

# Air Quality Monitoring System Using Vehicles Based On iot

Ameet A Patil<sup>1</sup>, Dr. Smitha Sasi<sup>2</sup>

<sup>1</sup>PG Student, Dept of TCE, Dayanand Sagar College of Engineering, Karnataka, India

<sup>2</sup>Associate Professor, Dept of TCE, Dayanand Sagar College of Engineering, Karnataka, India

**Abstract-** Air pollution is continuously grown being blamed for significant health problems that affect all living things and organisms, it includes humans, in current years. It might causes health related issue like respiratory and cardiovascular diseases, which may effect to be the global cause of 920000 mortality in 2020. Hence, it needs to check the air pollutions and climate emergency, crisis especially in metropolitan areas. Environmental framework can be uniformed to measure some critical statistics to controls the air pollution and weather forecast monitoring system. so curiosity to approach to monitored the environmental condition includes vehicle monitored system. It includes of temperature, humidity and methane and smoke sensors. it may operate or run a vehicles on the roadway, the Virtual machine can get details about emissions, smoke, tremor, and GPS signals. take advantage of IoT, many sensors curriculum are used to get measured data, dispatch it to a cloud server, and evidence the various framework.

**KeyWords:** Vehicles, Monitoring system,iot, Humidity

**Sensor, Gas Sensor.GPS**

## 1. INTRODUCTION

Main solution strategy for boosting a federal economy is the progress of urban cities. in a may enables solo to generate profit through bright techniques. Hence This project mainly focused on providing social casework and searching a solution to the city's issues with pollution and obstruction. The Ministry of Housing and Municipal Affairs in India has created the "Smart Cities Missions," in which it has many plans are being put into many operations. In cities, motorcar are the main causes of pollution. So many peoples are driving in towns, large different pollutants are being released into the climate. Many climatic issues will so magnify, having more impact on ailment condition in areas. Depressed level heavens damage and other gasping point, such as asthma exacerbation, are caused by air pollution from cabs, trucks, and buses. Bottled gas in the atmosphere have an effect on the kidneys, and bone marrows in addition to decreases largely the capacity of ozone. The breathing is conduct on by COs effects on the lungs and kidney.

The big source of carbon monoxide mass production, which accounts for 72% of all pollution in main cities like Delhi, Mumbai, and Bangalore, is transit. Might may reduce pollutions, the Indian Pollution Control Board currently required social and economical vehicles to have a fitness certificates once in an one year. many grouped vehicles must have a Pollution Under Controls certificate every three months as of the date of registration. Is mandatory hence measure of air pollutions must be estimated, the polluting cars and buses need to be analyzed, hence it helps to control the pollution.

## OVERVIEW OF EXISTING SYSTEM

Fourier transform equipment, vapor phase chromatography, and mass spectrometers are many of the instruments now in use for detecting air pollution. These apparatus deliver selected and generally reliable data of the gas. An equally compelling substituted may be a gas sensor that is limited, has abounding function, its too reasonable. high temperature, infrared, incentive beads, photo natural process, and solidified monitored approached gases are a few prototype. Due to its high cost, the geosensor network-based air pollution monitored system exposed the unit impotent be extensively deployed. It may impact to control actions and adaptive sample rates

## 2. DESIGN OF PROPOSED SYSTEM

Investigator have checked environmental parameters like temperature, humidity, atmospheric air pressure, carbon monoxide, and but have reward the least awareness to the computation of chapped up to this point in several studies in the field of environment monitored using Internet of things. Keep track of the air limitation of absence without knowledge of the amount of drifting impure matter. As a result, to resolve this issue, by using renesas RL-78, a low-power, less expensive, and highly adjustable controller, is used to supervise a system that conclude a Particulate matter sensor for checked particulate matter and sensors for sensing carbon monoxide, temperature(LM35) and humidity. It is an potent platform for depends on many several devices at on time

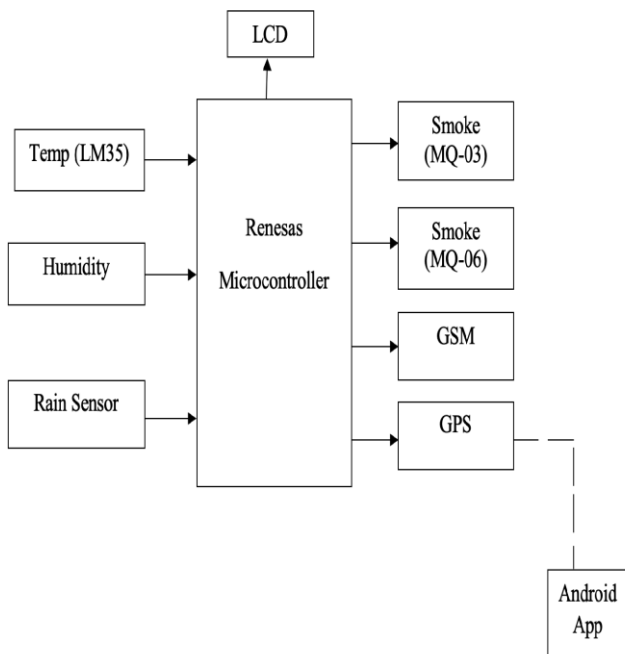


Fig-1. Block Diagram

- Find pollution in the air.
- To measure any harmful gas content.
- To measure temperature and humidity level.
- Using by MQ3 sensor need to measure or detect smoke concentration level in air.
- In this case MQ6 sensor detects presence of industrial fumes .
- Develop an algorithm that can Uploading the sensor value from every sensor node placed at different regions to server/cloud.

### 2.3 Working Principle of Sensor Module's.

#### (i) RAIN SENSOR(YL-83) :

The YL-83 Rain Detector rapidly and precisely detects rain and snow. other than using a signal level approach to be rate, the YL-83 uses droplet detection. Before assuming an action, a particular delay circuitry permits a two-minute gap between raindrops. No rain setting (OFF). This allows the sensor to discern between rain and snow with accuracy. stoppage and light rain

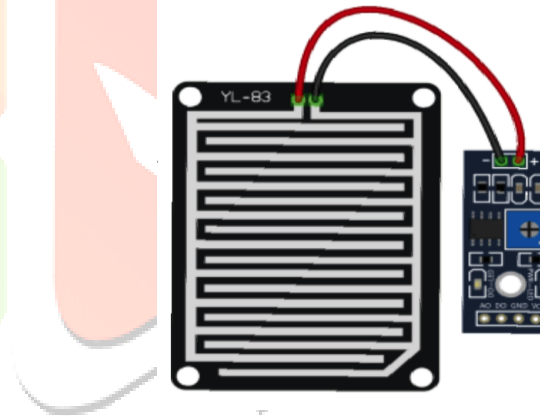


Fig-2. YL-83 Sensor

Additionally, the YL-83 has an analogue Rain Signal messages for exactly the vigour of the rain. Rain is designated by this signal since it associate to how the sensor plate is damp or wet. This comparable signal's knack and variation are stability affect by strength.

#### (i) MQ-3 Sensor:



### 2.1 PROBLEM IDENTIFICATION

- Air pollution impact adversely on all living organism.
- Allergies, respiratory problems and lung diseases are caused by air pollution.
- Harmful materials, biological molecules and particulate matter are main pollution in air.
- Greenpeace reported 1.2million Indians die due to air pollutant.
- Harmful air pollutants are CO,NO2,SO2

### 2.2 OBJECTIVES

Below mentioned is main objective of this project.

MQ-3 sensor suitable to detects CH4, LPG, Alcohol and its has high sensitivity and it has good resistance to disturb gasoline, smke, vapor this sensor provides an analog resistive output based on alcohol concentration when the alcohol gas exist, the sensors conductivity gets higher along with the gas concentration rising

Fig-3. MQ-3

project i.e, showing rain Sensor and smoke Value to the LCD Display. Liquid crystal display is what the word LCD refers to. It is a specific sort of electronic display module used in a wide array of devices and circuits, including TV sets, computers, calculators, mobile phones, and other electronic devices. When rain comes enter into the droplet it detects how much rain can occurred In this area and smoke sensor mainly detects amount CO are entered into the air and its also detects smoke and alcohol hence this to minimized we can fit into a moving vehicles it mainy detects how much pollution can occurred in that particular area

3. Experimental Setup and Results.

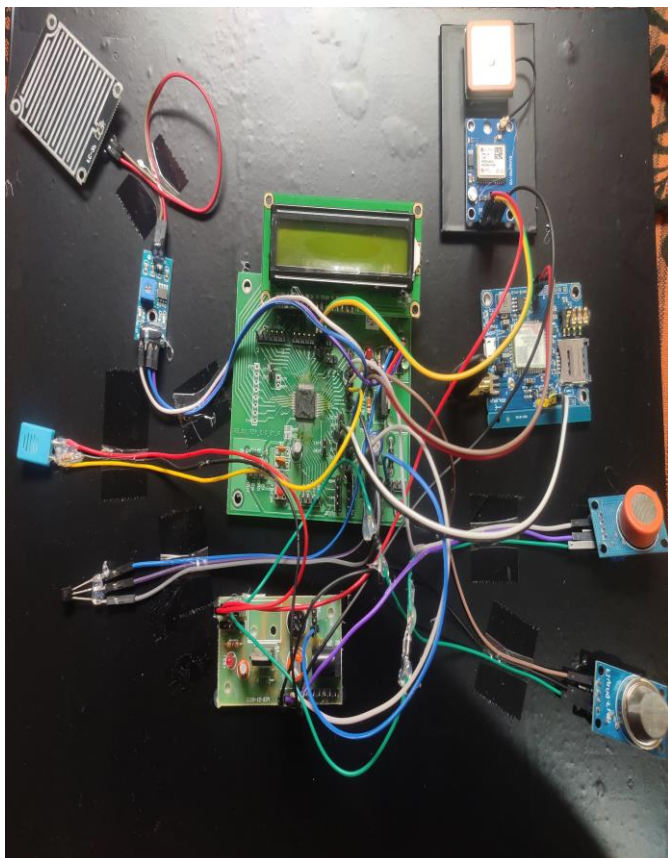


Fig-4. Experimental Setup.

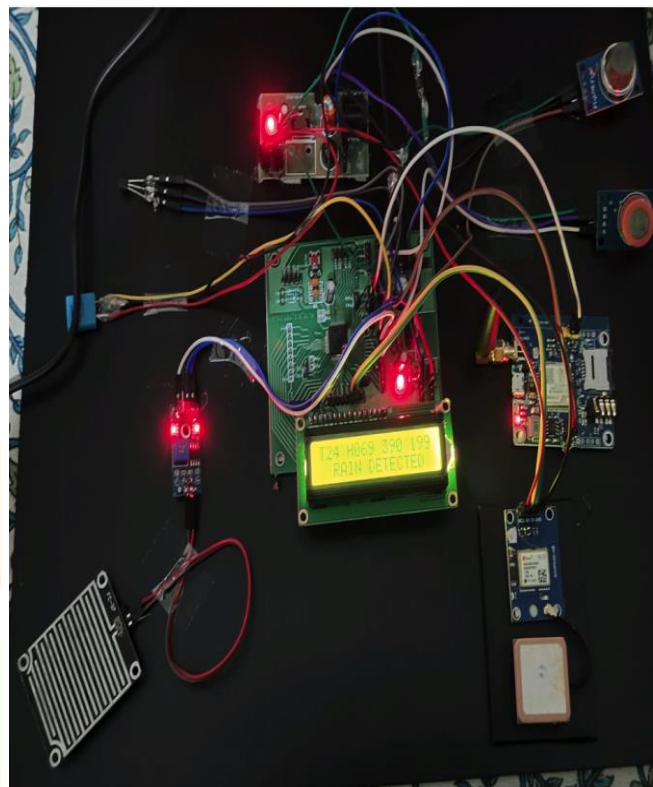
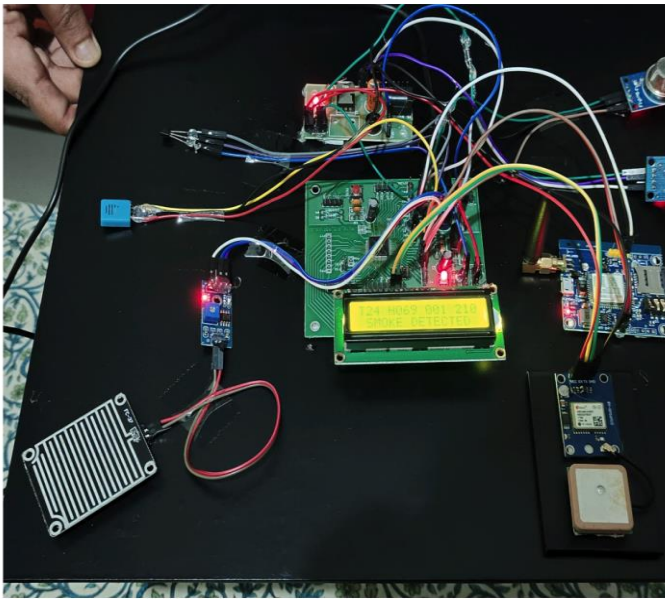


Fig-4.1 Rain Sensor Results.

The Above Diagram is Experimental Setup for Air quality monitoring system using vehicles based on iot. Now, it is ccocluded 50% of



**Fig-4.2** Smoke Sensor Results.

- [5] Y. J. Jung, Y. K. Lee, D. G. Lee, K. H. Ryu, and S. Nittel, "Air pollution monitoring system based on geosensor network," in Proc. IEEE Int. Geoscience Remote Sensing Symp., 2020, vol. 3, pp. 1370–1373.

#### 4. CONCLUSIONS

This project, mainly used IoT-based vehicles to setup an effectual system for monitoring the air pollution. Hence it can be setup our module in a running vehicle, our system can track the path level of air pollution in any needed location. The absorption of air pollutants could be detect by an independent or by government in order to take the legal actions against the pollution and pressure in an air pollution rules.

#### 5. ACKNOWLEDGEMENT

Researchers value their colleagues' great conversations and contributions on the aforementioned topics..

#### REFERENCES

- [1] India: State of the environment document, "Air pollution special reference to Vehicular pollution in urban areas"
- [2] Dr. B. Sengupta, "Vehicular pollution control in India technical and non-technical measure policies
- [3] N. Kularatna and B. H. Sudantha, "An environmental air pollution monitoring system based on the IEEE 1451 standard for low cost requirements, IEEE Sensors J., vol. 8, pp. 415–422, Apr. 2019
- [4] F. Tsow, E Forzani, A. Rai, R. Wang, R. Tsui, S. Mastroianni, C. Knobbe, A. J. Gandolfi, and N. J. Tao, "A wearable and wireless sensor system for real-time monitoring of toxic environmental volatile organic