

Holbrook Agricultural Project

Where Every Drop Counts

Case Study



Summary

The Holbrook Agricultural Water Project in Otero County, Colorado, empowers farmers to better manage limited water supplies. With Colorado's strict water regulations, fair distribution is essential to avoid penalties and in protecting the ecosystem.

They decided to partner with Nomad Water, who upgraded irrigation infrastructure with advanced control systems, providing real-time insights and precision management. Farmers now monitor water usage and optimize irrigation schedules while meeting regulatory requirements. Nomad Water's support helps farmers focus on growing food and caring for their communities, securing a sustainable future where every drop truly counts.

Challenge

The Holbrook Agricultural Water Project supports farmers in Otero County, Colorado, irrigating 24,000 acres through the Holbrook Ditch, also known as Lake Cana. The Holbrook Canal's construction was considered a groundbreaking feat of engineering; its innovative design not only transformed an arid landscape into productive farmland but also fostered a thriving micro-ecosystem along its banks that now attracts a variety of local wildlife. Farms tap off the ditch via channels or headgates to direct water to specific fields. Colorado's water regulations are based on prior appropriation, granting the first user rights to water. The Colorado Division of Water Resources oversees enforcement. If farmers take too much water, it could lead to penalties, fines, or even the loss of water rights. Additionally, excessive water diversion can harm the environment, affect downstream users, and disrupt the fair distribution of this limited resource, further straining the system.

The farmers faced an ongoing challenge: managing increasingly limited water supplies, while ensuring every drop counts for their crops, their neighbors, and the ecosystem.

Objectives

To address these challenges, the project needed to achieve the following objectives:

- **Implement a Smart Water Management System:** Introduce control systems that provide real-time monitoring of water usage and gate positions, enabling precise control over irrigation flow.
- **Optimize Irrigation Schedules:** Adjust water distribution based on crop requirements and weather patterns, ensuring that every drop counts.
- **Ensure Fair and Sustainable Water Use:** Maintain equitable water distribution for downstream users while complying with regulatory requirements.
- **Seamless Integration and Support:** Integrate new technology with existing equipment with minimal disruption and provide ongoing training and support, allowing farmers to focus on their core work—growing food and caring for their community.

Key Features



Smart Control Systems – Installed real-time monitoring & automated gate controls



Data-Driven Decisions – Adjusted irrigation schedules based on weather patterns & crop needs



Remote Access – Farmers gained mobile monitoring & control capabilities



Seamless Integration – Adapted system to existing irrigation infrastructure



Radar Water Monitoring – Used radar sensors to measure water levels, flow rates, and surface movement without physical contact.

Solution

Nomad Water upgraded the Holbrook farmers' irrigation infrastructure with advanced control systems, cutting-edge hardware, and a custom user interface (UI). This intuitive UI was designed to simplify operations while providing powerful tools for water management.

Key features of the upgraded system include:

- **Real-Time Monitoring:** Farmers can track water usage, gate positions, and irrigation schedules in a clear and user-friendly format.
- **Automated Adjustments:** Custom scripts integrate real-time data with variables such as crop needs, weather patterns, and downstream water requirements, optimizing irrigation schedules automatically.
- **Remote Accessibility:** Farmers can monitor and control irrigation from anywhere with an internet connection, giving them unparalleled flexibility.
- **Seamless Integration:** The system integrates components like ADAM Series modules, 603T SmartSwitch™ Transmitters, and 1500 Series Induction Relays to ensure reliable communication and smooth operations.

The technology behind the Holbrook system combines sophisticated hardware with innovative software:

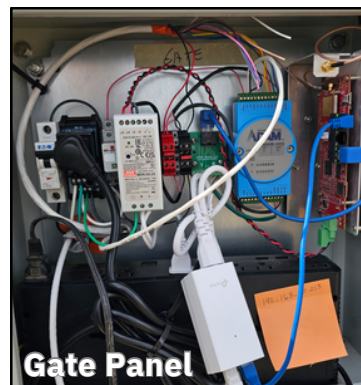
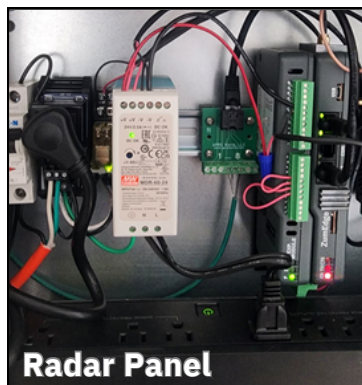
- **ADAM Series Modules:** These ensure smooth communication between sensors and control systems, enabling reliable data transmission over long distances.
- **603T SmartSwitch™ Transmitters:** Wireless communication with remote sensors allows quick adjustments to irrigation schedules.
- **1500 Series Induction Relays:** Efficiently control water levels to reduce waste and ensure equitable distribution.
- **Custom Coding:** Scripts synchronize the hardware and UI, enabling automation and remote functionality to reduce manual intervention.

By providing real-time insights and seamless automation, the system allows farmers to focus on their crops and communities while ensuring efficient water use and regulatory compliance.

Nomad Water's commitment didn't end with installation. The company provided ongoing support and training, ensuring that farmers could fully leverage the system's capabilities. The custom UI and automation features were designed to minimize the complexity of irrigation management, saving time and effort for farmers.

Conclusion

The Holbrook Agricultural Water Project has significantly improved water management, enabling farmers to optimize usage, increase crop productivity, and ensure fair distribution. By achieving regulatory compliance and advancing sustainability, the project highlights the farmers' commitment to balancing agricultural needs with environmental preservation, securing a brighter future for the entire community.



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