

## For Carbon Dioxide detection in air

This code communicates with the MQ135 air quality sensor with the help of the [MQ135.h library](#). The sensor is supposed to preheat for 24 hours before taking readings. Once the code runs, it prints out the concentration of detected gases in ppm on a serial monitor and the results are displayed on an LCD screen. An alarm system (LED light) is also set to glow if the CO<sub>2</sub> values cross a threshold value of 1000ppm.

```
#include "MQ135.h"
#include <Wire.h>
#include <LiquidCrystal_I2C.h> //Header file for LCD

LiquidCrystal_I2C lcd(0x27,16,2); //set the LCD address to x27 for a 16 chars
and 2 line display

#define led          9                //led on pin 9
const int gas_pin = A0;              //analog feed from MQ135
MQ135 gasSensor = MQ135(gas_pin);

void setup(){

  lcd.init();                        // initialize the lcd
  lcd.begin(16,2);                   // consider 16 chars + 2 lines lcd
  lcd.backlight();                   // illuminate to produce visible reading
  lcd.clear();                       // clear lcd
  lcd.setCursor(4,0);                //set cursor of lcd to 1st row and 5th
column
  lcd.print("Group L");              // print as a sentence on lcd

  pinMode(gas_pin,INPUT);            //MQ135 analog feed set for input
  pinMode(led,OUTPUT);               //led set for output
  Serial.begin(9600);                //serial comms for debugging
}

void loop(){
  float ppm = gasSensor.getPPM();
  Serial.println(ppm);               // print ppm on serial monitor
  delay(1000);
  lcd.clear();                       // clear lcd
  lcd.setCursor(0,0);                // set cursor of lcd to 1st row and 1st
column
  lcd.print("Air Quality: ");        // print as a sentence on lcd
  lcd.print(ppm);                    // print value of MQ135
  if(ppm>999){                       //if co2 ppm > 1000
    digitalWrite(led,HIGH);          //turn on led
    lcd.setCursor(2,1);              // set cursor of lcd to 2nd row and 3rd
column
    lcd.print("AQ Level BAD");       //print as a sentence on lcd
  }
  else{
```

```
digitalWrite(led,LOW); //turn off led
lcd.setCursor(1,1); // set cursor of lcd to 2nd row and 2nd
column
lcd.print ("AQ Level Good"); // print as a sentence on lcd
}
}
```

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