OMRON

SUCCESS STORY

Omron mobile robots eliminate manual processes in fully automonous RFID inventory systems

Key Benefits

1 **A 100% hands-off RFID verification solution.** Whether it's quality system checks, manifest generation, or another need, Omron mobile robotics facilitate a person-less, fully automated conveyor system.

2 **Mobile bases that safely carry heavy payloads.** Omron AMRs are powerful pieces of technology with built-in safety features that can carry large amounts of weight.

3 **Mapping technology that responds to obstacles in real time.** Omron AMRs have self-navigating software that detects objects in the way and finds the easiest way to get around them.

At a Glance

T&W Operations — a Huntsville, AL-based company that provides smart RFID inventory solutions — sought to automate all manual and forklift-dependent processes in its solutions for shipping/receiving and warehousing.

Building upon earlier versions, the new solutions use Omron's autonomous mobile robots (AMRs) to replace all manual processes. Both applications — the shipping/receiving RFID system and the warehousing RFID system — are now completely "hands-off" thanks to Omron's autonomous technology.

Ultimately, Omron mobile robots enabled T&W to build a complete, 100% person-less warehouse solution, improving accuracy and cleanliness in logistics and manufacturing facilities while mitigating the challenges of today's labor shortage.

Helping customers harness the power of RFID with "hands-off" solutions

The operation of T&W's original Tower Inventory System (TIS) required a few manual and forklift-operated processes. To make it easier for customers to implement an RFID-based contents verification solution, the company used Omron AMR technology as a foundation for its new Expandable Robotic Tower Inventory System (TIS-ER). This mobile "tower" travels autonomously up and down warehouse aisles to collect RFID tag data and communicate it back to the warehouse management system.

Omron offered two AMR solutions for the TIS-ER, one of which uses the Omron LD-250, a mobile robot with a payload of up to 120kg. The system can expand to a height of 10 feet, all of which is mounted atop the LD-250 to operate in warehouses with inventory racks that are less than 10 feet tall. For warehouses with higher racks, another version of the system uses the Omron HD-1500, a heavy-duty mobile robot with a payload of 1500kg, which supports a system that can expand to heights of 30 feet. This provides major benefits to warehouses with tall racks, since all inventories can be scanned and analyzed in one sitting.

T&W also created an AMR-based solution to help customers use RFID in the manufacturing space. In this solution, an AMR is fitted with a powered conveyor that picks up containers while their contents are validated against a known contents database to ensure the package contains all the items needed for the next operation. Once this operation is complete, the robot retrieves the container via the automated conveyor and proceeds to the RFID portal where the contents are once again verified without any human interaction.

Autonomous mobile robots that respond to a dynamic environment in real time

Omron's AMRs are designed to move autonomously through dynamic and peopled environments without requiring any facility modifications. After an initial "teaching" session in which an operator directs an AMR to create a map of the facility, the onboard self-navigating software will determine the best routes to reach a given destination and identify any unexpected obstacles in the way. AMRs can also work as part of a coordinated fleet.

Omron AMRs are easy to setup and are flexible for re-deployment amid any changes to warehouse layout, maximizing space usage. Since they have built-in, safety-rated laser scanners and are programmed with safety settings that prevent collisions with obstacles (including humans), they can operate in close proximity to human workers and other equipment with a much lower risk of injury or damage.

T&W's AMR-based solutions help maintain cleanliness while maintaining 100% inventory accuracy by eliminating human interaction. They also free up warehouse associates to engage in more fulfilling and creative tasks by leaving mind-numbing contents verification work to an autonomous system. To address issues related to varying rack and ceiling heights, the TIS-ER tower automatically adjusts its height on the fly, making the system highly flexible.

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