AI-Powered Self Service Checkout Eliminates the Wait

You finally got tickets to see your favorite team play. You slip out ahead of halftime to grab a snack, and while you're standing in the long concession line, you hear the roar of the crowd inside the stadium. Your first thought: What did I miss? Your next thought: Why is this line so slow? Sure, you can watch the instant replay, but it's not as exciting as seeing the amazing play unfold in front of your eyes.

Other retail environments, like grocery stores, are reducing wait times with self-serve kiosks, but businesses that sell non-barcoded items—just like that gameday hotdog and beer—must rely on human cashiers. Unfortunately, staffing shortages are increasing customer wait times.

Long lines often translate to lost sales, but now, AI-driven self-checkouts, such as those from Mashgin, a creator of frictionless checkout experiences, are solving the problem by using artificial intelligence (AI), computer vision, and object recognition to perform point of sale transactions.

Changing the Game with Self Service Kiosks

Like most innovations, the inspiration for Mashgin (which stands for "mash-up of general intelligence") came from a personal experience. In 2013, Mashgin Founder Mukul Dhankhar was working on self-driving cars and humanoid robots at Toyota's computer vision lab in the Netherlands. Every afternoon, he'd grab a salad and soft drink at the onsite cafeteria, but it would take forever to checkout because everyone in the corporation had the same two-hour block for lunch.

Standing in line, Dhankhar thought, "I can fix this." And he did. Anchored in computer vision and deep learning, The Mashgin Touchless Checkout System identifies and rings up products using multiple cameras. Customers place all their items on the checkout tray. The system, which is powered by Intel® processors, generates 3D images of the products, matches them to the inventory database, and rings up the entire tray in less than one second. Weighed items, like salads, are placed on the kiosk's scale. Customers pay with their credit or debit card or cash and be on their way **(Video 1)**.

Items that aren't already in Mashgin's database can be easily scanned into the system. "Teaching the machine an item takes about 30 seconds," says Toby Awalt, Vice President of Marketing for Mashgin. "The different cameras take poses, which are a collection of shots that create a 3D profile. The magic is how few shots you need to go from not recognizing an object to recognizing an object. That data is then sent out to all the other machines in the network, and every machine gets smarter."
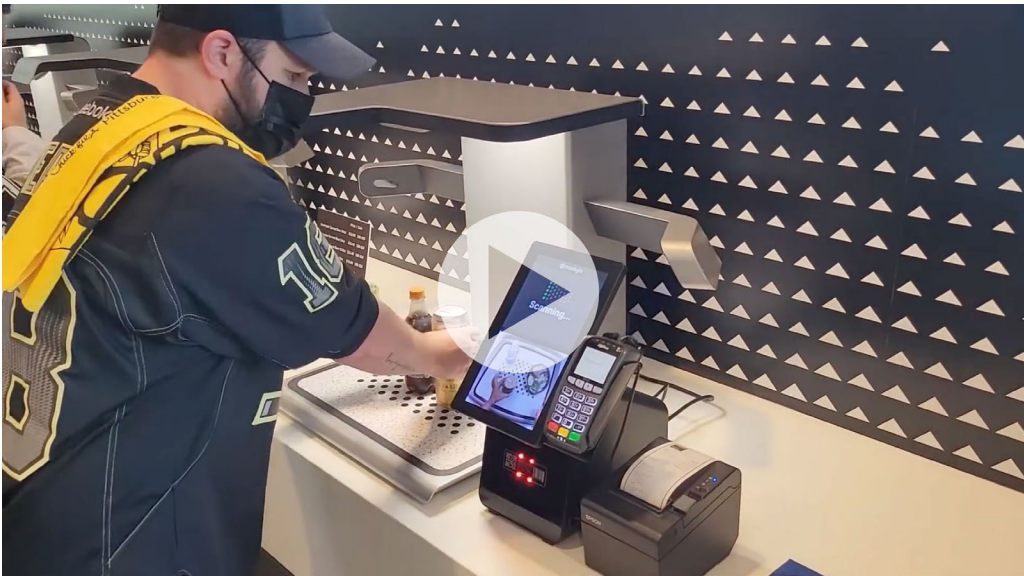
Video 1. AI-driven object recognition creates self-service checkouts that speed up transactions and boost the customer experience. (Source: Andy Peacock)

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Mashgin deploys the system in as little as 15 minutes. Awalt says that market readiness is important because labor problems are a big issue for retailers. "We literally come and drop the machine on the counter, do an accounting check, and it's ready to go," he says.

Once installed, Mashgin operates as a "Checkout as a Service" model. "We take on hardware warranty, support, algorithm updates, and more," says Awalt. And like other checkout systems, Mashgin collects real-time sales data, which helps retailers track inventory and maintain supply levels.

Smart Retail Solutions of the Future

By lowering average checkout times, high traffic businesses, such as convenience stores, cafeterias, airport vendors, and arenas, can dramatically decrease lines and improve the customer experience.

For example, Mile High Stadium, home to the Denver Broncos NFL team, integrated 30 Mashgin kiosks into its concessions system. With a capacity to host than 76,000 fans, the stadium experienced a 100% increase in overall throughput speed and a 34% increase on sales in its concession areas after the solution was deployed. The median transaction time was reduced to under 15 seconds.

"We know every sports stadium has a line problem," says Awalt. "We're helping them drive sales and create better fan experiences. With Mashgin, you can post one person at the front to check IDs, and one person at the back to make sure that any liquids are open, the tops are off," says Awalt. "In-between them, you can place two to 10 machines that are all doing that huge throughput."

Awalt says the convenience store chain Circle K is putting 10,000 Mashgin units into their stores to help the address labor turnover. The solution frees up staff members to focus on customer service or take care of tasks, such as stocking shelves or cleaning the store.

"Our machines are two to four times faster than the typical cashier," says Awalt. "In a convenience store, we can put two machines on a counter and turn one person into five. The employee can say, 'Hey, these checkout machines can help you over here. If you need a lottery ticket, I can help you on the front register.'"

Named as one of *Fast Company's* Most Innovative Companies for 2022 and *Forbes'* AI 50 list, Mashgin is helping drive the future of retail, providing a better experience for customers while protecting sales for retailers. Someday the only line in a stadium could be the one to the women's bathroom.