



Case Study: Natural Fruit Corporation

Frozen treat maker's technicians monitor critical refrigeration systems

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On a hot summer day, few things are as refreshing as frozen treats of almost any kind. Today there are numerous brands of hard, icy sugar-water bars found in grocery stores across America.

But not all frozen treats are made the same way.

Raised in South America and educated in the U.S., brothers Simon and Jorge Bravo Sr. spent years working and traveling around the world, troubleshooting manufacturing systems for major brands.

Wherever they traveled, they always remembered the *paletas de frutas* they had enjoyed as kids: delicious frozen fruit on a stick. Not the hard, icy sugar-water bars they found in typical grocery store brands, but a delectable, wholesome treat.

LOOK, MOM: FRUIT BARS WITH REAL FRUIT

Simon and Jorge quickly became determined to create a frozen fruit dessert with a great taste and texture like the ones they had grown up with—but produced with modern methods that would make mass manufacture practical, allowing them to bring a wholesome treat to the world.

Their backgrounds in food science and manufacturing coupled with their desire to produce only the highest quality, 100% natural frozen fruit bars led to the founding of Natural Fruit Corporation.

Concentrating on what they knew best, Simon and Jorge started a small factory and established themselves by producing premium fruit bars for quality distributors and retail outlets.



Production started small with only a pallet per week, made by hand. The operation has grown substantially over the past 30 years, and today Natural Fruit ships up to 20 trucks of fruit bars per week.

To keep up with the increased demand, the Natural Fruit factory added a process automation system for making the fruit bars and cold storage rooms with automated refrigeration systems to keep them frozen prior to shipment.

THE CHALLENGE

The refrigeration systems at the Natural Fruit Corp factory are mission critical: they have to run 24 x 7 x 365. If the refrigeration systems go down for any reason, operators

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**-Jonathan Bravo, Project Manager,
Natural Fruit Corporation**

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need to be notified immediately before product in the cold storage room is lost.

Even though the refrigeration system was automated with a MYCOM® Refrigeration system, there were times during the weekend when operators had to stop by the factory just to verify that the systems were still running properly. This process was inefficient and costly.

Jonathan Bravo, Project Manager at Natural Fruit Corporation, wanted to find a better way to remotely monitor and control their systems and eliminate the need to physically be on site to verify that systems were operating as expected.

His goal was to find a solution that could provide monitoring and notification capabilities for his existing refrigeration system without a lot of engineering investment.

The MYCOM system did a great job of keeping the cold rooms within temperature set points, but the system and its components used the Modbus® serial protocol for external communications. Bravo knew that getting process and control system information from a serial Modbus device on to his team's mobile devices was going to be a challenge.



THE SOLUTION

Bravo began researching a solution to add mobile monitoring, control, and system notifications to the existing MYCOM refrigeration system.

“We talked to OEM machine builders to see if they could offer a solution but found their technologies to be cumbersome and difficult to integrate with different systems,” says Bravo.

Almost none of the proposed solutions offered a true remote access solution with support for mobile devices, and most required a large amount of programming and development time to get up and running.

Eventually Bravo discovered *groov* View from Opto 22 and thought it could be a potential fit for their application. Bravo purchased a *groov* Box appliance and a SNAP-PAC-R2 industrial programmable automation controller to evaluate.

Using the *groov* View mobile operator interface product along with the SNAP PAC controller, Bravo was able to quickly integrate several of the factory's systems into *groov* View screens for mobile devices.

The SNAP-PAC-R2 controller pulled data in from a variety of Modbus devices. Once the Modbus data points were in the SNAP PAC, *groov* View allowed Bravo to quickly build mobile screens to monitor Freon™ detection sensors, cold room temperatures, compressors, and even the factory's condenser tower.



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With the SNAP PAC's logging capabilities, Bravo was also able to log compressor run-time data to the controller, and then use FTP to transfer the log files to a central data storage location.

Bravo also implemented an alerting and notification system with *groov* View's Events and Messaging feature. If Freon is detected in any part of the factory, the Freon sensors pick it up, triggering the PAC controller to immediately notify operators, so the situation can be resolved quickly before it escalates into a more serious problem.

"The drag-and-drop interface on *groov* View was extremely easy to use," says Bravo. "*groov* was the only solution we came across that offered such a quick way to get up and running with mobile devices connecting to our existing systems."

LOOKING AHEAD

Today, the production line of the Natural Fruit factory is run by a Siemens S7 PLC. Bravo's next automation project is to integrate control functions from the Siemens PLC into the *groov* View interface, so their production process can be monitored from mobile devices wherever operators are in the factory.

ABOUT OPTO 22

Opto 22 was started in 1974 by a co-inventor of the solid-state relay (SSR), who discovered a way to make SSRs more reliable.

Opto 22 has consistently built products on open standards rather than on proprietary technologies. The company developed the red-white-yellow-black color-coding system for input/output (I/O) modules and the open Optomux® protocol, and pioneered Ethernet-based I/O.

Famous worldwide for its reliable industrial I/O, the company in 2018 introduced *groov* EPIC® (edge programmable industrial controller). EPIC has an open-source Linux® OS and provides connectivity to PLCs, software, and online services, plus data handling and visualization, in addition to real-time control.

groov RIO Ethernet-based edge I/O modules, introduced in 2020, include I/O and IIoT software in a compact industrial package that goes anywhere.

All Opto 22 products are manufactured and supported in the U.S.A. Most solid-state SSRs and I/O modules are guaranteed for life.



The company is especially trusted for its continuing policy of providing free product support, free online training, and free pre-sales engineering assistance.

For more information, visit opto22.com or contact **Opto 22 Pre-Sales Engineering:**

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