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LiDAR Market by Component (Laser Scanners, Navigation and Positioning Systems, Other Components), Installation (Airborne, Ground-based), Type (Mechanical, Solid-state), Range (Short, Medium, Long), Service, Region - Global Forecast to 2029

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Abstracts

The LiDAR market is projected to grow from USD 1.6 billion in 2023 and is projected to reach USD 3.7 billion by 2029; it is expected to grow at a CAGR of 18.2% from 2024 to 2029.

The growth of the LiDAR market is driven by rise in the development of smart cities and infrastructure projects, surge in the demand for 3D imagery in application areas, emergence of 4D LiDAR, rising adoption of LiDAR systems in UAVs. However, high testing, engineering, and calibration costs associated with LiDARs is limiting the growth of the LiDAR market.

“Other components to witness highest growth during the forecast period.”

The market for other components is projected to grow at the highest CAGR during the forecast period. This growth is attributed to the extensive adoption of cameras and high-precision clocks to capture highly accurate data. In certain situations, LiDAR data may be limited in distinguishing objects with similar geometric characteristics. Digital cameras help overcome such ambiguities by providing additional visual cues for differentiation.

Digital cameras contribute to the creation of visually realistic and detailed 3D maps. The fusion of LiDAR point clouds with high-resolution imagery allows the generation of detailed and visually appealing maps, which is valuable in applications, such as urban

planning and infrastructure development. In LiDAR systems, precise timing is essential to accurately measure the time laser pulses travel to the target and back. High-precision clocks ensure accurate synchronization, allowing for precise distance calculations.

“Medium range LiDARS to witness the highest growth during the forecast period.”
Medium range LiDARS are projected to witness the highest growth during the forecast period Medium-range LiDAR is widely integrated into automotive ADAS for applications, such as lane-keeping assistance, adaptive cruise control, and collision warning. It provides a balance between long-range detection for highway driving and short-range sensing for proximity safety features. It finds applications in industrial automation and robotics for tasks, such as materials handling, pallet tracking, and automated guided vehicle (AGV) navigation. They offer a suitable range for efficient and safe operation in industrial settings.

“Ground-based installation segment to dominate the market during the forecast period.”
Ground-based installation segment is expected to dominate the market during the forecast period. This growth is attributed to the low cost and less stringent approval criteria for mapping and surveying applications for ground-based LiDAR. Moreover, the high adoption of ground-based LiDAR in various applications, such as environment, meteorology, corridor mapping, advanced driver-assistance systems (ADAS), and driverless cars, is expected to drive the market in the near future.

“ADAS & Driverless cars end-use application segment to exhibit highest growth for the LiDAR market during forecast period”

The market for ADAS & driverless cars is projected to grow at the highest CAGR from 2024 to 2029. The rising adoption of solid-state LiDAR in ADAS & driverless cars for assuring safety is expected to boost the market in the coming years. Moreover, automotive giants are adopting LiDAR systems for their Level 3 automated vehicles, which is expected to have a positive impact on the sales of these vehicle types. Mercedes-Benz, Volvo, NIO and Xiaopeng have successively released a number of models with L3 level autonomous driving capability since 2021. BYD signed a strategic cooperation agreement with RoboSense, and BAIC ARCFOX and Huawei also jointly launched new models of L2-L4 class.With the upgrading of the demand for intelligent autonomous vehicles, the advantages of LiDAR products are becoming more evident, and its market is about to usher in a broad space for development.

“Europe to hold second largest share of the LiDAR market during the forecast period”

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Europe is expected to hold second largest share of the LiDAR market during the forecast period. The increasing penetration of autonomous vehicles would support the market growth for automotive LiDAR sensors in this region. The region is home to leading automotive OEMs such as Daimler, Mercedes-Benz, BMW, and Audi. Europe is also home to some of the top players in the automotive LiDAR market, such as Continental AG (Germany), Robert Bosch GmbH (Germany), and ZF Friedrichshafen AG (Germany). All these factors are expected to drive the European LiDAR market during the forecast period.

In the process of determining and verifying the market size for several segments and subsegments gathered through secondary research, extensive primary interviews have been conducted with key industry experts in the LiDAR space. The break-up of primary participants for the report has been shown below:

By Company Type: Tier 1 – 40%, Tier 2 – 40%, and Tier 3 – 20% By Designation: C-level Executives – 40%, Directors –40%, and Others – 20% By Region: North America –30%, Europe – 20%, Asia Pacific– 40%, and RoW – 10%

The report profiles key players in LiDAR market with their respective market ranking analysis. Prominent players profiled in this report include Leica Geosystems AG (Sweden), Trimble Inc. (US), Teledyne Optech (Canada), FARO (US), RIEGL Laser Measurement Systems GmbH (Austria), Sick AG (Germany), NV5 Geospatial (US), Beijing SureStar Technology Co. Ltd. (China), Ouster (Velodyne Lidar, Inc.) (US), YellowScan (France), Leishen Intelligent System Co., Ltd. (China), SABRE Advanced 3D Surveying Systems (Scotland), Hesai Technology (China), RoboSense (China).

Research Coverage: This research report categorizes the LiDAR market on the basis of component, installation, type, range, services, end use application application, and region. The report describes the major drivers, restraints, challenges, and opportunities pertaining to the LiDAR market and forecasts the same till 2029. Apart from these, the report also consists of leadership mapping and analysis of all the companies included in the LiDAR market ecosystem.

Key Benefits of Buying the Report

> The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall LiDAR market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their

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businesses better and to plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities. The report provides insights on the following pointers:

Analysis of key drivers (Rising adoption of UAV LiDAR systems to capture accurate evaluation data, Surging demand for 3D imaging solutions areas, Increasing number of smart cities and infrastructure development projects, Rising deployment of 4D LiDAR technology in autonomous vehicles, Enforcement of regulations related to use of commercial drones in highway construction applications), restraints (Safety threats associated with UAVs and autonomous vehicles, Availability of low-cost and lightweight alternatives, High testing, engineering, and calibration costs), opportunities (Escalating investments in ADAS systems by automotive giants, Increasing development of quantum dot detectors, Rising popularity of compact and cost-effective flash LiDAR, Mounting development of advanced geospatial solutions, Increasing reliance on drones to gather key analytic data), challenges (High cost of post-processing LiDAR software, Complexities related to miniaturized LiDAR sensing) influencing the growth of the LiDAR market.

Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the LiDAR market. Market Development: Comprehensive information about lucrative markets – the report analyses the LiDAR market across varied regions

Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the LiDAR market .

Competitive Assessment: In-depth assessment of market shares, growth strategies and service offerings of leading players like Leica Geosystems AG (Sweden), Trimble Inc. (US), Teledyne Optech (Canada), FARO (US), Ouster (Velodyne Lidar, Inc.) (US), among others in the LiDAR market.

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*Details on Business Overview, Products/Solutions/Services Offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats) might not be captured in case of unlisted companies.

16 APPENDIX

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