IBM ASSIGNMENT 4

TEAM LEADER : V.SANTHIYA (922519104138)

TEAM MEMBER 1 : A.SOWMIYA (922519104152)

TEAM MEMBER 2 : G.SOWMIYA (922519104153)

TEAM MEMBER 3 : K.YUVASHANKARI (922519104184)

TOPIC :

Write a code and connections in wokwi for ultrasonic sensor.

Whenever distance is less than 100 cms send an "alert" to IBM Cloud and display in device recent events.

Source Code:

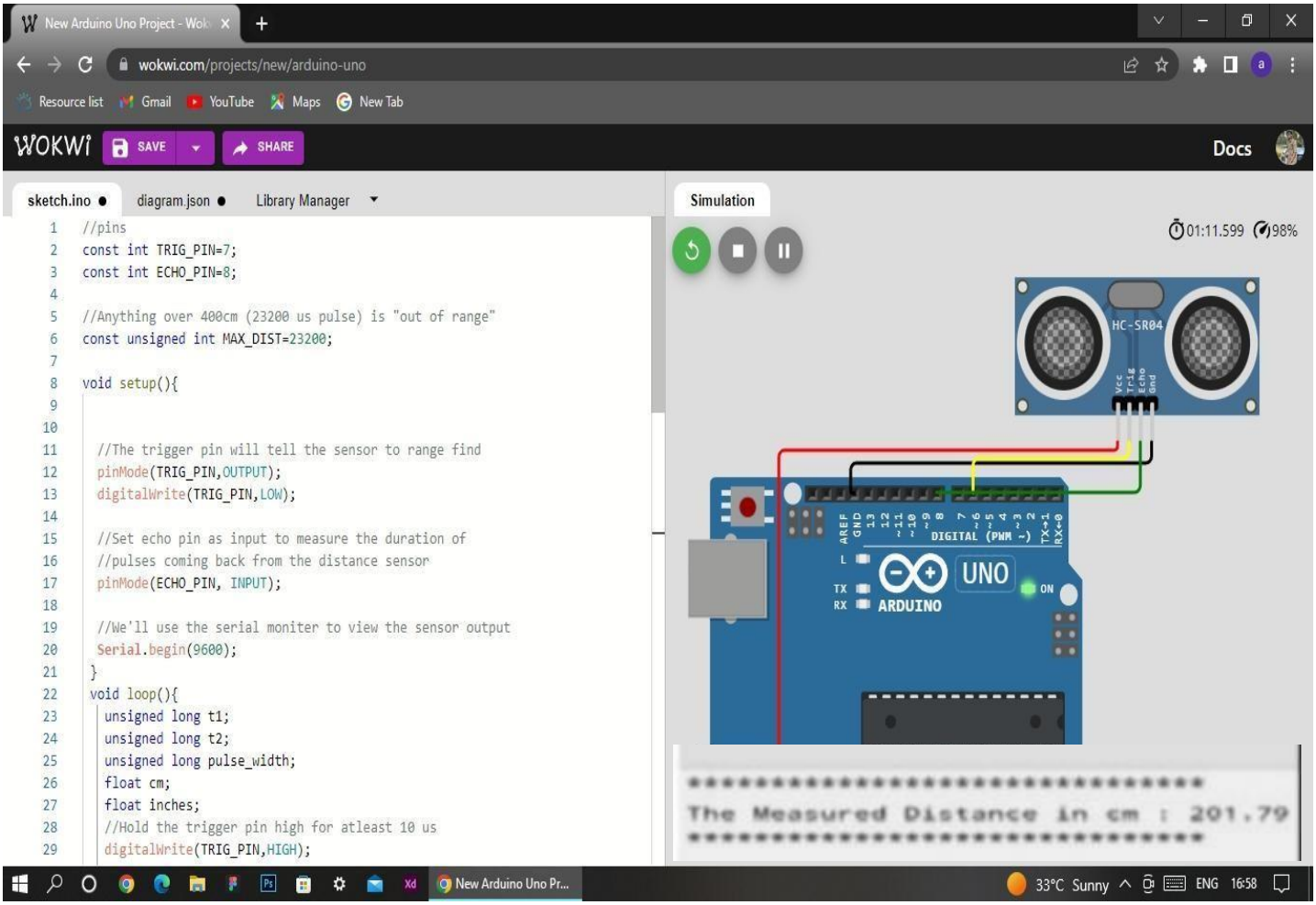
```
//Pins
const int TRIG_PIN=7;
const int ECHO_PIN=8;

//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 will 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 atleast 10

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 constant are found in datasheet, and calculated the 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.println("The Measured Distance in cm");
Serial.println(cm);

if(cm<100){
  while(true){
```

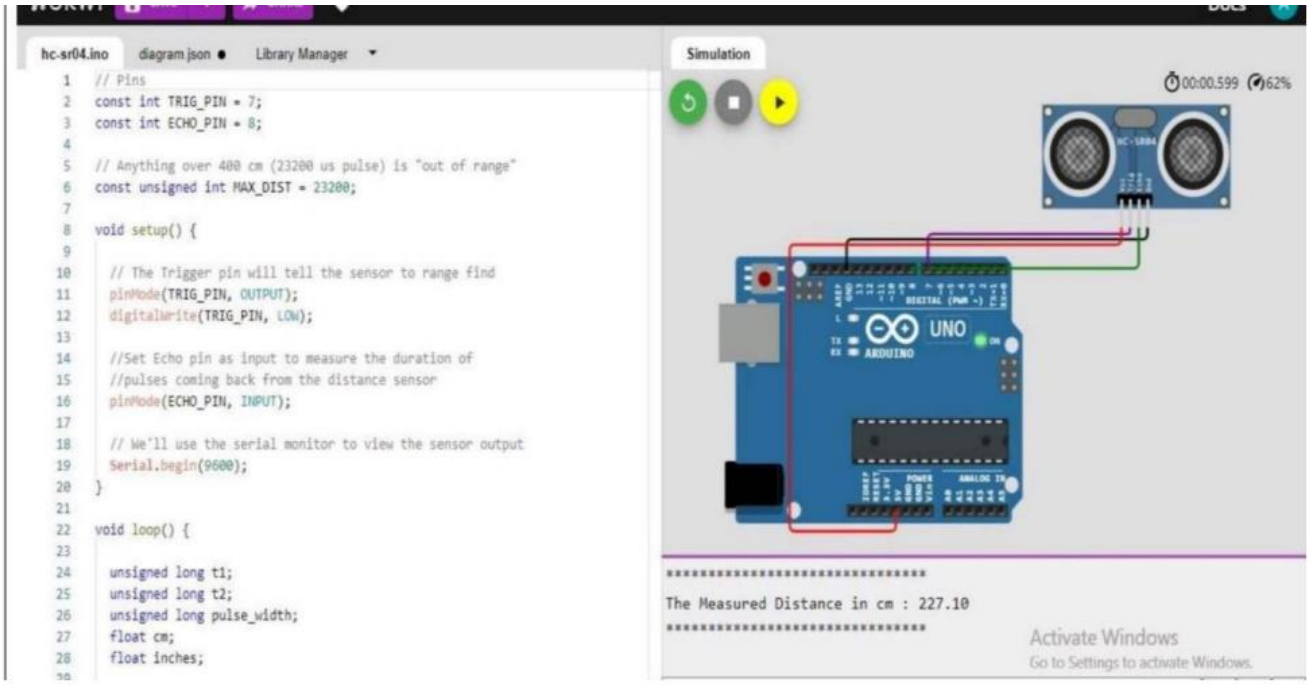
```
 Serial.println("Alert!");
}

Serial.print("**********");
}
//wait atleast 1000ms before next measurement

Delay(1000);
}
```

OUTPUT:

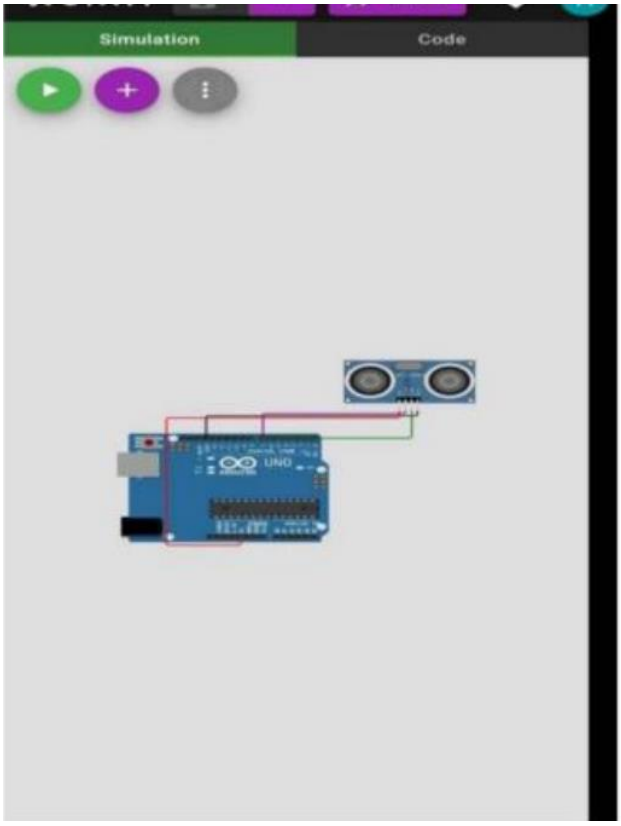
1.If the distance is less than 100 cms ,it alerts.



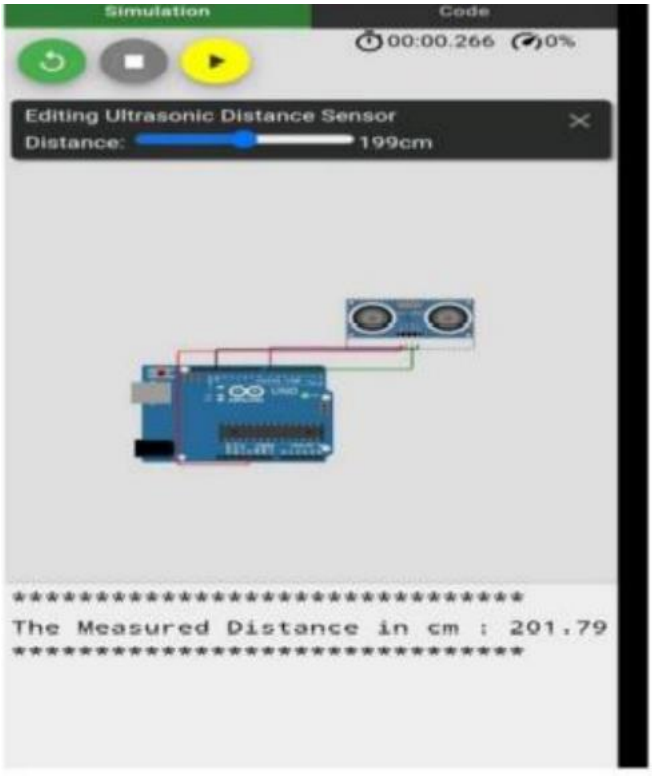
2.If the distance is more than 100 cms, it won’t alert

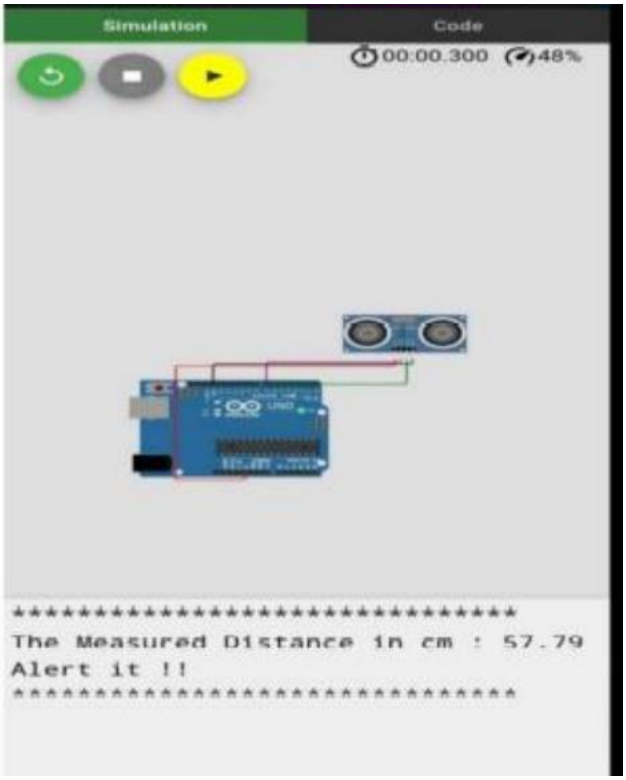


3.Simulation and code execution:


Simulation
Code


WOKWI
Docs
Simulation


Simulation
Code
00:00.266
0%
Editing Ultrasonic Distance Sensor
Distance:
199cm
****
The Measured Distance in cm : 201.79
****


Simulation
Code
00:00.300
48%
****
The Measured Distance in cm : 57.79
Alert it !!
****