Automotive LiDAR Market by Technology (Mechanical LiDAR and Solid-state LiDAR), Image Type, ICE Vehicle Type (PC, LCV, HCV), Location, Electric Vehicle, Range, Laser Wavelength, Measurement Process, Level of Autonomy, and Region - Global Forecast to 2030

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Report description:

The global automotive LiDAR market is projected to reach USD 1.19 billion in 2024 to USD 9.59 billion in 2030, at a CAGR of 41.6% from 2024-2030.

The automotive LiDAR market is expanding rapidly, driven by continuous advancements in imaging and detection technologies, rising demand for luxury vehicles equipped with LiDAR, and a push toward higher levels of vehicle autonomy. Automakers like Mercedes-Benz Group AG (Germany), BMW Group (Germany), and BYD Co., Ltd. (China) are integrating LiDAR into models such as the Mercedes-Benz EQS, BMW i7, and BYD Han DM-i, enhancing driver assistance systems and enabling higher vehicle autonomy levels. In Asia Pacific, the market is witnessing significant growth, fueled by government initiatives and technological advancements, including China's goal to equip 70% of new cars with Level 2 or Level 3 autonomy by 2025 and developments in robotaxi services by companies like Baidu Inc. (China) and WeRide. Ai (China). Additionally, innovations like Aeva Inc.'s (US) Atlas, the first 4D LiDAR sensor designed for mass production, are setting new benchmarks in the industry. With growing regulatory emphasis on vehicle safety and increasing consumer demand for convenience and automation, the automotive LiDAR market is poised for substantial global growth, with Asia Pacific leading the way.

"Passenger Cars segment is expected to hold the largest share in the automotive LiDAR market during the forecast period."

The passenger cars segment is anticipated to hold the largest market share over the forecast period, driven by several key factors. The growing trend of autonomous mobility in passenger cars significantly impacts the demand for LiDAR technology, as it is essential for advanced driver assistance systems that enhance vehicle safety and performance. Features such as automatic emergency braking, adaptive cruise control, and emergency lane keeping systems are increasingly becoming standard, pushing

manufacturers to integrate LiDAR into their vehicles. Numerous passenger car models are already equipped with LiDAR, including the Mercedes-Benz EQS, Xpeng G9, BMW iX3, and BYD Han DM-i, reflecting the industry's commitment to adopting this technology. Furthermore, Waymo LLC's (US) 6th generation Waymo Driver system, launched in August 2024, features four LiDAR sensors, while vehicles like the Lotus Emeya also incorporate four LiDAR units, and GAC Aion's HYPTEC HT and HYPTEC GT models feature three LiDAR sensors each. As consumer awareness of safety features rises and regulatory pressures increase, the integration of LiDAR in passenger vehicles is expected to expand further. Overall, the combination of technological advancements and heightened consumer demand positions the passenger car segment for substantial growth in the automotive LiDAR market.
"Bumper & Grill segment is expected to hold the largest share in the automotive LiDAR market during the forecast period."
The bumper and grill segment is set to establish a strong foothold in the automotive LiDAR market, driven by its suitability for seamless integration and optimal placement for front-facing perception. Installing LiDAR in the bumper or grill allows manufacturers to embed sensors without compromising vehicle aesthetics or aerodynamics, making it a preferred choice. Many luxury vehicles, such as the Mercedes-Benz S-Class and BMW i7, feature LiDAR integrated into the grill, highlighting its practicality and effectiveness in advanced driver-assistance systems. As the demand for autonomous capabilities grows, the bumper and grill location is poised to remain a key focus for LiDAR integration. Additionally, companies are innovating with LiDAR integration in various vehicle locations. In April 2024, Marelli Holdings Co., Ltd. (Japan) and Hesai Group (China) introduced LiDAR-integrated headlamps, blending Hesai's compact ATX LiDAR into Marelli's lighting system, reducing volume by nearly 60% for seamless and affordable integration. For roof-mounted solutions, Luminar Technologies, Inc.'s (US) LiDAR, featured in the Volvo EX90, and Hesai Group's AT128, integrated with Webasto Group's (Germany) roof sensor module as shown in September 2023, demonstrate the versatility of LiDAR placement. As demand for autonomy grows, the bumper and grill, along with these innovative placements, remain key areas for LiDAR adoption.
"Germany is expected to lead in European automotive LiDAR market during the forecast period."
Germany is set to lead the automotive LiDAR market in Europe, driven by several key factors. The country boasts a robust automotive hub, home to major players such as Mercedes-Benz Group AG (Germany), BMW Group (Germany), and Volkswagen Group (Germany), which are at the forefront of developing advanced autonomous technologies. Germany's progressive regulatory environment already permits Level 3 autonomous vehicles, with models like the Mercedes S-Class and EQS operating in designated areas, highlighting the country's commitment to integrating cutting-edge technology into its automotive landscape. Additionally, BMW Group (Germany) is expanding its lineup with LiDAR-equipped models to enhance autonomous capabilities; for instance, in January 2024, Innoviz demonstrated the BMW i7, which features InnovizOne LiDAR for Level 3 driving. As Germany continues to prioritize innovation and safety in its automotive sector, it is well-positioned to maintain its leadership in the European automotive LiDAR market.

In-depth interviews were conducted with CEOs, marketing directors, other innovation and technology directors, and executives from various key organizations operating in this market.
- By Company Type: Tier I - 33%, Tier II - 43%, and Tier III - 24%
- By Designation: Directors - 28%, Managers - 53%, and Others - 19%
- By Region: Asia Pacific - 27%, North America - 42%, and Europe - 31%

The automotive LiDAR market is dominated by major players, including RoboSense Technology Co., Ltd. (China), Hesai Group (China), Luminar Technologies, Inc. (US), Seyond (US), Huawei Technologies Co., Ltd. (China), Innoviz Technologies Ltd. (Israel), Valeo (France) and more. These companies are expanding their portfolios to strengthen their automotive LiDAR market position.
Research Coverage:
The report covers the automotive LiDAR market in terms of Technology (Mechanical LiDAR and Solid-state LiDAR), Image Type (2D and 3D), ICE Vehicle Type (Passenger Cars, Light Commercial Vehicles, and Heavy Commercial Vehicles), Location (Bumper & Grill, Headlight & Taillight, Roof & Upper Pillars, and Others), Electric Vehicle Type (Battery Electric Vehicles, Plug-in Hybrid Electric Vehicles, Fuel Cell Electric Vehicles, Hybrid Electric Vehicles), Range (Short and Mid-range (170m and Below) and Long range (Above 170m), Laser Wavelength (Near Infrared, Short-wave Infrared, and Long-wave Infrared), Measurement Process (Frequency Modulated Continuous Wave and Time of Flight), Level of Autonomy (Semi-autonomous and Autonomous), and Region. It covers the competitive landscape and company profiles of the significant automotive LiDAR market players.

The study also includes an in-depth competitive analysis of the key market players, their company profiles, key observations related to product and business offerings, recent developments, and key market strategies.
Key Benefits of Buying the Report:
-The report will help market leaders/new entrants with information on the closest approximations of revenue numbers for the automotive LiDAR market and its subsegments.
-This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies.
-The report also helps stakeholders understand the market pulse and provides information on key market drivers, restraints, challenges, and opportunities.
-The report also helps stakeholders understand the current and future pricing trends of the automotive LiDAR market.
-The report will help market leaders/new entrants with information on various trends in LiDAR market based on range, image type, technology, and other parameters.
The report provides insight on the following pointers:
-Analysis of key drivers (LiDAR's technological edge to fuel market expansion, OEM focus on testing and deployment of vehicles with higher level of autonomy, Government regulations for integration of advanced safety technologies), restraints (Higher cost of LiDAR, Emergence of alternative technologies), opportunities (Rise of robotaxi and ride-hailing services, Commercial vehicle automation in logistics and transportation), and challenges (Fluctuating raw material prices and supply chain disruptions, Infrastructure Gaps Hinder growth in Emerging markets)
-Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the automotive LiDAR market.
-Market Development: Comprehensive information about lucrative markets - the report analyses the automotive LiDAR market across varied regions.
-Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the automotive LiDAR market.
-Competitive Assessment: In-depth assessment of market share, growth strategies, and service offerings of leading players like RoboSense Technology Co., Ltd. (China), Hesai Group (China), Luminar Technologies, Inc. (US), Seyond (US), Huawei Technologies Co., Ltd. (China), Innoviz Technologies Ltd. (Israel), and Valeo (France) among others in automotive LiDAR market.

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