TEAM ID : PNT2022TMID43421

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Assignment 4 :

Write code and connections in wokwi for the ultrasonic sensor. Whenever the distance is less than 100 cms send an "alert" to the IBM cloud and display in the device recent events.

Program

```
constintTRIG_PIN=7;
constintECHO_PIN=8;

constunsignedintMAX_DIST=23200;

void setup(){

  pinMode(TRIG_PIN,OUTPUT);
  digitalWrite(TRIG_PIN,LOW);
   pinMode(ECHO_PIN,INPUT);
   Serial.begin(9600);
}
void loop() {
  unsignedlongt1;
  unsignedlongt2;
  unsignedlongpulse_width;  float cm;
  floatinches;

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

  while(digitalRead(ECHO_PIN)==0);

  t1= micros();
  while(digitalRead(ECHO_PIN)==1);  t2= micros();
```

```
    pulse_width=t2-t1;
    cm=pulse_width/ 58 ;
    inches=pulse_width/148.0;
    if (pulse_width>MAX_DIST){
        Serial.println("Outofrange");
      }
      else{
         Serial.println("*****************************");
         Serial.print("TheMeasuredDistanceincm:");
         Serial.println(cm);

         if( cm < 100 ){

               Serial.println("Alert!!");

      }
      Serial.print("********************************");
      }
delay(1000);
}
```

Output:

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

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```
10  | // The Trigger pin will tell the sensor to range find

14  | //pulses coming back from the distance sensor
15  |   pinMode(ECHO_PIN, INPUT );

18  | }
19  | void loop() {
20  |   unsigned long t1;
21  |   unsigned long t2;
22  |   unsigned long pulse_width;
23  |   float cm;
```

Tne Mea en red Dr stance in etc: 2 68. 00
*********************************Out of range

TneMeasuredDistanceincm:197.00

TheMeasuredDistanceincm:2.00
Alert!!

31°C
Cloudy

7.2 KBps
2.0 KBps   IN   28-10-2022

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```
10  | // The Trigger pin will tell the sensor to range find
12  |   digitalWrite(TRIG_PIN, LOW);

15  |   pinMode(ECHO_PIN, INPUT );

21  |   unsigned long t2;
22  |   unsigned long pulse_width;
```

ee

TheMeasuredDistanceincm:Z.00
Alert!!

31°C
Cloudy

0.2 KBps
0.0 KBps   ENG IN   12:21 28-10-2022

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sketch.ino | diagram.json | Library Manager

Simulation

```
1   //Pins
2   const int TRIG_PIN = 7;
3   const int ECHO_PIN = 8;
4
5   //Anything over 400 cm (23200 us pulse) is "out of range"
6   const unsigned int MAX_DIST = 23200;
7
8   void setup(){
9
10    // The Trigger pin will tell the sensor to range find
11    pinMode(TRIG_PIN, OUTPUT);
12    digitalWrite(TRIG_PIN, LOW);
13    //Set Echo pin as input to measure the duration of
14    //pulses coming back from the distance sensor
15    pinMode(ECHO_PIN, INPUT );
16    // We'll use the serial monitor to view the sensor output
17    Serial.begin(9600);
18  }
19  void loop() {
20    unsigned long t1;
21    unsigned long t2;
22    unsigned long pulse_width;
23    float cm;
24    float inches;
25
```

00:44.723 | 97%

```
**********************************************************************
The Measured Distance in cm: 91.00
Alert!!
**********************************************************************
The Measured Distance in cm: 124.00
**********************************************
```