

AIR QUALITY & POLLUTION MONITORING SYSTEM USING MQ135 SENSOR

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ABSTRACT. *This research paper presents an air pollution monitoring system using Internet of Things (IoT) technology. The system uses low-cost sensors to collect air quality data such as particulate matter (PM), carbon monoxide (CO), and nitrogen dioxide (NO₂) from different locations in real-time. The data is then transmitted to a central server where it is processed and analysed using machine learning algorithms. The system also includes a web-based dashboard that displays the air quality index (AQI) of different locations, allowing users to monitor the pollution levels and take necessary actions. The proposed system has been evaluated in a real-world scenario, and the results show that it can provide accurate and reliable air quality information. This research contributes to the development of a cost-effective and scalable air pollution monitoring system that can be used in various applications, including smart cities, industrial monitoring, and environmental monitoring.*

Keywords: Air Pollution, Air pollution Monitoring System, Sensors, AQI

I. INTRODUCTION

1. PROJECT BACKGROUND

In the era of globalization challenges, health is an important factor in our lives. Various diseases involving respiratory such as asthma and cough, acute cardiovascular disease and adverse pregnancy outcomes can be acquired from polluted air. Besides that, air pollution could have the greatest impact on the environment. Global warming phenomena that threaten our earth in recent years is closely related to the level of air pollution that caused by vast amount of carbon emission from vehicle petrol and diesel combustion, waste from ever-expanding

production industry, uncontrolled combustion of fossil fuel and open-air burning in the waste management site. To address this problem, an IoT-based air pollution monitoring system can be developed. The system can use sensors to collect data on various air pollutants, including carbon monoxide, nitrogen oxides, sulfur dioxide, and particulate matter. The data collected can then be transmitted wirelessly to a cloud-based platform for analysis and visualization.

2. INDIA'S AIR POLLUTION

India is one of the countries with the highest levels of air pollution in the world. The main sources of air pollution in India include vehicular emissions, industrial activities, construction and demolition, open burning of waste, and the use of solid fuels for cooking and heating. The health impacts of air pollution in India are severe and widespread. According to a study published in *The Lancet*, air pollution in India caused 1.67 million deaths in 2019 alone. The study also found that air pollution is the third leading cause of death in India, after heart disease and dietary risks. The Indian government has taken several measures to address air pollution, including the implementation of the National Clean Air Programme (NCAP), which aims to reduce air pollution in 102 cities by 20-30% by 2024.

Index Value	Name
0-50	Good
51-100	Moderate
101-150	Unhealthy for sensitive group
151-200	Unhealthy
201-300	Very unhealthy
301-500	Hazardous

Fig 1

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Table of Contents Pollution Papers

1. Understanding the eBook Pollution Papers
 - The Rise of Digital Reading Pollution Papers
 - Advantages of eBooks Over Traditional Books
2. Identifying Pollution Papers
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Pollution Papers
 - User-Friendly Interface
4. Exploring eBook Recommendations from Pollution Papers
 - Personalized Recommendations

- Pollution Papers User Reviews and Ratings
- Pollution Papers and Bestseller Lists
- 5. Accessing Pollution Papers Free and Paid eBooks
 - Pollution Papers Public Domain eBooks
 - Pollution Papers eBook Subscription Services
 - Pollution Papers Budget-Friendly Options
- 6. Navigating Pollution Papers eBook Formats
 - ePub, PDF, MOBI, and More
 - Pollution Papers Compatibility with Devices
 - Pollution Papers Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Pollution Papers
 - Highlighting and Note-Taking Pollution Papers
 - Interactive Elements Pollution Papers
- 8. Staying Engaged with Pollution Papers
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Pollution Papers
- 9. Balancing eBooks and Physical Books Pollution Papers
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Pollution Papers
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Pollution Papers
 - Setting Reading Goals Pollution Papers
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Pollution Papers
 - Fact-Checking eBook Content of Pollution Papers

- Distinguishing Credible Sources
- 13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
- 14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

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