

Case Study



LA Metro Los Angeles, California

The Los Angeles Metropolitan Transit Authority transports over one million people per day in a 1,433 square mile service area. They maintain and repair their 2,500 buses in a massive facility serviced by a Dematic Automated Material Handling System. Fully orchestrated by Equipment Management System (EMS) software, the integrated system receives, stores, and tracks bus parts in a high density Unit Load and Mini-Load Automated Storage/Retrieval Systems (ASRS), and delivers them on-demand to individual work centers using Automatic Guided Vehicles (AGVs).



Upgrade Objectives

Incredibly, their state-of-the-art system was installed in the 1980s. Over the years, its technologies had to be kept current and supportable to remain capable of keeping up with ever increasing demands.

During these intensive on-site upgrade implementations, the system had to stay operational and capable of meeting its mission. Risk had to be mitigated using procedures and tactics of an experienced system integrator.

Dematic's Modernization Group was chosen to perform the upgrades to their system software, SRMs, AGVs, and conveyor controls.

Implementation

The original system management software was written in a now antiquated language with a custom database manager. Dematic installed a new EMS to provide graphical user interfaces, a powerful commercial off-the-shelf database, modern device communications, and supportable hardware. The modularity of the new software also allowed for future partial ports

and upgrades. Its flexibility and expandability continue to meet their growth needs. To ensure full system availability during the transition, new software was installed and validated during off shift hours. While the mechanical components of the ASRS' Mini-Load and Unit Load Storage/Retrieval Machines (SRMs) remained solid and serviceable, their controls technology became obsolete and unsupportable. Years of Southern California seismic activity had rearranged the rack tolerances, making code bar positioning technology troublesome.

Dematic installed a Programmable Logic Controller system, including laser positioning and radio frequency communications, to make the control architecture of the seasoned SRMs the same as used on new SRMs. Off-the-shelf industry standard components and sophisticated diagnostics now ensure precise and easy maintenance.

The original Automatic Guided Vehicles diligently logged more years than the buses they supported, but obsolete control components began to slow them down. Guidance wire, embedded in the floor,



degraded from years of slab shifting and floor mopping. Ergonomic and safety issues associated with battery changing became a major concern. To elevate the system to our current technology, Dematic installed new Eagle III AGVs with wireless navigation using update magnets to monitor travel heading and progress. Safety is assured by new laser sensors for noncontact obstacle detection.

AGVs self monitor their battery levels and automatically retreat to on-board charging stations. Sophisticated new AGV control software enhances resource management and provides system operators with detailed graphic visibility of every move in the system. The original conveyor system was partially controlled by old fashioned hardwired relay panels and photo eyes with limited functionality. A powerful PLC was added to assume control of logic and tracking. It also more precisely monitor's photoeyes to sense load irregularities. Modern PC-based maintenance software also provided new insights into PLC functionality.

Summary

A true success story, the Los Angeles Metropolitan Transit Authority's Automated Material Handling System is once again set to take them decades further down the road. Dematic, North America's number one automated systems provider and integrator, will be there to help them keep their buses rolling.