

A photograph of a modern kitchen interior. In the foreground, there is a long, light-colored countertop with a glass display case. Inside the display case, several robotic woks are visible, each with a small screen on top. The background shows a kitchen with stainless steel equipment, a brick wall, and a glass partition. The lighting is warm and focused on the kitchen area.

WELCOME TO THE KITCHEN OF THE FUTURE

Automation in the kitchen is nothing new, but the next generation of culinary robots eclipses the tomato corers and stand mixers of the past. Should chefs be concerned?

By Jody Shee

Any of seven robotic woks prepares bowl meals for guests at Spyce.

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Someday guests may ask why they can only get restaurant food when the restaurant is open, why they can only get it on premises and why it takes so long to prepare. The old operational paradigm is set for a makeover, and it's already happening — thanks to smart automated equipment.

Consider the expanding group of Hammond, Louisiana-based The Salad Station restaurants with an expected 30 company and franchised units operating by the end of 2019. Scott Henderson, president and founder of the pay-by-the-pound self-service salad and food bar concept had his eye on Sally the robot from Redwood City, California-based Chowbotics for some time. "I was trying to figure out if this was competition or just technology or something to adapt as the newest greatest way of doing things," he says.

Chowbotics is a food robotics company with more than 50 vending-machine-looking, salad-making robots called Sally already in the marketplace. Now Henderson owns one of them,

which he placed at nearby North Oaks Hospital in Hammond in March 2019. The refrigerated, automated machine holds 22 canisters of salad ingredients — lettuce, toppings, proteins and salad dressing. His staff fills the canisters with ingredients at the nearby restaurant and transports them to the machine at the hospital. From a built-in touchpad, guests choose the ingredients they want, or select from a small list of suggested salads. With a push of the button, the canister housing spins and drops a helping of each selected ingredient into a 32-ounce pulp container.

Henderson's eyes have been opened to the new ability the robot gives him to extend the The Salad Station brand to nontraditional locations (the unit displays the restaurant logo). "It allows hospital night shifts to get an express

Above: Sally the robot by Chowbotics makes restaurant-quality salads.

Opposite, left: Sally the robot created by Chowbotics holds up to 22 salad ingredients served in a 36-inch-by-36-inch footprint.

Opposite, right: In addition to pre-set bowl meals, the ordering kiosk at Spycy allows guests to customize bowls.

salad rather than a candy bar from a vending machine,” he says.

Since launching the salad robot at the hospital, Henderson has realized an average of \$300 a day in extra income, bringing revenues for his quick-service operation more in line with fine-dining restaurants, he says. His sights are set on purchasing more of the robots to place at other hospitals and at a local university. He believes the opportunity for his franchisees to purchase and place robot salad machines at satellite locations is a revenue-building bonus for them.

OTHER GAME CHANGERS

Chowbotics’ Sally robot is just one example of automation that could quickly become commonplace, especially as minimum wages increase and food-prepping labor is harder to find.

Michelin-starred Daniel Boulud, who lends his expertise as culinary director (and personal investor) for Spyce in Boston, a fast-casual single unit with the tagline “culinary excellence elevated by technology.” The restaurant, which opened in May 2018, was founded by four MIT students who came up with a line of seven automated woks to cook internationally themed bowl meals in front of guests using induction heating.

Using a touchpad menu, guests select a bowl meal, (among the choices are a Korean dish of roasted chicken, sautéed kale and brown rice in a bulgogi marinade, soy sauce braised beans, kimchi, scallions, gochujang mayo and sesame seeds; and a Lebanese mix featuring roasted chicken, lentils, white mushrooms, cherry and sun-dried tomatoes, fresh dill, tahini, feta and



Miso Robotics, Pasadena, California, developed Flippy Kitchen Assistant, a burger-flipping robot that can learn from its surroundings and acquire new skills over time, according to the company website. It can work the fryer or the grill using sensors to time its movements. CaliBurger in Pasadena is championing the technology in its kitchen.

Industry elites have their eye on kitchen automation, including

cucumber salad). The customer’s name displays above the wok that begins working on their meal. An automated runner behind the woks grabs the ingredients, which go in the heated wok before tumbling for two and a half minutes. When it’s done, a bowl swings into place and the ingredients drop into it. Servers finish off the bowls with additional fresh ingredients they see on a screen for that order.



Since the restaurant has only been open for just over a year, expansion predictions are difficult, given that the four founders have a tech, rather than a restaurant, background. “We have had a lot of inbound interest, but for us, we’re firmly dedicated to building a stable and strong restaurant company,” says COO Kale Rogers. However, he notes there could be as many as three Spyce restaurants open by the end of 2019 and up to six by the end of 2020.

FINDING BETTER WAYS

Automation is hardly new to the restaurant industry, considering that the KitchenAid stand mixer entered the market 100 years ago this year. Prior to that, dough was mixed by hand. “We will always find ways to create innovations that help us be better at what we do, creating and serving food and beverage to the world,” says Alex Susskind, associate dean for academic affairs and professor of food and beverage management for Cornell School of

Above: The robotic woks at Spyce cook meals in less than three minutes using induction heating.

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As an example, he points out McDonald’s French fries. “The fryer automatically goes down, cooks the fries for a determined amount of time at the correct temperature, and when they are done, the fryer comes up. That’s a robot,” he says.

With his Sally robot experience, Henderson believes the industry is only scratching the surface of what’s possible. “In 10 years, many things will be automated and practical,” he says. “In five years, major chains will have automation figured out more than they do now, and we will see that much more being used.”

Spyce, with its automated woks, is already experimenting with other automated cooking methods, Rogers says — though he can’t elaborate yet.

Chowbotics’ Sally is expanding beyond salads. The company introduced açai bowl capabilities at the National Restaurant Association Restaurant, Hotel-Motel show in Chicago in May. Grain and breakfast bowls are a step away.

AUTOMATION BENEFITS

The cost to automate is within reason. The Sally robot costs \$30,000 to purchase outright or can be financed for \$640 a month over five years, says Chowbotics’ CEO Deepak Sekar.

The benefits of automation may outweigh the cost, especially as automation combined with smart capabilities improves over time. “Right now, self-driving cars don’t work perfectly,” Susskind says. “But 30 years from now we’ll look back and laugh and say, ‘Remember when self-driving cars used to hit trees?’” Likewise, the foodservice industry will find ways to make automation work on a wide-scale basis.

With reduced labor involved, automation can allow for reduced meal costs. Sekar points out that those operating the Sally robot are selling the salads for less than a packaged salad mix



at the grocery store. With no packaging, distributor or cross-country shipping expenses to recoup, the salads are cheaper and fresher, he says. At North Oaks Hospital, the robot-prepared salads cost \$7 plus tax. At Spyce, customers pay only \$7.50 for their robot-prepared bowl meals.

A self-contained food-prepping robot is also a game changer when it comes to space savings and food safety.

The San Antonio, Texas, headquarters of Sodexo-managed USAA, has placed Sally salad robots in three of its corporate dining outlets, allowing the overnight shift to purchase a fresh meal when the cafeteria is closed, says Mark Spinelli, Sodexo's vice president of operations for USAA business. In a three-foot-by-three-foot footprint, the machine provides fresh items when a traditional salad bar doesn't make sense for the amount of space and required labor to run it.

"There's a lot less waste than a traditional salad bar because the ingredients are kept temperature controlled," he says. Employees load the machine with ingredients on Friday

Above: The Indian bowl is one of several international bowls guests can order—cooked by a robotic wok at Spyce.

night, which services the machines all the way through the weekend without labor.

After the ingredients are loaded, no one ever touches them, and there are no serving utensils to worry about. Additionally, the smart function of the machine alerts managers via their phone or computer when ingredients are nearly empty. When filling the machine, workers input a freshness date for each ingredient. If the time expires, the machine locks out the use of that ingredient.

The small footprint, complete encasement and labor independence makes the salad robot, which will inevitably expand to other categories over time, a disrupter in foodservice. The machines will make equal sense in restaurants, convenience stores, grocery stores, schools, stadiums and more.

THE LABOR FACTOR

Rather than replacing humans, robots provide additional service points and sales. "It's keeping our employees doing salad bar production," Spinelli says. "Someone has to prep the ingredients that go into the machine."

At Spyce, "If you come in, you'll see the team has a role in your experience," Rogers says. "We create technology in service of a more human experience. How can we think of ways to remove repetitive tedious tasks and focus on the customer experience?"

Henderson envisions the day when Sally salad robots are used in the kitchen to help back-of-house staff expedite preparation, allowing them to turn their attention to other tasks. He also believes that if an operation replaces an entry-level employee with a robot, it might add a more skilled employee to maintain the software and hardware technology.

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