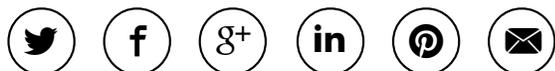Thursday, August 13, 2015

Real Earth Partners with Velodyne to Lower Cost of Entry for Creating High Res LiDAR Maps -- Without GPS

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Alliance Seen Enabling Growth of New Applications; Collaboration Supports Velodyne's Full Line of Real-Time 3D LiDAR Sensors

MORGAN HILL, CALIF. AND PITTSBURGH, PENN. (PRWEB) AUGUST 13, 2015

In a move aimed at stimulating the growth of new mapping applications, Real Earth (http://realearth.us) has partnered with Velodyne LiDAR to lower the cost of entry for creation of high quality LiDAR-sourced maps — without reliance on GPS.

As part of the collaboration, Real Earth will offer users free access to its web-based software, which processes Velodyne LiDAR data and converts it into maps. Because costly GPS and inertial navigation systems are not required, these next-generation maps are significantly more affordable than those developed with standard mapping systems. Real Earth's web-based service (http://realearth.us/mapmaker) enables users to upload laser scans and receive dense 3D reconstructions in return. Standard CAD tools can then view and manipulate the registered point clouds.

Above and at right, demonstration images of the Real Earth/Velodyne LiDAR solution -- a fast, cost-effective way to create LiDAR-sourced maps without GPS

The Real Earth/Velodyne collaboration supports all three models of Velodyne's high-definition, real-time 3D LiDAR (Light Detection and Ranging) sensors — the original 64-channel HDL-64E, the popular 32-channel HDL-32E, and the newest, cost-competitive model, the 16-channel VLP-16 LiDAR Puck. For applications where the sensors are moving rapidly, Real Earth's algorithms take advantage

of the information from the HDL-32E's IMU (Inertial Moment Unit), adding another layer of robustness.

Real Earth develops software for 3D laser scan registration and real-time position estimation that can be deployed on hand-held, ground vehicle, or aerial platforms. The real-time software is simple to use— sensors and systems can be standalone, without requiring synchronization of external GPS receivers and IMUs and thereby require little integration effort.

Velodyne is recognized worldwide as the standard for LiDAR sensors for autonomous vehicle applications, having created enabling technology for the industry. Velodyne introduced multi-channel, real-time 3D LiDAR during the 2004-2005 DARPA Grand Challenge and has since optimized the technology for a range of other applications, from unmanned aerial vehicles and mobile mapping to robotics and factory automation.

"The speed and ease with which these LiDAR maps are created is nothing short of remarkable," said Dave Duggins, Project Manager at Real Earth. "Imagine someone walking through a 12-story parking structure and five minutes later having a stunning registered 3D point cloud. That's what we're so excited about."

"Our collaboration with Real Earth represents a real breakthrough in mobile mapping," said Wolfgang Juchmann, Ph.D., Velodyne Director of Sales & Marketing. "Velodyne's new VLP-16 LiDAR Puck is a perfect fit for this web service. The Puck's compact size and light weight keeps it mobile and its market-leading price keeps the cost of entry low. For customers who need higher accuracy, the HDL-32E is ideal, with its built-in IMU sensors that augment the SLAM algorithms in high-velocity applications, like handheld or on UAVs."

Users can log laser scans using Velodyne's open-source VeloView software, Real Earth's drivers from their web site, or other open-source drivers, including those from Robotic Operation System (http://www.ros.org) or the HDL-Grabber by PointCloudLibrary (http://www.openperception.org). Up to 1 GB of Velodyne LiDAR data can be uploaded via a web interface for free, and registered point clouds are available and accessible anywhere within a few hours via a link emailed to the user. Real Earth plans to license its software to produce maps for larger volume customers or to provide real-time pose estimates for robotic guidance and navigation.

About Velodyne LiDAR
Founded in 1983 and based in California's Silicon Valley, Velodyne Acoustics, Inc. is a diversified technology company known worldwide for its high-performance audio equipment and real-time LiDAR sensors. The company's LiDAR division 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 high-resolution 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's LiDAR division 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 http://www.velodynelidar.com. For the latest information on new products and to receive Velodyne's newsletter, register here.

About Real Earth
Real Earth is a Pittsburgh based company commercializing software for rapid 3D reconstruction using laser scanners. Real Earth is creating software tools to address the mapping needs of several industries: architecture, real estate, insurance, mining and agriculture. In addition, Real Earth software can be used to estimate accurate 6-DOF motion without need for retrofitting the environment. For the latest information on new products, and services, please visit http://www.realearth.us or email info@realearth.us.

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