

FORTNA

Thought Leadership Series

Transform Warehouse Operations with Robotic Picking



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As organizations strive to improve and optimize their warehouse operations to meet customer demand and expectations, robotics has leaped forward in utilization and affordability. Advances in sensor and vision technologies paired with machine learning and artificial intelligence (AI) algorithms have created robotic picking and warehouse solutions that can be implemented quickly with less programming time.

In this FORTNA Insight, we will discuss different types of robotic picking that can lower labor costs, boost productivity and raise accuracy rates.

What is robotic picking?

Robotic picking can take many forms to gain efficiencies, raise accuracy rates and lower labor costs by automating repetitive and physically demanding tasks. While different solutions can achieve comparable results utilizing different methods, the results aim to meet the same goal: higher throughput, the ability to scale and lower the dependence on labor.



4 benefits to robotic picking

Optimized warehouse inventory management

Inventory management software, like warehouse execution system (WES) software, can integrate and orchestrate robotic solutions that lead to real-time data, visibility and reporting. This allows operations to avoid stockouts and assists in slotting practices to ensure optimized pick locations.

Scalability

Warehouse operations must prepare for today's challenges and demands for future growth and fast delivery. Robotic picking lends itself to scaling quickly in response to seasonal and promotional growth. Adding robots, like autonomous mobile robots (AMRs), can increase throughput, support more picking stations and increase order fulfillment time.

Accuracy rate improvement

Repeated returns due to a shipment error or mispick can harm an organization's bottom line and erode customer loyalty. Robotic picking systems can minimize human errors, boost accuracy rates and cut down on return and credit processes.

Worker safety

One of the main functions of a robotic solution in warehouse fulfillment is to automate repetitive and physically draining tasks. A robotic picking solution can reduce workplace injuries involving physical activities and injuries with pickers navigating storage racks, forklifts and other material handling equipment.



Robotic picking solutions

Robotic arm picking

With the advancement of vision sensors, machine learning and end-of-arm tooling, robotic arm picking has become a viable order fulfillment solution. A robotic arm can be implemented at a pick station. As the totes come into the station, the arm can recognize the item by the graphic on the box, barcodes, the dimensions of the item, or all of these factors. It can then pick up the item and place it in a box. Vacuum or gripping end-of-arm tooling can be adjusted to ensure that the order fulfillment action does not damage the picked items.

Person-to-goods

The traditional way of picking in a manual warehouse operation is for a picker to get an order, travel to the pick locations, select the ordered items and then deliver the completed order to a packing station.

In a robotic picking solution, a collaborative robot receives the order and travels to a zone where the warehouse worker is stationed. The robot indicates the location and the amount to pick, and then goes to the next location or zone to complete the order.

Goods-to-person (GTP)

The methodology of a goods-to-person picking solution is that the worker stays in one area or GTP station, and the items for an order are brought to them for pickup and then taken back to the storage area. High-level software manages the process, allowing for accuracy, faster order fulfillment time and inventory control. AutoStore, automated storage and retrieval systems (AS/RS) and AMR solutions can all achieve a goods-to-person robotic picking operation.



Shelf-to-person

Using the same concept as a GTP station, a shelf-to-person solution involves an autonomous mobile robot (AMR) or an autonomous guided vehicle (AGV) transporting an entire shelf or rack to a picker at their station, who then selects the SKUs from the shelves to fulfill the order.

Totes-to-person

This robotic picking solution uses high-density storage and two different types of robots. The first robot or shuttle moves between the aisles and can raise its platform to retrieve the needed tote or carton. The shuttle delivers the tote to a loading area where an AMR or AVG collects the tote and delivers it to the appropriate GTP station for picking; once the pick is completed, the tote is either directed to another fulfillment area for a pick or returned to the shuttle for restocking.

Pallet-to-person

Like the other picking methods, a pallet-to-person picking solution involves a pallet being transported by shuttle robots and elevators to a zone where it is placed on a pallet AMR or AVG and delivered to a picking station where a worker picks the items for the order. This solution is helpful for operations that need to group items on a pallet or deal with heavier SKUs and products.

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FORTNA CAN HELP

Robotic picking in the warehouse is an exciting new solution for operations to improve throughput, customer satisfaction and capacity. It offers productivity and accuracy gains while lessening an operation's dependency on labor. While each solution can offer the needed results, working with a supply chain expert can help you recognize the best-fit solution for your operations, processes and facility.

Contact us today at www.FORTNA.com