

Assignment -4
Python Programming

Assignment Date	28 October 2022
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Maximum Marks	2 Marks

Question-1:

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.

Solution:

```
const int TRIG_PIN = 7 ; const int ECHO_PIN = 8;

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!!");
        //}
    }

Serial.print("*****");
}

//wait at least 1000ms before next measurement
Delay(1000);
}

```

Output:

- 1.If the distance is less than 100 centimeters,it alerts.
- 2.If the distance is more than 100 centimeters,it won't alert
- 3.Simulation and Code execution