Automotive LiDAR - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Automotive LiDAR Market is expected to register a CAGR of 28.2% during the forecast period.

The China Association of Automobile Manufacturers revised its predictions for 2020, forecasting a 10% drop in sales for the first half of the year and 5% for the full year, on account of the coronavirus outbreak According to the SMMT, car output would fall by 18% in 2020 as a result of COVID-19 closing all major UK plants.

Key Highlights
- The entire automotive industry is looking forward to autonomous vehicles and assisted technologies. Automotive companies are coming up with innovative technologies in Advanced Driver Assistance Systems, using new and affordable sensors. For inclusive vehicle safety solutions, ADAS systems cannot be dependent on just vision and RADAR based systems; they require more efficient systems capable of providing highly accurate data for improved driver assistance.
- The growing trends in the automotive industry toward self-driving cars and electric vehicles are expected to be the critical drivers for newer applications of LiDAR. Self-driving cars increasingly use LiDAR sensors for generating huge 3D maps for 360 vision and for accurate information to assist in self-navigation and object detection.
- The emergence of LiDAR technology has provided an enormous growth potential to a wide range of enterprises, including Leddartech, Quantum Spatial, Geodigital, Topcon Positioning Systems, and Innoviz Technologies, among others, who have been relentlessly working toward introducing novel innovations in the business space. For example, Continental AG, a prominent name in automotive part manufacturing, announced expanding its LiDAR technology portfolio by investing a massive share in robotic vision and sensing pioneer- AEye.
- The latter's LiDAR technology boasts of the ability to trace small, low-reflective objects at a distance of mere 160 meters with multiple measuring points. It is suited to be vital for automated driving in both commercial and passenger vehicles.

- This investment would allow Continental to make extensive use of this LiDAR technology and industrialize the sensor to produce a fully automotive grade product, which stands as the major need of the hour across the automotive industry and autonomous vehicles.
- Furthermore, in April 2021, Velodyne and Ansys announced that they are developing software models of next-generation automotive lidar sensors to provide substantially improved hazard identification capabilities for highly advanced AVs. The collaboration incorporates Velodyne's lidar design into Ansys' virtual sensor suite and expedites automakers' integration of Velodyne's sensor into AVs - delivering industry-leading driving safety and a drastically faster path to market.

Automotive LiDAR Market Trends

ADAS is Expected to Hold Major Share

- The ADAS has 5 different levels of automation with Level 0 being completely reliant on human input ot level 5 being complete autonomy . Autonomous cars with level 3, 4 and 5 are considered the most effective and LIDARs are continuously implemented in these vehicles,?
- LiDAR is primarily used for the advanced driver assistance systems (ADAS) in the automobiles for the convenience of the driver, with human-machine interface for the safe guidance and smooth operation. The autonomous nature of the vehicle needs a considerably high accuracy and assistance for the obstacle detection for avoidance and the safe navigation through the roadways. ?
- LIDAR Sensors continuously rotate and generate thousands of laser pulses per second. These high-speed laser beams from LIDAR are continuously emitted in the 360-degree surroundings of the vehicle and are reflected by the objects in the way. With use of complex machine learning algorithms, the data received through this activity is converted into real-time 3D graphics, which are often displayed as 3D images or 3D maps of the surrounding objects.?
- With the creation of the adaptive cruise control (ACC) systems for the automobiles, the autonomous vehicles will evolve into an automated system. The devices are mounted in the front of the vehicle to monitor the distance between successive cars, to react according to the varying distance and speeds between the successive vehicles. ?
- Companies are focusing on developing safer and reliable autonomous cars to allow customers to unlock advanced capabilities for ADAS features including pedestrian and bicycle avoidance, Lane Keep Assistance (LKA), Automatic Emergency Braking (AEB), Adaptive Cruise Control (ACC), Traffic Jam Assist (TJA), and more. The primary aim is to ensure safety, reduce costs and make transportation safer and this has enabled companies to make significant investments in to LIDAR technologies and their implementation . To reduce costs , the ultimate goal was to achieve development of other technologies like Soldi State LIDARs to replace the traditional mechanical rotation.?
- This Innoviz in 2021 announced a partnership Vueron Technology from South Korea for LiDAR-Only Autonomous Driving . The cooperation will be a powerful combination - together, Innoviz's high-resolution LiDARs and Vueron's perception software will bring significant progress to the industry.. Vueron executed a 414-kilometer, fully automated, LIDAR-only drive from the capital city of Seoul to the southern port city of Busan, at a maximum speed of 100 km/hr. The mandated safety driver on board did not hold the steering wheel at any time during the full five hours of the historic drive.?
- Volvo has similarly funded Luminar technologies in their advent of finding cost effective means of LIDAR solutions and the company has been a revelation in its products ever since.. Luminar is renowned for its innovation and cost effective measures and announced LiDAR-based solutions for under USD 1,000. The company is closely working with brands such as Toyota, Audi, and VW on LiDAR solutions for self-driving cars.?

North America is Expected to Hold Major Share

- North America, led by the United States and Canada, is the most technologically superior market in the world. The growth of the market in the region is attributed to the increasing use of LiDAR in applications like environment, corridor mapping, meteorology, and urban planning. The market is also witnessing growth due to the increasing use of LiDAR in driverless cars and ADAS, which is expected to grow significantly in the coming years.?
- Moreover, prominent vendors like Faro Technologies and Velodyne Lidar Inc. are present in the region. In August 2020, Velodyne Lidar Inc. announced that it had joined the Intelligent Transportation Society of America (ITS America) to promote the benefits of autonomous vehicles (AVs) and intelligent transportation infrastructure.?
- Self-driving cars have already hit the roads of California, Texas, Arizona, Washington, Pennsylvania, Michigan and other US states and countries. Though, as of now, their mobility is restricted to specific test areas and driving conditions.
- Moreover, self-driving and autonomous cars are becoming a reality soon with major giants, such as Google, Tesla, and BMW, already releasing their prototype models. The region is witnessing increased partnerships and investments in domestic as well as international market which is contributing towards the growth of LiDAR in the region. The Canadian car components supplier, Magna, and an Israeli LiDAR technology developer, Innoviz cooperated, will provide BMW with its innovative sensor and system. It offered high-resolution LiDAR technology, which generates a 3D point cloud in real-time of the vehicle's surroundings under all kinds of weather conditions.?
- Moreover, to implement sensing technologies on its cars, Volvo Cars invested in an American LiDAR sensor startup, Luminar, which utilizes a different part of the infrared light spectrum. This is because LiDAR can turn cars into machines keenly aware of their surroundings, where it helps in generating accurate 3D snapshots of every object surrounding the vehicle. Volvo is expected to start producing vehicles in 2022 that are equipped with LiDAR and Perception Stack.?
- Regional governments, like the United States, have mandated the use of AEBs and other safety systems, which use technologies like RADAR, sensors, and LiDAR in combination or used alone. Such regulations prompt the automakers to use LiDAR systems a part of their ADAS, which has been by far incorporated only in the luxury cars. Despite these continual efforts and measures, many companies notably Tesla and many organizations are still hesitant to jump on the LIDAR wagon. The main issue corelates with the cost as alternatives including the cost effective Infrared Bolometers for instance can reduce costs as they ost upto few dollars in comparisons with the thousands for LIDARs. ?
- Also Tesla and Elon Musk has mentioned the issue of LIDARs while detecting moving objects as to not be able to detect how they are moving or even what these objects are. Also adaptation has been a key issue for LIDAR systems to the neural network system and the competitors of Tesla have maintained this problem consistently.?

Automotive LiDAR Industry Overview

The competitive rivalry in this industry is primarily dependent on sustainable competitive advantage through innovation. The market penetration of this technology is moderate, with many industries exploring the potential of this technology. This is providing an opportunity for companies to attract new markets, thus driving the competition. The levels of marketing and advertising in this industry are high, while the firm concentration ratio is moderate and growing.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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