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Pioneer's MEMS Mirror-Type 3D-LiDAR Sensor Starts Shipment

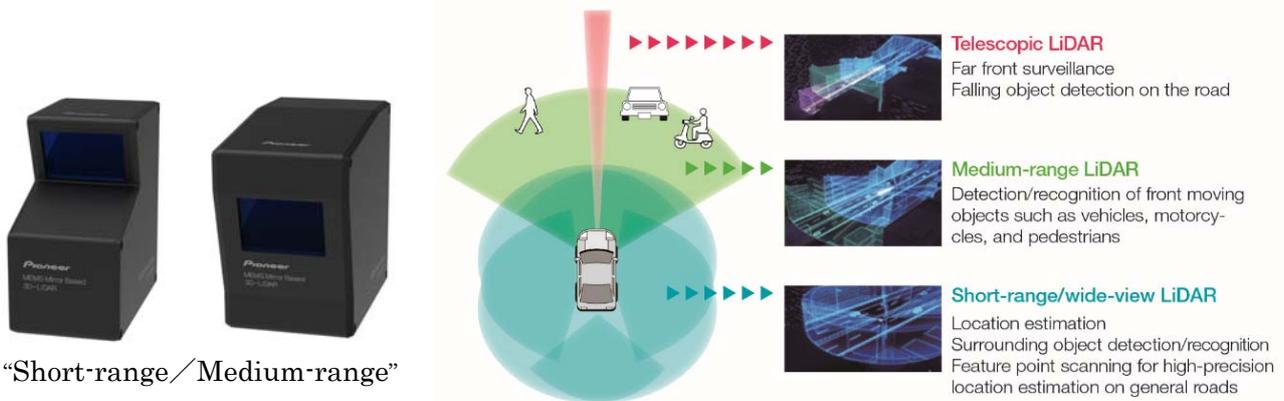
- Providing three types and four models of differing measurement distance, a combination of which can also be used -

Pioneer Corporation (Pioneer) announced today that from late September, the company will sequentially start shipping three types and four models of 3D-LiDAR sensors, which adopt the MEMS mirror method and differ in measurement distance.

The 3D-LiDAR sensor uses laser beams to measure distances to objects accurately and grasps information on distances and surroundings in real time and in three dimensions. It is regarded as an essential device for vehicle use for level 3 and higher autonomous driving. Pioneer is developing a high-performance, downsizing, lower price 3D-LiDAR using a MEMS mirror, aiming for mass production in the 2020s. Pioneer provided its first sample for testing September 2017 to companies in Japan and overseas.

The 3D-LiDAR sensors that will start shipping adopt the raster scanning method using MEMS mirrors without a motor drive unit. There are three types of products with different measurement distances: "Telescopic LiDAR", "Medium-range LiDAR" and "Short-range LiDAR". In addition, "Medium-range LiDAR" offers a dual type model, which combines two units of 3D-LiDAR sensors and supports wider measurement. A combination of these three types is possible according to different usages, allowing operation verification through installation in an actual use environment, such as a vehicle.

Pioneer will provide these models to customers related to the automotive industry, ICT and a broad range of fields, and study specifications for a diverse range of needs. Using these models, Pioneer will develop a more accurate object recognition algorithm and vehicle position estimation algorithm. It will aim for use on Level 4 autonomous vehicles, which are expected to be realized soon in restricted areas, and for Level 3 autonomous vehicles on general roads, as well as for utilization with next-generation GIS services.



- * MEMS(Micro Electro Mechanical Systems)
- * ICT(Information and Communication Technology)
- * GIS(Geographic Information System)

[Features of Pioneer’s 3D-LiDAR sensors]

3D-LiDAR sensors under development adopt MEMS mirrors without a motor drive unit, which is expected to be small-sized, light weight and with high durability. Pioneer aims to reduce costs at the time of mass production with a flexible system configuration utilizing generic components, and enhances the measurement capability of black objects and distant objects with original digital signal processing technology and optimized algorithms. In response to diverse customer needs, Pioneer is developing the wobbling scanning method of “Wide-view LiDAR” in addition to three types with a raster scanning method.

[Pioneer’s approach to autonomous driving]

Pioneer is developing 3D-LiDAR sensors as well as a map for autonomous driving. Utilizing them, it will also develop/propose an efficient maintenance/operation system (“data ecosystem”) which automatically collects surrounding information from passenger vehicles and then updates and distributes the map data for autonomous driving.

<http://autonomousdriving.pioneer/en/>

