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Flippy can cook a burger, but can it ask if you want fries with that?

By Marwa Eltagouri, *Washington Post*



Miso Robotics created Flippy, an autonomous robotic arm that can flip burgers. A restaurant in Pasadena, Calif. has installed one to cook its meat. [Miso Robotics]

A burger-flipping robot that doesn't require a paycheck or benefits, and can grill 150 burgers per hour, is now a cook at CaliBurger.

It's called "Flippy."

The robot — or more specifically, a specialized industrial six-axis robotic arm bolted to the kitchen floor — works lunchtime shifts at the international burger chain's Pasadena, Calif., location. It takes burger orders through a digital ticketing system, then flips the burger patties and removes them from the grill. It uses thermal and regular vision, as well as cameras, to detect when the raw meat is placed on the grill, then monitors each burger throughout its cooking process.

But those worried about a robot takeover of food-industry jobs can find comfort in knowing that Flippy still needs a human guide to place the patties on the grill. The robot also displays the burgers' cooking times on a screen so its human co-workers know when to top the patties with cheese and to start dressing them with lettuce and tomatoes, according to Miso Robotics, the Pasadena-based company that developed the "world's first" burger-flipping robot.

In addition, Flippy can rotate through spatulas for raw meat and cooked meat (to prevent cross-contamination) and clean those spatulas while the burgers are cooking. Another skill: Using a scraper to keep the surface of the grill in good shape.

Flippy could be the answer to solving the high employee turnover rate in the fast-food industry, which sees as much as 50 percent of staff at a given restaurant leave within a year. While these workers might leave because of low wages, the industry as a whole spends about \$3.4 billion annually in recruiting and training.

Replacing a line cook's job with a robot could eliminate problems such as work-related injuries, including burns, that are sometimes improperly addressed (some fast-food workers, for example, have been told to treat their burns with condiments). Violence in the fast-food industry is also a problem, as roughly one in eight workers in 2015 reported being assaulted at their fast-food jobs during the previous year, according to a survey on fast-food workers' safety.

But Flippy also raises questions about job loss. About 80 percent of job losses in U.S. manufacturing over the past 30 years, for example, were the result of technological displacement, and recent studies indicate the pattern will spread across other industries. Technology could absorb as much as 40 percent of the U.S. workforce by the early 2030s, according to a 2017 report.

Flippy's developers say it is designed to operate in an existing commercial kitchen layout alongside other workers to "safely and efficiently fulfill a variety of cooking tasks." The robot was customized for the CaliBurger kitchen and is exclusive to the chain for six months, then will be offered to other fast-food vendors. The initial cost of \$60,000 is expected to rise in price as it develops more sophisticated features, The Washington Post's Gene Marks reported in September.

"The kitchen of the future will always have people in it, but we see that kitchen as having people and robots," David Zito, co-founder and chief executive of Miso Robotics, told KTLA in Los Angeles. "This technology is not about replacing jobs. We see Flippy as that third hand."