



Subsea Springboard, 18 Jan 2018
New Remote Sensing
Gordon Beattie, Survey Innovation Lead



Introduction

Technology created outside the world of Oil & Gas can bring opportunities to add value to projects such as construction and decommissioning.

Since 2015, DOF Subsea has been working with LiDAR sensors from the autonomous vehicle industry. We have evaluated the capabilities of such sensors for remote sensing and measurement.

Key findings include:

- Remote sensing reduces personnel safety risks
- Reduced volume of equipment to be tested, mobilized, installed, powered and maintained
- Measurement accuracy in line with workscope requirements
- Time saved waiting on survey tasks
- LiDAR sensors are constantly becoming less expensive with increased accuracy due to automotive requirements

LiDAR



A screenshot of a Spectrum article. The header includes the Spectrum logo and navigation links for "Follow on" (Facebook, Twitter, LinkedIn, YouTube, RSS) and "Engineering Topics" and "Special Reports". The article title is "Ford and Baidu Invest \$150 Million in Velodyne for Affordable Lidar for Self-Driving Cars". The author is "By Evan Ackerman" and it was "Posted 17 Aug 2016 | 19:40 GMT". There are social media sharing icons for Facebook, Twitter, YouTube, and others. A partial image of a car is visible on the right side of the article.

A screenshot of a news article from "THE VERGE". The title is "Toyota's new self-driving car can 'see' up to 200 meters in every direction". The sub-headline is "Platform 3.0 will be on display next week at CES in Las Vegas". The author is "By Andrew J. Hawkins" and it was "Jan 4, 2016, 11:00am EDT". There are social media sharing buttons for "SHARE", "TWEET", and "LINKEDIN". Below the text is a photograph of a silver Toyota Mirai self-driving car on a production line.

Introduction

Our exclusive software brings autonomous vehicle sensors into the world of O&G.

Velodyne® LiDAR

“Lidar (also called LIDAR, LiDAR, and LADAR) is a surveying method that measures distance to a target by illuminating that target with a pulsed laser light, and measuring the reflected pulses with a sensor. Differences in laser return times and wavelengths can then be used to make digital 3D-representations of the target.”

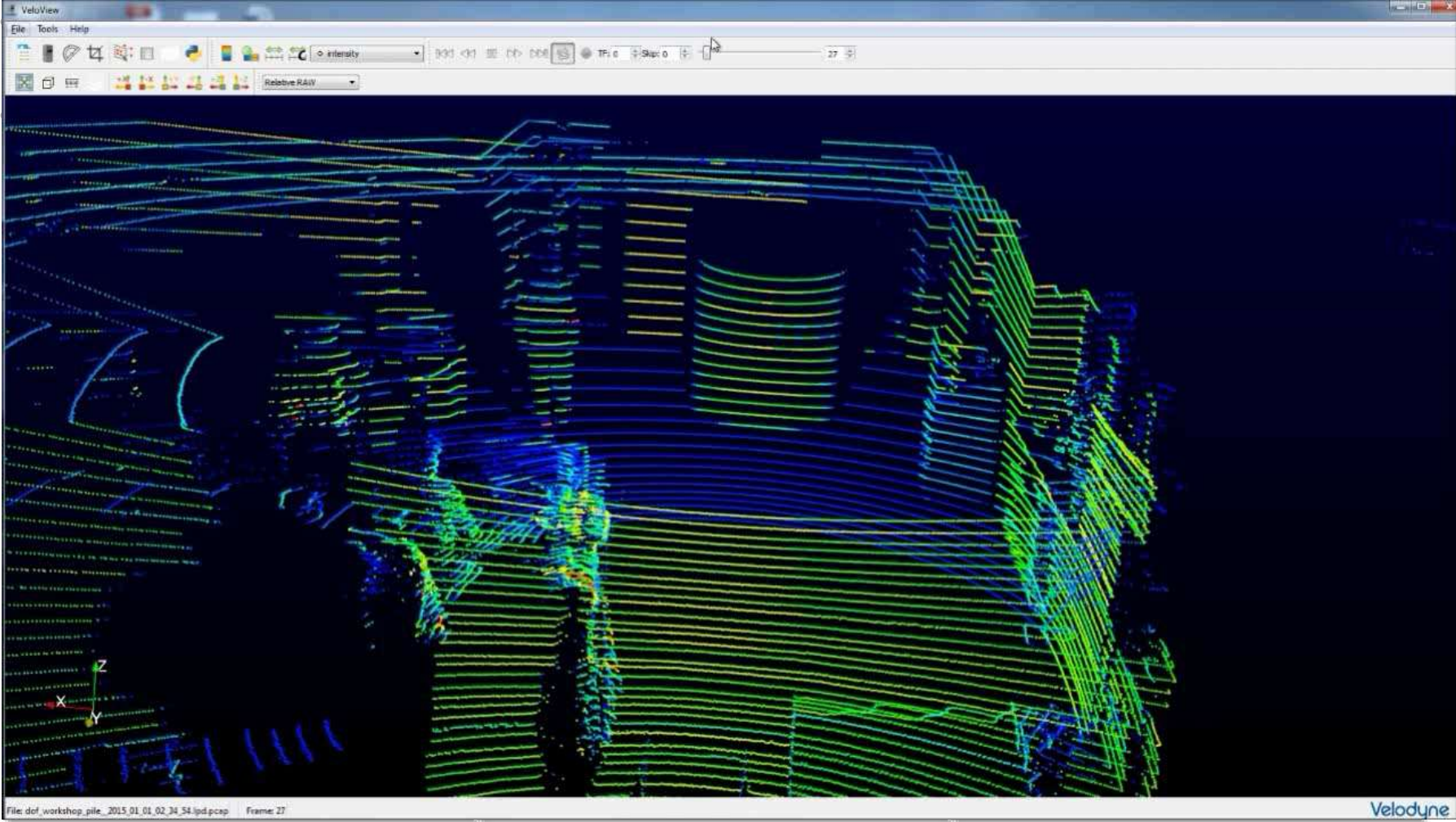


We have the ability to provide new real-time measurements and decision-making information to project workers which were not previously available.

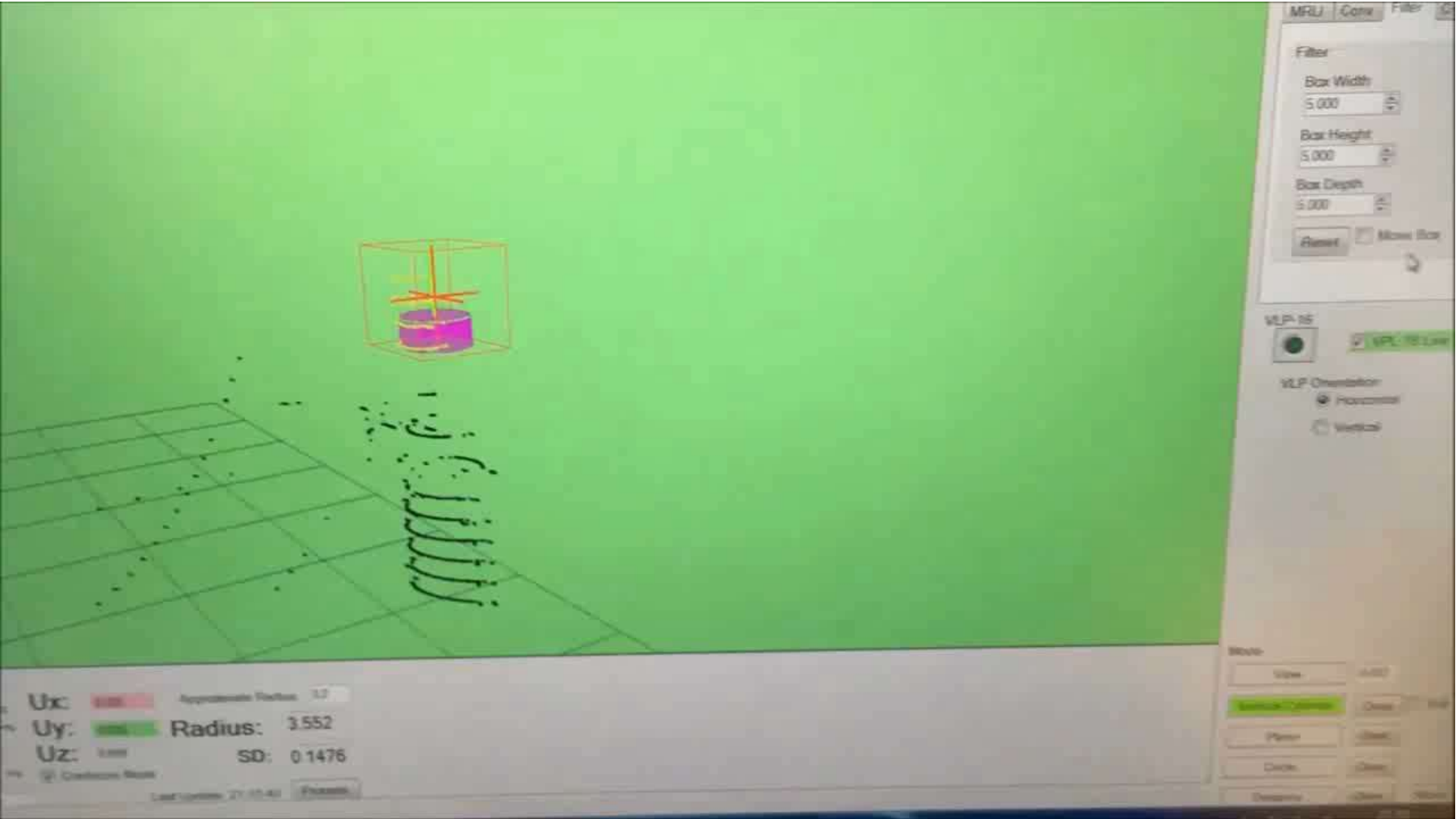
Smart software unlocks the potential of these sensors and deliver the benefits technologies derived from other industries can provide.

LiDAR In Action

Onshore Testing 2015-2016



Offshore 2017



Real Time 3D Visualization App 'C4D'



Contract Award December 2017

- Two remote tracking solutions for installation of large structures
- Large global contractor
- Large renewables project
- Solution tuned to client requirements
- Delivery of solution, survey support, training and lifecycle support

Opportunities
LiDAR + Software



Benefits Recap

Key findings include:

- Remote sensing reduces personnel safety risks
- Reduced volume of equipment to be tested, mobilized, installed and maintained
- Measurement accuracy in line with workscope requirements
- No PSU/battery requirements for sensors mounted on a structure being tracked
- Save time waiting on survey tasks
- LiDAR sensors are becoming less expensive with increased accuracy

DOF Subsea Proposition

- ✓ LiDAR Sensor appropriate for your sensing and measurement needs
- ✓ Exclusive lightweight software app designed for a specific use case or problem.
- ✓ Training, dimensional control support, etc.
- ✓ Live 3D visualization
- ✓ Live analysis of LiDAR data and mapping to CAD models
- ✓ Flexible commercial models available including rental, purchase, exclusivity on certain solutions, etc.

Opportunities

Examples of real time monitoring scenarios include:

- Structure installation and de-installation monitoring
- Remote object ranging detection, inclination monitoring
- Object velocity monitoring, crane monitoring
- Fast measurements of 'critical dimensions'
- Danger zone intrusion detection

There are more to unlock, we wish to engage with innovation and discipline experts within your company. We can then help realise the benefits of modern LiDAR-based solutions.

Thank you!

