Assignment–4

Write code and connections in wokwi for ultra sonic sensor.When ever distance is less than 100 cm send "alert" to ibm cloud and display in device recent event

DATE	6 NOV 2022
TEAM ID	PNT2022TMID02468
PROJECT NAME	SMART CROP PROTECTION
MAXIMUM MARKS	2 MARKS

PROGRAM:

//ARDUINOPINS(TRIGGERPIN,ECHO PIN)const int TRIG_PIN=7;constintECHO_PIN=8;

//Anythingover400cm(23200uspulse)is"outofrange"constunsignedintmax_dist=23200;
voidsetup()
{

//TheTriggerpinwilltellthesensortorangefindpinMode(TRIG_PIN,OUTPUT) ; digitalWrite(TRIG_PIN,LOW);

//SetEchopinasinputto measure the time durationofpulsereturning backfrom thedistancesensorpinMode(ECHO_PIN,INPUT);

//We'llusethe serialmonitortoviewthesensoroutput Serial.begin(9600);
}
voidloop()
{

unsigned long t1;unsignedlong t2; unsigned longpulse_width; float cm;floatinches;

//Holdthetriggerpinhighforatleast10us digitalWrite(TRIG_PIN, HIGH); delayMicroseconds(10); digitalWrite(TRIG_PIN,LOW);

//Waitforpulseonechopin while(digitalRead(ECHO_PIN)==0);

// Measure how long the echo pin was held high (pulsewidth)

```
//Note: themicros()counterwilloverflowafter ~70 mint1 = micros();while(digitalRead(ECHO_PIN)== 1);t2=micros(); pulse_width=t2-t1;

// Calculate distance in centimeters and inches. The constants
//arefoundinthe datasheet,andcalculatedfromtheassumedspeed

//ofsoundinairatsealevel(~340m/s).cm=pulse_widt h/58.0;
inches=pulse_width/148.0;

 //Printoutresults
if(pulse_width >max_dist ){ Serial.println("Outofrange");

}
else {

Serial.println("******************************");

Serial.print("Distance Measuredincm:");
Serial.println(cm);
if(cm <100)
{ //while(true){ Serial.println("Alert!!"); //} }
Serial.print("******************************"); }

// Wait at least1000ms before next measurement delay(1000);
}
```
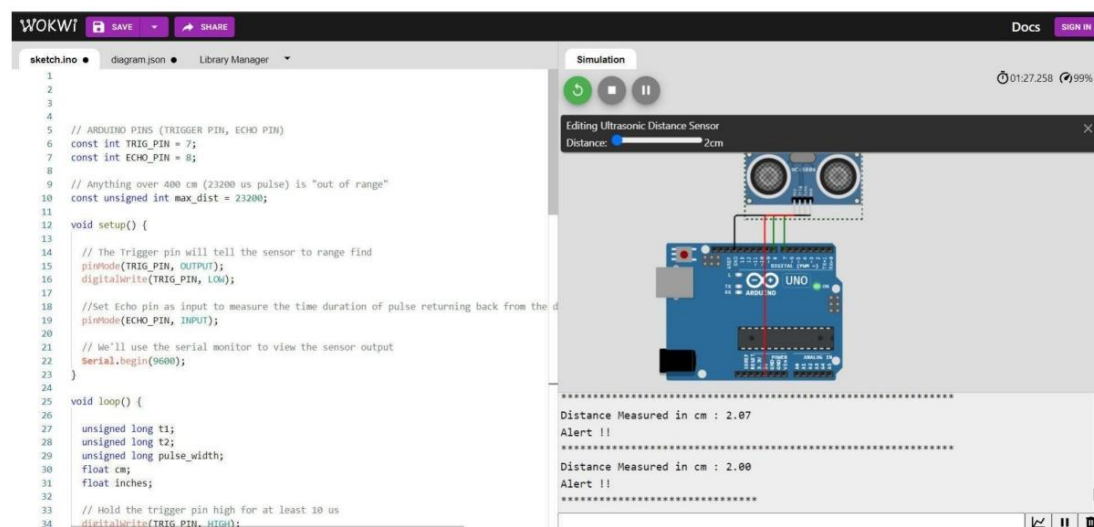
OUTPUT:

sketch.ino ●   diagram.json ●   Library Manager ▾

```
1
2
3
4
5    // ARDUINO PINS (TRIGGER PIN, ECHO PIN)
6    const int TRIG_PIN = 7;
7    const int ECHO_PIN = 8;
8
9    // Anything over 400 cm (23200 us pulse) is "out of range"
10   const unsigned int max_dist = 23200;
11
12   void setup() {
13
14     // The Trigger pin will tell the sensor to range find
15     pinMode(TRIG_PIN, OUTPUT);
16     digitalWrite(TRIG_PIN, LOW);
17
18     //Set Echo pin as input to measure the time duration of pulse returning back from the d
19     pinMode(ECHO_PIN, INPUT);
20
21     // We'll use the serial monitor to view the sensor output
22     Serial.begin(9600);
23   }
24
25   void loop() {
26
27     unsigned long t1;
28     unsigned long t2;
29     unsigned long pulse_width;
30     float cm;
31     float inches;
32
33     // Hold the trigger pin high for at least 10 us
34     digitalWrite(TRIG_PIN, HIGH);
```

Simulation

⟳ ◼ ⏸   ⏱ 00:47.106 ⦿100%

Editing Ultrasonic Distance Sensor   ✕
Distance: ▬▬▬▬▬●▬▬ 268cm

```
Distance Measured in cm : 271.79
************************************************************
Distance Measured in cm : 271.72
************************************************************
Distance Measured in cm : 271.72
************************************************************
Distance Measured in cm : 271.79
```