# AIoT System for the Management of Water Supply Schemes

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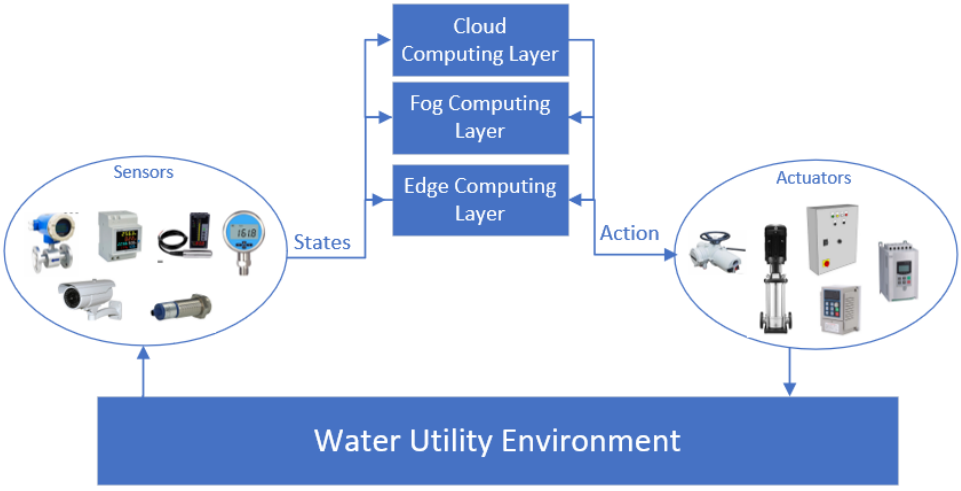
**Short introduction about the work**

Providing a safe and inexpensive water supply to support people's daily activities depends on an effective and reliable water distribution infrastructure. The National Water Supply and Drainage Board comprises water treatment facilities to meet that requirement. Such Water treatment plants collect substantial data from numerous flow sensors, level monitoring systems, pressure sensors, and other devices. There is a growing interest in the industry to discover methods for real-time identification of faults, notification of various warnings, and optimization of water distribution systems. This research explores the possibility of creating an energy optimization system using a custom-built embedded system, IoT, and machine learning. A combination of machine learning techniques & embedded system's real-time data can forecast parameters such as energy consumption and time series water demand prediction. Using reference data sets, a machine learning model was trained to optimize energy consumption and aimed to provide pump operators with insight into managing these water treatment plants using this architecture. Correlations between historical data and real-time data sets are utilized to produce projections of future values. With its established architecture, the data-driven machine learning network model aims to optimize the operation of a water treatment plant while increasing productivity and reducing costs.




**Key results**

1). Developing and deploying embedded hardware for monitoring water utility parameters at Welamboda water supply scheme, Kandy, Sri Lanka.
2). Developing and deploying embedded hardware for monitoring water utility parameters at Meewathura water treatment plant, Kandy, Sri Lanka.
3). Development of a mobile application for monitoring the collected data from water utilities.
4). Development of water demand prediction technique using machine learning-based model.
5). Development of an energy cost optimization algorithm to schedule energy source management for a water supply scheme.

**Beneficiaries of the research (optional)**
National Water Supply & Drainage Board

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