OMRON

JUKI

JUKI Smart Solutions

Autonomous mobile transport solution from Omron speeds up material handling and transport at a global electronics contract manufacturer.

Success Story

automation.omron.com

Background

This solution was implemented at one of the largest American Electronics Manufacturing Services companies. This EMS is a leader in the industry and one of the top 10 global EMS in terms of revenue and employees. The company has locations all over the world and it prides itself on being a manufacturing solutions partners.

The company locations in Mexico needed to speed up their material handling and transport processes while continuing to avoid errors. The company was impressed with the idea of using intelligent vehicles like the Omron autonomous mobile robots (AMRs) for a flexible and fully automated materials transport solution. Since this global manufacturer was already using some identification, vision and sensing technologies from Omron, the company was already aware of the automation solutions provider's commitment to quality and service.

IDELEC, a Mexican company with 20 years of experience in electronic identification, served as a partner in this project. In addition JUKI Corporation, a World Leader in SMT Solutions, an OEM and distributor of Essegi Automation, worked on the project and developed the solution that helped the Omron LD Series mobile robots transport reels of components used for manufacturing electronic assemblies.

Business need

An American multinational contract manufacturer of electronics needed to speed up material handling and transport at its Mexico locations.

Unique solution

The company employed several Omron LD-90 mobile robots in a fleet coordinated by Omron's Enterprise Manager.

Customer benefits

Operational costs are lower thanks to the reduction in manpower required in the stock room, and the overall fottprint is also smaller than that of traditional warehousing methods.

The Solution

Fully autonomous materials transport

The need

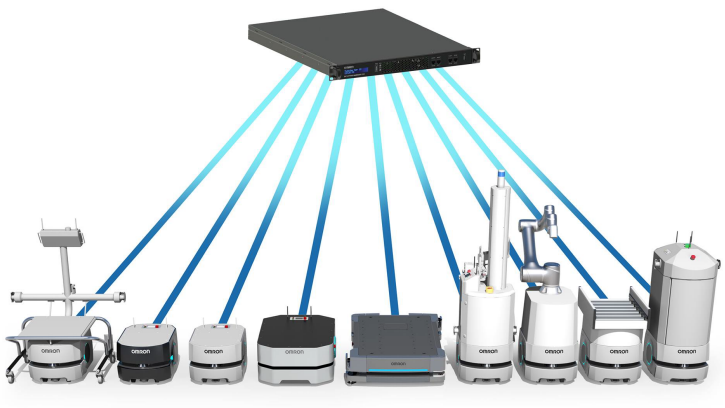
The manufacturer was looking for a complete solution that would improve its material handling operations, particularly with respect to speed and error avoidance. The initial system was a manual one in which an operator would drive a transport cart to collect the reels. Like many predominantly manual operations, this system was cumbersome and time-consuming.

They followed this with a solution involving its own autonomous guided vehicles (AGVs), but these lacked appropriate safety measures and would often collide with workers. In addition, they had no way to automatically dispatch the material, and and there was a negative return on investment.

The technology

This global manufacturer approved the use of the Omron AMR solution to replenish its surface mount technology (SMT) lines by efficiently carrying electronic components. AMRs are different from AGVs in that they can navigate along any pathway, not just one that is predefined using factory beacons or magnetic tape. Omron AMRs use powerful onboard mapping software to find the optimal path through dynamic and peopled environments.

The solution employs Omron LD-90 mobile robots in a fleet coordinated by Omron's Enterprise Manager. A special latch mechanism was designed to allow the AMRs to connect to the Juki transport system and navigate between different SMT lines to deliver component kits created for a specific order or list in a timely manner.



Technology spotlight:

The Omron LD Mobile Robot is a self-navigating Autonomous Mobile Robot (AMR) designed for dynamically moving material in challenging environments that may include confined passageways as well as dynamic and peopled locations. Unlike traditional autonomously guided vehicles (AGVs), Omron Mobile Robot requires no facility modifications, such as floor magnets or navigational beacons, saving users deployment costs.

The LD includes Omron's proprietary software and controls allowing it to intelligently navigate around people and unplanned obstacles, that render traditional AGVs incapacitated and it can be programmed and functional within a day. Designed for developers, integrators, and end-users the system can be customized for a variety of applications and payloads. Manufacturing, warehousing, clean tech and laboratories are just a few environments ideal for the mobile robot.

The outcome

Customers can now benefit from real-time management of their component locations and inventory. Costs are lower thanks to the reduction in manpower required in the stock room, and the overall footprint is also smaller than that of traditional warehousing methods. Simple integration with enterprise resource planning (ERP) and assembly systems, along with automatic component collection, has dramatically shortened preparation time.

The units also provide ESD and humidity control protection, eliminating the need for separate dry storage.

This complete solution with many AMRs has been implemented currently in one Mexico and Japan. The plan is to expand it in other customer's sites. This solution has also opened the opportunity to introduce more AMRs in other locations in the world.