RealSense

Simbe's Real-Time Store Intelligence™ Platform Powered by RealSense Depth Cameras

Harnessing Computer Vision, AI, and Robotics to Revolutionize Retail Inventory Management

Spotlight on Simbe

Simbe's Multimodal Store Intelligence™ Platform, powered by Tally, gives retailers near real-time inventory data and actionable insights by digitizing the entire store. With Simbe, teams can keep shelves stocked, pricing accurate, and shoppers happy—making stores work better for their employees and shoppers every day.

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Challenge

One of the biggest gaps in retail today is visibility into the store interior. Retailers know when inventory arrives and when it sells, but what happens in between is often a mystery. Common problems like out-of-stock items, pricing errors, and missed promotions can leave retailers scrambling.

Solution

As the most advanced autonomous inventory robot on the market, Tally helps retailers gain the visibility they need to manage inventory more efficiently and improve their bottom lines. RealSense™ Depth Cameras D435 and D415 empower Tally to map shelves, monitor inventory, and confirm pricing accuracy while navigating safely and efficiently through retail environments.

Results

Tally audits up to 30,000 items per hour, spotting out-of-stock items, misplaced products, and pricing discrepancies. Stores using Tally see a 2% increase in sales, 98% on-shelf availability, and save 50 hours a week—allowing associates to focus more on customer service. With Tally's help, retailers cut out-of-stock rates by 60% and see higher shopper satisfaction.

Introduction: The Need for Effective, Discreet, High-throughput Screening

Store interiors are the last remaining "data desert" in retail. While retailers can track when inventory arrives and when it's sold, they often lack visibility into what happens in between. Inaccurate or missing data on shelf conditions leads to serious inefficiencies like out-of-stock items, pricing errors, missed promotions, and poor planogram compliance. These challenges are significant: without knowing exactly what's happening on the shelf, retailers may not understand what drives consumer purchases at the point of decision.

Retailers lose an average of 6% in gross sales and 5% in operating margins each year because of these inefficiencies.[1] For example, when an item is out of stock, customers may simply leave without buying. Even though the item might still be in the store, if the shelf isn't restocked quickly enough, sales are lost. Similarly, pricing and promotion execution can often be inaccurate or outdated, especially in large stores with constantly changing inventory. Ensuring the right price is displayed at the right time is a tedious task, but it's crucial for ensuring profitability and compliance. These same constraints apply to planogram accuracy—when products are out of place, stores can miss out on promotional opportunities, seasonal sales, or even customer loyalty due to poor shelf organization. These are just a few of the common issues that prevent stores from operating efficiently and delivering the best shopping experience.

Due to these issues, retailers lose over $1 trillion in sales every year.[2] As a result, many

stores are turning to automation and AI to gain the real-time insights that allow them to reverse these alarming statistics. Leading the pack is Tally, an accurate, reliable, and cost-effective solution for scanning store interiors.

"RealSense cameras were the best option for Simbe's robot, Tally, for multiple reasons – they allow the robot to see the front and back of the shelf and allow this visual representation to be performed while Tally is moving. Holding still isn't an option for Tally."

– Mirza Shah, Simbe CTO

How Tally Works

Simbe's multimodal solutions digitize store interiors for complete visibility, helping top retailers drive excellence and accuracy across their business with industry-leading computer vision, AI, and automation. Tally, the world's first autonomous item-scanning robot for retail tracks product location, stock levels, and pricing and provides actionable insights to retailers.

Tally is equipped with proprietary AI and computer vision, 2D sensors, and 3D sensors powered by RealSense depth cameras. Tally uses this depth data to map shelves, monitor inventory, and confirm pricing, creating a dynamic "realogram" that replaces outdated and static planograms. By navigating store aisles three times a day, Tally captures inventory data across diverse environments, from packaged goods to clothing. These autonomous activities free up store associates' time

by automating the discovery of inventory and pricing issues, allowing them to focus on what matters most, the customers. Designed to be unobtrusive, Tally operates alongside shoppers and associates during regular hours. Multiple cameras around the robot also enable obstacle detection, allowing Tally to navigate crowded areas without bumping into objects or shoppers. Additionally, Tally is easy to deploy and is operational in under a day requiring just Wi-Fi and an electrical outlet.

Selecting RealSense

According to Mirza Shah, Simbe CTO, RealSense Depth Cameras D435 and D415 were chosen for their ability to distinguish between objects and the back of shelving, ensuring comprehensive shelf visibility. The cameras can perform real-time visual mapping while in motion, which enables Tally to scan efficiently across large areas. Simbe also liked the compact size and low power requirements of the RealSense cameras, which ensure reliable performance and consistent operation over long distances.

Accurate Computer Vision Data Powers Efficient Retail Operations

RealSense cameras act as Tally's "eyes," providing the accuracy and reliability needed for precise shelf analysis. Without the high-quality depth sensing from RealSense, Tally wouldn't be able to deliver the real-time insights retailers need to improve operations and keep shoppers happy.

Thanks to this sophisticated computer vision technology, Simbe's solution has garnered significant traction across nearly 1,000 stores in 5 countries and 3 continents, with Tally

logging over 745,000 miles of in-store navigation, according to company reports. To date, Tally has analyzed over 12.5 billion price tags, saving retailers significant time on manual inventory tasks. By freeing up 50 hours a week per store, Tally allows associates to focus on customer service and more fulfilling work.

"RealSense depth cameras offer a seamless out-of-the-box experience with one of the most reliable multi-camera systems on the market, an important factor in our decision to work with RealSense."

– Brad Bogolea, Simbe CEO

Learn More

• **Simbe**

https://www.simberobotics.com

• **RealSense Technology**

https://www.realsenseai.com

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[1] https://www.simberobotics.com/insights/the-state-of-in-store-retailing-opportunities-to-redefine-operations/report
[2] https://www.ihlservices.com/product/retail-inventory-distortion-study-the-good-the-bad-the-ugly-2023/