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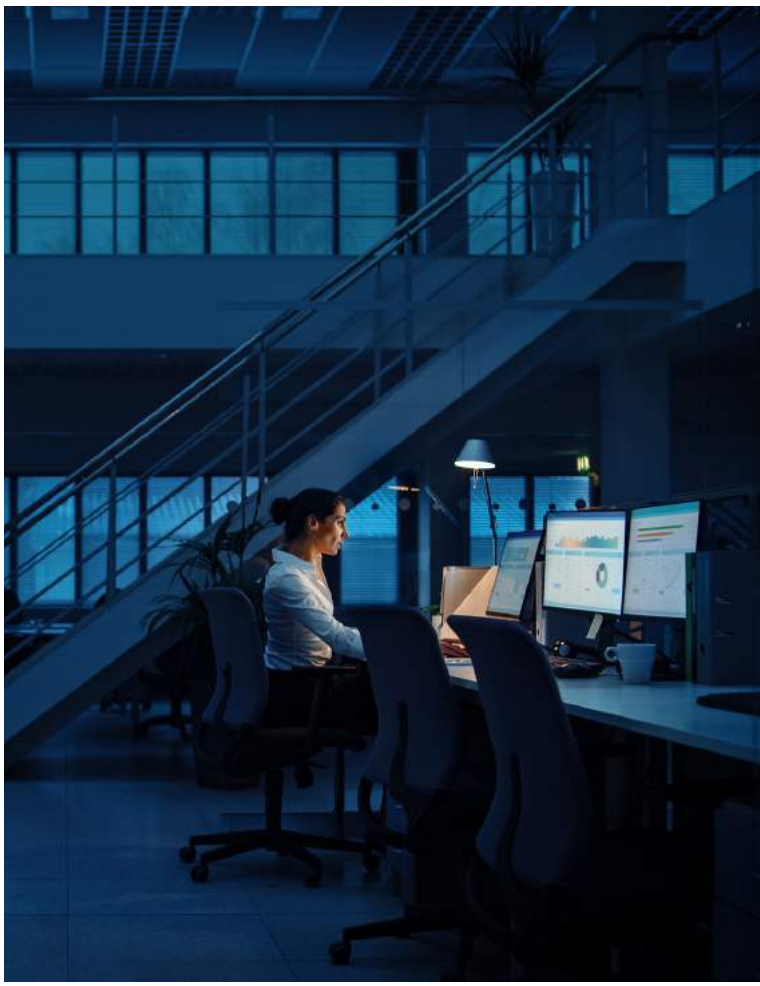
Rapyuta Pick Assist Autonomous Mobile Robots (PA-AMRs) Solve Labor Issues

Labor issues continue to be one of the major concerns for distribution and warehouse managers. The strong labor market is continuing and the ability for these businesses to attract and retain workers remains difficult. Labor costs continue to be an area of concern with labor rates now exceeding $25.00/hr in many metropolitan areas to be competitive and attractive. Labor costs often exceed 50% of the warehouse budget making it the highest operating cost in a warehouse. Warehouse associate retention rates are among the lowest in the labor force even at higher pay rates. Hiring and onboarding new warehouse associates to become productive is labor intensive. Warehouses often require variable staffing to meet the demands of peak periods. The long hiring and onboarding cycle time combined with high churn rates requires warehouse operations to over-hire and carry higher labor costs. When combined, these labor issues are negatively impacting warehousing and distribution center business performance.

These labor concerns combined with a constant drive to improve productivity are fueling the adoption of warehouse automation.

Warehouse automation is estimated to grow by over 15% each year through 2030. Warehouse automation technology costs and complexity are lowering which enables more cost-effective projects and allows many small medium-sized warehouses to deploy these solutions. One technology driving this growth is autonomous mobile robots (AMRs) with pick-assist robots being a very attractive AMR type.



Rapyuta PA-AMRs

Pick Assist Autonomous Mobile Robots (PA-AMRs) are mobile robots that work collaboratively with warehouse associates to assist with picking and conveying goods within a warehouse. These robots work safely and efficiently with associates to speed up picking, carrying items, and moving material without guidance and effort from workers.

Rapyuta's PA-AMRs are increasing warehouse associate productivity by over 2X to reduce the reliance on labor and accommodate peak periods. **Current and future throughput rates can be accomplished with 50% of the labor requirement with this unique technology**. The Rapyuta AMR system assists operations in surpassing their customer satisfaction, cost, and accuracy metrics. One of the many reasons they are popular is that they are easy to deploy, easy to use, scalable, and cost-effective. This makes them a great option for automation introduction in a warehouse.

Common Inefficient Warehouse Tasks

Picking items is among the most labor-intensive tasks in a warehouse. Approximately, **50% of picking time is not spent on picking as it is spent on associate travel time**. Orders are typically distributed to associates with totes to pick. Pickers often work in zones pushing carts, locating the items for multiple orders in the zone, picking them, placing them into the correct totes on a cart, and pushing the cart to the next pick. Once finished, warehouse associates push the cart to a central consolidation area. The totes from the zones are then consolidated for shipment. This type of picking is called zone picking. In many warehouses, discrete order picking is still done where associates pick discrete orders which can cause additional inefficiencies such as increased associate travel time.

There are several inefficiencies associated with these picking approaches. One large one is the amount of time associates spend pushing order carts from a consolidation area to their picking zone and then back again. Another is that picking is often too reliant on the associate's knowledge of where the item should be located. The picking path within the zone is often not optimized which increases travel time. Hand-held devices to read barcodes make it more difficult to handle items hands-free and reduce pick rates. The lack of put-to-light enabled carts can result in inaccurate picks. Picking mistakes are often caused by inaccurate placement of items into the wrong tote when picking multiple orders at the same time - batch picking.

One inefficient area that is often overlooked with zone picking is that the picking zones are often not equally loaded with work. This results in having too much labor in one zone which increases the cost per pick while another zone could have too little labor and struggles with meeting demand. Solving this by balancing labor in zones is difficult to accomplish as orders flow throughout the day with varying requirements for each zone.

Rapyuta Picker Guidance System

The Rapyuta PA-AMR addresses many of these inherent inefficiencies with picking in a warehouse. Orders are sorted by location, priority, and cut-off time. Rapyuta's Picker Guidance System (PGS) optimizes travel paths for associates and AMRs.

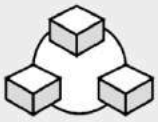
The number of AMRs deployed, their path, and zones are no longer fixed but optimized by PGS to maximize output for the orders being deployed. This optimization is dynamic and real-time to maximize picking productivity.

Rapyuta Directed Picking

The Rapyuta PA-AMRs immediately travel to the zones to begin working with the associates. Associates are no longer required to push empty carts to their picking zones eliminating that non-value-added task. The PA-AMRs arrive in the zone and direct the associate where to pick. They arrive at the item location and with a large monitor display SKU information, quantity, location, tote, and other easy-to-read information. They are lit in a ready-to-pick state. The associate picks hands-free using the PA-AMR to scan the item. Its put-to-light system is standard on our most popular AMR and directs the associate to the proper tote on the AMR to place the item and select the task complete.

After the pick is complete, another Rapyuta AMR is often waiting for a pick at a nearby location. So, there is no longer a one-on-one relationship between the AMR or cart and the associate which improves flexibility and productivity.

Multiple installations of the Rapyuta system have generated productivity improvements and the averages are shown here.

 Process	 Manual	 PA-AMR ✔	
Picking time	20sec	15sec	↓ 25%-
Walking time	+ 40sec	+ 16sec	↓ 60%-
Time / line	= 60SEC	= 31sec	↑ 2X
Productivity	60 LPMH	116 LPMH	↑ 2X

Rapyuta Free Zone Picking

The AMRs and associates are moving about in a decoupled way and are now fully flexible which results in Free Zone Picking. Associates are being optimized for what they do best and fastest - picking discrete items. The AMRs are optimized to minimize associate travel time and are waiting for associates to move from one AMR to the next which increases their pick rates and accuracy.

Free Zone Picking balances the picking load for associates. No longer are the picking loads and picking resources unbalanced and inefficient as they are in conventional static zone picking. Free Zone Picking allows for total flexibility focusing on picking throughput and directs the Rapyuta PA-AMRs to their optimized locations.

The PA-AMRs are doing the hard work in an optimized way. Warehouse associates now can focus only on picking items from inventory. Rapyuta's PGS works to optimize the work harmoniously behind the scenes. Rapyuta's PA-AMR system frees up associates who are no longer required to be relegated to rigid zones to maximize productivity and throughput.

Associates working with Rapyuta AMRs come to rely on them as they make their work easier and more productive. Using Rapyuta technology to assist workers in a warehouse makes the workplace more attractive to existing and new warehouse associates, especially younger workers.

Good-to-Go Training

Training new associates to be fully productive and good-to-go with the Rapyuta PA-AMR system takes only 60 minutes. The Rapyuta display and light-directed picking ensure high accuracy rates with new workers. New workers are no longer using poorly optimized pick paths as Rapyuta's PGS with its Free Zone Picking is leading the picking process across multiple zones simultaneously. Long onboarding procedures, inaccuracies, and resource intensive supervision are eliminated. New associates are successful early on and their performance is consistent. Hence, their retention rates are higher with Rapyuta eliminating the host of issues associated with dismissing, hiring, and onboarding even more workers. Their job satisfaction and retention rates increase from making the work successful, easier, and less physically taxing.

Flexibility and Scalability

Warehouse managers love Rapyuta’s flexibility and scalability, which enables them to meet their warehouse performance goals. The number of AMRs can easily be added or removed using Rapyuta’s Robot as a Service (RaaS). Similar to leasing a car, Rapyuta’s system can be implemented in a much more flexible way when compared to large capital-intensive, fixed automation systems. RaaS with Rapyuta allows managers to pilot and scale this automation easily, significantly reducing the management risk associated with automation and software introduction in a warehouse or DC setting. Rather than introducing a large complex system, Rapyuta’s system can easily be deployed, piloted, and scaled.

Rapyuta Robotics

Rapyuta Robotics is one of the fastest growing PA-AMR manufacturers in the world and has unique advantages. With its ability to solve many labor issues, its unique and proven technology, easy scalability, and cost-effective results, Rapyuta should be analyzed for its fit in any automation project.

Contact us here for a quick discussion with a Rapyuta Robotics technical representative on how we can assist you.

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