

Automation, harder than you think

Delegates at the Navis World user conference in San Francisco last month heard that the process of putting together a terminal with automated stacking cranes and a full suite of process automation is not as mature as some might have thought.

Rich Ceci, project manager at Global Container Terminals (GCT) Bayonne has now led two projects, Bayonne and APM Terminals Virginia, and said container terminal automation remains a significant challenge. In retrospect, said Ceci, Virginia made automation look easy. It was the first terminal to integrate an automation system with commercially available software,

and it came in on time and on budget.

The reality, however, is that the Virginia project was extremely challenging, and GCT Bayonne was even more of a challenge, due to a host of factors, including Hurricane Sandy and the added complexity of adding automation to an existing terminal.

Ceci was not saying that automation is too difficult, but advising terminal operators to go into it with their eyes wide open and a realistic expectation of the work involved. Meeting project goals requires tight project management, and a great deal of personal sacrifice from those involved. "No matter what you think, you're going to work harder than

you ever have in your life," warned Ceci.

GCT Bayonne is notable for having a project team of just eight people, a lot fewer than other projects, but Ceci believes a bigger team would have made communication and management more difficult.

While the project team was small, there were a lot of other people involved in both projects, and Ceci said it is vital that everyone buys into the project goals and fully understands both the mentality required to make automation a success and the unique opportunity these projects represent. As well as the personal satisfaction from achieving groundbreaking steps for the terminal industry,



people who have been involved with successful projects are some of the most sought-after personnel in the industry.

Both Virginia and GCT Bayonne used multiple vendors, as the project team took a best-of-breed approach to picking technology. Neither project, however, relied on contractual obligations to hold vendors responsible when problems emerged. "Penalties don't work with these kinds of projects," stressed Ceci, and the way to get a good result from vendors is to approach problems with fairness and accountability. Terminals need to remember their suppliers are in business, and forcing losses on suppliers is ultimately counterproductive. □

GCT's Rich Ceci cautions that terminal operators need to be realistic about the work involved in automation projects

Arck in the light

French optical sensor manufacturer Arck has won important contracts with drive and control suppliers to use its sensors on automated cranes in Singapore.

Arck sensors have been used on the overhead bridge cranes at Pasir Panjang with GE drives as part of the refit by Seo-ho Electric. For the 76 new ZPMC ASCs Arck is providing sensors for skew control using its SIRRAH family of products. These use an infrared LED light source and beacons to calculate distance and measure position. For an ASC application, the sensors are mounted on the headblock and the beacons on the spreader.

The SIRRAH sensors evaluate the view angles of the beacons to determine the skew of the spreader. Depending on the application and what other sensors are used in the crane control system, either one or two beacons are needed. On earlier ZPMC ASCs at Pasir Panjang (where Siemens did the crane control and automation systems) Arck supplied two sensors and two beacons for every spreader. For the latest ZPMC cranes, where Seo-ho is supplying crane control, Arck will supply one sensor and two beacons for every crane.

Arck has also recently won an order from Konecranes for the ASCs it is supplying to Pelindo III in Indonesia. Here, Arck will supply SIRRAH sensors for skew and sway control. SIRRAH also forms the backbone of Arck's Truck Positioning System (TPS) and straddle carrier positioning system, for positioning either machine in the correct lane under an STS crane. With chassis, SIRRAH sensors on the crane measure the position of beacons on the chassis to calculate its lane number, 'x' position parallel to the quay and 'y' position on the transversal side.

With the straddle positioning system, the beacon is mounted on top of the straddle carrier, and SIRRAH sensors on the crane measure the position of the straddle, and direct the driver to centre the container under the spreader, using a traffic light system.

In both systems, the beacons are "smart" units that reflect coded light to identify the straddle or chassis, allowing the container number to be confirmed with the TOS. Arck is currently working on a system for terminal operators in Antwerp and Tanger Med.

Arck also offers its SPICA sensor for applications on ASCs. Whereas SIRRAH is used to control skew and sway, SPICA detects the edges of a container for hoist control and container alignment. This includes measuring the position of an empty spreader on top of a container, the position of a spreader placing a container on the stack, and the gap between two containers.

Arck is also working on such systems for cranes operation in China, Hong Kong and India.

Arck president Marc Brouant believes SPICA has a very bright future. Compared to five years ago, there is a much higher awareness among terminal operators of how sensors can increase safety and improve productivity on both manned and automated cranes, he said. □



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The Lamong Bay Terminal in Surabaya, Indonesia, was recently inaugurated. It's the jewel in the crown of Indonesian state-owned terminal operator "Pelindo III". Its Konecranes automated container handling system consists of 20 Automated RMG cranes (ARMGs), Remote Operating Stations (ROSs), and associated container yard infrastructure. Konecranes also provided 10 Ship-to-Shore (STS) cranes and 5 straddle carriers.

The future is very bright for Lamong Bay Terminal and Indonesia.

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