Assignment Date	15.10.2022
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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;
                                                                                                                 The Measured Distance in on : 84.14
                                                                                                                 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.
```