

# Retail Robotics Market to Grow at 13.4% CAGR Through 2035, From USD 57.7 Billion in 2024

Retail robotic market was valued at USD 57.7 Billion in 2024 and is projected to grow at a CAGR of 13.4% during the forecast period (2025-2035).

INDORE, INDIA, April 29, 2025 /EINPresswire.com/ -- The global <u>retail</u> <u>robotic market</u> is witnessing strong growth as companies see the strategic benefits of integrating automation into their business. The growing need for operational effectiveness, cost savings, and improved customer experiences has turned robotics into a critical



element in the retail industry. According to the International Federation of Robotics (IFR), in October 2024, Sales of professional service robots increased by 30.0% globally. More than 205,000 units were registered by IFR's statistics department in 2023. Nearly 80.0% of the robots came from the Asia-Pacific region with 162,284 units sold. Europe followed with 33,918 units and the Americas with 8,927 units sold. The robots are programmed to carry out a variety of tasks, including stock replenishment, product delivery, and even helping customers in-store. While stores are under increasing pressure to rationalize supply chains and enhance delivery of services, robotic systems are offering solutions to automate processes and eliminate human mistakes. In addition, the emergence of e-commerce has catalyzed the use of automation in traditional retail stores, where companies are trying to connect online and offline shopping experiences. Retail robots, with advanced AI, can handle massive data, forecast trends and consumer patterns, making decisions in real-time that maximize inventory management and product range.

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Market Trends

Increasing Use of Mobile Autonomous Robots (AMRs)

The retail robotics market is growing at a very fast rate, owing to the increasing application of mobile autonomous robots in different operating procedures. Automating functions such as order picking, scanning shelves, managing inventories, and customer service, the robots are transforming the retailing business. The capability of AMRs to travel autonomously down store aisles, track inventory levels in real-time, and aid in product retrieval is transforming the efficiency of supply chain operations. Retailers are making investments in these technologies to enhance operational productivity, mitigate human labor expenses, and improve the customer experience.

The ongoing evolution in machine learning, computer vision, and sensor technology is driving the capabilities of such robots higher, allowing them to learn in dynamic environments and provide better performance. The rising customer expectations for faster and more customized services, retailers are using AMRs to satisfy these expectations without compromising on high levels of accuracy and reliability. Retailers are also investing in integrating AMRs with their existing systems to improve logistics, inventory management, and data analysis to enhance business. Integration gives real-time insights into operations and allows retailers to make proactive decisions to improve overall business performance. As the price of automation technology lowers and the performance of such robots improves, it is projected that the retail robotics industry will further expand over the next few years, both large companies and small-to-medium-sized businesses vying to remain relevant in the changing retail scene.

# Merging Computer Vision and AI in Robotic Systems

The retail robot market is expanding with the application of state-of-the-art technologies like computer vision and artificial intelligence (AI). As customer needs are changing and business efficiency is crucial, increasingly, retailers are implementing robotic solutions to meet the needs. Robots based on AI and computer vision can carry out various functions such as product recommendations and customer service, shelf scanning, and inventory management. Robots can sense and understand their environment in real-time, allowing them to make intelligent choices that optimize working efficiency.

Al robots can even be taught to learn from dynamic store settings, like adapting with changes in store layouts or product configurations to respond to customer behavior. Automation of routine tasks not only reduces labor, increases accuracy, abolishing human errors. These systems also improve the customer experience via seamless interactions, providing personalized recommendations, and improving the speed of service. As a result, technologies have grown more mature, retail robots are more affordable, autonomous, and durable, creating doors for increased growth and innovation in the industry. As a result, the retail industry is experiencing increased reliance on robot systems to enable efficiency, propel profitability, and provide a smoother and more dynamic shopping experience.

## **Regional Outlook**

According to the International Federation of Robotics (IFR), in October 2024, the US is home to the largest number of service and medical robot manufacturers globally, with 199 companies headquartered there. 66.0% of these manufacturers produce professional service robots, 27.0% consumer service robots, and 12.0% medical robots. China ranks second with a total of 107 service and medical robot manufacturers. The proportion of companies offering professional service robots is even higher than in the US, at 80.0%. A total of 34.0% offer consumer robots and only 5.0% medical robots.

Strong Presence of Key Market Players in Asia-Pacific

The Asia-Pacific retail robotics market is experiencing strong growth owing to, rising urbanization, growing consumer expectations, and the rapid uptake of digital technologies. Retailers across the region are turning to automation to improve operational effectiveness, customer experience, and stay competitive in a changing retail environment. Further, Demand for robotics for applications such as handling of inventory, picking orders, and in-store customer service has risen with the ongoing growth in e-commerce and owing to smart shopping spaces. Asia-Pacific region governments are also promoting automation and digitization with the help of financial incentives as well as through regulatory support.

North America Holds Major Market Share

The demand for efficiency and automation in retailing process is pushing high growth in the North American retail robotics market. Robotic technology has been utilized by retailers to reduce operating cost, enhance customer service, and automate inventory management. The use of robots has grown even further as of e-commerce and omnichannel retailing strategies, mainly in storage and fulfillment centers. Advances in computer vision, machine learning, and artificial intelligence technologies have enhanced the effectiveness of retail robots considerably, making them more efficient and economical. Labor gap and increasing wage costs are also promoting the adoption of robotic solutions. For instance, San Francisco, California-based Bossa Nova Robotics offers autonomous shelf-scanning robots to large retailers for real-time inventory monitoring and analytics.

Market Segmentation and Growth Areas

Mobile Robotics Segment is Expected to Dominate the Market, Holding the Largest Share

The market for retail robotics has grown rapidly in recent years, primarily spurred by the growth of mobile robotics. These advanced machines provide enhanced efficiency and accuracy in inventory management, restocking, and the overall shopping experience. The deployment of mobile robots has enabled retailers to streamline store operations, save on labor expenses, and

quickly react to customers' needs. Automation of menial tasks not only reduces the risk of human error, allows employees to concentrate on customer service and more strategic functions. As e-commerce grows, the need for inventory tracking and order fulfillment in real time has further increased the use of mobile robots. Mobile robots can navigate complex store formats, learn to function in dynamic conditions, and operate continuously with minimal supervision. The fact that they can capture information in real-time is part of what enhances analysis and decision-making. Mobile robotics also supports sustainability through reduced waste and energy consumption through improved performance. The technology is regarded by retailers as an investment for long-term competitiveness and resilience. For instance, Walmart has used autonomous mobile robots to scan inventory, ensuring shelf accuracy and enhancing product availability for customers.

The Inventory Management Segment is Expected to Capture a Significant Share of the Market

The retail robot market has experienced significant growth over the past few years, driven in large part by the increased demand for effective inventory management technologies. Retailers are employing robotics to automate the tracking of inventories, reduce human error rates, and overall improve supply chain accuracy. Robotics solutions like autonomous mobile robots (AMRs) are being installed to track stocks in real-time, ensuring stock on shelves at optimal levels that customers can easily find what they are looking for. This automation increases efficiency in operations, lessens labor costs, and enhances customer satisfaction. Moreover, information gathered by these robots enables improved forecasting and planning for demand. Increased growth of e-commerce has also worsened the necessity for accurate inventory management, compelling retailers to invest in sophisticated robotic systems. These retail robots can also operate easily during off-peak hours, allowing for 24/7 inventory audits without interrupting customer activity. Integration with artificial intelligence enables these systems to make data-driven decisions and act dynamically against inventory discrepancies.

#### Market Limitations and Challenges

•Workforce Resistance: Implementing robots into retail settings often faces opposition from employees who fear loss of jobs. Store workers may fear that robots will replace them, leading to job displacement. This may invite the resistance of unions or protests that slow down or increase the cost to companies wishing to implement robotic solutions. Balancing this shift of the workforce in a way that minimizes social tension and allows for retraining is a key challenge.

•Maintenance and Operations Costs: While robots have the potential to mechanize processes in the first instance, long-term operating costs and maintenance could be prohibitive. Continuous updates on software, repairing hardware, and the requirements for technical professionals incur huge overhead for stores. It can be unsustainable for smaller retail operators that are incapable of allocating funding for maintaining costs, preventing widespread availability of robot-based solutions among retailers across the industry.

#### Market Players Outlook

The major companies operating in the global retail robotic market include ABB Ltd, Amazon.com, Inc., KUKA AG, Fujitsu Ltd., and SoftBank Robotics Group among others. Market players are leveraging partnerships, collaborations, mergers, and acquisition strategies for business expansion and innovative product development to maintain their market positioning. For instance, Tally, which is a self-guiding robot used for retail inventory control, is developed by Simbe Robotics. Tally travels along and between aisles scanning the shelves to monitor stock levels, locate misplaced products, and assist in maintaining shop shelves adequately stocked.

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## **Recent Developments**

•In March 2025, Vecna Robotics, in flexible material handling automation solutions, announced its participation in ProMat 2025, taking place from March 17-20 in Chicago, Illinois. Attendees are invited to visit Booth #N7520 to experience live demonstrations of Vecna Robotics' groundbreaking CaseFlow solution, a revolutionary approach to case picking operations in warehouses and distribution centers. CaseFlow™ is an end-to-end solution that leverages pallet-handling robots to automate up to 90.0% of warehouse travel, orchestrating workers with dynamic, directed zone picking.

•In January 2025, Lenovo introduced three new retail solutions combining the best robotics and artificial intelligence technologies. Premiering at NRF 2025 in New York City, each solution has been field-tested and proven commercially. Lenovo Retail Content Management Services enables retailers to create, schedule, and display digital content across screens store-wide, streamlining multimedia content management and enabling real-time updates and targeted messaging to drive awareness, interest, and incremental sales.

•In December 2024, VenHub Global, Inc. is an emerging AI and robotics technology company that has developed a 24/7 fully autonomous retail Smart Store, headquartered in Pasadena, CA, and has amassed a robust pre-order backlog of 1,000+ stores with potential revenue of more than \$300 million. VenHub's proprietary robotic arms technology and innovative-edge vision system ensure precise product delivery, while its AI-driven platform is expected to optimize store operations

Some of the Key Companies in the Retail Robotics Market Include-

- Addverb Technologies Ltd.
- Bastian Solutions, LLC
- Bossa Nova
- dacuro GmbH
- Daifuku Co., Ltd.

- Dematic Group KION Group AG
- GreyOrange India Pvt Ltd.
- Honda Motor Co., Ltd.
- Honeywell International Inc
- ICE Cobotics
- Intel Corp.
- Locus Robotics Corp.
- RightHand Robotics, Inc.
- Robotiq Inc.
- Siemens
- SoftBank Robotics Group
- ST Engineering
- SZ DJI Technology Co., Ltd.
- Universal Robots A/S
- Zebra Technologies Corp.

Retail Robotic Market Segmentation Analysis

Global Retail Robotic Market by Type

- Mobile Robotics
- Autonomous Robotics
- Semi-Autonomous Robotics

Global Retail Robotic Market by Deployment

- Independent Deployment
- Third-Party Deployment

Global Retail Robotic Market by Application

- Inventory Management
- Delivery Management
- In-Store Services

**Regional Analysis** 

- North America
- o United States
- o Canada
- Europe
- o UK
- o Germany
- o Italy
- o Spain
- o France
- o Rest of Europe

- Asia-Pacific
- o China
- o India
- o Japan
- o South Korea
- o ASEAN Economies (Singapore, Thailand, Vietnam, Indonesia, and Other)
- o Australia and New Zealand
- o Rest of Asia-Pacific
- Rest of the World
- o Latin America
- o Middle East and Africa

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