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Case Study: Smart Water Data System

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Client Overview

Client: Home-Water-Works.org

Industry: Environmental Conservation / Water Efficiency

Platform: Drupal, PHP, Java

Services Provided: Custom API Development, Application Logic, Data Reporting System

The Challenge

Home Water Works is a conservation-focused platform that helps households, HOAs, and golf courses estimate and reduce their water usage. The organization needed a smarter way to connect real-world water use data—gathered by in-ground monitoring devices—with their digital ecosystem. Their goal: automate monthly water usage reporting and give users meaningful, actionable insights.

Our Solution

We engineered a custom API integration and backend logic that connected field-level data from physical sensors to the Home Water Works Drupal and (Laravel partially) based platform. There were also some components of Java development involved. Here's how we

broke it down:

API Development and management

Home Water Works installs small hardware devices that measure real-time water use in soil and irrigation systems. These devices transmit data via satellite.

- We developed a custom API to receive and normalize this data
- Handled incoming payloads from a third party software and pushed them into the client's database
- Designed with resilience and queueing logic to handle inconsistent data syncs

Application Logic and Report Generation

- Once the data landed in the system, we built the logic to analyze usage trends and trigger meaningful reports.
  Custom Drupal module processed the incoming water usage metrics
- Thresholds and benchmarks were set per region, property type, and season
- Monthly reports were auto-generated and emailed to users, including:
  - Total usage
  - Percent change from previous months
  - Suggested water-saving actions based on behavior

Seamless user experience

All backend functionality was wrapped into a clean Drupal-based experience:

- Users could log in to view usage dashboards
- Embedded water calculators and regional conservation tips
- Admin panel allowed staff to monitor device activity and manually resend reports if needed

Results

- 100% reduction in manual report generation tasks for staff

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- Reports delivered per month, fully automated
- Real-time data from the field to email/dashboard
- Enhanced user trust and retention through consistent, personalized insights

Why it matters

This integration brought the conservation mission of Home Water Works into the digital age—turning raw environmental data into a practical tool that's easy for homeowners, city planners, and golf course managers to use. It's a model for IoT-to-Drupal integration that makes real-world impact.

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