Air Pollution Analyzing System Using Arduino Uno

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ABSTRACT

The level of pollution is increasing day by day due to the increase in population, industries, urbanization, vehicle use which it affects the human health. Health problems have been increasing rapidly day by day due to the increase in urbanization and a growing number of vehicles. IoT based Air Pollution Analyzing System is created to watch Air Quality using Arduino using Internet. It will alert the or start buzzing when the air quality goes over a certain limit which means when air quality goes down and increase in harmful gases like CO2, alcohol, NH3, Benzene, etc. It will show the results in PPM(Parts per Million) on LCD. This model uses MQ135 and MQ2 sensor for analyzing the air quality to detect the amount of accuracy.

Keywords: - *Sensors, Quality, Arduino UNO, Model.*

1. INTRODUCTION

In order to analyze the air we are making the IoT based Air Pollution Analyzing System over a webserver using internet and alerts the users when an air quality goes down beyond the limit i.e. when it finds the higher proportion of CO,NH3,etc. .It will show results in PPM(Parts per Million) on LCD. This model uses MQ135 and MQ2 sensor for analyzing the air quality to detect the amount of accuracy. Your can get access to this model using laptop or a mobile hence, it has become huge problems faced by human being in day to day life. Due to the increase of pollutants in the air because of industrialization and increase in number of vehicles, the number of human diseases are also increasing day by day. This model can also detect LPG gas sensors thus it can be used in every homes. This system will show the temperature and also the humidity of the air. This system can be used anywhere but most commonly beneficial in for house and industries where the there is more chances of getting leak and exposure to the air. It is important to maintain proper air quality in this areas thus there are more chances of getting gas leak for a healthy lifestyle and no further health issues in future .Therefore , it is important to maintain and thus our system comes under work. When there is little bit of leak of gases into the air this system will play and continuous alarm if the level of gases is getting out of limit. And we can get it in control by knowing from this system.[1]

ADVANTAGES:
- Sensors are easily available.
- Simple, compact, easy to handle.
- Sensors have along and fewer cost.
- Quality of air will be checked indoors as well as outdoors.

1.1 Need for the systems:

This project provides the ways of sensing several harmful gases in air in a limit to it is bounded limit. It also calculates the temperature and the humidity of the air.
It used to provide advance air quality sensing system with advance capabilities to produce low cost analysis.[1]

1.2 Detailed Problem Definition:

Air affects our day to day life living of a human being. Because of low air quality it triggers the health issues on a large scale in that locality. The one should know the activity responsible for the making the air quality low which are performed by the peoples only. This model is developed using Arduino Microcontroller which watching over the air quality and alerts when the quality goes down to the limit .This model can detect the pollutants like Sulphur Dioxide(S02),Carbon Monoxide(CO),Carbon Dioxide(CO2),Nitrogen Oxide(NO),etc.[1]

1.3 Future Scope:

We will extend this project further in order to get the gases accuracy in a %. This could help to get more valid information for which gases should be in control or should be used less in order to protect ourselves from getting affecting through this. It is used to protect ourselves and making alert ourselves from getting affected by harmful gases that are emitted in the air.[1]

1.4 Objectives:

The goal of the project is to detect the air pollutants in the air i.e. checking or analyzing the air quality.
In order to prevent the air pollution this model is effective.[1]

2   Principle Components of the Project:

- Arduino Uno
- Resistor
- MQ2 sensor
- MQ135 sensor
- 16*2 LCD Display
- 20 pins connected to LCD
- Buzzer
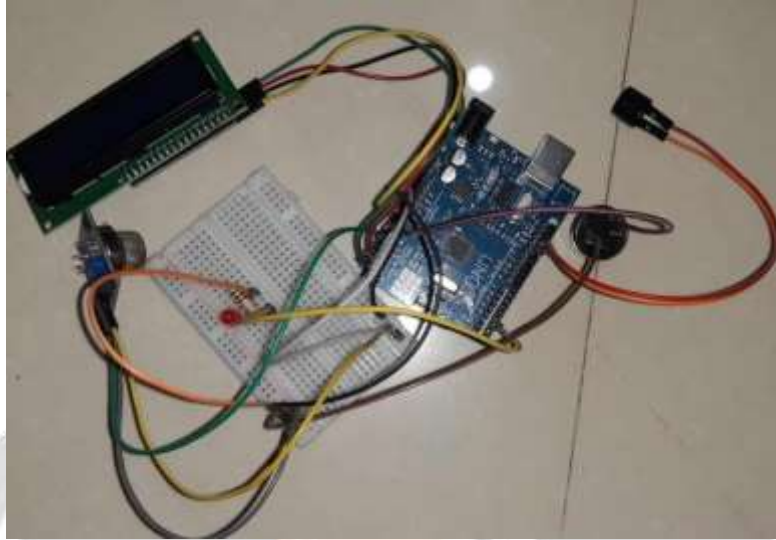- Power cable/USB cable
- Potentiometer
- Breadboard

3. Model:

Fig 1: Model

This model aims to show the air quality in PPM and alert the user if the air quality goes down after a certain level is crossed. It uses LCD to display the quality of the air. It uses MQ2 and MQ135 sensors to sense the smoke or any other gases present in the air. It also has LED lights in order to know that the model working. When the air quality goes down and sensors sense that the buzzer starts buzzing until the it has to stop. And all of this is connected to the potentiometer on breadboard.[1]

4.WORKING:

First connect the MQ135 and MQ2 sensor to the Arduino. Connect the VCC and therefore the ground pin of the sensor to the 5V and ground of the Arduino and then Analog pin of the sensor to the A0 of the Arduino. Connect the buzzer to the pin 13 of the digital side of Arduino which can start to beep when the quality goes down i.e. when the condition goes true.
When the sensors will sense the air quality then will get displayed on LCD. When the air quality is good it will show the current quality of the air after it senses.[1]

5. CONCLUSION :

In this paper we tried solve the problems of detecting the air quality in order to get an healthy life for humans and to protect them from occurring in future. With this use of IoT device anybody can check the quality anywhere thus it is user friendly.[1]

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