IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 2, May 2025
Impact Factor: 7.67

Analysis of Water Management in Overhead Tanks (OHT) using Heavy Duty Motors with Integrated Water Supply System

Dr. S. Anbalagan[1], Kathiravan R[2], Rajeshwaran S[3], Tamilmaran G[4]
Professor, Department of Electrical and Electronics Engineering[1]
Students, Department of Electrical and Electronics Engineering[2,3,4]
Anjalai Ammal Mahalingam Engineering College, Thiruvarur, India

Abstract: *Efficient and sustainable water management is critical in both urban and rural environments. This project presents an integrated smart water supply system for Overhead Tanks (OHTs), combining heavy-duty motor automation with real- time water quality and level monitoring. The core of the system leverages an ultrasonic sensor to continuously measure the water level in the tank, preventing overflow through automated motor control. When the water level falls below a predefined threshold, a relay-activated motor is triggered to refill the tank. To ensure the supplied water is safe for use, the system incorporates a Total Dissolved Solids (TDS) sensor for assessing water quality and a turbidity sensor to evaluate its clarity.*

These sensor readings are displayed on an LCD screen for easy local monitoring, while a buzzer alerts users when the tank reaches its full capacity, thereby reducing water wastage. The integration of IoT technology further enhances system functionality by enabling cloud-based monitoring and control. Users can remotely access real-time data on water level, quality, and turbidity via an IoT platform, allowing for timely interventions and data-driven decision-making. This reduces the need for manual oversight, promotes water conservation, and ensures a consistent supply of clean water. The proposed system offers a scalable and intelligent solution for water resource management, contributing to public health and sustainable development goals.

Keywords: Overhead Water Tanks (OHT)Water Management Systems, Heavy Duty Water Pumps, Integrated Water Supply, Motorized Water Control, Smart Water Distribution, Water Usage Optimization, Water Level Monitoring, Automated Water Supply, Energy-Efficient Pumping, Urban Water Infrastructure, Smart Utility Systems, Water Conservation Techniques, Pumping System Analysis, IoT in Water Management

DOI: 10.48175/IJARSCT-26291