



**DETECTING POLLUTION WITH DETECTING SYSTEM
AIR QUALITY MONITORING SYSTEM**

UNDERGRADUATE THESIS

**Submitted as one of the requirements to obtain
Sarjana Komputer (S. Kom.)**

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ABSTRACT

In recent years, environmental monitoring has become increasingly critical due to the rising levels of air pollution and its adverse effects on public health and the environment. This final project presents the development of an IoT-based air quality monitoring system utilizing various sensors, including the DHT22 and MQ135, integrated with the ESP8266 microcontroller. The primary objective is to create an affordable, real-time, and efficient solution for tracking air quality parameters such as temperature, humidity, and concentrations of harmful gases like ammonia, sulfur dioxide, benzene, and carbon dioxide.

The system architecture involves deploying multiple sensor nodes equipped with DHT22 and MQ135 sensors. These nodes are connected to an ESP8266 module, which enables wireless communication through WiFi. Data collected from the sensors is transmitted to a central server for storage and analysis. A web-based interface allows users to access real-time data and historical trends, providing valuable insights into air quality patterns.

Key features of the proposed system include its low cost, ease of deployment, and scalability. The use of the ESP8266 microcontroller ensures efficient data transmission and integration with cloud-based services for data visualization and analysis. The system is designed to be modular, allowing for the addition of more sensors to cover larger areas or monitor additional environmental parameters.

This project demonstrates the feasibility of using IoT technology for comprehensive air quality monitoring. It offers a practical solution for individuals, communities, and authorities to monitor and manage air quality, ultimately contributing to a healthier and more sustainable environment.

Keyword : *Air, Pollution, Air Quality, Monitoring Pollution, Environmental Health, Real-Time Monitoring, Public Health, Atmospheric Conditions.*

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