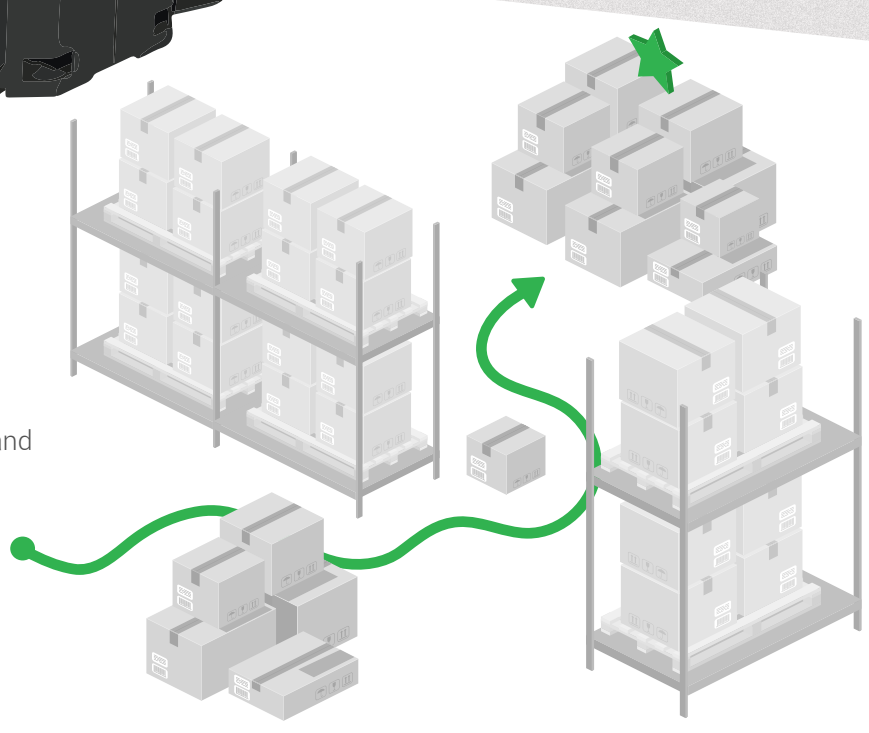
VECNA robotics

SELF-DRIVING VEHICLES FOR INDUSTRIAL APPLICATIONS: *A QUICK REFERENCE*

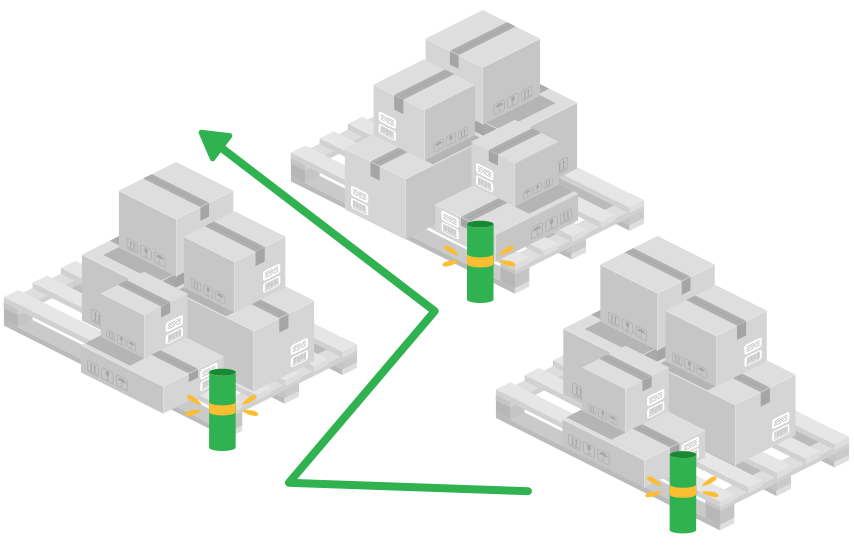
Self-driving industrial vehicles like tuggers, pallet jacks, and forklifts are used to increase efficiency in material handling operations. For years, Automated Guided Vehicles (AGVs) and more recently Vision-or Virtually-Guided Vehicles (VGVs) have been the only players in the warehouse automation market. Vecna Robotics brings high-capacity Autonomous Mobile Robot (AMR) offerings to warehouse automation, which more intelligently navigate spaces and execute tasks.

Understanding the distinctions between the types of vehicles and how they safely navigate, operate, and integrate into your facility will help you assess which vehicle platform will provide the highest performance for your operation.



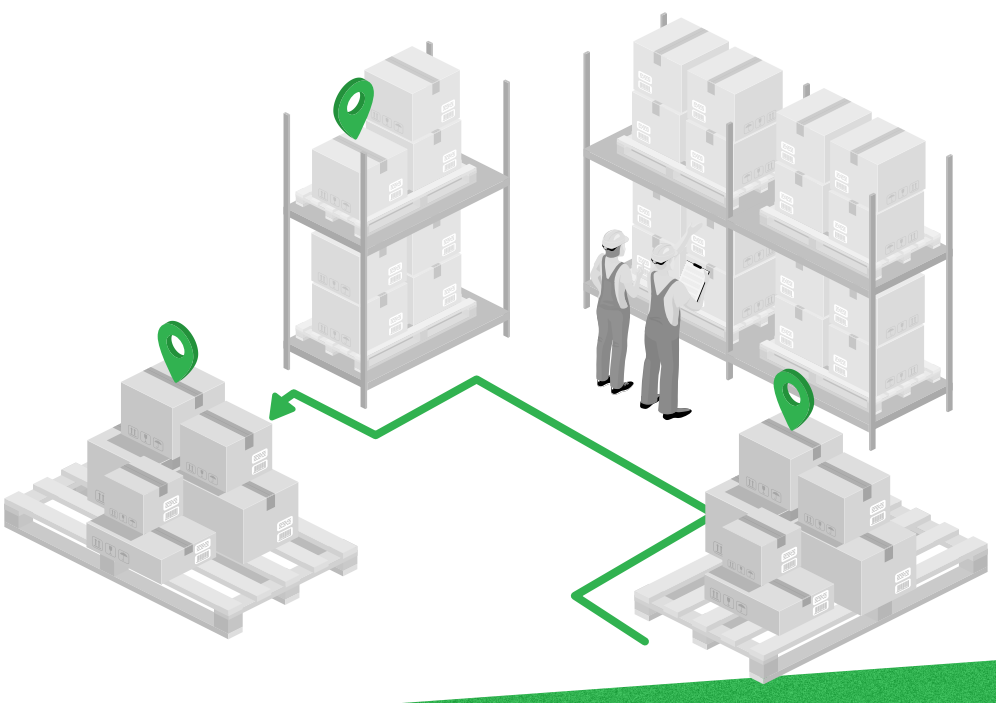
AMR AUTONOMOUS MOBILE ROBOT:

Uses its sensors and understanding of the facility to respond to changing priorities and conditions in real time.



AGV AUTOMATED GUIDED VEHICLE:

Follows location-based markers and fixed infrastructure to navigate point-to-point routes.



VGV "VISION-" OR "VIRTUALLY-" GUIDED VEHICLE:

Follows pre-planned virtual routes instead of embedded infrastructure through a facility.

PATH AND TASK HANDLING

	AMR	VGV	AGV
NAVIGATION METHOD	Actively locate and map position by comparing sensor data to facility understanding	Follow pre-recorded individual routes, using sensors to verify	Primarily use markers installed throughout a facility to navigate point-to-point routes
PATH PLANNING	*Path Planners:* Assess multiple routes and priorities, adapting in real-time to changes	*Path Followers:* Follow only predetermined, point-to-point routes	
FLEET MANAGEMENT	Intelligently optimizes throughput based on performance data and current priorities	Schedules jobs and controls traffic based on predetermined work and routes	

ERROR HANDLING

	AMR	VGV	AGV
RETRIEVAL SUCCESS	Dynamically adjust to fork pockets when picking pallets. Pallets do not need to be precisely placed	Require payloads to be precisely aligned and positioned	
OBSTACLE AVOIDANCE	Detect obstacles and execute alternate routes around them	Execute basic collision avoidance	
NAVIGATION RECOVERY	Will verify its location and search for an alternate route	Come to a stop when localization is lost and require a manual reset	
SAFETY	Vecna Robotics' AMRs adhere to ANSI B56.5 safety standards and have a Performance Level D rated safety system. Most AMRs move lighter payloads and don't have the same safety standards	Follow ANSI B56.5 safety standards and have a Performance Level D rated safety system	

CAPABILITIES & REQUIREMENTS

	AMR	VGV	AGV
CAPACITY	While most AMRs shuttle small totes and packages, Vecna Robotics' AMRs are uniquely designed for bulk payloads, including pallets and non-conveyables up to 10,000 lbs	VGVs, and AGVs tend to carry towards heavier payloads like pallets and bulk material	
SYSTEM INFRASTRUCTURE REQUIREMENTS	A server is needed to run the robots and fleet-management system	A server is necessary for fleet management of multiple vehicles	Markers are placed along vehicle paths and a server PC is set up

With superior navigation, safety, and fleet management capabilities, Autonomous Mobile Robots increase operational efficiency for warehousing, distribution, and manufacturing facilities. Vecna Robotics combines industry standard warehouse vehicles with cutting edge robotics orchestration to offer an agile AMR solution for handling heavy payloads in your facility, unlocking higher throughput without changing your existing infrastructure.

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