ASSIGNMENT-4

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MAXIMUM MARKS: 2 AMRKS

**QUESTION**

Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100cms send “alert” to ibm cloud and display in device recent events

PROGRAM:

const int TRIG\_PIN = 2;

const int ECHO\_PIN = 4;

// 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

pinMode(TRIG\_PIN, OUTPUT);

digitalWrite(TRIG\_PIN, LOW);

//Set Echo pin as input to measure the time duration of pulse returning 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 (~340 m/s).

cm = pulse\_width / 58.0;

inches = pulse\_width / 148.0;

// Print out results

if ( pulse\_width > max\_dist ) {

**Serial**.println("Out of range");

} else

{ **Serial**.println("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*")

; **Serial**.print("Distance Measured 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:**

