

## **Velodyne LiDAR Announces New White Paper Calling Solid-State Hybrid LiDAR Key to 'Autonomous Driving Intelligence'**

*Describing LiDAR as 'Lead Technology' in Automotive Safety and Autonomous Systems, Report Offers Groundbreaking Analysis of Emerging Market*

MORGAN HILL, Calif. ([PRWEB](#)) February 16, 2016 -- [Velodyne LiDAR](#) announced today that Frost & Sullivan, the prestigious global research and consulting organization, has released a groundbreaking white paper on autonomous vehicle technology, praising Velodyne for both its pioneering role in developing the technology and its current status as provider of the dominant sensors on the market.

The 31-page white paper, "LiDAR: Driving the Future of Autonomous Navigation – Analysis of LiDAR Technology for Advanced Safety," recaps the technology's history, assesses its current status and forecasts its short-term prospects.

The report addresses how light detection and ranging (LiDAR) technology will affect Advanced Driver Assistance Systems and advances the concept of "autonomous driving intelligence." Examining the roadmap for LiDAR sensor technology, Frost & Sullivan suggests LiDAR stands to capture a large market share of automotive sensor technology: "LiDAR is poised to penetrate the market in 2016 as the lead technology in automotive safety and autonomous systems... and substantially increase vehicle safety across the industry."

Noting that driver, passenger and pedestrian safety and its improvement has become "as important as engine performance and fuel economy," Frost & Sullivan predicts that "planned mass production to meet the growing demand of autonomous navigation and advanced safety" will trigger "further dramatic cost reductions" in 2016-2017.

"Solid-State Hybrid LiDAR (SH LiDAR) technology has matured from an extremely costly technology" and large form-factor "to be commercialized in 2015-2016 and radically change the way we move about in the world," the report notes. Citing a 2015 article in Automotive Engineering (<http://articles.sae.org/13899/frost.com>), "the difference between a 64-beam LiDAR, and a \$150 single-beam unit, underscores an important point: not all LiDAR is created equal."

"The more advanced the automated driving features are, the greater the requirement for both data quantity and data quality," Frost & Sullivan writes. "Carmakers have been testing analyzing SH LiDAR technology to address NHTSA safety levels 1, 2, 3 and 4 simultaneously. The technology has been developing over the past ten years and has reached a state of technical and product maturity. The conversation within the consumer automotive market will likely shift from exclusively about autonomy to the safety it can provide. As the cost of the SH shrinks, car companies will likely offer cars with autonomous technology primarily used as safety back-up systems."

"It is the LiDAR industry's responsibility to educate automakers on the potential of autonomous intelligence for ADAS and vehicle safety," Frost & Sullivan advises. "The goal of LiDAR industry should be to educate the public and decision makers about the technology and its benefits. With education, the conversation will be more about how the technology will provide radically enhanced safety for vehicle travel. There is an important role for Solid-State Hybrid LiDAR in the near future for automotive and autonomous driving. Semiconductor hybrid LiDAR is now miniaturized to the size of a hockey puck and its price has dropped substantially (approximately

by 90 percent) since first on the market. The cost will dramatically drop again in 2016 as it heads into mass production. Previous barriers to the market of size and cost have been eliminated.”

For all of its innovative applications, LiDAR itself is established, proven technology, Frost & Sullivan observes. According to the report, LiDAR technology was “radically changed ten years ago with the invention of the Solid-State Hybrid rotating 360-degree LiDAR. The technology has [since] evolved to be small and affordable, key to the automotive industry. It provides reliable perception data, acting as the eyes and ears of the system, with a million miles of successful roadway testing. The technology will continue to improve, but the basic structure and science has been tested, proven and not changed in a decade.”

In conclusion, the white paper suggests Solid State Hybrid LiDAR technology “is leading the way toward advanced automotive safety and the convenience of vehicle autonomy. When combined with advanced software and computer technology, LiDAR-equipped safety systems can provide features and meet the requirements of SAE Safety Levels 1 to 5.”

In March 2015, Frost & Sullivan honored Velodyne with its 2015 North American Automotive ADAS (Advanced Driver Assistance System) Sensors Product Leadership Award. In a 12-page report, the analyst firm lauded Velodyne’s VLP-16 LiDAR Puck, a 16-channel real-time 3D LiDAR sensor that is both substantially smaller and significantly less expensive than previous generation sensors.

#### About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best in class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation and implementation of powerful growth strategies. Frost & Sullivan leverages almost 50 years of experience in partnering with Global 1000 companies, emerging businesses and the investment community from 31 offices on six continents. To join our Growth Partnership, please visit <http://www.frost.com>.

#### About Velodyne LiDAR

Founded in 1983 and based in California’s Silicon Valley, Velodyne LiDAR Inc. is a technology company known worldwide for its real-time LiDAR (light detection and ranging) sensors. The company evolved after founder/inventor David Hall competed in the 2004-05 DARPA Grand Challenge using stereovision technology. Based on his experience during this challenge, Hall recognized the limitations of stereovision and developed the HDL-64 Solid-State Hybrid LiDAR sensor. Velodyne subsequently released its compact, lightweight HDL 32E sensor, available for many applications including UAVs, and the new VLP-16 LiDAR Puck, a 16-channel real-time LiDAR sensor that is both substantially smaller and dramatically less expensive than previous generation sensors. Market research firm Frost & Sullivan has honored the company and the VLP-16 with its 2015 North American Automotive ADAS (Advanced Driver Assistance System) Sensors Product Leadership Award. Since 2007, Velodyne LiDAR has emerged as the leading developer, manufacturer and supplier of real-time LiDAR sensor technology used in a variety of commercial applications including autonomous vehicles, vehicle safety systems, 3D mobile mapping, 3D aerial mapping and security. For more information, visit [www.velodynelidar.com](http://www.velodynelidar.com). For the latest information on new products and to receive Velodyne’s newsletter, [register here](#).



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