



Detecting the Pollution with Detecting System

UNDERGRADUATE THESIS
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ABSTRACT

This report presents the development and implementation of an Internet of Things (IoT)-based system designed for monitoring environmental pollution through water, and soil sensors. The primary objective of this project is to provide real-time data on pollution levels to support timely and informed decision-making for environmental management. The system leverages advanced sensor technology integrated with IoT platforms to facilitate efficient and remote monitoring.

Three alternative solutions were considered: IoT-based pollution monitoring systems, renewable energy solutions, and strategies for environmental sustainability and pollution control. The IoT-based system was selected due to its comprehensive real-time monitoring capabilities and ease of deployment.

The system development involved using Arduino Uno R3, NodeMCU, and various sensor modules powered by a 9-volt battery and requiring a stable 4G internet connection for data transmission. The implementation process included designing the software and hardware components, creating user interfaces for administrators and customers, and ensuring the system's integration and field testing.

The project results demonstrate the effectiveness of the IoT-based solution in providing accurate and timely data on environmental pollution, thereby enabling prompt corrective actions. This system offers a scalable and cost-effective approach to environmental monitoring, contributing to better resource management and pollution control.

In conclusion, the IoT-based environmental monitoring system developed in this project successfully addresses the challenges of traditional pollution monitoring methods. It offers a viable solution for real-time data acquisition and analysis, which is crucial for effective environmental management and sustainability efforts.

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