SMART SOLUTION FOR WASTE MANAGEMENT

ASSIGNMENT-4

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QUESTION:

Write Code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100 cm send “Alert” to IBM cloud and display in device recent events.

C0DING:

```
const int TRIG_PIN = 5;

const int ECHO_PIN = 9;

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 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;
```

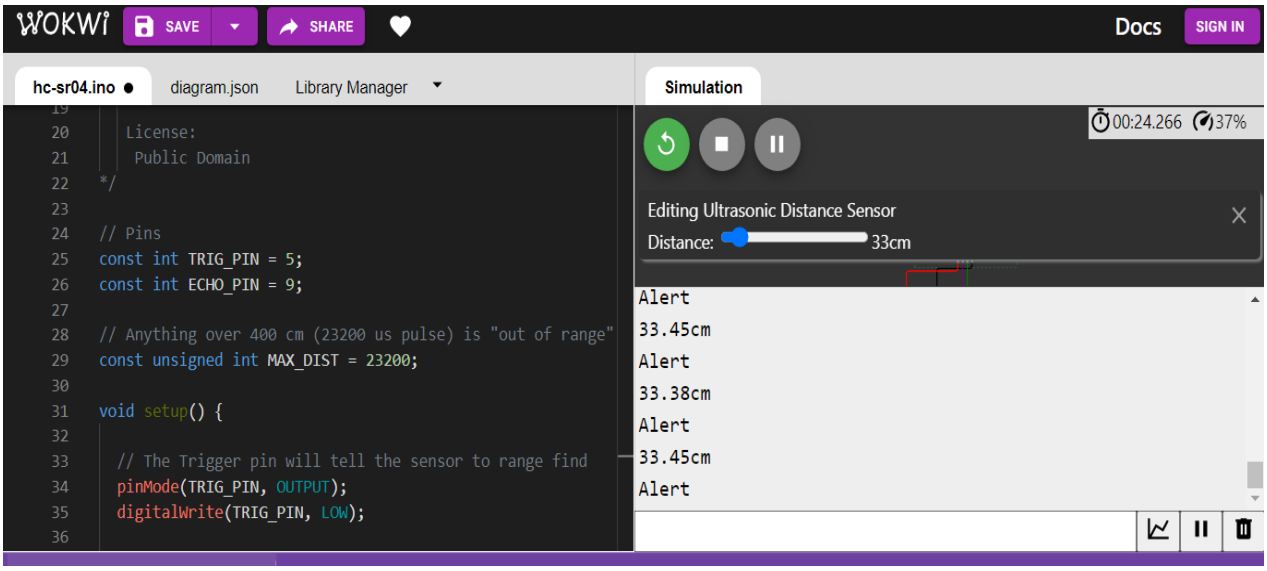
```
// Calculate distance in centimeters and inches. The constants
  // are found in the datasheet, and calculated from the assumed speed
  //of sound in air at sea level (~340 m/s).
  cm = pulse_width / 58.0;
  inches = pulse_width / 148.0;

  // Print out results
  if (cm <100)
  {
    Serial.print(cm);
    Serial.println("cm\t");
    Serial.println("Alert");
    delay (1000);
  }
  else {
    Serial.print(cm);
    Serial.print(" cm \t");
    Serial.print(inches);
    Serial.println(" in");
    Serial.println("******Out of Range*******");
    delay (1000);

  }
  // Wait at least 60ms before next measurement
  delay(60);
}
```

CASE 1: Distance less than 100cm

It Alerts



CASE 2: Distance more than 100cm

It won't Alert