Assignment Date	15.10.2022
Student Name	R.TAMIZHARASAN
Student Roll Number	912819106019
Maximum Marks	2MARKS

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.

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Code
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```
//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!!");
//}
}
//wait at least 1000ms before next measurement
Delay(1000);
Output:
```

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

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   hc-ar04.ino dagram joon ● Library Manager ▼
1 // Firs
                                                                                                                   00
             const let TRIS_PIN = 71
            const int EDO_FIN = 8;
           // Anything over 400 cm (21000 us pulse) is "out of range" coest unaigned int MAR SIST = 23200;
            veld setup() (
              // The Trigger pin will tall the sensor to range find
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              //Set Ethe pin as input to measure the duration of
//pulses coming back from the distance sensor
portode(NOM_FIN, IMPUT);
           // No 'll use the serial monitor to view the sensor output 
Serial, bog[n[B480]]
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            veid lose() {
              unsigned long til
unsigned long til
unsigned long pulse_width;
float cm;
float inches;
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                                                                                                                 Alertii
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              // Wold the trigger pin high for at least 18 us
```

2.If the distance is more than 100 centimeters, it won't alert

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WokMi ■ *** * ****
                                                                                                                                               Docs
                                                                                Simulation
hc-er04.iso diagram json ● Library Manager ▼
     1 // Pins
2 const int TRIG PIN + 7;
                                                                                                                                          $0000519 (A
      const int EDAD PIN - 8;
     5 // Anything over 400 cm (20200 us pulse) is "out of range"
     6 const unsigned int MAX_DEST = 21200;
        vold setup() (
         // The Trigger pin will tell the sensor to range find
pintrode(TRIG_PIN, OUTPUT);
    11
          digitals-its(TRIG_FIN, LON);
                                                                                                      OM UNO
    23
          //Set Echo pin as input to measure the duration of
          //pulses coming back from the distance sensor planede(EOM_PIN, IMPUT);
          // we'll use the serial monitor to view the sensor output
   39
          Serial, begin(9500);
                                                                                                     21
        veid loop() {
          unsigned long ti;
                                                                              unsigned long ti;
                                                                              The Measured Distance in cm : 227.10
          unsigned long pulse width;
                                                                              float est
                                                                                                                          Activate Windows
          flowt inches;
                                                                                                                          Go to Settings to activate Windows.
```