



ZIM Success Story

Central Innovation Programme for SMEs

Cooperation Projects 147



A secure way to identify transport damage

Shipping companies are liable for damage sustained by the containers they transport at any point between receipt and delivery. Here, a new inspection system based on laser scanning is providing a reliable means of identifying container damage during loading and unloading. Among many other benefits, this system makes it possible to eliminate dangerous inspector deployments in crane frames.

Along with efficient production, the secure transport of goods plays a fundamental role in the age of globalization. The tried-and-tested distribution channels through which products find their way to customers in sound condition are an essential prerequisite of prosperous trade, and thus of entrepreneurial success in general. Thanks to efficient data entry systems, related solutions are emerging that focus on providing effective support for monitoring tasks during loading and unloading processes.

At container ports, for example, all containers delivered by ship are accounted for and entered into the automatic, computer-aided allocation and transport workflow of the terminal in question. Each container is assigned a special identification code. With the aid of camera technology and text recognition software,

this code can be scanned and passed on to the container terminal's operating system.

Until now, other important information – such as the corresponding transport ship code, warnings about hazardous goods, and alerts regarding broken seals or container damage – has been entered manually, presenting another detour for this data to take before reaching said operating system. And where is the employee responsible positioned when making these manual entries? Within the frame of the container crane, which comes with its own risks. This method of data entry has proven to be inefficient, and mistakes are hardly rare.

The product and its innovation

In a collaborative research effort, two companies – one from Germany and the other from Finland – have devised a

comprehensive solution for automatic container identification and damage inspection. This new system uses camera technology and laser scanning to collect a defined set of raw data during the loading and unloading of ships.

Its optical scanning features and software-based attribution of container details are even possible under very poor lighting conditions.

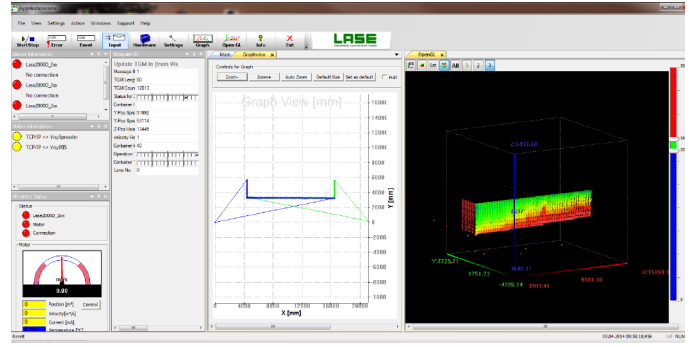
The inspection system the two companies have developed comprises three main components, which perform the following tasks:

- Surveying the exterior surfaces of containers
- Comparing the results with a flawless container
- Assessing and classifying damage

Electro-Measurement,
and Sensor Technology



Illustration of various fields scanned during vehicle transit



User interface depicting a 40-foot container

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This project was carried out as part of ZIM's third call for proposals for joint R&D projects involving German and Finnish SMEs.

The refined results are then displayed graphically in a shared user interface made available through an interface to the terminal operating system at hand, providing for enhanced automated processing in container transport.

This breakthrough is now expected to help usher in significant improvements in efficiency, productivity, and above all, security at container terminals around the world.

Target market and customers

Three installations of this application are currently undergoing extended field testing. The respective port authorities will then have the option to acquire the system for their own operational purposes.

The two partner companies, which are supplying each other with components developed in the course of their joint project, are also working together on marketing their new inspection solution. In the three years following the completion of their endeavor, they expect to generate €1.05 million in total revenue.

Each company has also hired two new development employees whose responsibilities currently include adapting the new system for use at the ports of Muuga (Estonia), Riga (Latvia), Oakland, and New Orleans (both USA).

The partners

LASE Industrielle Lasertechnik GmbH of Wesel, Germany, develops and manufactures high-quality laser sensor technology and laser-based system solutions. The company and its 60 employees assemble comprehensive solution arrays for their customers. In particular, LASE's innovative products see use in the steel, ship transport, and mining industries.

Visy Oy of Tampere, Finland, designs and produces gate automation systems and access control solutions for ports, terminals, customs authorities, border crossings, railway operations, and industrial facilities. It currently employs 20 people.

Project duration: May 2014 to October 2015

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- ZIM cooperation projects
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