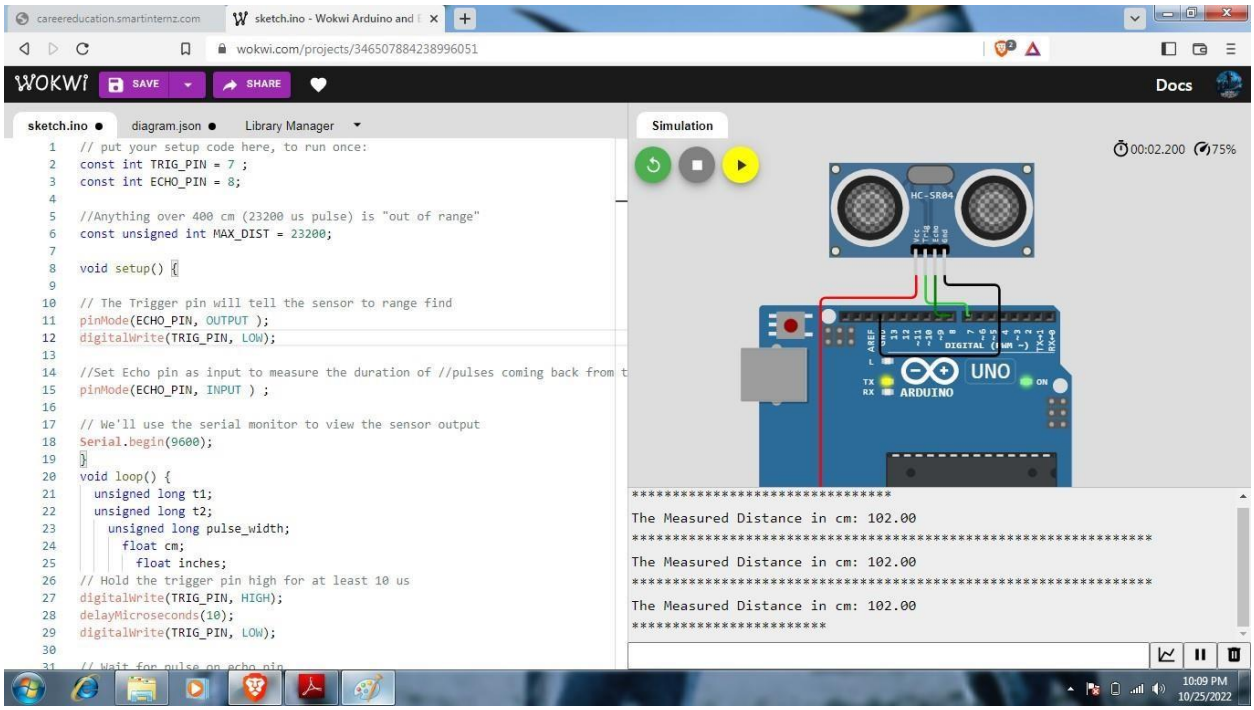
1.Write Code and connections in wokwi for ultrasonic sensor. whatever distance is less than 100 cms send “Alert” to ibm cloud and display in device recent events.

Code

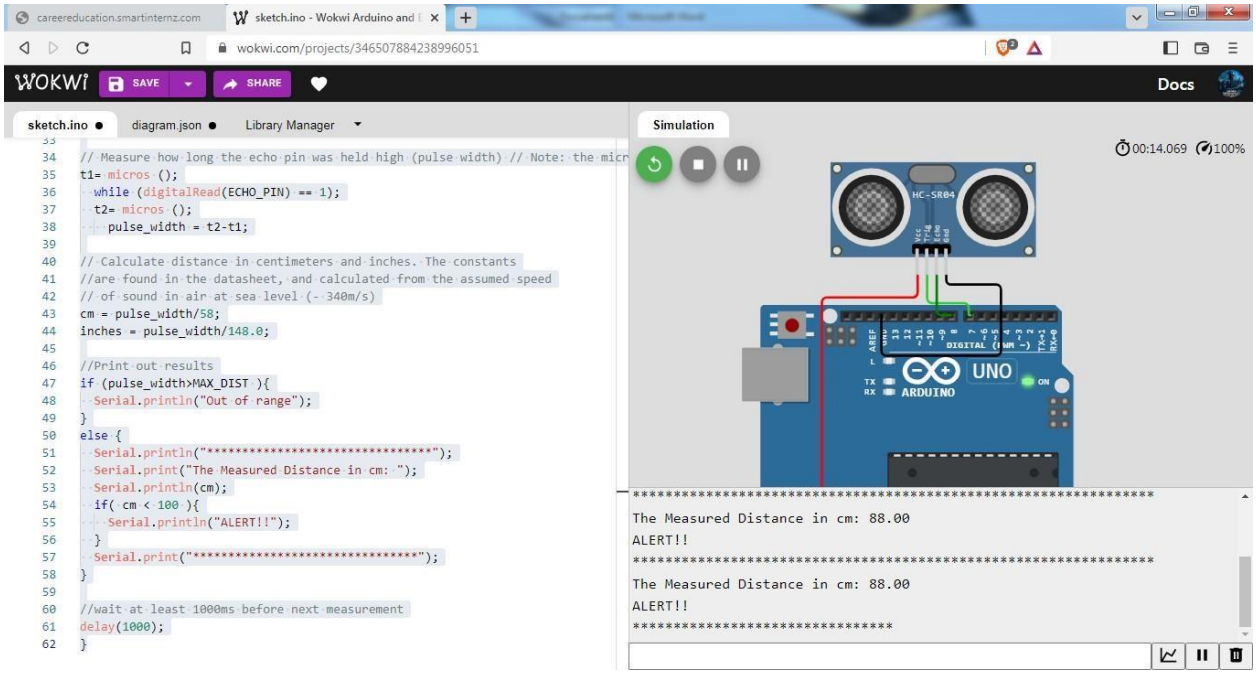
```
// put your setup code here, to run once:
const int TRIG_PIN = 7 ;
const int ECHO_PIN = 8;

//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 find
pinMode(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 =
t2t1;
// 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 ){
    Serial.println("ALERT!!");
  }
  Serial.print("*******************************");  }

//wait at least 1000ms before next measurement delay(1000);  }
```

If distance is greater than 100,it will not alert.



If distance is less than 100,it will alert.


careereducation.smartinternz.com
sketch.ino - Wokwi Arduino and
wokwi.com/projects/346507884238996051
WOKWI
SAVE
SHARE
Docs
sketch.ino
diagram.json
Library Manager
// Measure how long the echo pin was held high (pulse width) // Note: the micr
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){
Serial.println("ALERT!!");
}
Serial.print("*******************************");
}
//wait at least 1000ms before next measurement
delay(1000);
}
Simulation
00:14.069
100%
HC-SR04
UNO
ARDUINO
The Measured Distance in cm: 88.00
ALERT!!
The Measured Distance in cm: 88.00
ALERT!!