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Autonomous Mobile Robots (AMR) Market Opportunity, Growth Drivers, Industry Trend Analysis, and Forecast 2025 - 2034

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Abstracts

The Global Autonomous Mobile Robots Market was valued at USD 2.8 billion in 2024 and is projected to grow at a CAGR of 17.6% from 2025 to 2034. This growth is fueled by the rise of e-commerce, increased adoption of warehouse automation, and growing demand for AMRs across agriculture and hospitality industries. The surge in e-commerce and omnichannel retailing has driven the widespread deployment of AMRs for sorting, transportation, assembly, and inventory management. Manufacturers are focusing on developing highly advanced AMRs equipped with AI-guided navigation and automation to meet the expanding demands of global e-commerce and logistics markets.

The agriculture sector is witnessing a rapid shift towards automation due to labor shortages, the need for precision agriculture, and the goal of boosting productivity. AMRs automate essential farming operations such as sowing, reaping, weeding, and crop monitoring, reducing operational costs and enhancing efficiency. Similarly, the hospitality industry is integrating AMRs to streamline operations, improve customer experiences, and address labor challenges. These robots assist with food delivery, luggage handling, and housekeeping, contributing to enhanced efficiency and service quality. To capitalize on these opportunities, manufacturers are developing industry-specific AMRs that address the unique demands of the agriculture and hospitality sectors.

By component, the AMR market is segmented into hardware, software, and services. The hardware segment, valued at USD 1.4 billion in 2024, dominates the market due to rising demand for advanced sensors, LiDAR, cameras, and robotic arms. Improvements in battery life, payload capacity, and processing power are enhancing the efficiency of AMRs and driving hardware adoption. Increased investment in high-performance processors and AI chips is further boosting hardware demand.

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In terms of type, the market includes goods-to-person picking robots, unmanned aerial vehicles, self-driving forklifts, and autonomous inventory robots. Goods-to-person picking robots are expected to grow at a CAGR of over 18.5% through 2034. These robots are gaining traction due to warehouse automation trends, increasing e-commerce orders, and labor shortages. Their ability to minimize human contact, maximize storage density, and accelerate order fulfillment is driving their adoption across logistics and supply chain industries.

By battery type, the market is segmented into lead batteries, lithium-ion batteries, nickel-based batteries, and others. Lithium-ion batteries dominated with a market share of 68.7% in 2024 due to their high energy density, long battery life, fast charging, and portability. Their efficiency and low maintenance make them ideal for use in the manufacturing, logistics, and healthcare sectors.

Regarding applications, AMRs are utilized for sorting, transportation, assembly, and inventory management. The inventory management segment is expected to grow at a CAGR of 20.4% from 2025 to 2034, driven by the rising use of AMRs in retail and warehousing to improve order accuracy, optimize stock levels, and track real-time locations.

Based on navigation technology, the market is divided into laser/LiDAR, vision guidance, and others. Laser/LiDAR held a 44.1% market share in 2024 due to its ability to perceive surroundings, detect obstacles, and navigate autonomously in dynamic environments, which is essential for logistics, warehousing, and industrial applications.

In terms of payload capacity, AMRs with a payload capacity of 100 kg to 500 kg dominated the market with a 39% share in 2024 due to their flexibility and versatility in automating material movement across warehouses, logistics, and retail industries.

The end-use industries driving market growth include logistics and warehousing, retail, automotive, electronics, pharmaceuticals, food and beverage, aerospace, hospitality, and others. The logistics and warehousing segment accounted for a 33.6% market share in 2024, driven by the increasing need for retail, e-commerce, and third-party logistics automation.

Regionally, North America led the market with a 33.8% share in 2024, driven by rapid automation adoption across logistics, e-commerce, and manufacturing sectors. Growing investments in AMRs, labor shortages, and the push for operational efficiency are accelerating AMR market growth in the region.

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