Automation Spotlight: Robotic Industrial Trucks

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Despite the modern feel of today's robotic trucks, AGVs (automated guided vehicles) actually go all the way back to the 1950s. According to John Hayes, National Account Manager for Seegrid, a leading provider of driverless Robotic Industrial Trucks, the basic intention behind this technology was as a labor savings device.

Starting with the first iterations, wires in the floor kept these driverless trucks on track. Advancements around guidance changed wires to magnets to lasers, allowed for capabilities in lifting and placing loads on conveyors or racks, and, eventually, designers were able to embed intelligence into the vehicles themselves. Following that, radio meant devices in the vehicles went from passive to active. "The vehicles could now communicate their positions, we knew where they were, and we could tell them which route to choose via radio," Hayes says.

Around 2003, Seegrid founder Dr. Hans Moravec is credited with the invention of the computer vision-based technology that is the foundation of the Seegrid vehicles of today. The basic premise behind the technology is that each vehicle is outfitted with a series of mounted cameras, which are able to view its surrounding, take pictures, patch together a full area view, and basically create a 3D environment. "Then it becomes completely virtual," explains Hayes. "You can then run that vehicle based on the map you created inside the vehicle. That's the real technology story. You start with something as simple as wire, and get all the way to vision where the vehicle is seeing basically what you're seeing."

Currently, robotic industrial trucks have found a great niche in kitting applications, where users are taking this type of equipment, training it to run a route, and having it automatically transport kitted product to the manufacturing point. The most interesting element to this story, says Hayes, has to do with how this technology, which was once a labor savings device, is now able to create the kinds of efficiencies to actually create jobs. According to Hayes, instead of a manufacturing

labor force transporting product, dropping it off, and then coming back empty-handed (resulting in 50 percent non-value-added activity), the AGVs can take on these tasks. “If roughly 50 percent of the time, labor is being completely wasted, and you can take that labor off of that piece of equipment, and move it to a manufacturing position, what you find is you have growth within your business,” he explains. “Growth within your business means more people get hired. You can take these non-value-added jobs, automate them to make them more efficient, and then add that labor to the manufacturing of products. Then you actually have a very nice human interest story.”

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