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Connected Chemical Proportioners

Internet-of-Things-enabled chemical dispensers are changing laundry and foodservice segments. Other proportioners are up next

By Nick Bragg

The Internet of Things (IoT) is no longer just a buzzword. It is revolutionizing business across nearly every industry. And manufacturers of all stripes are trying to figure out how their products can connect to the internet in a smart way to bring new benefits to users.

As IoT technology continues to sweep across industries, a wide variety of IoT solutions are becoming increasingly available in the jan/san marketplace. IoT products provide real-time insights that help businesses better manage their resources and improve their operations.

“The information provided by these systems enables continuous improvement, allowing businesses to become more competitive, reduce costs, improve sustainability, etc.,” says Thomas Boscher, general manager of Intellibot Robotics and global vice president, marketing technology at Sealed Air Diversey Care, Charlotte, North Carolina.

Currently, IoT technology is primarily infiltrating floor cleaning equipment, waste receptacles and various restroom fixtures, such as soap and paper dispensers.

But more recently, industry manufacturers have introduced laundry and warewashing chemical dispensing units that utilize IoT technology. The products contain IoT sensors which help control costs by monitoring and adjusting operating parameters based on chemical, water and energy consumption. In addition, sensors provide increased uptime of machines by predicting failures before they occur.

“The goal of IoT technology is to provide visibility to data generated by various pieces of equipment,” says John Goetz, global product manager for Hydro Systems Company, Cincinnati. “More important

than the data itself is the actionable insight that can be gleaned and used to operate more efficiently and intelligently.”

Laundry Operations

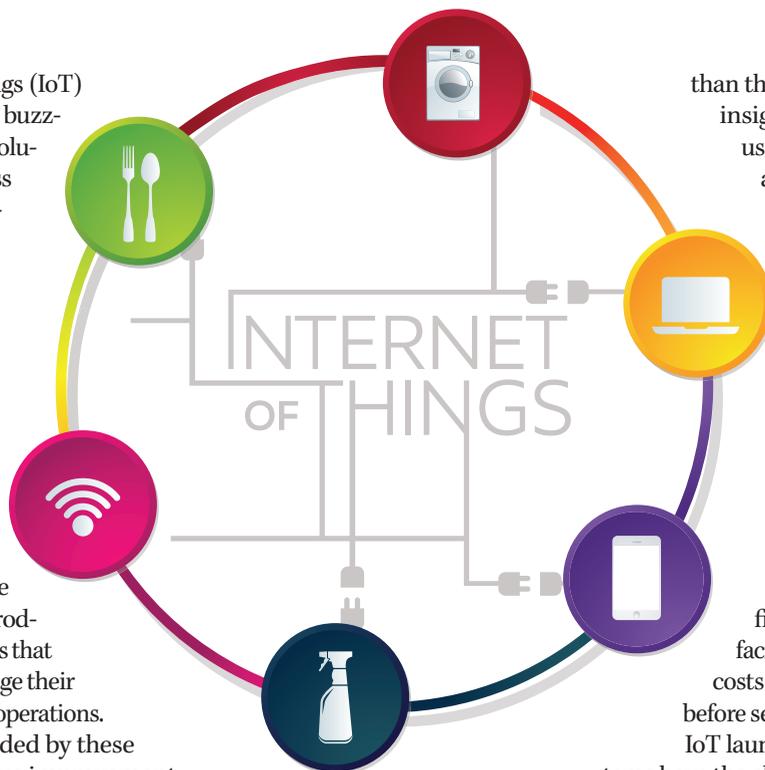
The cost of laundry is a significant expense. Facilities often struggle with understanding from where the costs stem. By connecting laundry systems to IoT, usage can be monitored to help identify unexpected costs and to predict savings from increased efficiency. With IoT applications, facilities can now home in on their costs with a level of accuracy never before seen.

IoT laundry chemical dispensing systems have the ability to pull large volumes of

historical data over a month or a year for periodic reporting. Facility managers have the ability to pull data on the number of laundry loads in a given shift, chemical usage, and the number of gallons of water used daily or in a given month, says Goetz. The IoT chemical proportioners can also determine if the laundry system reached an adequate temperature for sanitation, which is an important compliance measure. This data is relayed across the network to an application that can help facility managers calculate costs, which allows them to find a true pulse on their laundry operations.

IoT laundry systems greatly simplify the process of pumping chemicals accurately in large laundry operations and reduce maintenance costs dramatically. Today's systems even offer remote monitoring and control capabilities that allow laundry facilities to access critical chemical data and make adjustments from anywhere an internet connection is available.

The historical data is useful to many facility managers, but the IoT chemical dispensing systems also provide real-time information



that allows managers to address issues immediately. Dispensers can even use alarms to highlight issues that require staff attention, says Boscher. For example, if a laundry machine is running a formula at a lower or higher production rate than normal, staff can notify a supervisor that an operational review is needed. The technology allows organizations to be more proactive by checking on the availability of chemicals, the water flow and the condition of the dispensing system.

IoT will enable more accurate dilution by adjusting flow in real time

“As soon as the quality of wash is at risk, you receive an actionable notification, for example when chemical levels are running low,” says Boscher.

For laundry operations, rewash is a large concern, as it is labor intensive, costly and a major disruptor of operations. Having the right chemistry solution in the right wash program at the right time significantly reduces rewash levels.

“This [IoT] insight helps reduce rewash, prevent costly disruptions

and errors within laundry operations, improves wash results, productivity, budget control, sustainability, and compliance,” says Boscher.

Because the systems are so transparent, corrective action can be taken immediately. Operations can be kept lean, sustainable and efficient.

Foodservice And Warewashing

Another popular industry segment that has taken advantage of IoT chemical dispensing technology is the foodservice sector:

Monitoring systems for warewashing provide real-time updates of the dishwashing process, highlighting current cycles, water and chemical usage, and more. Alarms alert employees and managers to issues that can impact dishwashing results.

“For example, the system highlights the rinse temperature, energy usage, drain change, the number of racks being washed, cost savings, etc.,” says Boscher.

Employees previously had to manually measure the dishwasher’s water temperatures twice a day. Today’s dilution control offerings automatically measure the temperature every time racks are being washed.

Reports can also be pulled from the system and used as proof of sanitation for compliance purposes, says Goetz.

Some systems also provide remote visual training to teach employees how to correct issues, says Boscher.

Adopting IoT technology gives a business enhanced visibility over its key processes. With a closer look at the inner workings of the organization, managers can better understand where efficiency is lacking, where sustainability can be improved, where costs are rising, and where training may be needed. They can take this knowledge and use it to transform these processes, making them more productive, sustainable and cost effective, thereby enhancing the bottom line.

For example, four out of five dishwashers use too much water, says Boscher.

“Organizations can pinpoint why excess water is being used — dishwasher wasn’t on the right setting; the wrong racks were used in the machine — in order to control resources and reduce waste,” he says.

In addition to chemical and water savings, manufacturers say these systems increase labor savings associated with troubleshooting and service calls. For example, the system can alert users to when machines need to be de-scaled based on water hardness.

“Imagine being able to avoid an emergency service call at a restaurant on a Saturday night by being able to log into a warewash dispenser and switching from probe to problem mode,” says Brass Clarkson, marketing and communications manager for DEMA Engineering Company, St. Louis. “The ability to analyze data from a dispenser without having to get up close and personal with the machine — you can build cost-per-use analysis for customers from your office all by logging into a machine remotely to gather that data.”

Future Of IoT Proportioners

Laundry and warewashing systems lend themselves easily to IoT capabilities. They already draw from an electrical power supply and tend to already be equipped with sensors, microprocessors and digital memory.

Other chemical proportioners, however, lack this advantage. Much of their value comes from the ability to operate off of a running water

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connection or mechanical action.

“In the future, determining how to power such devices economically — potentially with batteries — is a barrier that will need to be overcome,” says Goetz.

Manufacturers say that chemical proportioning systems will continue to evolve and push the boundaries in other ways as well.

“We think IoT will also enable more accurate dispensing in the future by monitoring the dilution rates in real time and

potentially providing the ability to adjust flow in real time,” says Boscher.

Other future intriguing possibilities include the ability to automatically control chemical inventory by tying dispensers into site enterprise resource planning (ERP) or inventory control systems. Then, if a chemical is beginning to run low, the dispenser automatically triggers an order for more.

Manufacturers should focus on must-have features like proof of delivery of

chemicals, chemical dilution accuracy and programming management in the coming years, says Clarkson.

“Our industry is smart and doesn’t accept products that don’t truly offer a benefit,” he says. “If the feature is nice to have and doesn’t provide a true value, IoT won’t be successful.”

The cleaning industry is a well-established marketplace with a long history of norms and processes. But as IoT makes the overall industry smarter, Clarkson expects more decisions to be made on costs over a lifetime rather than up-front costs.

“If I could sell you a dispenser than would cost 20 percent more but reduce your typical service calls by 50 percent wouldn’t you consider it? Operations managers will start to see the benefits and demand smarter equipment,” says Clarkson.

IoT’s Proportioner Challenges

As many advantages as IoT offers, there are some challenges to the technology. For IoT-enabled chemical proportioner systems, one of the biggest drawbacks is the challenge associated with installation.

“It’s no secret in our industry that many of the install points for wall-mounted machines such as warewash, laundry and proportioning equipment are located internally to the building, often near stairwells and in basements — all the hardest places to get a good Wi-Fi or cellular signal,” says Clarkson. “Being able to connect to a wireless network or having a strong cellular signal are must-haves for IoT to work successfully. Having an IoT-enabled dispenser with spotty and limited access would benefit nobody.”

The price associated with adoption is another hurdle IoT systems face. There is an additional expense that chemical providers or end users have to bear to cover Wi-Fi setup or expansion, data plans, and more.

Once those obstacles are dealt with, facility managers then must determine what to do with all the data that is collected.

Manufacturers say that forward-thinking companies are working with data scientists to help analyze and uncover underlying performance opportunities.

“The true power will be realized,” says Boscher, “when business teams invest in these analytics resources to mine the data or hire consultants to mine the data.” 

Nick Bragg is a freelance writer based in Milwaukee. He is a former Deputy Editor of Sanitary Maintenance.

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