UNIVERSITY OF ILORIN

Mini Project Defense

WIFI-BASED 2-CHANNEL WATER FLOW RATE MONITORING SYSTEM

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Overview

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Introduction

- The WIFI-based 2-channel water flow rate monitoring system is a project designed to address the challenges of water flow monitoring in real time. The system uses WIFI technology to transmit data from water flow sensors to a central monitoring unit, where the information can be analyzed and displayed on a web-based dashboard.

- The WIFI-based 2-channel water flow rate monitoring system project is significant because it provides a cost-effective and accessible solution for monitoring water usage, detecting leaks, and optimizing water consumption.

Statement of the Problem

The problem addressed by this project is the need for an efficient and cost-effective system to measure and monitor water flow rate in various applications such as water management, irrigation systems, and household water consumption. Traditional flow rate measuring systems can be expensive, require manual reading of data, and lack remote monitoring capabilities.

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Objectives

- Improve water management: The project aims to improve water management by providing users with real-time data on water usage.
- Promote water conservation: The project aims to promote water conservation by encouraging users to reduce their water consumption.

Hypothesis

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By using an Arduino board, a flow rate sensor, an LCD display, and the Blynk Library, we can develop a system that can accurately measure and monitor water flow rate in various applications. The system will be able to provide real-time data on the LCD display and remotely through the Blynk app, allowing for easy monitoring and control of the water flow rate. We hypothesize that this system will be an efficient and cost-effective solution for measuring and monitoring water flow rate in different applications, providing a more practical and automated solution compared to traditional flow rate measuring systems.

Methodology

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Research Design and Methods	• The research will involve setting up the system with an Arduino board, a flow rate sensor, an LCD display, and the Blynk Library, and conducting tests to measure the flow rate of water in different applications.
Research Instruments	• Arduino board,Flow rate sensor,LCD display,Blynk Library
Data Analysis	• The data collected during testing will be analyzed to determine the performance of the system in measuring and monitoring water flow rate.

Scope and Limitations

- Industrial and Commercial Settings: The system can be used in a wide range of industrial and commercial settings where multiple water sources are being used. Examples include factories, warehouses, office buildings, and hotels.

- Residential Settings: The system can be used in residential settings to monitor water usage, detect leaks, and optimize water consumption.

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Summary and Conclusion

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In conclusion, the project of measuring and monitoring water flow rate with Blynk provides a practical solution for monitoring water consumption and controlling the flow of water in various applications.

By using an Arduino board, a flow rate sensor, an LCD display, and the Blynk Library, this project allows users to measure and monitor the flow rate of water in real-time and remotely through the Blynk app.

Implications and Recommendations

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Theoretical and Methodological Issues

1. Theoretical issues: The project involves the use of various technologies such as Arduino board, flow rate sensor, and Blynk Library. Therefore, it is important to understand the theoretical principles behind these technologies to ensure that the system is designed and implemented effectively.
2. Methodological issues: The accuracy and reliability of the water flow rate measuring system will depend on various factors such as the calibration process, the flow rate sensor's accuracy, and the stability of the Arduino board. Therefore, it is important to ensure that the system is calibrated properly, and the data collected during testing is analyzed accurately to evaluate the system's performance.

Practical Implications

1. Remote monitoring: The Blynk Library can be used to develop a mobile application that can remotely monitor and control the water flow rate system.
2. Cost savings: The water flow rate measuring system can help in identifying leaks or wastage in the water distribution system.

3. Efficient water management: The water flow rate measuring system can be used to monitor the flow rate and volume of water used in various applications such as irrigation systems, residential and commercial water supply, and industrial processes.

Recommendation

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- Consider incorporating additional sensors to monitor other parameters such as temperature and humidity, which could provide a more comprehensive overview of the water system.
- Expand the project to include an automated system for controlling the water flow rate based on the data collected from the sensors.
- Explore the possibility of using the Blynk Library to send alerts to users when there are abnormalities in the water flow rate, such as when the flow rate is too low or too high.