Matthews
AUTOMATION SOLUTIONS

SOLUTIONS

Matthews Warehouse Execution System, Lightning Pick's Pick-to-Light and More

INSTALLATION SCOPE

Prior to the installation, there was little to no automation of the e-grocery system. Matthews integrated to the host system via file transfers to supervise and direct:

▶ Carton erectors that feed into a routing sorter

▶ Picking: two types of pick-to-light lines

▶ Carton Routing: zone routing to a pick-to-light area for sortation management

▶ WES integrated with host system, pick-to-light, conveyors, sorters, PANDA

▶ Print and Apply (PANDA): shipping labels, verification

▶ Quality Control: weight checks integrated into process

▶ Pallet Building using RF

▶ Shipping Sorter: High speed sorting of cartons to fluid load and pallet building

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Leading E-Grocery Company

Matthews Automation increases order throughput by 5X and SKU count by 4X for a rapidly growing and evolving e-grocery brand.

THE APPLICATION

E-grocery order fulfillment is a highly specialized and dynamic process, often involving refrigerated warehouse space. A leading e-grocery brand partnered with Matthews Automation Solutions to automate key tasks throughout their operation and build fast, fresh, and accurate subscription and custom orders.

The broad scope of the project included:

▶ Warehouse Execution System
▶ Pick-to-light for picking food items/ingredients and promotional materials
▶ Order finishing using print-and-apply labeling
▶ High speed sorting of ship-ready cartons

THE CHALLENGE

Even prior to the Covid-19 pandemic, the e-grocery market was rapidly building momentum. One globally recognized e-grocery brand's exponential growth generated the need for warehouse automation to quickly scale and meet demand. They collaborated with Matthews to engineer and implement new material handling systems for their premier U.S. distribution center. The success of these solutions was then replicated in more new distribution centers throughout the country.

Operational areas touched by this new automation system included:

- ▶ Order building and picking
- ▶ Order finishing
- ▶ Shipping
- ▶ Replenishment

Matthews Automation was selected in part for their proven solutions in ecommerce and specifically e-grocery applications. Plus, to leverage the advantages of Matthews' top-tier Warehouse Execution System (WES). A WES connects, synchronizes, and optimizes warehouse automation, balances workflows, and increases system visibility so users can make intelligent, real-time decisions that drive higher throughput. With Matthews WES platform, it's easy and economical for the e-grocer to modify processes or launch new ones as operations evolve and grow.

ORDER HIGHLIGHTS

Order Receiving and Carton Building

At the customer's distribution center, the process of building and picking an order begins when the customer's host system sends orders to Matthews' warehouse execution system (WES). The WES then redirects the order sequence to account for zone and line balancing based on optimal sortation and picking paths. Real-time adjustments based on these factors provides the quickest and most efficient throughput.

Automated carton erectors build the cartons and automatically label each one with a unique, LPN (license plate number). The LPN is scanned into the WES and matched to the order. Using the LPN, the WES can now track and move the carton affiliated with that order throughout the entire system.

Carton building

WAREHOUSE EXECUTION SYSTEM

Pyramid Director WES provides a comprehensive suite of simple, easy-to-use graphical screens for management and users, as well as a central control dashboard. The dashboard's powerful, intuitive and functionally complete tools support up-to-the-second status assessments of DC processes, wave execution, and MHE operations.

The Pyramid Director WES dashboard gives users complete, DC-wide visibility and control of inter-process routing of cases and totes. Screens are customized to provide:

1. Real-time visibility into all aspects of the DC's operational activity.
2. The ability to configure batches by specifying a number of characteristics including box and liner types, pick zones to include or exclude, SKU availability, and ship carriers and their associated order quantity limits.

Views include:
- ▶ Process status performance metrics
- ▶ Exception reporting
- ▶ MHE status and performance
- ▶ Communications status and statistics configurable security.
- ▶ Parametric and diagnostic portals
- ▶ Up-to-the-minute information about vital aspects of the DC

Monitoring and Reporting: Complete visibility/control of all operations, tools to expedite inventory tracking; graphic user interface monitors MHE operations and real-time performance.

Cartons are scanned and diverted to manual stations to receive liners, based on the specific liner configuration required for the order. Then the cartons are placed back on the line to be routed to order picking.

The WES performs zone routing to a pick-to-light system for sortation management and zone balancing within that area. As cartons are scanned through the system, logic adjusts the optimized path for those cartons based on pick module load, zone full conditions, and product availability.

Order Picking

Matthews' customer uses automated picking lines, integrated with the WES, for order building and picking.

For order building, the WES routes cartons on automated conveyors to the correct zones in an integrated pick-to-light system. Pick-to-light uses light modules mounted on shelving at each product location. The lights illuminate to direct employees to the correct products and quantities required for orders. Once the picks are complete, the WES releases the carton to the adjacent zone, or back to the sorter for transport to another zone, wherever more picks are needed to finish the order. This fully automated application intelligently optimizes flow, balances work and eliminates order building bottlenecks.

Matthews' WES also releases orders to a Lightning Pick system for order picking. In this semi-automated application, employees quickly pick items to the carton, pressing the light modules when finished at that location to confirm task completion. Once all picks are finished in that zone, an "order complete" button is pressed.

With e-grocery fulfillment, each carton includes unique fliers and other important literature specific to that customer order. Picking for the Media area is accomplished with accuracy and high speed using the same pick-to-light technology as the rest of the kit components.
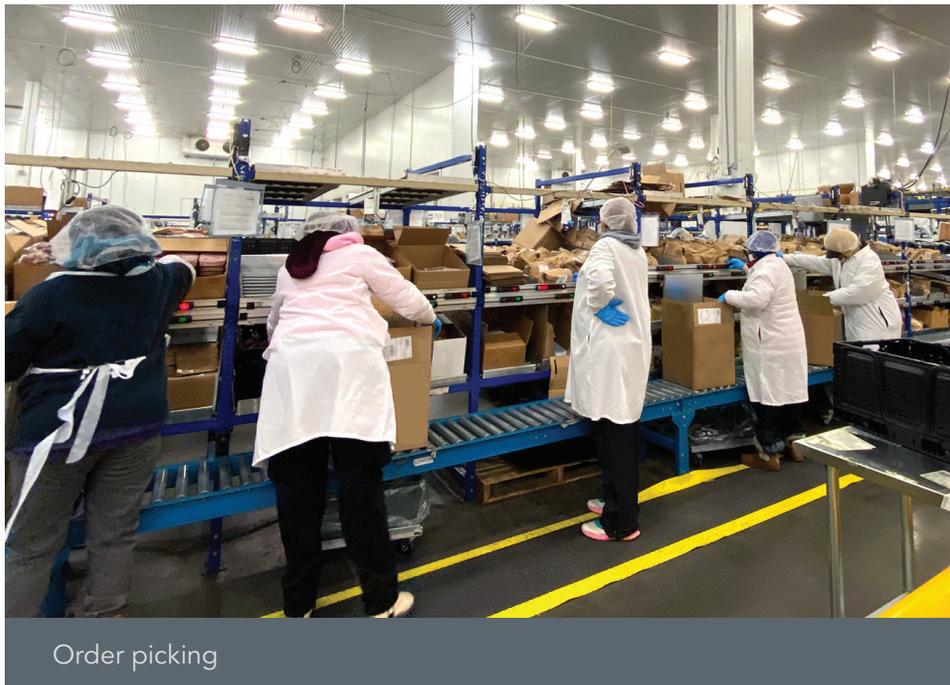
Order picking

PICK-TO-LIGHT BY LIGHTING PICK

Lightning Pick's pick-to-light solution is the most flexible and powerful light-directed picking application available. Today, Lightning Pick is the number one installed pick-to-light system in North America, leading the industry both in new installations and in retrofits of legacy systems.

With pick-to-light, lights are mounted to gravity flow rack, shelving, workstations or other material handling media. The lights illuminate to show operators the correct pick face locations and quantities required to complete an order.

Lightning Pick is the fastest operator-based pick automation available to boost the speed and order quality of your broken case quantity and piece picking operations.

Lightning Pick is ideal for popular picking techniques including Zone Picking, Cluster Picking and others. Lightning Pick's best-in-class solutions increase pick rate productivity, order accuracy and cost efficiency.

Special Features:
- ▶ Flexible, reliable hardware platform with deep catalog of features and options
- ▶ Access to real-time statistics on picker productivity, order volumes and all system activities
- ▶ Quickest training curve and start-up time
- ▶ Best-in-industry innovation

Print & Apply Labeling

Quality Control

Quality Control is critical to a large distribution center that handles fresh ingredients. Customers expect their orders to be delivered right and on time, including all the correct components. The cost of incorrect orders is high when profit margins are tight, and industry competition is high. Matthews provided automated weight checks at various points throughout the process to ensure quality without disrupting flow.

For example, weight checks are placed after carton liners have been inserted and orders have been picked. Cartons flagged with weight exceptions, possibly indicating a short or incorrect pick, are routed to a QA Audit station for special handling. Otherwise, cartons are sent through the Finishing Sorter and on to the Print and Apply lines.

Item Replenishment Confirmation

In the replenishment process, product is delivered to the back side of pick-to-light flow rack. Matthews utilizes RF terminals to confirm replenishment and putaway by displaying the locations to take products when the operator scans the item barcode to replenish, and then displaying required SKUs when the location barcode is scanned to confirm putaway. This process resets the short flag, and makes the location available for future picks.

ORDER FINISHING SORTER

Print and Apply Shipping Labels, & Verification

After picking, cartons enter the order finishing area. The WES scans the LPN on each carton to locate the print file associated with their unique order data, received earlier in the process. If a printed label was already manually applied to the carton, the WES diverts the carton to the pallet build area, but if a label is needed, it goes through to the Print and Apply (PANDA) area. Then the print and apply labeling system adds the correct label to each carton. The Matthews system also verifies that the correct label was properly applied, and is readable.

SHIPPING

Packaged and labeled cartons route to a shipping sorter and then on to fluid load and pallet building.

Shipping Sorter

After label verifications, the carton is assigned to the shipping sorter. WES manifests are uploaded to the WMS. The WES performs additional sortation including tracking and monitoring the weight and cube of each shipping trailer. Shipping location configuration shows operators the current status of each dock door location's shipping location, which is used during the trailer load process, along with the palletization process.

RF Palletization

Pallet position configuration is used for managing the pallet positions that are associated with each of the lines. Pallets can be staged through the RF palletization process to a particular location on the floor.

CONTINUED GROWTH

Matthews Automation Solutions' flexibility and quick turnaround time was instrumental in enabling this e-grocer to expand operations and grow to service a huge surge of new customers during the pandemic. Integrating emerging robotic and goods-to-person technologies are on the horizon for this company. Today, they continue to rely on Matthews to extend and fine-tune their automation, with many geographic expansions, to best meet customers' e-grocery needs in a fluid, omnichannel world.
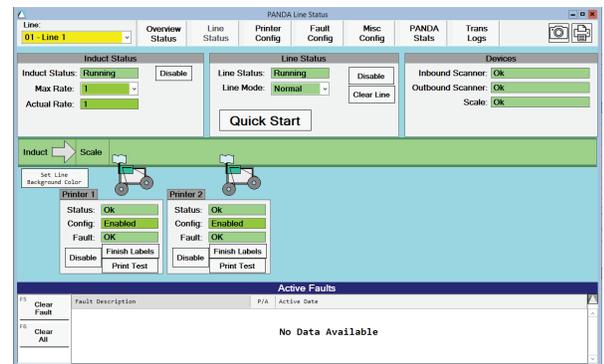
PANDA Line Status Dashboard
The WES allows an operator to view the detailed status of a selected PANDA line. The operator can also view faults on the PANDA line and the status of devices.
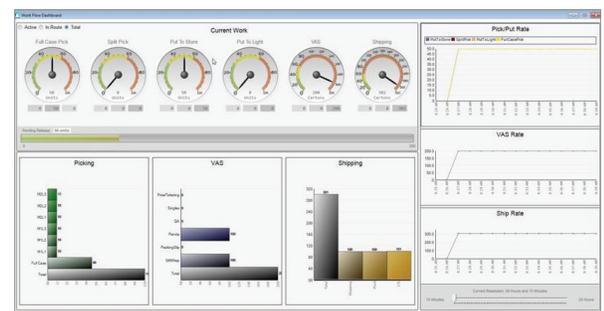
Workflow Dashboard
Matthews WES shows active, in route, and total counts for a variety of system areas. The dashboard also displays breakdowns of various picking levels and areas, rate data, and the number of shipped containers.

Software and Controls for Maximum Distribution and Fulfillment Center Performance

Matthews Automation Solutions provides Warehouse Control System (WCS) and Warehouse Execution System (WES) solutions that perfectly synchronize a wide array of material handling systems including motor-driven roller (MDR) conveyor, case sorters including sliding shoe, automated storage and retrieval systems (AS/RS) and more. Matthews' turnkey loop sorter control solutions maximize performance and reduce downtime for new tilt-tray, bomb-bay and cross-belt sorters. Matthews also revitalizes existing loop sorter productivity with advanced system re-control solutions.

Fully integrated with your WMS or ERP, our controls optimize wave creation logic and paperless pick/sort systems such as pick-to-light and put walls. Along with order finishing system controls for automated bagging, boxing and packing slip/marketing collateral document insertion, Matthews empowers your distribution center's transformation into a successful omnichannel fulfillment operation.

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