CASE STUDY

RIT | Golisano Institute for Sustainability

# G.A. Braun Inc. meets consumer demand for remote monitoring using data connectivity


| Company | Sector | Size | Location |
|---|---|---|---|
| GA Braun Inc. | Industrial laundry machinery | 230 employees | Syracuse, New York |

## At a glance

- G.A. Braun Inc. (Braun) manufactures industrial laundry machinery in Syracuse, New York. Known for its high-quality products, Braun's systems lacked the remote-monitoring capabilities that its competitors offered—and customers noticed.
- The 77-year-old manufacturer decided that improving data connectivity was an important customer satisfaction driver and wanted to develop the capability for their customers to monitor equipment using a web-based application from any location.
- Braun took advantage of expertise from RIT's Industry 4.0 Transition Assistance Program to develop a custom remote monitoring solution that takes advantage of data already available within the existing machine controllers.
- The RIT team evaluated Braun's exiting products and software and designed a solution for capturing data generated by the equipment and delivering it to a cloud environment where it could be easily accessed using a web browser.
- Once the application is developed, RIT plans to deploy it at Braun's facility for testing and then, if successful, to conduct a pilot installation at the site of one of Braun's customers. Once validated, this tool will be a significant improvement to Braun's product line.
- While Industry 4.0 often focuses on improving manufacturing processes, it can also be about digitalizing products. Braun's equipment provides a key process technology for its customers, high-volume commercial laundry operations.
- Remote-monitoring will help Braun's customers benefit from digitalization. They will be able to achieve near real-time access to utilization tracking for their equipment as well as fault-code monitoring. The data they gather can be used to improve operational efficiency and reduce equipment downtime.

## Company

**G.A. Braun Inc.** manufactures large industrial laundry machines that include washers, dryers, feeders, folders, and material-handling systems. Since 1946, Braun has specialized in products designed to make laundry and textile facilities more productive and profitable. The company's equipment is used worldwide in hospitals, hotels, cruise ships, commercial and industrial laundries, and in government and correctional facilities.

## Business challenge

Braun's existing Washnet software is designed to configure and control a group of laundry equipment within a customer's facility. This program runs on a dedicated computer on the shop floor, collects and stores data in a local database, and is used to troubleshoot problems when they arise. However, operators can only access and view this data on this computer – there is no remote viewing capability.

After listening to customers and evaluating what competitors offered in similar products, Braun began considering strategies for upgrading its Washnet software to include a remote monitoring capability. A new cloud-based service suggested by RIT would allow users to access essential performance data—machine status, alarms, and key statistics (e.g., loading time, total loads, and weight)—using a web browser on common digital devices like smartphones and desktop computers.

## The Industry 4.0 solution: Data connectivity

While data is a foundation of Industry 4.0, what really makes the factory of the future work is the opening paths for data to move between points across a company's footprint. That might be a real-time look at how a busy production line is performing, or it could be a warning about a potential supply disruption alerting decision makers so they can prepare. In other words, the technologies behind Industry 4.0 come down to connecting the people who make a business work to the information and assets that they rely on for success.

Data connectivity, a key component of the Industrial Internet of Things (IIoT), includes measurement or collection of relevant data, transport of that data through networks, and then analysis and visualization of that data for information consumers. Braun saw an opportunity to leverage data connectivity as a way to improve the value proposition of their products. By connecting customers to essential performance data captured by Braun's equipment, the company is better able to meet the growing market demands for easy, immediate access to information at the click of a button or the tap of a screen.

## Why data connectivity?

- **A smart start for Industry 4.0:** Data connectivity is a good place for small and medium-sized manufacturers to begin phasing in digital technologies. Typically, the initial investment is small while the immediate return is large.
- **The power of data unlocked:** Many tools and technologies can be used to collect and interpret data from live operations, product performance, or enterprise-level business activities. Equipment downtime has direct and hidden costs, and data connectivity offers a path to improving both operational and maintenance procedures to reduce downtime.

## Approach

Engineers from RIT Industry 4.0 program worked with Braun's engineering staff to discover what they hoped to achieve through a remote monitoring application. They investigated Braun's current products and software to determine its capabilities. They found that Braun's existing Washnet software runs on an industrial computer at each customer site. This computer is dedicated to a group of Braun's laundry machines, and typically collects production data for a number of machines. After their review, the RIT engineers recommended a three-tiered, cloud-based solution that utilizes Amazon Web Services (AWS) as a best-fit for developing a custom software solution that can bridge the collected machine and production data to a web-based application.

## Solution

The RIT team developed software that can run on the computers already installed at Braun's customer facilities—there was no need for new hardware. The software periodically reads data from the local database and writes it to the AWS cloud. AWS then saves the transmitted data in a time series database and makes it available to clients through a web interface. AWS services are also used to analyze the raw data to create data summaries.

Once a strategy for getting data off Braun's equipment and into the cloud was set, RIT's next goal was to create an interface that customers can use to access and interpret the data. To do this, the engineers developed an application using React, a JavaScript library for building web interfaces. React runs on common web browsers and displays data for individual pieces of equipment, tracking events like current machine state, alarm status, and current jobs underway. Notably, the tool can also aggregate data from multiple machines into a single view—a new capability for Braun's line of products. A customer can view "data roll-ups" which are summaries that use graphs and tables to show production data, allowing operators to determine the key performance indicators of their processes at a glance. These summaries can be viewed by system (a group of machines), site (a group of systems), and company (a group of sites). The solution also makes it easy to generate reports as portable document files (PDFs), which can be printed.

Using the suite of tools available through AWS, the new application allows Braun customers to maintain a list of users and to provide login and authentication so that users can see only the data they have been authorized to view. The web application also provides an administrative interface that allows Braun's customers to create and maintain a list of sites, systems, individual machines and users, and to manage user permissions.

## Results and next steps

Braun's leadership believes the web application developed by RIT's team will enhance its product offering by making monitoring of laundry equipment easier for their customers. After undergoing testing at Braun's facility, the web application will be installed at the site of a Braun customer in Binghamton, New York, for trials. Once complete, these will give RIT and Braun insights to fine-tune the tool before eventually releasing it as a standard product.

RIT | Golisano Institute for Sustainability


**For more information please contact us:**

585-475-4210
centerofexcellence@rit.edu
rit.edu/advancedmanufacturing
190 Lomb Memorial Drive
Rochester, NY 14623




This material was prepared by Rochester Institute of Technology using federal funds under award No. 01-79-15124 from the Department of Commerce Economic Development Administration and using funds from the NYS Department of Economic Development. The statements, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Department of Commerce, the Economic Development Administration, or the NYS Department of Economic Development.