Grain Management Case Study

Mobile iPad control for feed research within contaminated hazard level II environments.
Industry: Food & Beverage (Feed Research)

Quick Facts

Attribute	Value
Customer	Cargill Feed Safety Research Center (FSRC) at Kansas State University
Facility	O.H. Kruse Feed Technology Innovation Center
Classification	Only hazard level II feed research center in the world
Mobile	Native iPad/iPhone control
PLC	ControlLogix with native driver
Integrator	The Lakeland Companies (1,200+ volunteer hours)

The Challenge

Challenge: Monitor and control equipment throughout the facility and within potentially contaminated areas where salmonella and other pathogens are present for feed safety research.

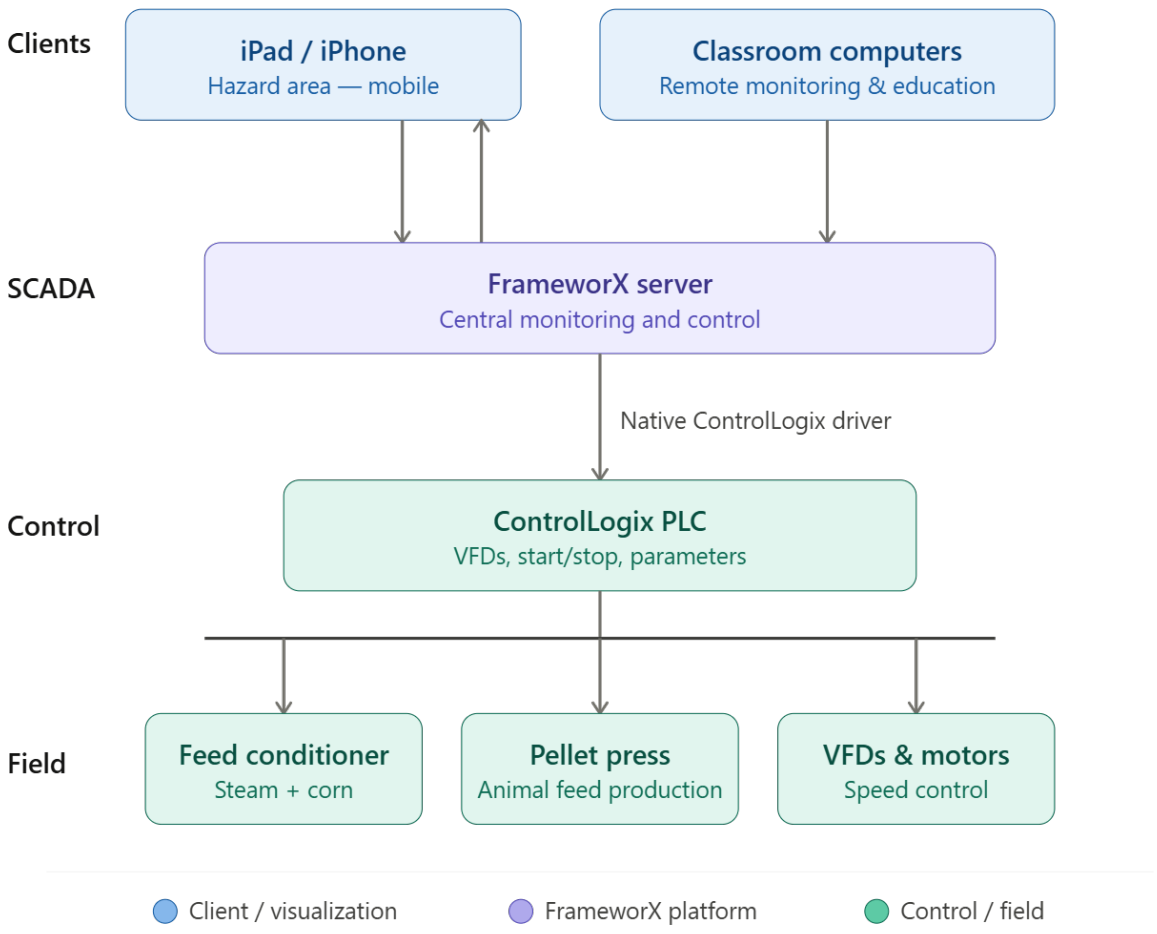
Specific pain points:

- Hazard level II environment with salmonella and other bacteria present
- Need to control system remotely from outside contaminated production areas
- Traditional fixed workstations not suitable for contaminated environments
- Research requires modifying feed production variables while monitoring experiments
- Thousands of domestic and international feed industry professionals participate in educational programs

Impact: Without mobile control, personnel could not safely monitor and adjust feed production variables within contaminated research areas.

The Solution

Architecture



Tier	Component	Capabilities
Control	ControlLogix PLC	Feed conditioner, VFDs, equipment start/stop
SCADA	FrameworX Server	Central monitoring and control
Mobile	iPad/iPhone (native)	Control from contaminated areas via disposable plastic bags
Classroom	Windows computers	Remote monitoring and education

Mobile Contamination Protocol

- iPads protected in disposable plastic bags that seal shut
- Users carry devices through contaminated environment
- Plastic shield disposed of in decontamination area when done
- Enables safe mobile control within hazard level II areas

Feed Research Process

- Steam infused with ground corn
- Pressed into pellets for animal feed (cows, pigs, goats, sheep)
- Pathogens (salmonella) introduced for research
- Experiments to develop extraction/elimination methodologies
- System parameters modified to examine effects on feed quality

Equipment Control

- Two VFDs controlling feed conditioner speed
- Start/stop capability for any piece of equipment

- Production variable modification

Key Enablers

FrameworX capabilities that made this solution possible:

Capability	Application
Native iPad/iPhone Support	Control from within contaminated areas
Native ControlLogix Driver	No third-party interface needed
Tag Import	Uses ControlLogix tags and data structures directly
Windows to iOS Deployment	Develop on Windows, deploy to iPad without additional engineering
Remote Monitoring	Classroom access for education and safe operation

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The Results

- **Safe Contaminated Area Control** — Personnel modify feed production variables while on the move in hazard areas
- **Classroom Access** — Remote control from the cleanliness of quiet classroom environments
- **No Third-Party Interface** — Native ControlLogix driver eliminated middleware
- **Reduced Configuration Time** — Direct tag import from ControlLogix eliminated manual configuration
- **Cross-Platform Deployment** — HMI screens developed for Windows deploy to iPad/iPhone without additional engineering
- **Industry Showcase** — International groups visit to see the system; major change from previous capabilities
- **Educational Platform** — Hands-on learning for students entering feed and grain industries

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Customer Testimonials:

> "I can't tell you how many people have come through this building. International groups are very interested. We like showing it off. The system is a big change from what we had; everybody appreciates it quite a bit."
>
> *— Joel McAtee, Feed Mill Manager, O.H. Kruse Feed Technology Innovation Center*

> "The ability to develop the HMI screens for use on Windows computers and then easily deploy them to iPads and iPhones without additional engineering was fantastic!"
>
> *— Mark Spindler, The Lakeland Companies*

Resources:

Download case study: CaseStudy_GrainManagement.pdf

This case demonstrates mobile iPad control for feed research operations within hazard level II contaminated environments.

In this section...
