



Mobile Autonomous Robotic Cart



HOW MARC® TRANSPORTS PAINTED  
PARTS TO SAVE TIME AND REDUCE PART  
DAMAGE FROM HANDLING



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# PAINTED PARTS ARE EXPENSIVE

## Introduction:

In the fast-paced world of manufacturing, efficiency and precision are paramount. One of the critical challenges faced by manufacturers is the seamless transportation of painted parts from the paint booth to the production area for further assembly. This case study explores how the implementation of an autonomous mobile robot (AMR) revolutionized this process, ensuring timely delivery and enhancing overall production efficiency.

For some tasks, the biggest risk is the potential setbacks that a damaged part can cause. Parts need to be repaired or replaced - and the assembly process that was relying on that part is disrupted.

At the same time, the underlying issue of wasted time is huge - when a member of the team has to walk across the facility to get a part and then walk all the way back is a historical challenge that can be difficult to eliminate using the more complex automation solutions out there.

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## CHALLENGE: TRANSPORTING PARTS WASTES TIME

The primary challenge was to transport painted parts from the paint booth to the assembly line without causing delays or compromising the quality of the parts. Manual transportation methods were not only time-consuming but also prone to human error, leading to potential damage to the painted parts and inefficiencies in the production process.





## SOLUTION: MARC® AUTONOMOUS MOBILE ROBOT (AMR) MOVES PARTS AND KEEPS PRODUCTION LINES MOVING

To address this challenge, the company implemented an autonomous mobile robot (AMR) equipped with advanced navigation and handling capabilities. The AMR was programmed to transport painted parts from the paint booth to the assembly line, ensuring they were ready for the next stage of production.



The implementation process involved several key steps:

1. **Assessment and Planning:** The first step was to assess the existing transportation process and identify areas for improvement. A detailed plan was developed to integrate the AMR into the production workflow.
2. **Customization and Programming:** The AMR was customized to meet the specific needs of the production environment. This included programming the robot to navigate the factory floor, avoid obstacles, and handle the painted parts with care.
3. **Testing and Training:** Before full-scale deployment, the AMR underwent rigorous testing to ensure it could perform the required tasks reliably. Employees were trained to work alongside the robot, ensuring a smooth transition to the new system.
4. **Deployment:** The AMR was deployed in the production environment, where it began transporting painted parts from the paint booth to the assembly line.

# RESULTS: MARC® REDUCES WASTED TIME

The implementation of the AMR yielded significant benefits:

- **Increased Efficiency:**  
The AMR significantly reduced the time required to transport painted parts, leading to faster production cycles.
- **Improved Quality:**  
By minimizing human handling, the risk of damage to the painted parts was reduced, ensuring higher quality in the final product.
- **Cost Savings:**  
The automation of the transportation process led to cost savings by reducing labor costs and minimizing production delays.
- **Enhanced Safety:** The AMR improved workplace safety by reducing the need for manual handling of heavy and potentially hazardous painted parts.

Extrapolated over a year, the time and money saved by using MARC® provides the company with recurring annual savings of over \$20,000 just on the direct labor. Add in the financial benefits of reduced part damage and you approach \$30,000.00 in savings – year after year.

Hours per month saved	27.20
Hourly rate + overhead	\$79.31
Cost of MARC	\$17,995.00
ROI (in months)	8.35
Annual savings:	\$25,886.76

## REACH OUT

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