Case Study

Overview

Water systems are becoming increasingly complex and instrumented and require a rich set of features to deal with the complexity efficiently. Web Synergies was engaged to implement a water management system for a state government in the Republic of India centred around powerful dashboarding, background analytics, visual analytics, management through exception, and codifying standard operating procedures. This new water management software supports customizable key performance indicators (KPIs), business rules for managing water flow, and real-time reporting on a rich geospatial visual.

Client

A State Designated Agency (SDA) for the implementation of projects under the National e-Governance Plan (NeGP), including State Data Centre (SDC), Statewide Area Network (SWAN), Common Service Center Delivery Gateway (SSDG), and other Mission Mode Projects (MMPs) in India.

Challenges

Water supply represents a vital problem for people, and this imposes the need to know the information regarding consumption, resources, and production. This implies continuous supervision of the water supply process to solve any problem that could occur and, at the same time, to maintain standard functioning key operational parameters.

Automating and Monitoring

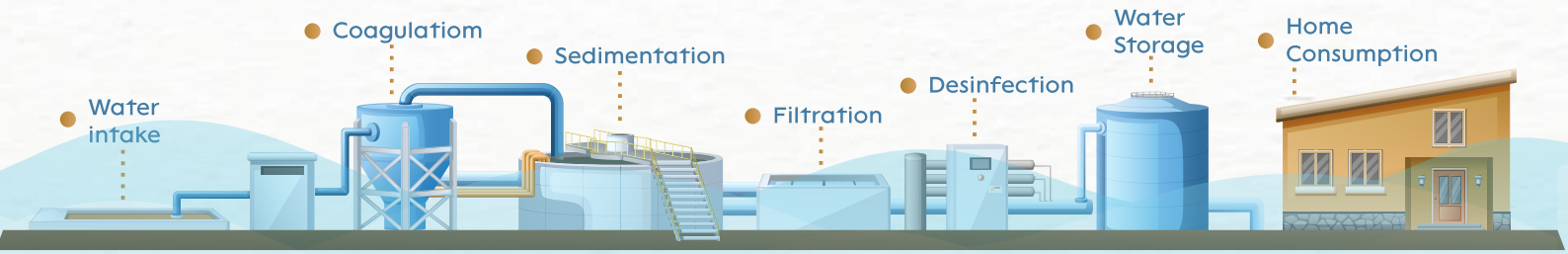
A supervision and control system needed to be built integrating PLCS for basic functions like communication, adjusting, measuring, etc., IoT gateways that support industry-standard open communication protocols (OPC-DAt Modbus), data from solar-powered borewells, libraries, communication systems, standard interfaces or dedicated ones with sensors, electrical drive elements, measuring devices.

Analytics

Real-time analytics systems needed to be deployed in order to prevent unwanted phenomena by analyzing, processing, and visualizing the data across dashboards leading to optimum functioning of water systems and ensuring that financials (LPCD Specific Energy Consumption, Service Level NRW calculations) were also calculated to manage the system.

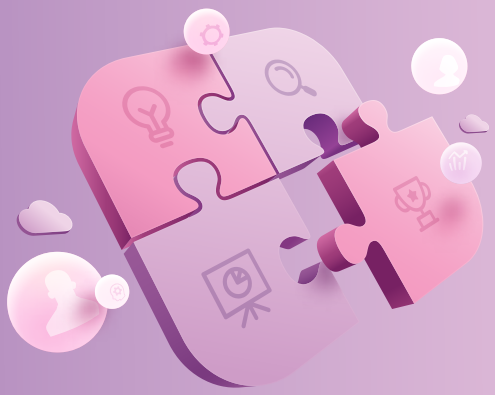
Data Integration

Data from over 300+ SCADA systems (Local client server based) needed to be consolidated and aggregated into an N-tiered web and mobile application for monitoring and controlling technological parameters across the system.



Solution

The fully scalable SCADA systems Implemented by Web Synergies are live, taking care of more than 800 MLD water daily and presenting all key performance Indicators to business users in 24 Hours water supply cycle. The AI-powered system is empowered to generate intuitive alerts/push notifications to business users to make informed data-driven decisions to ensure proper water supply.



Informatics

- ETL (Extract, transform, and load) & ELT to refine data before pushing it to a shared repository and expediting MIS loading time for reporting all KPIs using live data.
- It is integrated into the industry standard SAS -BI tool to forecast dam level and water demand/supply scenarios.
- Web-based data import/export tools to manage asset inventory.

Web/Mobile App Dev.

- PostgreSQL and Apache Kafka services were used to manage data.
- NET-based web application integrated with multi-layered legacy CIS application to facilitate geo-tagging of assets was implemented.
- The hybrid mobile app was developed using Flutter - with jurisdiction based user access and rights management powered by CIS.

SCADA

The fully scalable SCADA systems allow the optimum functioning of the pumping system, safety, and endurance growth in the equipment and installations, exploring, in turn, obtaining efficient energy usage and optimum administration of drinkable water. Our SCADA system's KPIs-based implementation logic can be extended to any SCADA systems across other industry segments like Oil and Gas, Manufacturing, and Power Utilities.