NBS

www.nbsgroup.co.za

AMR

Autonomous Mobile Robot

Warehousing AMR Solution

Autonomous Mobile Robot (AMR) Solution for Warehousing

Designed for high-throughput environments, this AMR solution is ideally suited to 3PL, apparel, FMCG, eCommerce, and automotive parts warehouses. With a 600 kg lifting capacity, it automates internal logistics to deliver measurable gains in productivity, efficiency, and accuracy.

Productivity – Increase UPH by 200–300%

Consolidated workflows eliminate wasted movement and idle time. By bringing work to the operator, pickers spend more time picking and less time travelling—boosting units picked per hour by up to 300%, even during peak seasons.

Efficiency – Reduce Walking Time by Up to 60%

AMRs handle material movement end to end, allowing teams to focus on higher-value tasks. Reduced travel, picking, and order review time means more output in less time, with smoother operational flow.

Accuracy – Reduce Error Rates by Up to 90%

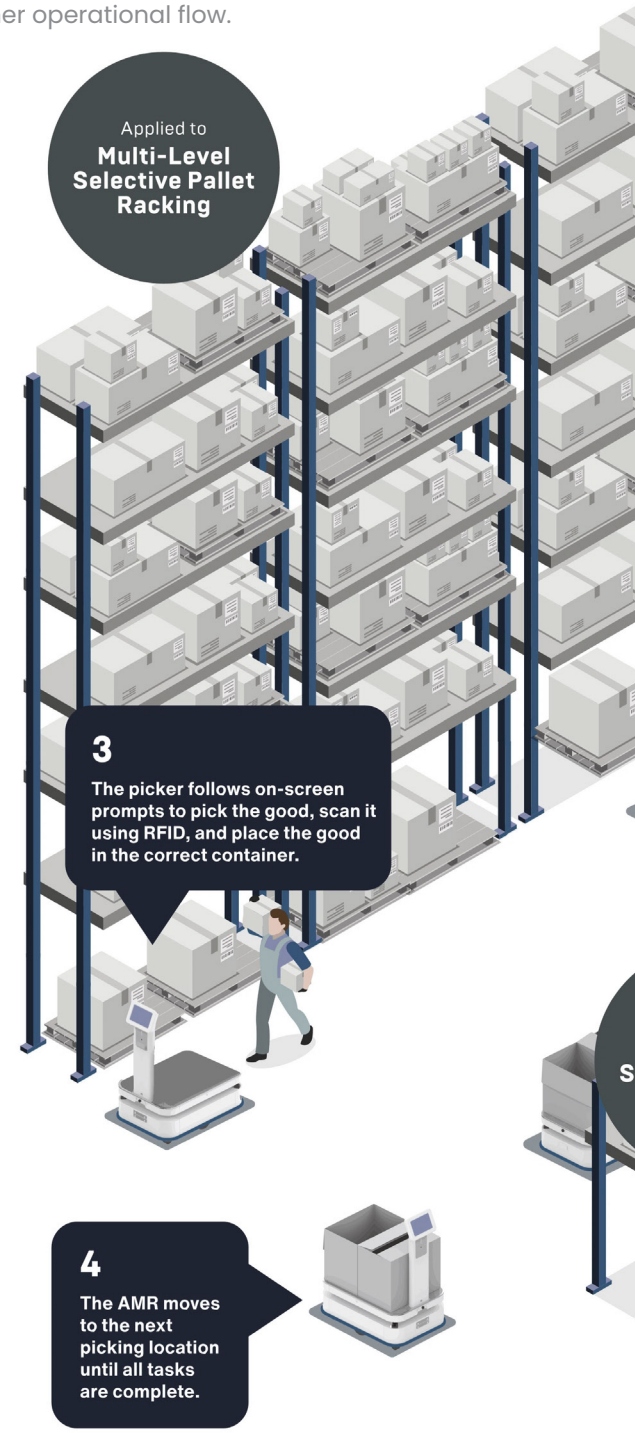
Replace paper pick lists with intelligent task distribution. On-screen visual guidance and onboard RFID validation ensure picks are completed correctly the first time, every time.

Cost Savings – Reduce Labour Costs by Up to 50%

By automating repetitive workflows and redeploying staff where they add the most value, AMRs improve productivity and job satisfaction while significantly lowering fully burdened labour costs and easing recruitment pressures.

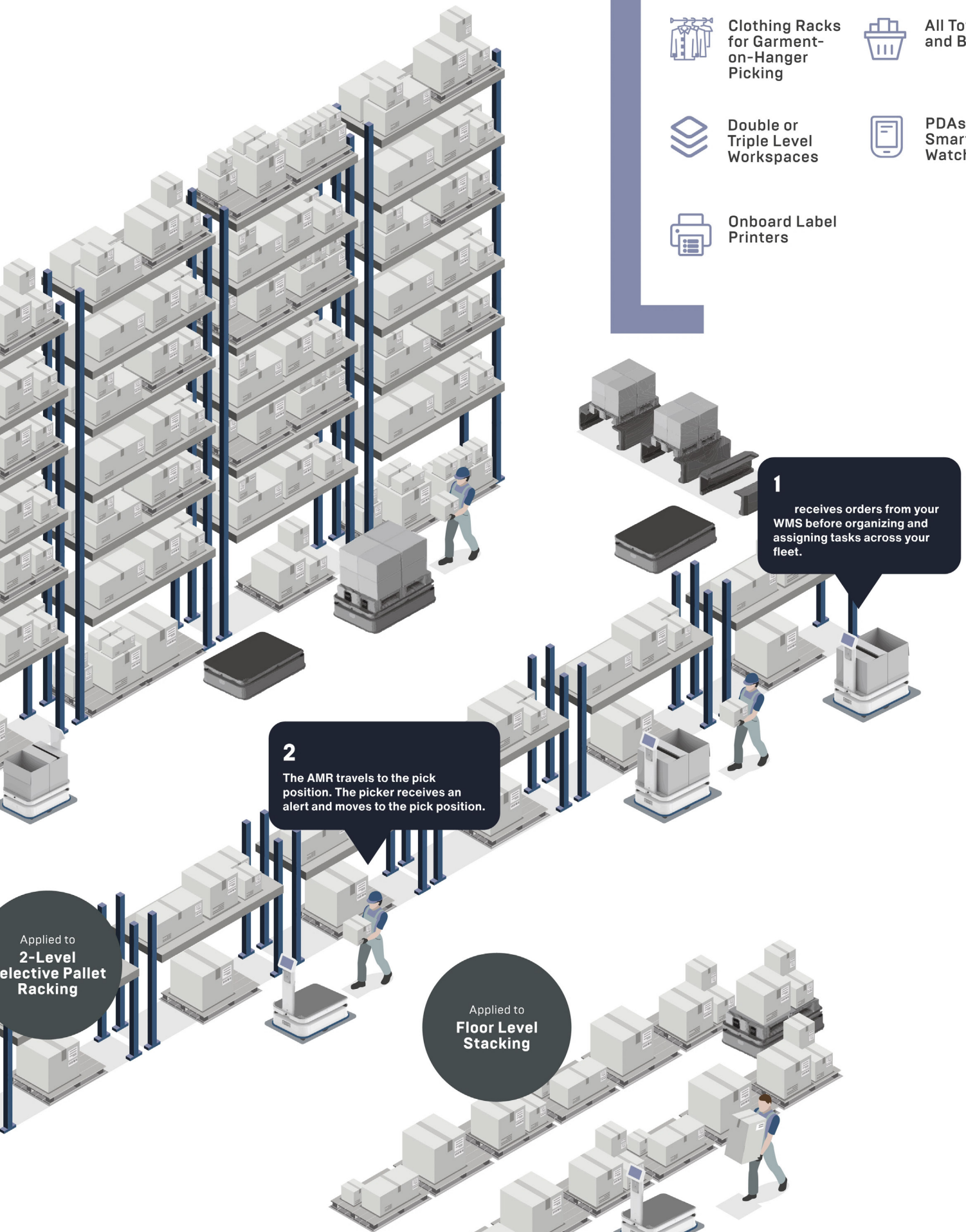
Rapid Payback – Guaranteed ROI in Under 24 Months

Delivering immediate operational impact, improvements are typically visible within weeks. With fast deployment and proven performance, this solution offers a guaranteed return on investment in under two years—making automation a clear and compelling business case.



Works with

- Clothing Racks for Garment-on-Hanger Picking
- All Totes and Bins
- Double or Triple Level Workspaces
- PDAs and Smart Watches
- Onboard Label Printers



Manufacturing AMR Solution

Autonomous Mobile Robot (AMR) Solution for Manufacturing and Industrial Environments

This AMR solution is ideally suited to electronics, 3C manufacturing, semiconductor operations, automotive parts, and home appliance production, providing reliable, flexible automation for internal logistics with a 600 kg lifting capacity.

Reliability – Up to 99.5% Uptime Availability

The system continuously coordinates the autonomous fleet to enable true hands-free operation and best-in-class uptime. Predictable, autonomous workflows reduce delays and significantly minimise the need for manual intervention.

Efficiency – Reduced Production Cycle Times

Consistent and reliable workflows improve production cadence and reduce waiting times between processes. With fewer disruptions, end-to-end production cycles are shortened, allowing you to respond to demand more quickly.

Flexibility – Faster Changeovers

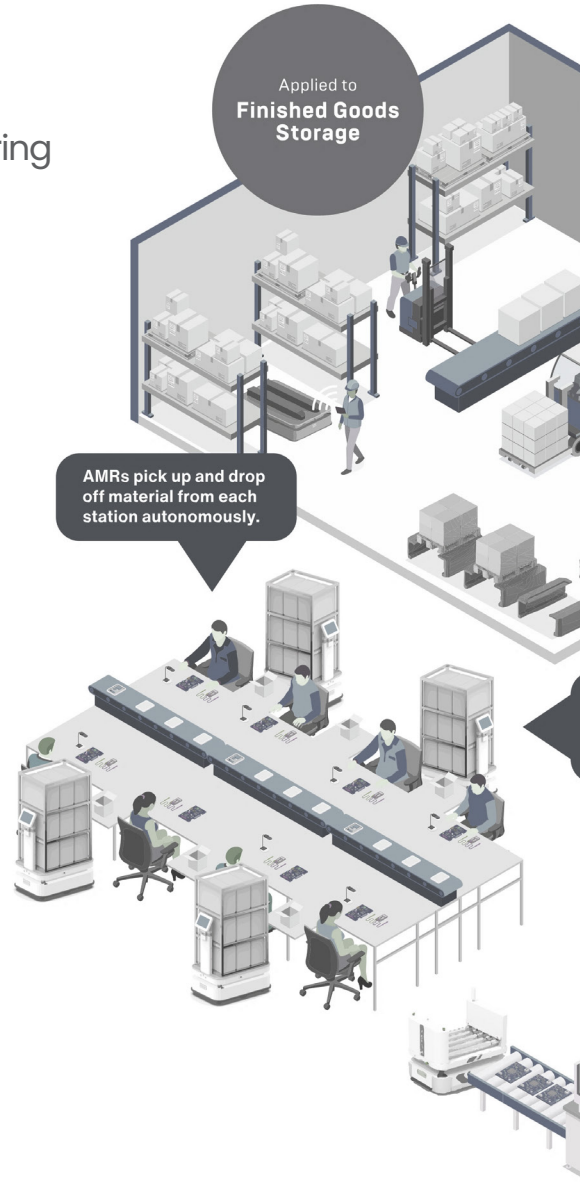
AMR workflows can be adjusted in real time to support rapid changeovers. By simply updating pick-up and drop-off points within the digital map, changeover times are reduced and operational agility is significantly improved.

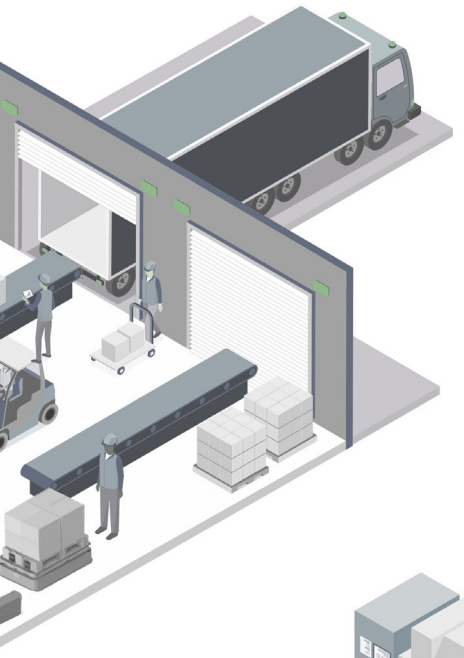
Cost Savings – Reduce Labour Costs by Up to 50%

By automating repetitive and undesirable tasks and redeploying staff to higher-value activities, organisations can reduce recruitment requirements, improve workforce satisfaction, and lower turnover—resulting in reduced costs and faster training cycles.

Fast Payback – Guaranteed ROI in Under 2–3 Years

Unlike traditional automation with long payback periods, AMRs deliver measurable returns in a much shorter timeframe. With no major infrastructure changes, rapid deployment, and flexible investment options, this solution typically achieves full return on investment in under two years.





Works with

- Various Carts
- Conveyor Top Module
- Standard US Pallet
- Deckloader

AMRs transport pallets, bins, or customized carts from station to station across the shop floor.

Quick, infrastructure-free deployment means no downtime for operations and adjustable workflows allow for flexible, high-utility operations.

Applied to **Various Production Lines**

Applied to **Raw Material Storage**

AMRs automate material movement, locating and navigating to different drop-off points autonomously and efficiently.

Applied to **Lineside Storage**

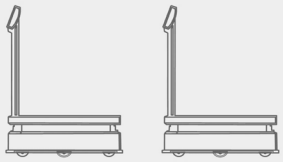
Flexible Automation Platform

Autonomous Mobile Robot (AMR) with 600 kg Lifting Capacity

This AMR solution integrates seamlessly with your existing software landscape, including WMS, MES, and ERP platforms. Once connected, the system intelligently orchestrates material movements and workflows across your operation—maximising productivity while providing full visibility and control over every area of your facility.

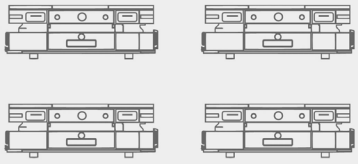
Top Modules and Add-ons for Smart Warehousing

Top Modules and Add-ons for Smart Manufacturing



Visual Autonomous Mobile Robots up to 300kg

Perfect for small-to-medium load movements like picking, AMRs collaborate with human workers to remove unproductive tasks like long-distance walking and increase the efficiency and accuracy of human work.



Visual Autonomous Mobile Robots up to 1350kg

Built for medium-to-high payloads up to 1350kg, AMRs support the automation of multiple workflows across warehouse and factory environments. Supported workflows include heavy piece, case, and pallet picking and point-to-point movement of carts and pallets for putaway, WIP handling, and finished good storage.

Other Interfaces

Industrial robots
Collaborative robots
Elevators

Auto-doors
Conveyors
Forklifts

Your Systems
WMS, WCS, MES, ERP

Seamlessly connects through API integration, transmitting vital data back and forth

Tailored Scenario for Smart Manufacturing

Fleet Manager

Core
Edge-Based Robot Control System

Integrates with Plus and uses intelligent cluster scheduling technology to give you best-in-class automated capabilities.

Plus
Cloud-Based Business Management Platform

Connects with your existing systems to intelligently orchestrate efficient business processes and drive effective man-machine collaboration. Using algorithm optimization, Plus improves your business operations.

Tailored Scenario for Smart Warehousing

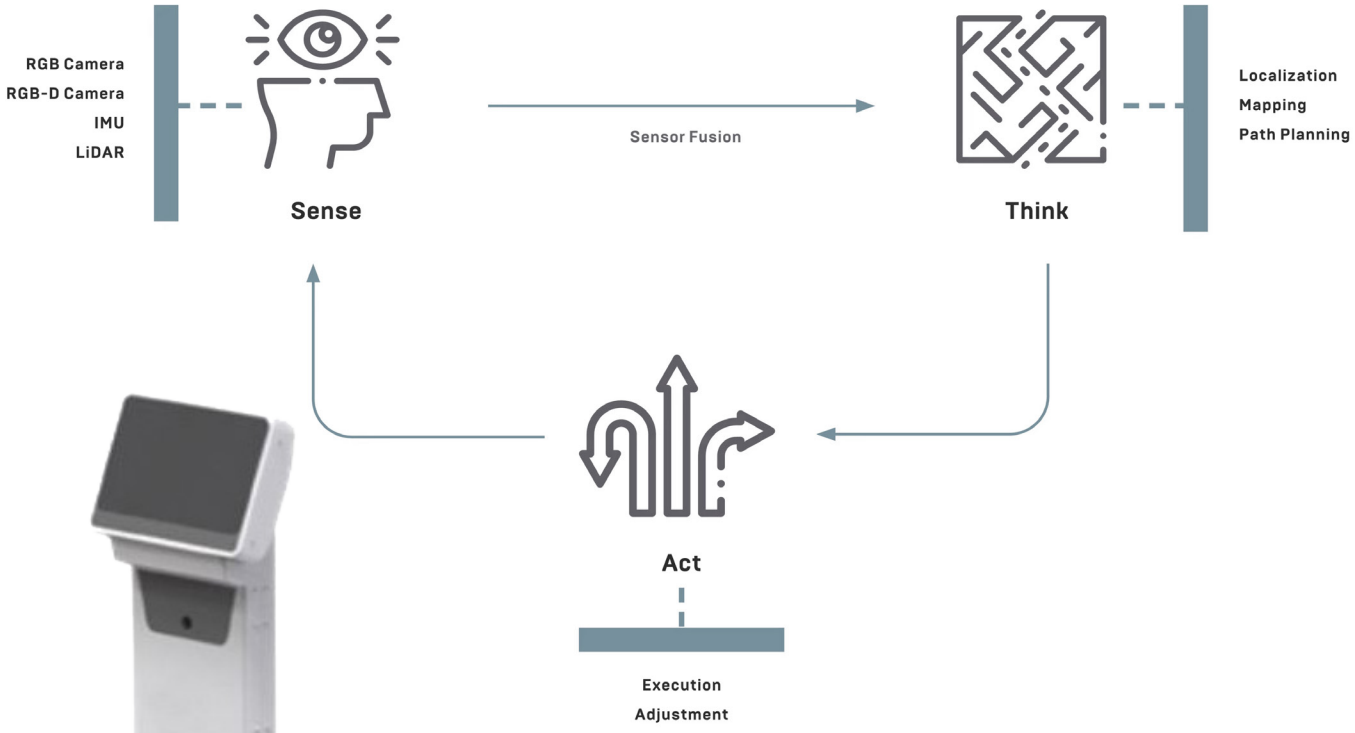
Other Scenarios (Retail, Health)

Dashboard
Desktop Application

Built for management level staff to control operations, track performance, and analyze data, Dashboard gives you a birds-eye view of your facility.

Mobile
Mobile Application for PDAs, Smart Watches, and Cellphones

Used by warehouse operators, supervisors, and other staff on the floor, Mobile improves human performance through directed workflows that help workers focus on value-adding activities.



Sense

Our AMRs are equipped with advanced onboard sensing technologies, including vision sensors such as image and depth cameras, as well as LiDAR scanners and IMUs. By intelligently combining these data streams through sophisticated sensor fusion, the system builds a rich, multidimensional understanding of its environment, enabling safe, precise, and reliable autonomous operation.

Think

By leveraging sensor fusion, the system interprets its surroundings using visual Simultaneous Localisation and Mapping (vSLAM), allowing it to accurately understand and position itself within the environment. Reinforcement learning algorithms then calculate the most efficient paths for each task, ensuring optimal performance before execution begins.

Act

Once a route has been defined, the AMR calculates the precise movement requirements for the entire journey. Intelligent control software enables each robot to execute accurate, smooth movements and dynamically adjust to minor environmental changes, ensuring safe and efficient travel throughout the facility.

Take Control of Your Warehouse

We deliver end-to-end automation and future-ready digitisation through a centralised control platform that acts as the command centre for your operation. Seamlessly integrated with your existing software systems, it receives, optimises, and dispatches tasks from a single, unified interface—providing complete operational oversight.

Scalable Fleet Capacity – Up to 200 AMRs

Easily scale your operation with fleet expansion up to 200 AMRs without added complexity. Advanced machine-learning algorithms intelligently manage and adapt robot behaviour, regardless of fleet size, rack density, or picking strategy.

Intelligent Traffic and Congestion Control

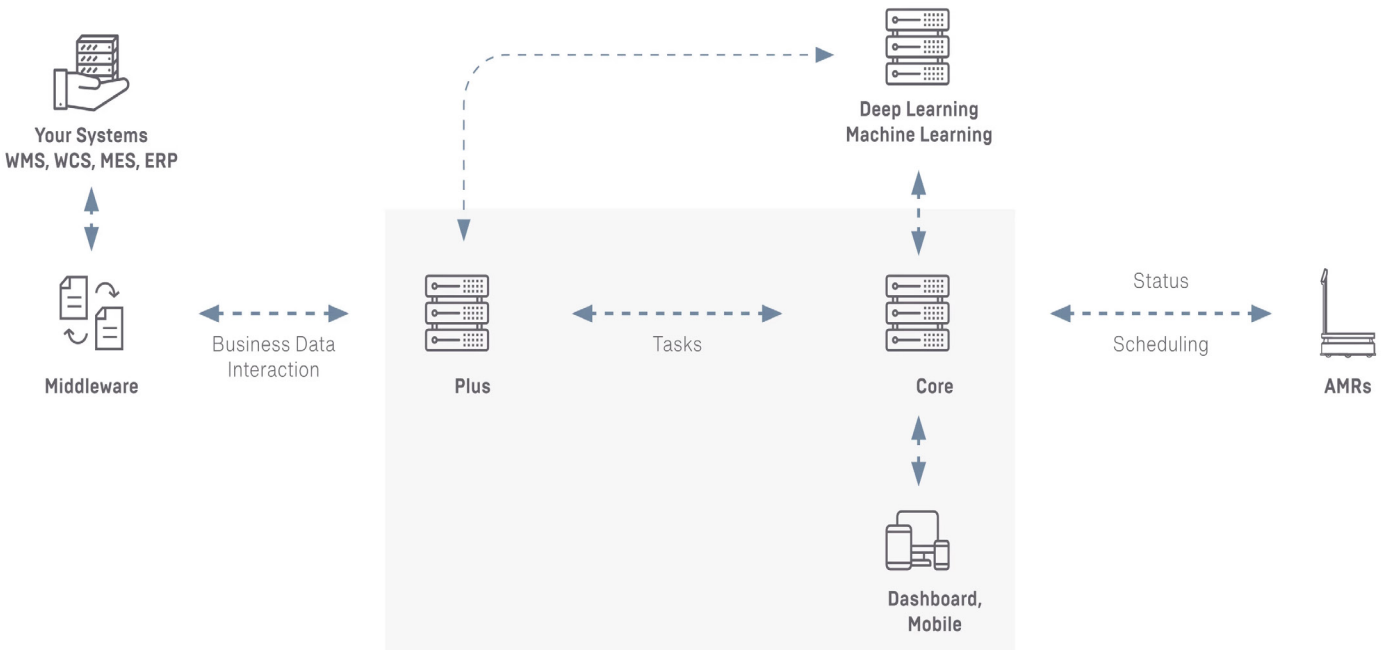
Reduce floor congestion and eliminate inefficiencies caused by traffic bottlenecks. Machine-learning-driven traffic management dynamically resolves constraints such as narrow aisles or automated door delays, keeping workflows moving smoothly.

Real-Time Productivity and Efficiency Insights

Monitor fleet performance in real time with customisable dashboards that provide clear visibility into productivity and efficiency. Actionable insights enable informed adjustments exactly where they deliver the greatest impact.

Optimised Battery Management for 24/7 Operations

Maintain continuous operation with intelligent battery optimisation. Automated charging and usage schedules maximise uptime, ensuring your facility operates reliably around the clock without manual intervention.



Intel® RealSense™ 3D Camera

600/1200
equipped with:
4 Intel® RealSense™ 3D cameras

300/600
equipped with:
1 Intel® RealSense™ 3D camera

RGB Camera for Autonomous Navigation

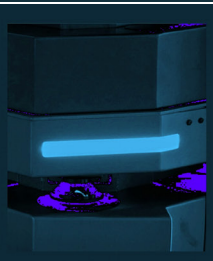
Equipped with:
One RGB Camera for Autonomous Navigation

Front-Side LiDAR Scanner (1 of 2)

Equipped with:
2 LiDAR scanners
1 Odometer

Safety

Equipped with:
- 360° Obstacle Avoidance and Detection
- Safety Edge Sensing



Turning Indicator

600/1200
equipped with:
4 indicators located on corners

Bumper Strip

Included with all models.

Lift Module

Included with:
300 Lift
600 Lift
600L Lift
1200L Lift

Emergency Stop Buttons

600/1200
equipped with:
4 emergency stop buttons

600/1200 Conveyor 1×1 equipped with:
6 emergency stop buttons

300/600 equipped with:
2 emergency stop buttons

300 Conveyor (all configurations) equipped with:
4 emergency stop buttons

Light Strip

Included with all models.

Automatic Charging Plate

600/1200
Located on the undercarriage

300/600:
Located on the front

Pallet Dock
With US Pallet

Pallet Dock
With EUR Pallet

Conveyor x1

Conveyor x2

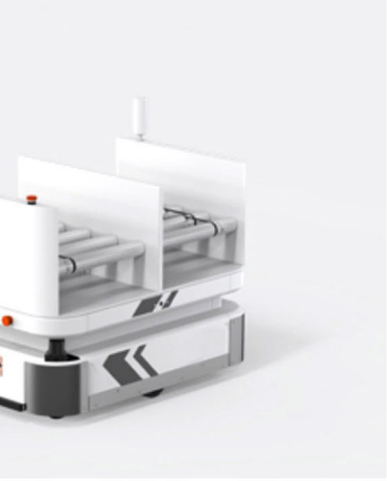
C

Picking Cart

Gravity Cart

Workstation

Mobile Workstation



onveyor 1 x2

Conveyor 2x2

Belt

Sorting Cart

Gravity Cart

Trusted by SF DHL Supply Chain

1. Error rate reduced by 90%;
2. Worker efficiency increased by 200%;
3. Labor costs reduced by 43%;
4. Overall process improvement through directed workflows and real-time data monitoring;
5. Increased agility through increased speed to start and seamless transitions between picking and sorting.

Trusted by ITOCHU Logistics

1. Error rate from picking reduced by 99.99%;
2. Units picked per hour increased by 113% from
3. 150UPH to 320UPH;
4. Onsite deployment completed in 2 weeks.

Trusted by Global OEM for Apple

Implementing 30 AMRs across the facility, the company were able to realize fully autonomous operations within the raw material warehouse, production line, and finished goods warehouse. By adopting our solution, the company's material handling capacity has increased from 1,700 trips per day to 2,218 trips per day, an increase of 30.4%.

Trusted by TCL

TCL's 5G Smart Factory improved visibility across its operations by reducing informational blind spots and data backlogs. On-demand material handling in the SMT workshop became fully autonomous. Supplies are picked from storage, moved, and delivered to lines; WIP goods are moved between lines; finished goods are loaded, moved, and stored. With fully autonomous material handling, TCL achieved a failure-free rate of 99.9%, automated 100% of material handling workflows, reduced production personnel by 20%, and increase inventory turnover speed by 30%.

Model		MT300	MT600
Performance	Payload	300kg / 660lbs1	600kg / 1322lbs
	Max. Speed	2m/s / 4.5mph	
	Driving Surface	Traversable Step: 20mm; Traversable Gap: 30mm	
	Positioning Accuracy	Guide Positioning: ±10mm; Stop Positioning: ±5mm	
Size & Weight	Dimensions	950×650×360mm	
	Weight	130kg / 220lbs	150kg / 331lbs
	Load Surface	670×390mm	
Battery	Operation Time	~8 hrs per charge	
	Charging Time	2.5 hrs (5%-95%)	
	Battery Capacity	48V/28Ah,~1000 charging cycles	
Positioning and Navigation	Navigation	Autonomous navigation through sensor fusion of various data types, including visual and LiDAR based vSLAM allows for accurate positioning, localization, and navigation in large, open spaces	
	Environment	Able to navigate to, maneuver through, and communicate with facility features, such as elevators and auto-doors, in groups.	
Communications	WIFI	IEEE802.11 ac/b/g/n	
	Bluetooth	Bluetooth 4.0	
	Mobile Network	Supports 5G	
Safety & Sensors	Sensors	2 LiDAR scanners	
	Cameras	4 cameras, including: 1 Intel® RealSense™ 3D camera	
	Safety	Sound and light alarms 2 emergency stop buttons	

NBS

+27 (0) 64 818 5248
info@nbsgroup.co.za
www.nbsgroup.co.za