

# Autonomous Shelf Scanning

ENHANCED DATA COLLECTION AND INVENTORY WORKFLOW MANAGEMENT POWERED BY BrainOS®



SKU OUT OF STOCK FOR 3 DAYS

EXPAND DISPLAY AREA

WRONG SKU LOCATION

INCORRECT PRICING

IN STOCK BUT NOT ON SHELF

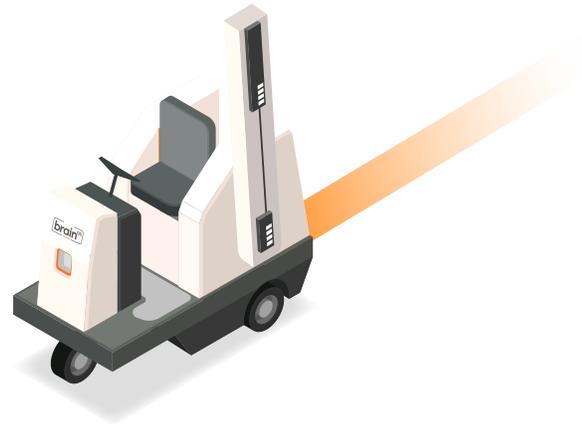
OBSOLETE PROMO TAG

REPEATED SHRINKAGE LOCATION

# Autonomous Shelf Scanning

As the retail industry faces never before seen challenges, the need to provide and maintain inventory—the right inventory—becomes even more mission critical. In-store data, captured reliably and predictably, fuels analytic solutions that drive these mission critical inventory decisions. To address this new reality, autonomous mobile shelf scanning robots are quickly becoming a go-to tool for retailers struggling to balance the need for greater data capture while facing labor shortages for what have traditionally been labor intensive tasks, like shelf scanning.

When combined with innovative computer vision and analytics, this new breed of autonomous mobile robots (AMRs) can address a full host of retail challenges, at scale. AMRs are ideal for large scale retail deployments because they provide high levels of data accuracy, speed and consistency. Robots are good at repetitive tasks that require high levels of consistency, like taking a photo at the exact same height, exactly two feet apart, on the same path, every day. Robots don't get distracted, shoppers don't stop to ask them questions, and they provide full reporting and mapping of store and shelf coverage to ensure complete and consistent coverage.



## The Benefits of Autonomous Shelf Scanning



### ENSURE INVENTORY AVAILABILITY

Store managers and associates are constantly challenged to stock inventory storewide, collect and drive insights, and action on the data to know which products are out of stock or possibly misplaced, and which product are priority to get re-stocked, fast. Researchers estimate human stocking errors make up 2-3% of lost revenue and out-of-stock inventory costs retailers nearly \$450B annually in lost revenue. Robot shelf scanners can provide digital images and map stock-outs across individual aisles, entire stores, in regions or full markets.



### VALIDATE PRICING ACCURACY

Ensuring products are correctly priced is a key focus for store managers and company executives because pricing compliance directly impacts the retail bottom line. Incorrect or missing prices, discrepancies between shelf pricing and price at the register not only effect revenue but can lead to a bad customer experience or even a lost customer. Ensure correct and consistent pricing with autonomous mobile shelf scanning.



## PRODUCT AND STORE MAPPING

Company executives know what each store should look like. But what do the stores really look like? Across all locations? Store managers have previously utilized CAD maps of a store and then annotate by hand, as needed. The ability to centralize data collection and determine storewide product locations and up-to-date product placement is critical. Ideal for inventory management, promotion validation and planogram compliance, robot shelf scanners can provide digital images and maps of the environment. During scanning, the robot captures photos of individual SKUs and/or shelf sections. These individual images are localized using the machine's sensor data and a combination of AI and machine learning in order to utilize them to develop item, features and whole store maps indicating where specific items are within the store.



## IMPROVE CUSTOMER EXPERIENCE

Correctly placed, priced, and promoted inventory is essential to enhancing the in-store customer experience. Frequent, accurate and consistent shelf scanning is vital to ensure the data needed to drive inventory management is available at scale. Robot shelf scanners can optimize human shopper in-store experiences.



## PLANOGRAM COMPLIANCE

Integral to the profitable operations of any retailer, planogram compliance - either for themselves or their consumer-packaged goods partners - is an essential data need that is currently not an easy task for many retailers. Estimates are that upwards of 70% of consumer purchase decisions are made at the shelf and yet less than 40% of retailers have a way to measure and report on planogram compliance. Autonomous shelf scanning reliably provides the imagery and data necessary for this type of reporting



## IMPROVE EXPERIENCE FOR OUTSOURCED SHOPPERS, "PICKERS"

As retailers expand their on-line order and pick and pack services, and companies like Instacart gain traction, autonomous shelf scanning will play a vital role in keeping inventory current. In store data, captured reliably and predictably, fuels analytic solutions that in turn drive these types of services, keeping shoppers up to date on what is and is not available, and helping retailers better plan product placement to optimize shoppers' in store pick paths.

# Shelf Scanning is Powered by BrainOS®

Robotic shelf scanning - powered by Brain Corp's BrainOS® commercial robot operating system—represents Brain Corp's latest innovation. By leveraging existing best-in-class autonomous mobile floor scrubbers as the base robotic form factor, BrainOS-powered shelf scanning provides superior incremental dual 'scrub and scan' functionality compared to other single function, dedicated shelf scanning solutions.

Brain Corp partners with leading OEMs to produce, deploy and support commercial robots at scale with its robotic AI platform. The flexibility of the Brain Corp platform enables these OEMs to solve a range of challenges and provide retailers with choices all while benefiting from fleetwide best-in-class navigation AI, safety-first architecture, centralized data hosting and analytics, and cloud-connected fleet management. For BrainOS-powered shelf scanning solutions, this platform approach reduces upfront hardware costs and on-going service and maintenance costs while maximizing customer choice and flexibility to add and modify use cases as their business needs change.

By selecting robots powered by BrainOS, retailers of all types can leverage purpose built, best-in-class machines across their environments without increasing management and operational complexity, creating data silos, or requiring end-users to learn different systems. From moving materials and inventory to automating floor cleaning and vacuuming, to inventory-scanning solutions, BrainOS currently powers the largest fleets of indoor autonomous mobile robots in the world, including machines used by major retail facilities, airports, and malls around the world.

