Facet Technology Launches Its Safe and Secure LiDAR™ Crosstalk Elimination Licensing Program

Minneapolis, MN, January 27, 2017 --(PR.com)-- Facet Technology is now offering technology licenses to LiDAR suppliers for the elimination of crosstalk. The patent-pending technology utilizes a multi-bit temporal encoding technique to create unique digital signatures. These signatures ensure that LiDAR units only process their own reflected signals as valid data.

The industry is beginning to understand the looming crisis that the mass deployment of LiDAR devices will create. When two or more LiDAR devices operating at the same wavelength are illuminating a common field of view there are times when they sense emitted, reflected or scattered data from other like-wavelength sources. These unwanted signals create the appearance of false objects that are closer to the vehicle than the actual objects. This can cause vehicles with automated braking systems to inappropriately slow, halt or take other evasive maneuvers. OEMs are concerned about safety issues, potential recalls and negative impact on their brand. Current techniques such as analog accumulation, digital averaging and software filters that are being developed only reduce the frequency of the problem. Facet's technology can eliminate the problem.

Industry expert Phil Magney, Founder & Principal Advisor at Vision Systems Intelligence, says “There is a growing awareness in the industry of the LiDAR crosstalk problem. Suppliers are trying to determine the safest and most cost-effective means to manage this issue. Quanergy has announced that they are taking a leading position in solving this problem by leveraging a multi-bit encoding technique for their 2017 solid state product.”

John Dolejsi, CEO of Facet Technology, says “Facet is working with several Tier 1, Tier 2 and LiDAR suppliers to engineer their next generation products to be crosstalk safe and secure. Our company's mission is to help make vehicle automation safe and affordable for all stakeholders in the industry. Suppliers are starting to solidify their hardware designs for the mass-production of automated braking systems. We feel that this technology is too important to the success of the industry to limit its availability to a handful of select devices. We are racing against the clock to implement the safe hardware modifications for all automated braking systems.”

Technology licenses are available for all types of suppliers.

About LiDAR Crosstalk and Interference
LiDAR crosstalk occurs when a signal of a device's target wavelength is received at a device detector prior to the reflected signal of the device's own emitter. Since LiDAR for ground vehicles operates at short ranges (20-200 meters) and since emitted pulses travel at the speed of light, a common misconception is that the chances of crosstalk occurring are miniscule. Statistics show that two LiDAR units with overlapping fields of view can experience crosstalk at a rate of over 2%.

Crosstalk will appear as a detected object that is closer to the device than the actual sensed object. For LiDAR units that are used for automated braking systems, this closer object, referred to as a false

positive, will render the automated braking system ineffective since the crosstalk signal will need to be operated upon by the braking unit or the vehicle control system.

Crosstalk has been an issue for temporal LiDAR units for many years. Early providers of mobile mapping equipment, like Facet Technology, wrestled with crosstalk when they installed multiple devices on a single vehicle. All spatial zones where fields of view overlapped for multiple temporal devices would exhibit crosstalk. Scanning devices would attempt to mitigate crosstalk by minimizing the aperture on each LiDAR detector and synchronizing when multiple units emitted light pulses.

With the advent of flash LiDAR and non-scanning solid state LiDAR the trend has been to increase the aperture of the detectors. While performance is increased and cost is reduced, the likelihood of crosstalk events is increased. Furthermore, an increase in the number of LiDAR units all broadcasting the same wavelength will create an interference catastrophe for these low-cost units. The increasing rate of false positives for automated braking systems will force suppliers to add layers of software intelligence in an effort to distinguish between false positives and actual required braking events. Many believe as large numbers of LiDAR devices are deployed crosstalking temporal LiDAR units will need to be retrofitted with non-crosstalk devices due to safety issues.

Facet Technology Corp. developed technology and intellectual property to eliminate crosstalk in temporal LiDAR devices. The patent-pending technique utilizes multi-bit encoded pulse streams to allow LiDAR units to differentiate self-generated detected waveforms from stray signals caused by emitted or reflected waveforms from other like-wavelength devices.

About Facet Technology Corp.
Facet Technology was founded in 1999 and is a machine vision company with a strong history of innovation. Facet serves customers with vision sensor technology, HD mapping technology and government DOTs with asset and road attribute management. Facet customers are located throughout North America where Facet has driven over 1,800,000 miles of roadways capturing LiDAR and image data. Facet has developed automation and analysis software tools to process the road features from the collected data. From this experience, Facet has created patented innovations in vision sensors, mapping, data analysis and automation. Facet inventors have been awarded over 30 US Patents and Facet has sold or licensed patents to Google, Intellectual Ventures, TomTom, 3M and others.

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About Vision Systems Intelligence, LLC
VSI has built a unique intelligence tool for the examination of vehicle perception and control systems. Called the Vision Systems Profiler, this database allows designers of automotive solutions a tool for locating, understanding, and qualifying suppliers of perception and control systems IP. The database

includes all functional elements of autonomous control including processors, ECUs, domain controllers, sensors, test/validation tools, and more.

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