

# Solid State LiDAR Market - Forecasts from 2021 to 2026

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## Abstracts

The solid state LiDAR is expected to grow at a compound annual growth rate of 30.66% over the forecast period to reach a market size of US\$1,617.610 million in 2026 from US\$325.143 million in 2020. The LiDAR (Light Detection and Ranging) is a remote sensing technology that uses pulse from a laser to collect measurements which can then be used to create 3D models and maps of objects and environments. Currently, the LiDAR that is being utilized is mechanical LiDAR that is not only costly but also is bulky, which significantly increases the cost of manufacturing autonomous vehicles. This is leading to the development of solid-state LiDAR that is relatively small in size and cheaper than the traditional ones. Rising investment by key players in the solid-state LiDAR technology is significantly boosting the solid-state LiDAR market growth. For instance, in February 2020, Innoviz technologies a major provider of Solid State Lidar has collaborated with Shaanxi Heavy Duty Automobile Co. Ltd. also known as Shacman Trucks, larger manufacturer of trucks in China for delivering its Solid LiDAR technology for the autonomous truck project at a Chinese port. The demand for the solid-state lidar is expected to increase in China as the China legislation makes a mandatory rule with effect from May 2020, for the trucks and heavy vehicles to have at least two advanced driving assistance system, a mandatory camera and either a radar or lidar system.

Expanding drone production is another driving factor that is boosting the demand for solid-state LiDAR sensors. Further, the demand for Solid State Lidar is also influenced by its use in the development of self-driving cars. Robosense company which is the leader in LiDAR technology has demonstrated its patented RS-LiDAR-M1 model under MEMS technology. The model is to be used in self-driving cars with collision sensing within the vicinity of 200 meters, upgraded optical system, and signal processing technology. Hence, the solid-state LiDAR market is poised to grow at an astounding

rate during the forecast period on account of rising R&D on non-mechanical scanning LiDAR sensors such as optical phased array-based and auto manufacturers aim to roll out autonomous vehicles in large scale by 2035.

Under the COVID-19 pandemic, the Solid-state Lidar market has been in marginal decline during the initial days of lockdown as the economic activities were on halt. But the overall Lidar technology market has contributed to contain COVID-19 virus by monitoring the crowd remotely, employee distancing at the manufacturing sites, product tracking and other applications. In September 2020, GeoCue Group, developer of LIDAR and drone mapping software has restructured its services to adapt to COVID-19 pandemic, the company had added thermal screening technology to the LiDAR's devices and AI video systems to have surveillance on employees temperature and employee distancing at manufacturing sites. Furthermore, in April 2020, Quanenergy has extended LIDAR sensing technology to help hospital and public venue facilities for mitigating crowd and congestion of people and maintaining social distancing norms. Such developments have led the Solid State Lidar technology to be utilized for managing the risk of virus.

Increase in the trend of Solid-State LIDAR in assisted driving in the automobiles

With the increase in the technology of self-driving cars, the demand for Solid State Lidar technology is also gaining momentum. The automotive companies are collaborating with the Solid State LiDAR technology providers for leveraging their technology. For instance, the German technology firm ZF Friedrichshafen AG has collaborated with sensor provider AMS and LIDAR sensor provider Ibeo Automotive Systems GmbH to develop self-driving automobile projects. The conglomerate expects completing and adopting the self-driving automobile technology by 2021 year-end. In CES Exhibition, January 2020, Self-driving car LIDAR startup named SOS LAB has signed a LiDAR collaboration memorandum of understanding (MOU) with ON Semiconductor. The collaboration is focused to develop and make public LiDAR technology for smart automotive and industry setting. The SOS LAB offers high-power VCSEL light sources and Metalens optical technology while ON Semiconductor has specialisation in high-resolution SPAD Arrays used for sensing single. The dual also aims to produce LiDAR integrated bumper and headlights in the forthcoming years with completion expected by 2023. Furthermore, Hesai LIDAR Technology based out of China has announced to receive its \$173 million funding led by Bosch and LightSpeed with other participating investors such as ON Semiconductor, Qing Venture Partner being the major investors. The company has launched 64-channel Solid State LiDAR featuring a 104.2° ( $\pm 52.1^\circ$ ) by 360° Field of View (FOV) for self-driving sensing solutions. These mark the

contribution of Solid-State LiDAR in revolutionizing the future of the automobiles. Apart from advancements in the automobile sector, technology has also contributed to the scanning technology industry. For instance, Pioneer Smart Sensing Innovations has displayed 3d LiDAR sensor developed in collaboration of Canon. PSSI has also unveiled a mass production model of 3D-LiDAR sensor (wavelength 905nm), which is made of Micro Electric Memory Systems (MEMS) mirror-based scanning method and Canon's optical technologies. The upcoming LiDAR sensor developed in collaboration of SK technology is a 1550nm wavelength sensor model enabling long distance measurement of 500 meters to aid transmission.

### Solid-State LiDAR as an auxiliary to aerial imaging and mapping

The demand for the Solid state LIDAR will increase with the surge in the aerial imaging applications providing real-time mappings data, constant tracking of shipments, vehicle, and other products installed with GPS tracking id, aerial imaging market has witnessed favourable growth primarily to be used in agriculture field management, defence and surveillance, and mapping authorities with real-time updates about traffic, blocked routes etc. For instance, Semiconductor Engineering shares that Advanced mapping is expected to be the potential market for Solid-State LiDAR. The LiDAR and aerial imaging devices were undertaken in an application for locating a vast Mayan city in the remote jungle of Guatemala.

### Regional Analysis

Geographically, the European market having the shared leading of automobile and engineering firms nations such as Germany, France, Italy has potential demand for Solid-State LiDAR technology. The demand in Europe can be pegged to increase in consumer awareness about the safety of the passenger and traceability of the vehicle in the critical time in self-driving concept cars, as the companies such as BMW, Porsche, Daimler, Volkswagon develops are undertaking the development of the technology. After Europe, North America holds the demand for electric vehicles and an increase in the usage of lidar for passenger safety in the automobile. Asia -Pacific countries such as China, South-Korea, Japan can witness the emerging trend in the development of the technology as have enormous engineering potential and manufacturing scale in countries such as China.

### Segmentation

#### By Type

MEMS

Optical Phased Array

By Application

Drones and UAVs

Autonomous Vehicles

Aerospace

Industrial Automation

By Geography

North America

United States

Canada

Others

South America

Brazil

Argentina

Others

Europe

UK

Germany

France

Others

Middle East and Africa

Saudi Arabia

UAE

Others

Asia Pacific

China

India

Japan

South Korea

Others

Note: The report will be delivered in 2-3 business days.

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