

Last-Mile Delivery Robotics Market Forecasts to 2032 – Global Analysis By Offering (Hardware, Software and Services), Vehicle Type, Range, Payload Capacity, Autonomy Level, Application, End User and By Geography

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Abstracts

According to Statistics MRC, the Global Last-Mile Delivery Robotics Market is accounted for \$1.46 billion in 2025 and is expected to reach \$6.04 billion by 2032 growing at a CAGR of 22.4% during the forecast period. Robotics in last-mile delivery is transforming how goods reach end consumers, particularly in e-commerce and logistics. Autonomous delivery systems, such as drones and ground robots, handle the final stretch from distribution centers to customers efficiently. These robots improve delivery speed, reduce operational expenses, and elevate customer experience. Advanced sensors, AI-driven navigation, and optimized routing enable them to maneuver safely through busy city streets. Additionally, last-mile delivery robotics supports environmental goals by limiting the use of conventional vehicles, decreasing congestion, and lowering emissions. As a result, this technology is playing a crucial role in shaping future-ready and sustainable supply chain operations.

According and data from the World Economic Forum (WEF), last-mile delivery demand in urban areas is projected to grow by 78% by 2030, potentially increasing delivery vehicles by 36% in the top 100 cities. The WEF recommends autonomous delivery robots and micro-distribution hubs as critical solutions to mitigate traffic congestion and reduce emissions by up to 30%.

Market Dynamics:

Driver:

Increasing e-commerce demand

Rapid growth in e-commerce is fueling the adoption of last-mile delivery robots. Consumers demand quick, accurate, and convenient delivery services, putting pressure on conventional delivery systems. Autonomous delivery robots offer efficient solutions by handling deliveries with minimal human intervention, lowering costs, and meeting high-volume order requirements. Logistics companies and retailers are implementing these technologies to streamline operations, especially during peak shopping seasons, ensuring timely service. With online shopping expanding continuously, last-mile delivery robotics is becoming indispensable for modern logistics, supporting scalability, operational efficiency, and improved customer experiences. The trend highlights the growing integration of automation in the supply chain.

Restraint:

High initial investment

The large upfront costs of implementing last-mile delivery robots act as a major market constraint. Organizations face substantial expenses for purchasing advanced robotic systems, setting up necessary infrastructure, and training staff for seamless operation. This financial burden is especially challenging for smaller businesses, restricting widespread adoption. Costs related to AI software, system upgrades, and maintenance add further pressure. Although these technologies offer long-term operational efficiency and labor cost savings, the initial capital outlay remains a significant barrier. Consequently, high investment requirements limit the rapid expansion and integration of last-mile delivery robotics in many regions, slowing market growth and adoption rates.

Opportunity:

Adoption of smart cities and IoT integration

The rise of smart cities and IoT-enabled infrastructure offers significant growth potential for last-mile delivery robots. Connected systems, including traffic sensors, smart signals, and real-time monitoring which help autonomous robots operate more efficiently in urban areas. IoT integration facilitates optimized routing, predictive maintenance, and real-time delivery tracking, enhancing overall operational effectiveness. Government-backed smart city initiatives encourage the adoption of such technologies, promoting safer, more reliable, and energy-efficient deliveries. By capitalizing on these

innovations, logistics companies can improve service quality, reduce urban congestion, and expand operational capabilities, making smart city infrastructure a key driver for the growth of last-mile delivery robotics.

Threat:

Cybersecurity and data privacy risks

Increasing dependence on connected delivery robots introduces significant cybersecurity and data privacy challenges. Autonomous delivery systems handle large volumes of sensitive customer and operational data, making them potential targets for hacking, malware, and unauthorized access. Security breaches can disrupt logistics operations, expose personal information, and harm a company's reputation. Implementing strong encryption, secure communication protocols, and frequent system updates mitigates risks but raises costs and operational complexity. As cyber threats continue to grow in sophistication, protecting robotic fleets becomes an ongoing challenge. These cybersecurity and data privacy issues represent a key threat to the broader adoption of last-mile delivery robotics.

Covid-19 Impact:

The COVID-19 outbreak accelerated growth in the last-mile delivery robotics sector by emphasizing contactless and safe deliveries. Lockdowns and social distancing disrupted conventional logistics, increasing reliance on automated solutions. The global surge in e-commerce, driven by consumers avoiding physical stores, amplified demand for efficient home deliveries. Autonomous robots and drones allowed companies to sustain operations while minimizing human interaction and health risks. Labor shortages in delivery services during the pandemic further prompted businesses to invest in robotic systems. Overall, COVID-19 served as a key driver, boosting innovation, adoption, and market expansion for last-mile delivery robotics across diverse regions worldwide.

The hardware segment is expected to be the largest during the forecast period

The hardware segment is expected to account for the largest market share during the forecast period due to the rising need for autonomous robots, drones, and essential infrastructure. It encompasses mechanical parts, sensors, navigation systems, and battery technologies, which are critical for reliable and efficient delivery performance. Growing adoption of robotic delivery solutions in e-commerce, retail, and logistics

sectors is driving hardware investments. Enhanced robotic hardware allows companies to improve delivery accuracy, speed, and overall operational efficiency. With organizations prioritizing the deployment and scaling of automated delivery systems, the hardware segment continues to play a leading role, contributing significantly to the market's expansion and technological advancement.

The light payload (6-20 kg) segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the light payload (6-20 kg) segment is predicted to witness the highest growth rate. The surge is fueled by growing requirements for automated deliveries of small and medium parcels across e-commerce, retail, and food sectors. Light payload robots provide an efficient balance between delivery capacity, energy efficiency, and operational performance. Their ability to navigate congested urban areas while maintaining timely delivery schedules makes them increasingly popular. Technological advancements in robotics and rising consumer expectations for quicker deliveries are driving the accelerated adoption and high CAGR of the light payload segment globally.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share due to advanced technological infrastructure, widespread e-commerce adoption, and a mature logistics ecosystem. The presence of extensive warehouses, distribution networks, and urban delivery systems facilitates the deployment of autonomous delivery robots and drones. Strong R&D investment and early implementation of AI, IoT, and robotics solutions allow efficient optimization of last-mile operations. Rising consumer expectations for rapid, contactless deliveries, coupled with workforce shortages in the delivery sector, further drive market expansion. As a result, North America continues to lead the global market, setting trends and shaping the growth trajectory of last-mile delivery robotics technologies.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR, fueled by rapid urbanization, rising e-commerce adoption, and increased automation investments. Key countries such as China, Japan, and India are deploying drones and autonomous delivery robots to meet the growing demand for quick, efficient, and contactless deliveries. The region's large population, improving income levels, and

technological innovations support the need for modern last-mile solutions. Government initiatives promoting smart cities and advanced logistics infrastructure further encourage robotics integration. Consequently, Asia-Pacific is emerging as the highest-growth market, offering significant opportunities and shaping the future of last-mile delivery robotics globally.

Key players in the market

Some of the key players in Last-Mile Delivery Robotics Market include Starship Technologies, JD.com, Inc., Panasonic Holdings Corporation, Relay Robotics, Inc., Nuro, Inc., Amazon.com, Inc., FedEx Corporation, Udelv Ltd., InVia Robotics, Inc., Kiwibot, Inc., Robomart, Inc., Boxbot, Inc., Flytrex Inc., Drone Delivery Canada Corp. and Refraction AI.

Key Developments:

In July 2025, JD.com, Inc. and 89618 announced that it decided to make a voluntary public takeover offer, through a wholly-owned indirect subsidiary JINGDONG Holding Germany GmbH, to all shareholders of CECONOMY AG, the parent company of leading European consumer electronics retailers MediaMarkt and Saturn, to acquire all issued and outstanding bearer shares in CECONOMY for a cash consideration of EUR 4.60 per share.

In February 2025, FC Barcelona and Panasonic have signed a sponsorship agreement whereby the Japanese multinational will become the new Heating Ventilation Air Conditioning Provider for Espai Barça for four seasons up to 30 June 2028. This association adds another strategic partner for Espai Barça, ensuring the highest possible energy efficiency, with precision technology and a high level of interior air quality in the new installations, with a view to providing the highest possible comfort for every member and fan visiting the Spotify Camp Nou.

In January 2022, Starship Technologies has announced that the company agreed on a €50m quasi-equity facility agreement with the European Investment Bank (EIB). The lending arm of the European Union (EU) and one of the largest providers of climate finance, the EIB supports projects that promote the priorities and objectives of the EU.

Offerings Covered:

Hardware

Software

Services

Vehicle Types Covered:

Ground Delivery Robots

Aerial Delivery Drones

Ranges Covered:

Campus Range (15 km)

Payload Capacities Covered:

Micro Payload (<5 kg)

Light Payload (6-20 kg)

Medium Payload (21-50 kg)

Heavy Payload (>50 kg)

Autonomy Levels Covered:

Semi-autonomous

Fully autonomous

Remote-Assisted

Applications Covered:

Retail & E-commerce Fulfillment

Food & Grocery Dispatch

Medical & Pharmaceutical Delivery

Parcel & Courier Logistics

Campus & Industrial Site Transport

End Users Covered:

Enterprise Clients (B2B)

Individual Consumers (B2C)

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East &
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