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A hand is shown from the bottom, holding a glowing, semi-transparent globe of the Earth. The background is a dark blue space filled with various digital data visualizations, including bar charts, line graphs, and network diagrams. The overall aesthetic is futuristic and technological.

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Air Pollution Monitoring System Using Arduino

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ABSTRACT:As we all know that air pollution is the most popular and growing issues nowadays which have affected the lots to the living lives. Such as maximum uses of vehicles, industrialization, throwing huge amount of plastics and burning it has created huge issues on our health such as asthma, cancer, and also it will effect our lungs. Also effects our nature with many serious effects. So it's important to set our target and be alert for this serious matter. Now this type of project and has created lots of help for the coming generation. In this project we are doing air pollution monitoring system using Arduino in which we will monitor the air pollution and will light the led. When we will have pollution in our surrounding such as CO₂, smoke, NH₃ and so on...when it goes to beyond the level it will show it in lcd so we can measure it.

KEYWORDS:air pollution, Arduino, mq135 sensor, , lcd, led

I. INTRODUCTION

Air pollution has always been the biggest issues due to which health issues are growing day by day faster we think especially in urban areas where industrialization and developments are moving so fast. People are so much involve in developing and bringing changes to our county even we have forget about what types of negativisms it has cause on our own living and the world. . So if we will not take the action soon then in the blink of our eyes we will be losing everything even our own health. Harmful effects of such pollution has cause different health issues such as respiratory problems due to cause in lungs, cancers, heart diseases, allergies .

This air pollution monitoring system measure the sufficient amount of harmful gases like CO₂, LPG ,smoke, NH₃ and so on which can be measured, monitored and display. In this way we can be aware and our future can be on better control for safe and healthy living.

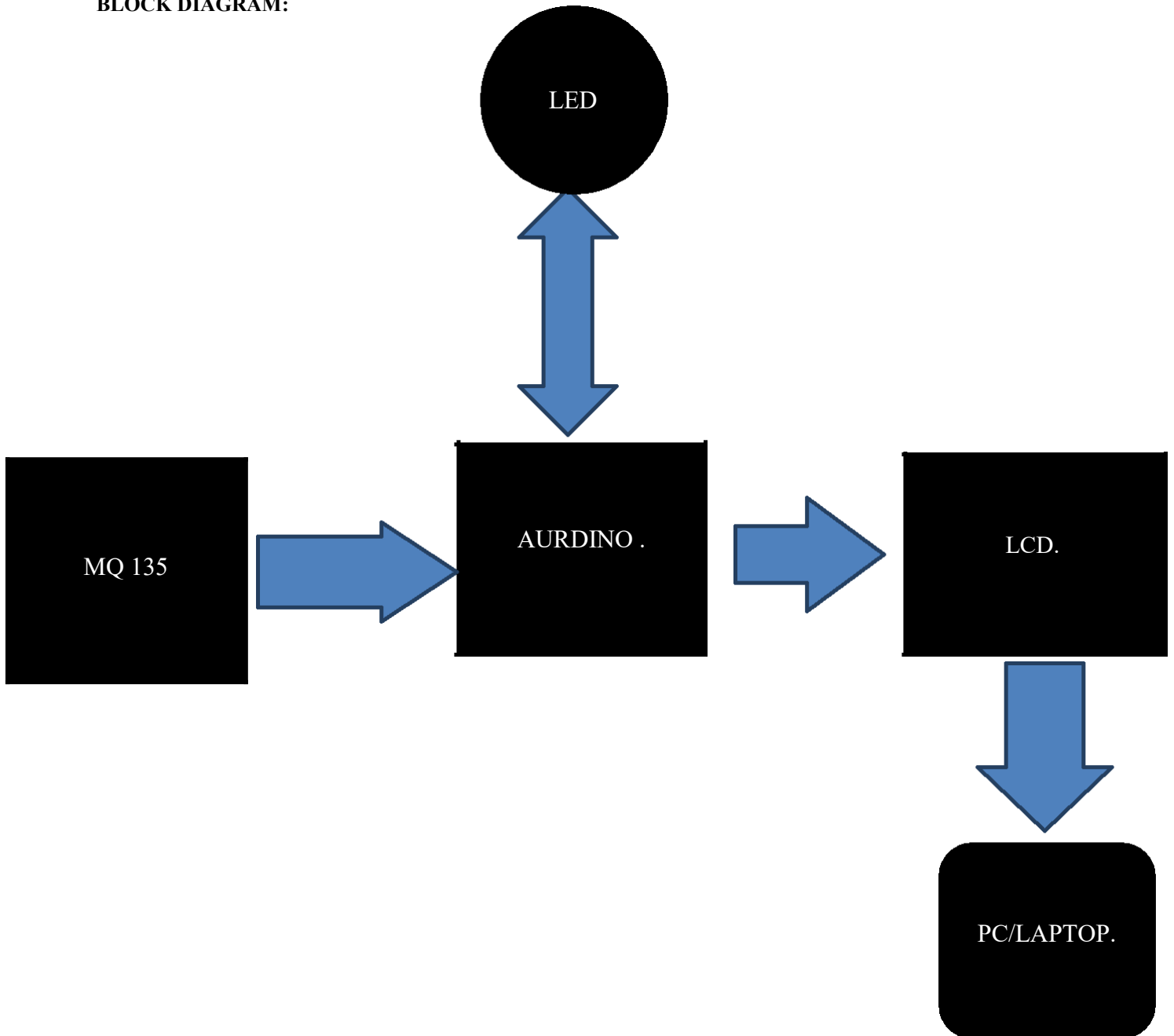
II. LITERATURE REVIEW

- .IOT based air quality monitoring system for smart cities A systematic mapping study International journal of electrical and communication engineering (2088-8708) 11(4), 2021.The increased level of air pollution in big cities has become a major concern for several organization and authorities because of the risk it represents to human health. Here the technology has become very important for monitoring and possible reduction of its impact, Particularly there are different proposals using the internet of IOT paradigm that use interconnected sensors in order to measure different impurities due to air pollution.
.IOT based air pollution monitoring system in urban areas. 2019bl IEEE international Conference on sustainable energy technologies and systems (ICSETS), 173-177, 2019.As the world's population is becoming is becoming increasingly urban, the cities are Under pressure to remain liveable. In today's world, the air quality on cities and towns has become one of the vital cause of trouble all on every side the nature. This it is necessary to always monitor the air quality index of a city to make it smart and liveable
- Monitoring and quantifying of air pollution using internet of things. Recent Trends in analog design and digital device3(3), 2020.Now a days ,due to increase in outflow of smoke from vehicles and industries in air destiny is increasing rapidly and creating health issues day by day in the environment. Since we not able to control and the pollution as an individual, we propose a model which will help the individuals to have a control on theme and protect them with their smart phones with help the individual to help of an application called blynk. More than 35% of people reside in urbanic cities in Indian. The amount of urban population is Continuously increasing.



III. METHODOLOGY

BLOCK DIAGRAM:





Working

Gas sensor is connected to Arduino and it's displayed in 16×2 Characteristics display. The three led is to show three different status of air quality. MQ135 is a gas sensor, vcc is connect on 5v of analog value of arduino in A0. This sensor will sense all harmful gases and sends analog value through A0. And this analog value is represented into numbers. If it has certain amount of gases then certain amount of voltage is generated.

0-1024 no. are represented. So, in analog value certain amount of gases is sense and it will be converted in terms of no. As to this no. We have find whether air quality is good, bad, moderate or mild.

In 0-1024 range if gases are good then it should be less than certain threshold voltage. 1st threshold voltage is 225 if the value is less than 225 then green led will light which means it's good. 2nd threshold voltage is 650 , if the value comes between 225 and 650 then the blue led will light which means it's mild or moderate. And the last one is if the value comes greater than 650 then red led will glow which means it's bad or dangerous.

Components used:

| Sl. No | Components Used | Quantity |
|--------|------------------------|----------|
| 1 | Arduino NANO | 1 |
| 2 | MQ135 gas sensor | 1 |
| 3 | PCB board | 1 |
| 4 | LCD 16×2 Display | 1 |
| 5 | LED (blue, green, red) | 3 |

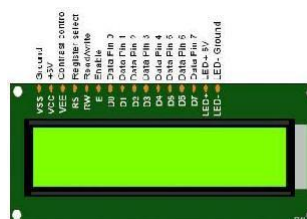
1. Arduino

Arduino nano is small complete and breadboard friendly board based on ATmega 328.



2. 16*2 LCD display

16*2 LCD display is a basic module which can display 16 characters per line and there are two such line.





3.MQ135 sensor

The MQ135 sensor is a gas sensor which can sense and detect or measuring harmful gases of NH₃, CO₂, smoke, LPG, and some other .



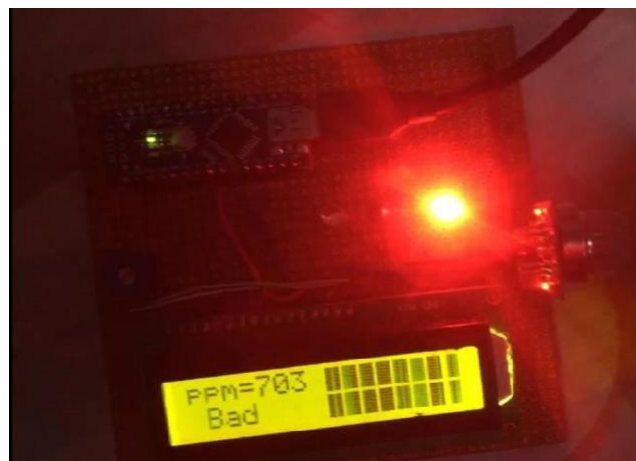
4.LED

It is semiconductor source of light. It is a pn- junction Light emitting diode which emits light when activated.



RESULT:

Here in this project when there is present certain amount of harmful gases, if this gas is good then it will light the green light, if the pollution is mild/moderate then the blue light will glow whereas when the pollution is bad/high then the red led will glow.





This are the result that shows whether pollution in air is good, mild or bad.

IV. CONCLUSION

This air pollution monitoring system is proposed for the better improvement of air quality. It will support new technology with healthy life concept and a healthy surrounding.

Hence MQ135 sensor gives the sense of different type of dangerous gases. This project helps us to control, monitor and rectify damages done by pollution.

V. FUTURE SCOPE

- Interface more no. Of sensors to know the detail content of all gases presents in air.
- Connecting SD card to store data.
- Connecting GPS module to observe the pollution at exact location and upload on the webpage for the netizens.

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