

Global Automotive LIDAR Market: Analysis by Technology (Solid-State LIDAR and Mechanical LIDAR), By Range (Short & Mid-Range and Long Range), By Application (Autonomous and Semi-Autonomous), By Region Size & Forecast with Impact Analysis of COVID-19 and Forecast up to 2028

<https://marketpublishers.com/r/G4FD9B8D1D63EN.html>

Date: February 2023

Pages: 150

Price: US\$ 2,250.00 (Single User License)

ID: G4FD9B8D1D63EN

Abstracts

The automotive LIDAR system illuminates the intended target and uses a sensor to measure the reflected pulses to determine the distance between two vehicles. When traffic conditions rapidly change, LIDAR is used in automotive systems to autonomously adjust vehicle speed and brake systems. It is primarily used in fully autonomous or semi-autonomous vehicles to provide assistance features like adaptive cruise control, lane-keeping assistance, lane-departure warning, and collision warning and avoidance systems. In 2022, the global automotive LIDAR market was valued at US\$555 million, and is probable to reach US\$3.10 billion by 2028. Also, global automotive LIDAR market volume was 412.09 thousand units and is expected to reach 10.71 million units in 2028.

Driven by the growing demand for intelligent vehicles at lower costs, LIDAR sensors' adoption is accelerating. Moreover, the exponential rise in the global market can be attributed to the growth in the integration of AI-enabled functionalities, the growing ecosystem of Automotive IOT, and rising customer traction toward sophisticated features in the vehicles. The global automotive LIDAR market is projected to grow at a CAGR of 33.18%, during the forecast period of 2023-2028.

Market Segmentation Analysis:

By Technology: According to the report, the global automotive LIDAR market is segmented into two technology: Solid-State LIDAR and Mechanical LIDAR. Solid-State LIDAR segment acquired majority of share in the market in 2022, owing to its affordability, it is used in multiple locations, including the front, rear, and sides of a vehicle & combines data received from each of the sensors to provide an extended Field of View (FOV). Whereas, Mechanical LIDAR segment is expected to have the highest CAGR in the future as a large field of view (FOV) that is typically 360 degrees can be achieved with mechanical LIDAR by utilizing high-grade optics and a rotating assembly. The mechanical component results in a bulky implementation, but it offers a high signal-to-noise ratio (SNR) over a large field of view (FOV).

By Range: According to the report, the global automotive LIDAR market is segmented into two range: Short & mid-range and Long range. Short & mid-range segment acquired majority of share in the market in 2022, as it detects objects within 25 meters and is well-suited for slow-moving vehicles. Whereas, the Long range segment is expected to have the highest CAGR in the future as long-range LIDARs are suitable for faster-moving navigating vehicles and detecting objects within mid to long ranges.

By Application: According to the report, the global automotive LIDAR market is segmented into two applications: Autonomous and Semi-autonomous. Autonomous segment acquired majority of share in the market in 2022, owing to the adoption of level 4 and level 5 autonomous cars for sharing services, across the world. Whereas, Semi-autonomous segment is expected to have the highest CAGR in the future as LIDAR sensors are extensively used in Level 1, 2, and 3 vehicles that require moderate to low assistance from drivers in channelizing vehicle's direction & braking.

By Region: According to this report, the global automotive LIDAR market can be divided into four regions: North America, Europe, Asia Pacific, and Rest of the World. North America automotive LIDAR market enjoyed the highest market share in 2022, primarily owing to because this region is typically dominated by automotive OEMs such as General Motors, and Ford Motor Company, paired with some established Asian as well as European automotive OEMs. The growing demand for Electric vehicles is influencing the growth of the US automotive LIDAR market.

Global Automotive LIDAR Market Dynamics:

Growth Drivers: The increasing inclination of automotive manufacturers toward manufacturing autonomous vehicles has accelerated the demand for automotive LIDAR sensors for enhancing safety requirements. The burgeoning advancements in

autonomous vehicle technologies such as sensors, radars, and microprocessors, among others, have led to a surge in the adoption of autonomous vehicles, particularly from Level 1 to Level 3. Further, the market is expected to increase due to rising disposable income, increasing demand for electric vehicles, rapid urbanization, etc.

Challenges: Weather conditions tend to have a strong impact on the overall performance of the LIDAR devices, thus, being a key impediment to the ability of LIDAR integrated system to sense the nearby obstacles. For instance, usage of LIDARs against direct sun results into poor performance of the LIDAR since LIDAR signals tend to disperse under direct sunlight. The other challenge that automotive LIDAR market faces is high cost of LIDAR, availability of alternatives, etc.

Trends: A major trend gaining pace in automotive LIDAR market is integration of artificial intelligence. The integration of AI in LIDAR technology is a trend in the automotive LIDAR market because it can significantly enhance the capabilities and performance of LIDAR systems used in autonomous vehicles. Artificial Intelligence will lead to the growth in automotive LIDAR by using machine learning algorithms to analyze and interpret LIDAR data, AI can help vehicles make more informed and accurate decisions in real-time. More trends in the market are believed to augment the growth of automotive LIDAR market during the forecasted period include growing automotive semiconductor market, scope of multiple LIDAR fitment across all levels of automation, rapid technology advancements in autonomous LIDAR, growing deployment of LIDARs in level 3 automation, etc.

Impact Analysis of COVID-19 and Way Forward:

The COVID-19 pandemic has had a major influence on the automotive LIDAR market, as governments in several nations imposed lockout and trade restrictions, disrupting automotive part exports. As a result, lower automobile production owing to temporary plant shutdowns is projected to have a negative impact on demand for LIDAR sensors in the automotive sector. The industry of semi-autonomous and autonomous vehicles is projected to resurrect in the near future. Recognizing the benefits of contactless and driverless transportation in a world of physical distance, several logistics, delivery, and food delivery companies have begun to use autonomous cars, including LIDAR as a vital component.

Competitive Landscape and Recent Developments:

Global automotive LIDAR market is fragmented, with more than 60 private and public

LIDAR companies at varying stages of development. These players must compete to build solid supply chains and form strategic partnerships to ultimately land a partnership with an OEM. Key players of global automotive LIDAR market are:

Aeva Technologies, Inc

Continental AG

Luminar Technologies, Inc.

Ouster, Inc.

Velodyne LIDAR, Inc.

DENSO Corporation

Innoviz Technologies Ltd.

Valeo S.A.

Livox Technology Company Limited

Innovusion

Cepton, Inc.

Hesai Technology Co Ltd

RoboSense (Suteng Innovation Technology Co., Ltd.).

Over 100 LIDAR system companies have been established since its invention, but most of them are still in the product design stage, with Valeo being the market leader so far. In China, RoboSense, DJI Livox, Huawei and Hesai are the key companies. The key players are constantly investing in strategic initiatives, such as new product launches, introducing their products to emerging markets and more, to maintain a competitive edge in this market. For instance, in 2022, Mercedes-Benz AG announced to equip Luminar's Iris LIDAR technology in its Level 3 semi-autonomous passenger cars to enhance vehicle safety standards & integrate automated driving systems. Also, in 2021,

Volvo announced the installation of LIDAR sensors from Luminar Technologies, Inc., in its XC90 model. It also added that LIDAR sensors would be a standard safety benchmark in all its fully electric flagship vehicles in the forthcoming years.

Contents

1. EXECUTIVE SUMMARY

2. INTRODUCTION

2.1 Automotive LIDAR: An Overview

2.1.1 Levels of Autonomy in Automobiles

2.1.2 Components Requirement under Each Level

2.1.3 Advantages and Disadvantages of a Camera, Radar and LIDAR Sensors

2.1.4 Competitive Analysis of ADAS Technologies

2.2 Automotive LIDAR Segmentation: An Overview

2.2.1 Automotive LIDAR Segmentation

3. GLOBAL MARKET ANALYSIS

3.1 Global Automotive LIDAR Market: An Analysis

3.1.1 Global Automotive LIDAR Market: An Overview

3.1.2 Global Automotive LIDAR Market by Value

3.1.3 Global Automotive LIDAR Market by Volume

3.1.4 Global Automotive LIDAR Market by Technology (Solid-State LIDAR and Mechanical LIDAR)

3.1.5 Global Automotive LIDAR Market by Range (Short & Mid-range and long range)

3.1.6 Global Automotive LIDAR Market by Application (Autonomous and semi-autonomous)

3.1.7 Global Automotive LIDAR Market by Region (North America, Europe, Asia Pacific and Rest of the World)

3.2 Global Automotive LIDAR Market: Technology Analysis

3.2.1 Global Automotive LIDAR Market by Technology: An Overview

3.2.2 Global Solid-State Automotive LIDAR Market by Value

3.2.3 Global Mechanical Automotive LIDAR Market by Value

3.3 Global Automotive LIDAR Market: Range Analysis

3.3.1 Global Automotive LIDAR Market by Range: An Overview

3.3.2 Global Short & Mid-Range Automotive LIDAR Market by Value

3.3.3 Global Long Range Automotive LIDAR Market by Value

3.4 Global Automotive LIDAR Market: Application Analysis

3.4.1 Global Automotive LIDAR Market by Application: An Overview

3.4.2 Global Autonomous Automotive LIDAR Market by Value

3.4.3 Global Semi-Autonomous Automotive LIDAR Market by Value

4. REGIONAL MARKET ANALYSIS

4.1 North America Automotive LIDAR Market: An Analysis

4.1.1 North America Automotive LIDAR Market: An Overview

4.1.2 North America Automotive LIDAR Market by Value

4.1.3 North America Automotive LIDAR Market by Region (The US, Canada and Mexico)

4.1.4 The US Automotive LIDAR Market by Value

4.1.5 Canada Automotive LIDAR Market by Value

4.1.6 Mexico Automotive LIDAR Market by Value

4.2 Europe Automotive LIDAR Market: An Analysis

4.2.1 Europe Automotive LIDAR Market: An Overview

4.2.2 Europe Automotive LIDAR Market by Value

4.2.3 Europe Automotive LIDAR Market by Region (Germany, UK, France, Italy and Rest of Europe)

4.2.4 Germany Automotive LIDAR Market by Value

4.2.5 UK Automotive LIDAR Market by Value

4.2.6 France Automotive LIDAR Market by Value

4.2.7 Italy Automotive LIDAR Market by Value

4.2.8 Rest of Europe Automotive LIDAR Market by Value

4.3 Asia Pacific Automotive LIDAR Market: An Analysis

4.3.1 Asia Pacific Automotive LIDAR Market: An Overview

4.3.2 Asia Pacific Automotive LIDAR Market by Value

4.3.3 Asia Pacific Automotive LIDAR Market by Region (China, Japan, India, South Korea and Rest of Asia Pacific)

4.3.4 China Automotive LIDAR Market by Value

4.3.5 Japan Automotive LIDAR Market by Value

4.3.6 South Korea Automotive LIDAR Market by Value

4.3.7 India Automotive LIDAR Market by Value

4.3.8 Rest of Asia Pacific Automotive LIDAR Market by Value

4.4 Rest of the World Automotive LIDAR Market: An Analysis

4.4.1 Rest of the World Automotive LIDAR Market: An Overview

4.4.2 Rest of the World Automotive LIDAR Market by Value

5. IMPACT OF COVID-19

5.1 Impact of COVID-19

5.1.1 Impact of COVID-19 on Automotive LIDAR

5.1.2 Post COVID-19 Impact

6. MARKET DYNAMICS

6.1 Growth Drivers

- 6.1.1 Rising Disposable Income
- 6.1.2 Increasing Sales of Electric Vehicles
- 6.1.3 Rising Demand for Autonomous Vehicles
- 6.1.4 Rapid Urbanization

6.2 Challenges

- 6.2.1 High Cost of LIDAR
- 6.2.2 Inaccurate Outputs in Adverse Weather Conditions
- 6.2.3 Availability of Alternatives

6.3 Market Trends

- 6.3.1 Integration of Artificial Intelligence
- 6.3.2 Growing Automotive Semiconductor Market
- 6.3.3 OEMs Integrating LIDAR in Vehicles in North America & Europe
- 6.3.4 Scope of Multiple LIDAR Fitment across All Levels of Automation
- 6.3.5 Rapid Technology Advancements in Autonomous LIDAR

7. COMPETITIVE LANDSCAPE

7.1 Global LIDAR Suppliers by Market Share

7.2 Global Automotive LIDAR Systems Market Players by Technology

7.3 Global LIDAR Systems Market Players: Released Models

7.4 Global Automotive LIDAR Systems Market Players: Key Comparison

7.5 Global Automotive LIDAR Sensor Model and Brand: Key Suppliers

8. COMPANY PROFILES

8.1 Aeva Technologies, Inc.

- 8.1.1 Business Overview
- 8.1.2 Operating Regions
- 8.1.3 Business Strategy

8.2 Continental AG

- 8.2.1 Business Overview
- 8.2.2 Operating Segments
- 8.2.3 Business Strategy

8.3 Luminar Technologies, Inc.

- 8.3.1 Business Overview
- 8.3.2 Operating Segments
- 8.3.3 Business Strategy
- 8.4 Ouster, Inc.
 - 8.4.1 Business Overview
 - 8.4.2 Operating Regions
 - 8.4.3 Business Strategy
- 8.5 Velodyne Lidar, Inc.
 - 8.5.1 Business Overview
 - 8.5.2 Operating Regions
 - 8.5.3 Business Strategy
- 8.6 DENSO Corporation
 - 8.6.1 Business Overview
 - 8.6.2 Operating Regions
 - 8.6.3 Business Strategy
- 8.7 Valeo S.A.
 - 8.7.1 Business Overview
 - 8.7.2 Operating Segments
 - 8.7.3 Business Strategy
- 8.8 Innoviz Technologies Ltd.
 - 8.8.1 Business Overview
 - 8.8.2 Business Strategy
- 8.9 Livox Technology Company Limited
 - 8.9.1 Business Overview
 - 8.9.2 Business Strategy
- 8.10 Innovusion
 - 8.10.1 Business Overview
 - 8.10.2 Business Strategy
- 8.11 Cepton, Inc.
 - 8.11.1 Business Overview
 - 8.11.2 Business Strategy
- 8.12 Hesai Technology Co Ltd.
 - 8.12.1 Business Overview
 - 8.12.2 Business Strategy
- 8.13 RoboSense (Suteng Innovation Technology Co., Ltd.)
 - 8.13.1 Business Overview
 - 8.13.2 Business Strategy

List Of Figures

LIST OF FIGURES

Figure 1: Levels of Autonomy in Automobiles

Figure 2: Components Requirement under Each Level

Figure 3: Advantages and disadvantages of a camera, radar and LIDAR sensors

Figure 4: Competitive Analysis of ADAS Technologies

Figure 5: Automotive LIDAR Segmentation

Figure 6: Global Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 7: Global Automotive LIDAR Market by Value; 2023-2028 (US\$ Billion)

Figure 8: Global Automotive LIDAR Market by Volume; 2018-2022 (Thousand Units)

Figure 9: Global Automotive LIDAR Market by Volume; 2023-2028 (Million Units)

Figure 10: Global Automotive LIDAR Market by Technology; 2022 (Percentage, %)

Figure 11: Global Automotive LIDAR Market by Range; 2022 (Percentage, %)

Figure 12: Global Automotive LIDAR Market by Application; 2022 (Percentage, %)

Figure 13: Global Automotive LIDAR Market by Region; 2022 (Percentage, %)

Figure 14: Global Solid-State Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 15: Global Solid-State Automotive LIDAR Market by Value; 2023-2028 (US\$ Billion)

Figure 16: Global Mechanical Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 17: Global Mechanical Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 18: Global Short & Mid-Range Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 19: Global Short & Mid-Range Automotive LIDAR Market by Value; 2023-2028 (US\$ Billion)

Figure 20: Global Long Range Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 21: Global Long Range Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 22: Global Autonomous Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 23: Global Autonomous Automotive LIDAR Market by Value; 2023-2028 (US\$ Billion)

Figure 24: Global Semi-Autonomous Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 25: Global Semi-Autonomous Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 26: North America Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 27: North America Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 28: North America Automotive LIDAR Market by Region; 2022 (Percentage, %)

Figure 29: The US Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 30: The US Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 31: Canada Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 32: Canada Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 33: Mexico Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 34: Mexico Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 35: Europe Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 36: Europe Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 37: Europe Automotive LIDAR Market by Region; 2022 (Percentage, %)

Figure 38: Germany Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 39: Germany Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 40: UK Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 41: UK Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 42: France Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 43: France Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 44: Italy Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 45: Italy Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 46: Rest of Europe Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 47: Rest of Europe Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 48: Asia Pacific Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 49: Asia Pacific Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 50: Asia Pacific Automotive LIDAR Market by Region; 2022 (Percentage, %)

Figure 51: China Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 52: China Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 53: Japan Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 54: Japan Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 55: South Korea Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 56: South Korea Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 57: India Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 58: India Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 59: Rest of Asia Pacific Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 60: Rest of Asia Pacific Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 61: Rest of the World Automotive LIDAR Market by Value; 2018-2022 (US\$ Million)

Figure 62: Rest of the World Automotive LIDAR Market by Value; 2023-2028 (US\$ Million)

Figure 63: Global GNI per Capita; 2016-2021 (US\$ Thousand)

Figure 64: Global Sales of Electric Vehicles; 2017-2022 (Thousand)

Figure 65: Global Autonomous Vehicle Market; 2021-2030 (US\$ Billion)

Figure 66: Global Urban Population; 2016, 2021 & 2050 (Billion)

Figure 67: Global Automotive Artificial Intelligence Market; 2019-2030 (US\$ Billion)

Figure 68: Global Automotive Semiconductor Market Size; 2020-2030 (US\$ Billion)

Figure 69: Global LIDAR Suppliers by Market Share; 2021 (Percentage, %)

Figure 70: Aeva Technologies, Inc Revenue by Region; 2021 (Percentage, %)

Figure 71: Continental AG Sales by Segments; 2021 (Percentage, %)

Figure 72: Luminar Technologies, Inc. Revenue by Segment; 2021 (Percentage, %)

Figure 73: Ouster, Inc. Revenue by Regions; 2021 (Percentage, %)

Figure 74: Velodyne LIDAR, Inc. Revenue by Regions; 2021 (Percentage, %)

Figure 75: DENSO Corporation Revenue by Region; 2022 (Percentage, %)

Figure 76: Valeo S.A. Sales by Segments; 2021 (Percentage, %)

Table 1: Global Automotive LIDAR Systems Market Players by Technology

Table 2: Global LIDAR Systems Market Players: Released Models

Table 3: Global Automotive LIDAR Systems Market Players: Key Comparison

Table 4: Global Automotive LIDAR Sensor Model and Brand: Key Suppliers

I would like to order

Product name: Global Automotive LIDAR Market: Analysis by Technology (Solid-State LIDAR and Mechanical LIDAR), By Range (Short & Mid-Range and Long Range), By Application (Autonomous and Semi-Autonomous), By Region Size & Forecast with Impact Analysis of COVID-19 and Forecast up to 2028

Product link: <https://marketpublishers.com/r/G4FD9B8D1D63EN.html>

Price: US\$ 2,250.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/G4FD9B8D1D63EN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:

Last name:

Email:

Company:

Address:

City:

Zip code:

Country:

Tel:

Fax:

Your message:

****All fields are required**

Customer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below
and fax the completed form to +44 20 7900 3970