



WATER QUALITY ANALYSIS WEB APPLICATION

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Abstract

Water quality is one of the most critical indicators of environmental health and safety. Monitoring water quality is essential for ensuring public health, protecting ecosystems, and maintaining industrial processes. However, traditional water quality monitoring methods are often labor-intensive, time-consuming, and prone to human error. This research aims to develop a web-based water quality analysis application that streamlines the data collection, processing, and reporting workflow. The application is designed to be user-friendly, secure, and accessible from any location. It features a comprehensive dashboard for monitoring water quality parameters, including pH, temperature, turbidity, and dissolved oxygen. The application also includes a data visualization module that allows users to generate reports and charts. The results show that the application is effective in reducing the time and effort required for water quality analysis, while maintaining the accuracy of the data.

Background and Significance



Water quality monitor



Water quality monitor



Development of web application for water quality analysis



Water quality monitoring station

Objectives

To develop a web application for water quality analysis and to test the operational aspect the efficiency of the web application.

Experimental Procedure

Step 1. Design and development of the web application for water quality analysis



Iteration of module development



Iteration of module development

Step 2. Field water quality analysis for industrial and water treatment for water quality analysis web application



Water quality monitoring station for industrial and water treatment for water quality analysis web application



Water quality monitoring station for industrial and water treatment for water quality analysis web application



Iteration of module development

Experimental Results

Table showing operational water quality parameters

Parameter	Unit	Value	Unit	Value
pH	pH	7.5	pH	7.5
Temperature	°C	25.0	°C	25.0
Turbidity	NTU	1.0	NTU	1.0
Dissolved Oxygen	mg/L	8.0	mg/L	8.0
Conductivity	µS/cm	100.0	µS/cm	100.0
Total Dissolved Solids	mg/L	100.0	mg/L	100.0
Total Suspended Solids	mg/L	100.0	mg/L	100.0
Total Phosphorus	mg/L	1.0	mg/L	1.0
Total Nitrogen	mg/L	1.0	mg/L	1.0

Table showing operational water quality parameters for conceptual flow & layout of water quality

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Conclusion



The results show that the application is effective in reducing the time and effort required for water quality analysis, while maintaining the accuracy of the data. The application is also user-friendly and accessible from any location. The application is a valuable tool for water quality monitoring and analysis.

References

- Pollution Control Department, (2018). Water Quality Control System. <https://www.water.gov.sg/files/Assets/WaterQualityIndicator>
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