```
#include <SimpleDHT.h>

#define GAS_SENSOR      A1
#define TRIG            A2
#define ECHO            A3
#define IR_SENSOR       A4
#define HT_SENSOR       A5
#define HT_LED          8
#define IR_LED          9
#define ULT_LED         10
#define BUZZER          11
#define GAS_LED         12
#define POW_LED         13

int dGas = 400;

SimpleDHT11 dht11(HT_SENSOR);
void setup() {
  Serial.begin(9600);
  pinMode(TRIG, OUTPUT);
  pinMode(ECHO, INPUT);
 }
void loop() {

  digitalWrite(POW_LED,HIGH);
  ir_Readings();
  us_Readings();
  GAS_Readings();
  ht_Readings();
}
```

```
void ir_Readings() {
  int x = digitalRead(IR_SENSOR);
  Serial.print("IR=");
  Serial.print(!x);
  Serial.print("\t");

  if (x == 0) {
    digitalWrite(IR_LED, HIGH);
  }
  else {
    digitalWrite(IR_LED, LOW);
  }
}

void us_Readings() {
  long  duration;
  int distance;
  duration = time_Measurement(duration);
  distance = (int)duration * (0.0343) / 2;
  if (distance > 99 || distance < 0)
    distance = 0;
  display_distance(distance);
}

void GAS_Readings() {

  int x = analogRead(GAS_SENSOR);
  Serial.print("GS=");
  Serial.print(x);
  Serial.print("\t");
   if (x >= dGas+100 && x < dGas+200){
```

```
    digitalWrite(GAS_LED, HIGH);
    //tone(BUZZER, 1000);
  }
  else {
   digitalWrite(GAS_LED, LOW);
   //noTone(BUZZER);
  }
 delay(10);
}

void ht_Readings() {

 byte temperature = 0;
 byte humidity = 0;
 dht11.read(&temperature, &humidity, NULL);
 Serial.print("HT=");
 Serial.print(temperature);
 Serial.print("*C,");
 Serial.print(humidity);
 Serial.print("%");
 Serial.println();

 if (temperature > 38 || humidity > 37)
  digitalWrite(HT_LED, HIGH);
 else
  digitalWrite(HT_LED, LOW);
 delay(500);
}
int time_Measurement(int duration)
{
 digitalWrite(TRIG, LOW);
```

```
  delayMicroseconds(2);
  digitalWrite(TRIG, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG, LOW);
  duration = pulseIn(ECHO, HIGH);
  return duration;
}
void display_distance(int distance)
{

  Serial.print("US=");
  Serial.print(distance);
  Serial.print("cm");
  Serial.print("\t");
  if (1 <= distance && distance <= 10) {
    digitalWrite(ULT_LED, HIGH);
    tone(BUZZER, 2000);
  }
  else {
    digitalWrite(ULT_LED, LOW);
    noTone(BUZZER);
  }
  delay(10);
}
```