Assignment -4
Python Programming

Assignment Date	26 October 2022
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Maximum Marks	2 Marks

Question-1:

Write code and connections in wokwi for ultrasonic sensor.
Whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events.
Upload document with wokwi share link and images of ibm cloud.

Solution:

```
//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 );
```

```arduino
// 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 cms ,it alerts.