IOT ASSIGNMENT 4

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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

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PROGRAM

```
const int pinTOping = 7;
 void setup () {
 Serial.begin(9600); //Serial communication at 9600 bps rate
 Serial.println("Test for the Ultrasonic range sensor");
  }
 void loop()
  {
    // initialzing the variables using long data type
    long TIMEduration, in, cm;
    // The PING))) is triggered by a HIGH pulse valu2 of 2 or more microseconds.
    // We have specified short time to clean HIGH pulse:
    pinMode(pinTOping, OUTPUT);
    digitalWrite(pinTOping, LOW);
    delayMicroseconds(4);
    digitalWrite(pinTOping, HIGH);
    delayMicroseconds(8);
    digitalWrite(pinTOping, LOW);
    // We have used the same pin to read the signal from the PING)), which is a
  HIGH pulse
    // the time is measured in microseconds
    pinMode(pinTOping, INPUT);
    TIMEduration = pulseIn(pinTOping, HIGH);
```

```
  // convert the time into a distance
  in = microsecondsToIn(TIMEduration);
  cm = microsecondsToCm(TIMEduration);
  Serial.print(in);
  Serial.print("inches, ");
  Serial.print(cm);
  Serial.print("centimeters");
  Serial.println();
  delay(200); //time delay of 200 microseconds
}
long microsecondsToIn(long microseconds) {
  //  there are 73.746 microseconds per inch according to PING datasheet
  // we need to divide the distance by 2
  //It is because the ping travels forward and bounces backward
  return microseconds / 74 / 2;
}
long microsecondsToCm(long microseconds) {
  // The speed of sound is 340 m/s
  return microseconds / 29 / 2;
}
```