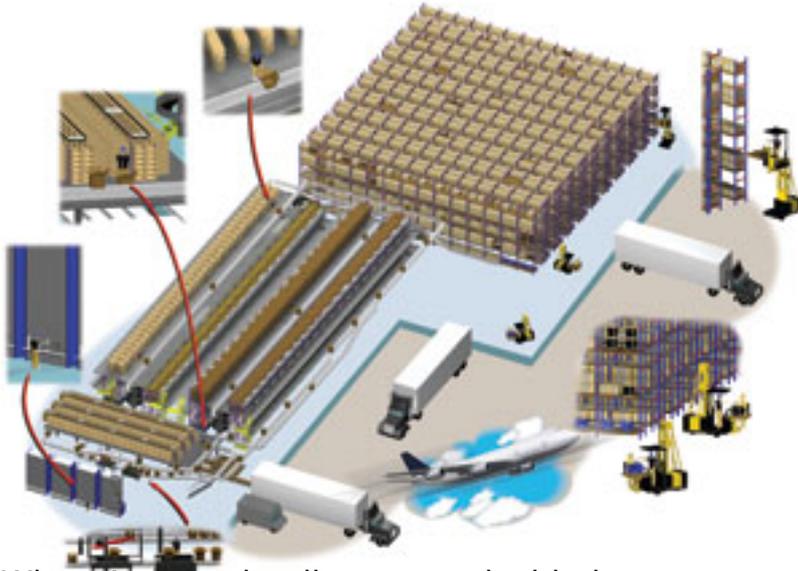


Automated System Speeds Up Time

This article first appeared in the November/December 2010 issue of *IMPO*.



When Automationdirect.com decided to automate its warehouse, it was already operating at 99 percent accuracy. But in order to keep the company's promise of same-day shipping, the warehouse was requiring more and more personnel. Each item had to be hand-picked from the shelf with the order in hand, then verified with a bar code scanner at the end of the process. On Saturdays, the team would spend the day replenishing stock.

To help alleviate the rising costs of personnel and the increasing volume of manual work, Automationdirect.com called in Pathguide Technologies, a Washington-based company specializing in real-time industrial and commercial bar code applications, with a concentration on warehouse management systems.

WMS

Pathguide Technologies helped Automationdirect.com design a warehouse management system that uses bar codes to verify orders up front. The system also accommodates batch order processing so that several orders can be processed at one time. With the help of a PC-based control system consisting of Automationdirect.com's own products, including Think & Do Software© and photoelectric sensors, the new system fell into place. Pathguide Technologies was responsible for the programming of the bar code scanners, while the rest of the application was designed, built and programmed internally by Automationdirect.com's technical support employees.

In the automated process, inventory is received and checked into the warehouse electronically, then placed on bar-coded pallets for storage. Since computers track

Automated System Speeds Up Time

Published on Industrial Maintenance & Plant Operation (<http://www.impomag.com>)

the location of the pallets, they can be placed anywhere in the warehouse. When orders are received, they are electronically confirmed by the accounting department and then released to the warehouse. The warehouse receives an order through ceiling-mounted RF transceivers that feed the information into the hand-held bar code scanners. The entire process takes only a few minutes.

The system chooses shipping boxes based on the size of each order. The chosen box moves onto a conveyor/elevator system controlled by Automationdirect.com products. The elevator has three levels, each with multiple E-stop stations. The elevator drive motor is controlled by a Hitachi SJ300 variable speed drive, while the elevator carriage uses a manual starter protector/contacter combination with mechanical gearing. Each order starts on the bottom level of the elevator where stationary bar code scanners read the bar code placed on the outside of the shipping box. With the help of an IC505 industrial computer running Think & Do software, the bar code information is used to track and deliver the box to the appropriate floor of the elevator for order picking. Retroreflective photoelectric sensors in the elevator carriage center each box and ensure proper loading and unloading. At each level of the elevator, there are limit switches that indicate when to slow and stop the carriage, while also sensing any drive chain tension or extreme overtravel conditions.

When the order has been filled, it is transported to the pack area, where packing paper is automatically cut to length, then placed in the box by warehouse personnel. The package is then automatically weighed and taped shut. The weight data is transferred to the UPS system, where a shipping label and packing list are printed and electromechanically applied. For online orders, the last scan of the bar code at the labeling station triggers a confirming e-mail to the customer. The completed order is then sorted by shipping class and a conveyor takes the order directly into the back of a UPS truck.

Increased Accuracy

The automated process allows the warehouse to operate at 99.98 percent shipping accuracy with a team of eight people. Had the manual system stayed in place, the team predicts they would have needed 18 people to perform the work. The new system also paid for itself in one year's time, including all hardware, software, and support. That savings, along with the high degree of accuracy, has made the automated system a success in the eyes of Automationdirect.com and its customers.

Source URL (retrieved on 11/20/2014 - 10:33pm):

<http://www.impomag.com/articles/2010/11/automated-system-speeds-time>