

Air Quality Monitoring System

In this project we are going to make an Air **Pollution Monitoring System** in which we will **monitor the Air Quality such as CO and** nitrogen dioxide using sensor.

The project makes a use of Arduino UNO microcontroller the main controlling device of the project. MQ-135 sensor is used to measure nitrogen dioxide gas and MQ-7 is used to measure the carbon monoxide (CO) gas in air. If the system detects harmful gasses, it can switch ON the exhaust fan and buzzer. The status of the project will display on LCD module.

The Arduino Uno is a microcontroller board based on the ATmega328. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started.

The main controlling device of the project is Arduino UNO microcontroller. Mq135 sensor, MQ-7 sensor, Buzzer, LCD display and exhaust fan is interfaced to the Arduino. Arduino will continuously read the data from sensors; when the sensors detect the CO& nitrogen dioxide, it will activate the buzzer for alerts and switches ON the exhaust fan also display the status on LCD. To achieve this task microcontroller loaded program written in embedded C language.

The features of the project are:

- Air pollution monitoring.
- Monitoring sensor data on LCD.
- Audible alerts using Buzzer.
- Visible alerts using LCD display.

The main blocks of this project are:

- Power Supply.
- Arduino UNO.
- MQ135 sensor.
- MQ-7 sensor.
- Buzzer.
- LCD display.
- Exhaust fan.

Software's used:

- Arduino IDE for Embedded C programming.
- Express SCH for Circuit design.

Block diagram of the project:

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