Martins Electrical Service provides easy EaaS for OEM Shumaker Industries

groov RIO enables affordable equipment-as-a-service designs

Opto 22

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MARTINS ELECTRICAL SERVICE PROVIDES EASY EAAS FOR OEM SHUMAKER INDUSTRIES

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THE CHALLENGE

Equipment-as-a-service (EaaS) involves renting out or providing access to equipment and collecting payment periodically, rather than selling the equipment outright.

This payment model enables end users to pay for costly or infrequently used equipment as an ongoing operating expense, which can open new markets for machine builders.
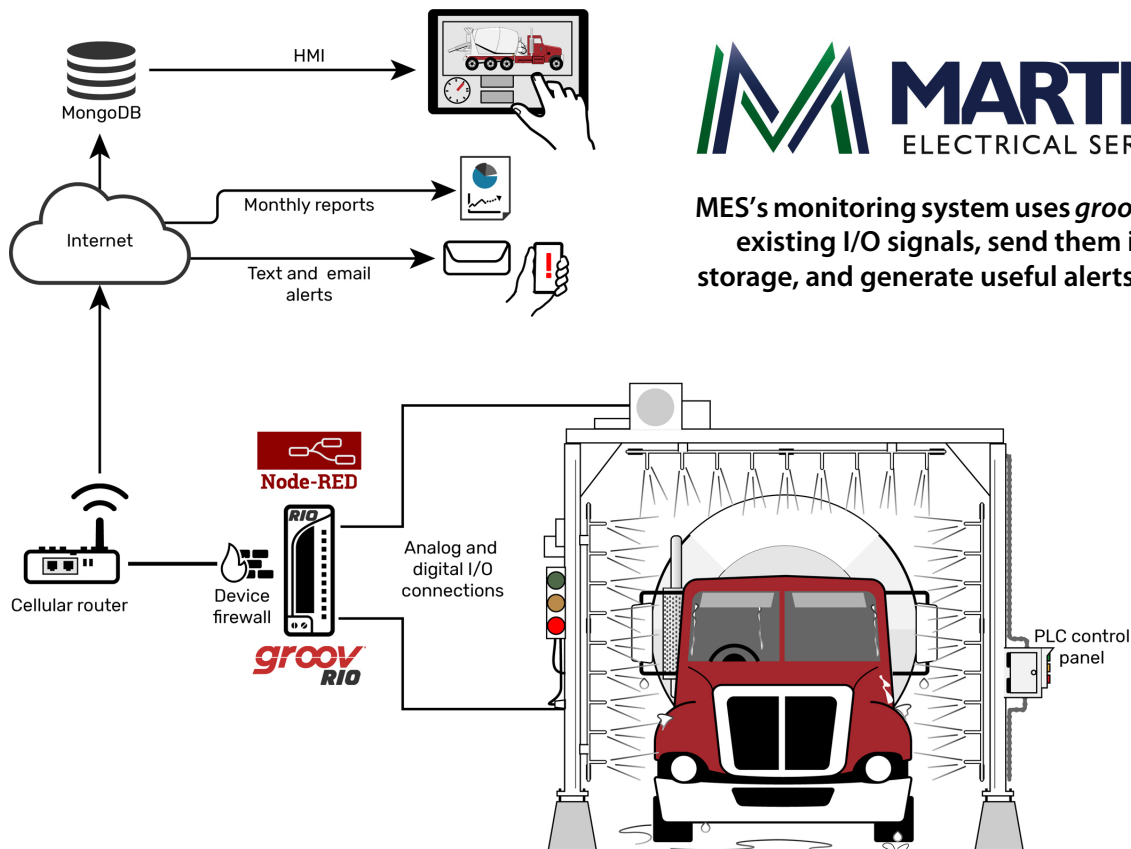
Shumaker Industries is an OEM that builds automated truck wash systems, using a PLC to control position sensors, wash nozzles, and so on. Shumaker wanted to add a remote monitoring option for customers who were interested in a rent-to-own arrangement, but their PLC didn't have the ability to perform the database transactions they would need to monitor usage.

Martins Electrical Service (MES), the system integrator that Shumaker hired to design this new option, initially experimented with a proprietary remote monitoring system—wireless sensors that pumped data into a cloud database through a local IoT gateway. But the system could deliver updates only every 10 minutes, and that data was locked in the vendor's private storage system.

"Then we got an email from [Opto 22] about *groov* RIO," says Leslie Martin, an automation technician at MES, "and I said, 'That is exactly what we want!'"

THE SOLUTION

MES took a new approach. Rather than installing additional sensors, they used *groov* RIO's 10 software-configurable I/O channels to capture existing sensor data in parallel with the wash system's PLC.

MES's monitoring system uses *groov* RIO to grab existing I/O signals, send them into cloud storage, and generate useful alerts and reports.

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Then, using Node-RED—IBM's open source IoT platform embedded in *groov* RIO—they organized that I/O data into timestamped sets associated with a vehicle number.

Finally, they connected a 4G cellular router to *groov* RIO and pushed those data structures from Node-RED directly to cloud-hosted storage, which they rented from MongoDB.

This approach allowed MES to deliver a scalable monitoring system without worrying about vendor lock-in or IT infrastructure maintenance. And by simply grabbing existing I/O signals, they avoided the need to communicate with or modify Shumaker's existing PLC controls.

To complete their EaaS design, MES built a web-based dashboard that let Shumaker visualize the wash system in operation with one-second resolution. Node-RED also generates email and text alerts, including a monthly report on the number of trucks processed by each wash system, which Shumaker uses to calculate billing.

"*groov* RIO is perfect being that it's an edge device and has all the security built in," Leslie reflects. "It's a small add-on, so it's easy to make an option for customers."

***groov* RIO installed in a wash system monitoring panel**

ABOUT MARTINS ELECTRICAL SERVICE

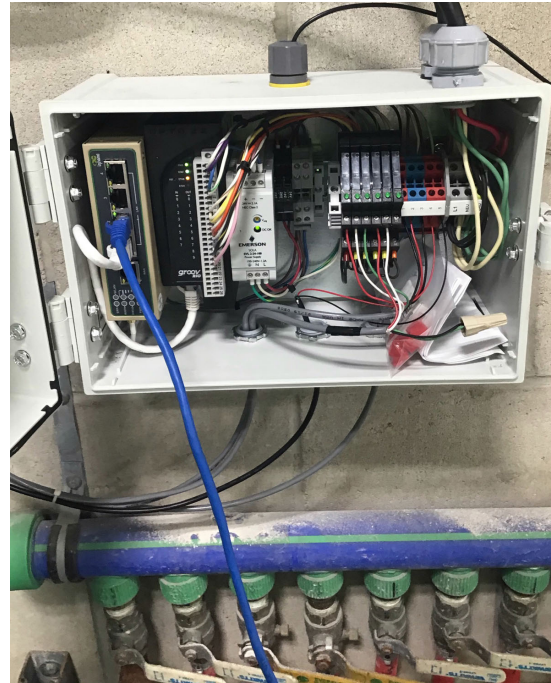Thanks to Leslie Martin and MES for showing us how *groov* RIO enables elegant solutions to complex IoT problems. Get in touch with them by email at **sales@martinselectrical.net**.

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.

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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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