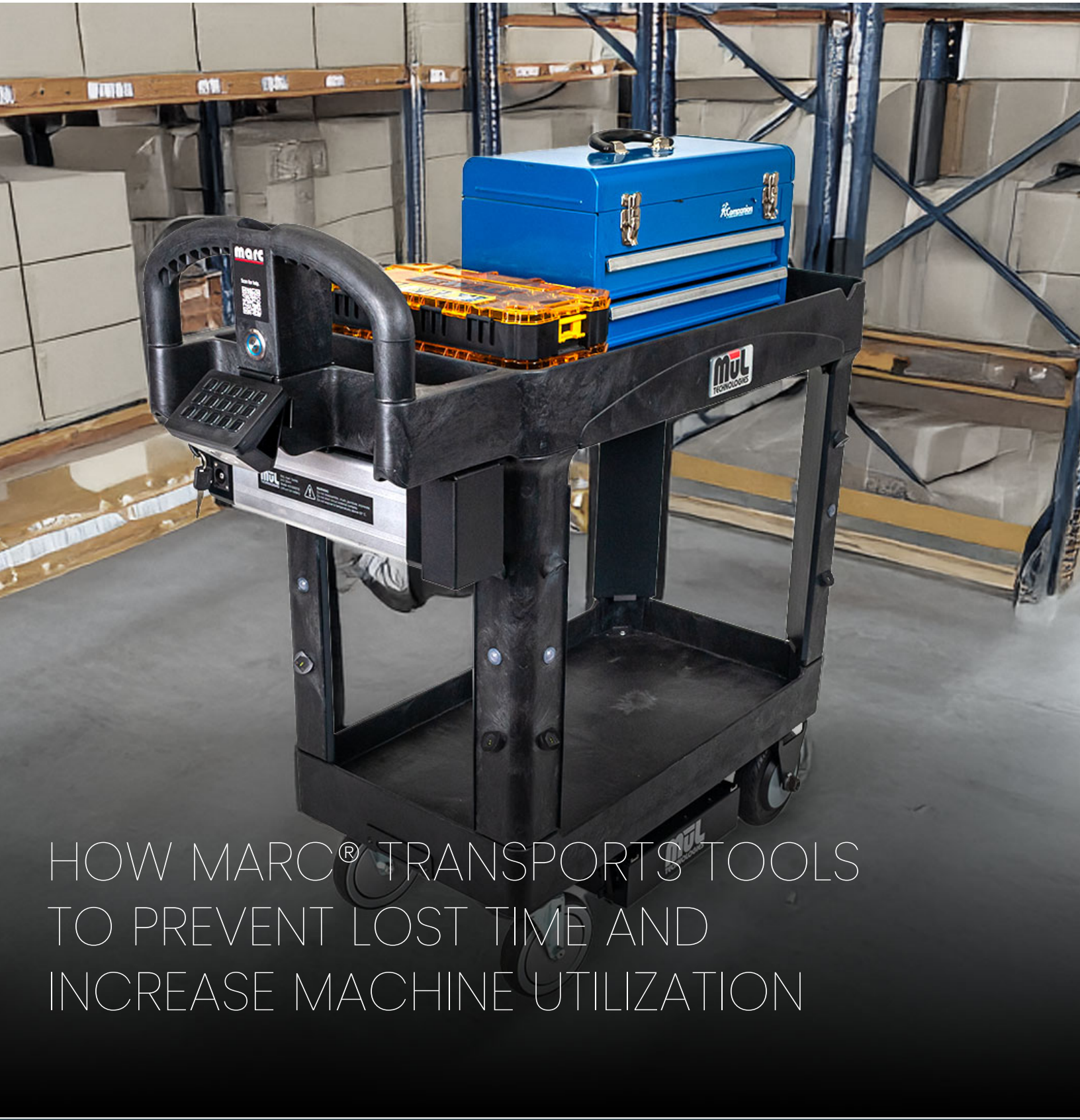
marc®

Mobile Autonomous Robotic Cart



HOW MARC® TRANSPORTS TOOLS TO PREVENT LOST TIME AND INCREASE MACHINE UTILIZATION

MTL TECHNOLOGIES®

multechnologies.com
262-242-8830

NEED FOR TOOLS CREATES UNPLANNED INTERRUPTION

Introduction:
Implementing Automated Mobile Robots (AMRs) to move tools and equipment from a central tool room to production lines can revolutionize operational efficiency on the manufacturing floor. By automating the transport of required tools, manufacturers minimize downtime, optimize labor allocation, and improve overall productivity. This document outlines a comprehensive use case for deploying an AMR-based tool delivery solution, covering business needs, system overview, process flow, benefits, and considerations.

Manufacturing environments require timely and accurate delivery of specialized tools and equipment to production stations and equipment.

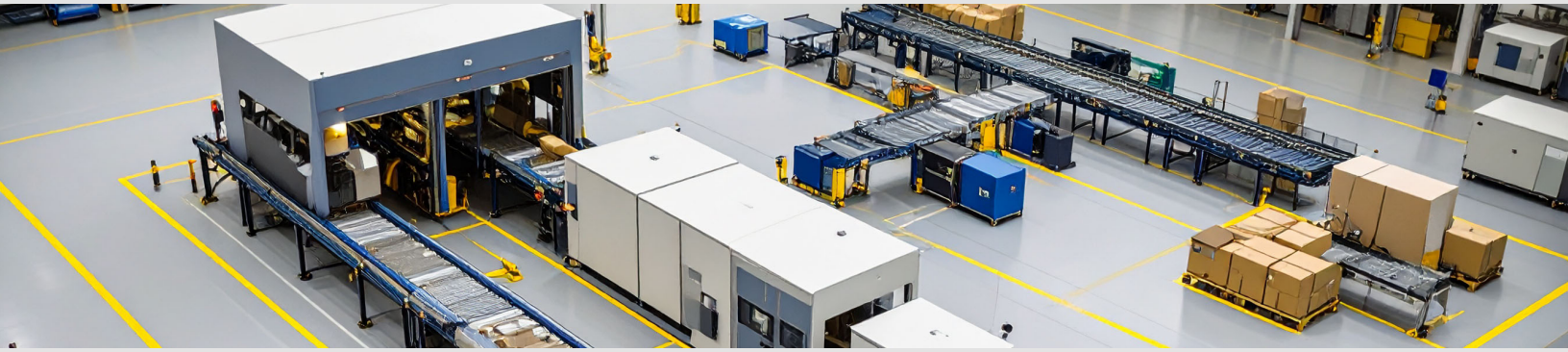
Traditionally, machine operators or support staff fetch tools from a central tool room, leading to:

- Lost production time as operators leave their workstations
- Inefficient use of skilled labor
- Lost utilization time for critical machinery
- Potential for bottlenecks and delays, especially during peak activity
- Increased risk of misplaced or lost tools

In high-mix or dynamic production settings, these inefficiencies may compound, affecting throughput and quality. The adoption of AMRs for tool transport addresses these challenges by automating routine internal logistics.

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

To address this challenge, the company implemented a MARC cart equipped with various fixtures to accommodate specialized tools as well as a tool box with universal tool sets. The MARC cart was programmed to transport the tools and/or repair parts from the centrally located tool crib to the machine needing repair. This travel time was saved because the repair technician did not have to walk over to the tool crib - and later return to the station to bring the tool back. The tool pickup requires a there-and-back path, as does the tool return. All of these trips are saved by MARC delivering and returning the tools or parts.



Tool Request Initiation: When an operator on the production floor requires a specific tool or piece of equipment, they initiate a request, specifying:

- Tool/equipment ID or description
- Destination location on the production floor
- Priority or urgency (optional)

Request Processing and Dispatch: The tool crib operator receives the request, checks real-time inventory, and fetches the tool for delivery.

The tool room oprerator loads the requested tool into the AMR's payload compartment or fixture, ensuring secure containment.

Transit to Production Floor: The MARC cart determines the optimal route to the specified machine station, avoiding obstacles and other traffic.

The operator retrieves the tool, and completes the repair. Once the tool is no longer needed, it is returned to the cart and sent back to the tool crib.

RESULTS: MARC® REDUCES WASTED TIME

The implementation of the AMR yielded significant benefits:

- Minimized Downtime: Operators spend more time on core repair and maintenance tasks rather than walking to fetch tools.
- Labor Optimization: Skilled workers are not diverted to manual transport, increasing workforce efficiency.
- Scalability: AMR fleets can be scaled based on production demand without major process changes.
- Enhanced Safety: AMRs are equipped with sensors to safely navigate complex environments, reducing risk of collisions or accidents.
- Cost Savings: Over time, automation reduces labor costs and lost productivity due to search time and tool loss.

Extrapolated over a year, the time and money saved by using MARC® provides the company with recurring annual savings of nearly $30,000 just on the direct labor. Add in the financial benefits of reduced down time you quickly exceed $40,000.00 or more in total savings – year after year.

Hours per month saved	23.10
Hourly rate + overhead	$87.50
Cost of MARC	$17,995.00
ROI (in months)	7.40
Annual savings:	$29,120.00

REACH OUT

CONTACT:
contact@multechnologies.com

CALL:
262.242.8830

WEBSITE:
multechnologies.com

10202 North Enterprise Drive, Mequon WI 53092