

WATER SUPPLY SYSTEM FOR FRUIT PLANT'

PUSL2022 IOT Project



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INTRODUCTION

The IoT-driven Water Supply System for a Rathnapura fruit processing plant focuses on optimizing water management.

By utilizing groundwater from three wells, the system ensures continuous supply, minimizes wastage, and monitors distribution for operational problems, aiming to secure water availability throughout varying periods.





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ARCHITECTURE OF MY IOT MODULE.

OBJECTIVES

The main objectives of this project are as follows:



- Develop an IoT-based water management system to optimize water usage and distribution.
- Ensure a continuous water supply to the processing plant by intelligently utilizing the three wells.
- Implement a reliable mechanism to refill the central sump and the water tower as per demand.

PROBLEM STATEMENT

The fruit processing plant relies on groundwater sources from three wells for its water supply.

The challenge lies in managing the distribution of water efficiently, especially during dry periods when all three wells are required.



TECHNOLOGIES

The proposed solution will leverage the following technologies:

- **IoT Devices:** Water level sensors for wells, sump, and tanks; flow rate sensors; pressure sensors.
- **Communication Networks:** Mobile data networks (Dialog/Mobitel) for remote communication.
- **Microcontrollers:** Raspberry Pi or Arduino for data processing and control.
- **Communication Protocols:** MQTT for data exchange between devices and central control.



SOLUTION/METHODOLOGY

The solution consists of the following key components:

- **Water Level Sensing:** Each well, the sump, and the water tower are equipped with water level sensors to monitor real-time water levels.
- **Data Processing:** Microcontrollers collect sensor data, process it, and make control decisions based on predefined algorithms.
- **Communication Model:** MQTT protocol is used to facilitate communication between devices and the central control unit located in the sump room.
- **Central Control Unit:** The central control unit manages the overall system, monitors water levels, triggers pumps, and maintains a schedule for well rotation.

CONCLUSION

The IoT Water Supply System for Fruit Plants offers automated water management using real-time data and smart algorithms.

This enhances efficiency, reduces waste, and ensures reliable supply, benefiting plant sustainability and operations.



Thank You!

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