

Assignment -4

Question:

Write code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100 cms send an "alert" to the IBM cloud and display in the device recent events. Upload document with wokwi share link and images of IBM cloud.

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!!");
  //}

}

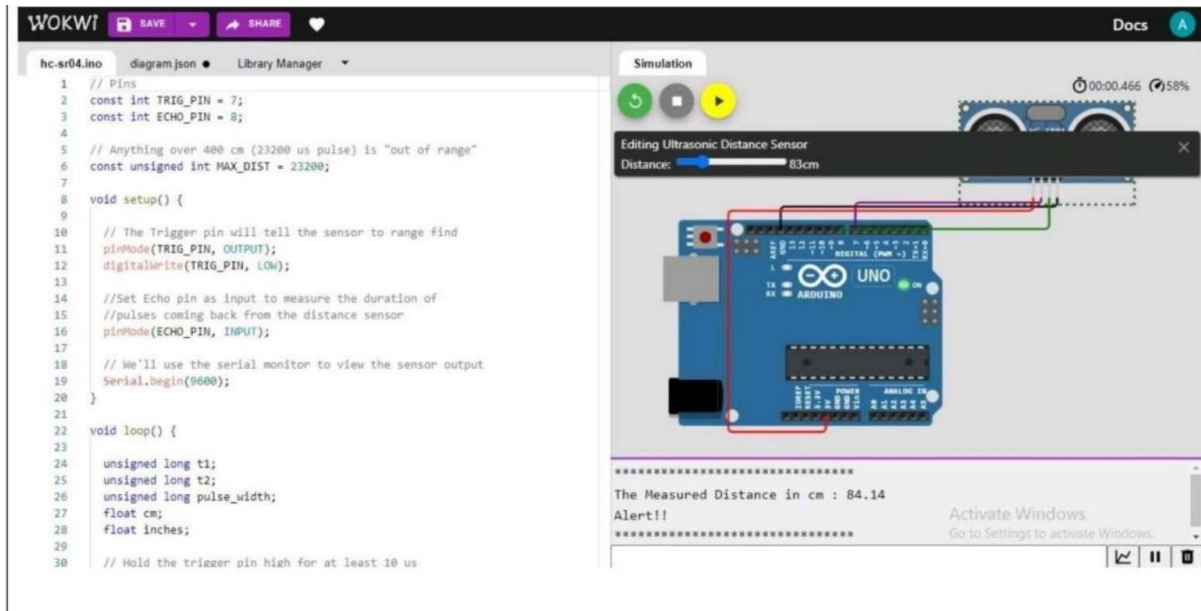
Serial.print("*****");
}

//wait at least 1000ms before next measurement

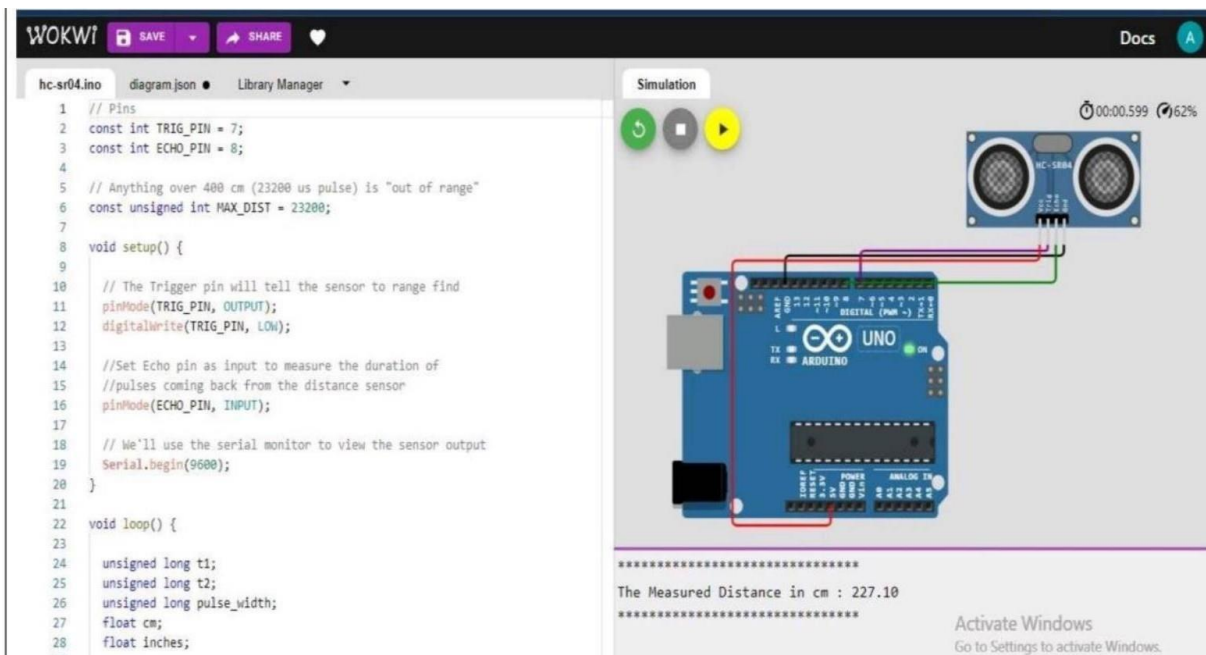
Delay(1000);
}
```

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

