



Automating Material Handling and Warehouse Flow

Intralogistics Transport AMR & AGV Solutions

Automates material transport across production and warehouse zones, enhancing productivity, safety, and operational flow.



Corporate Overview



UB Penang (HQ)



UB Kuala Lumpur



UB Ipoh



UB Shanghai



UB Nantong

UB is a leading provider of Smart Manufacturing and Warehouse Automation solutions with more than 30 years of innovation. Specialising in industry automation, UB empowers organisations to achieve higher efficiency, precision, and sustainability through digital backbone technologies, material flow systems, warehouse automation, and AI-driven solutions.

Through its Smart Manufacturing & Warehouse Ecosystem, UB delivers end-to-end automation across industries such as Automotive, Medical, Semiconductor, Electronics, and Warehousing & Logistics. Recognised as a pioneer in lights-off automation with successful large-scale deployments for global manufacturers, UB continues to advance Industry 4.0 through innovation, engineering excellence, and dedicated R&D.

30+ Years of Innovation

Deep domain expertise driving measurable efficiency gains in manufacturing and automation.

Pioneers in Lights-Off Automation

Among the first with real-world lights-off back-end line deployments.

Smart Manufacturing & Warehouse Ecosystem

Seamlessly uniting digital backbone, material flow, warehouse automation, and robotics into a powerful, integrated solution.

Key Accomplishments & Recognitions

ISO 9001:2015 Certified

Malaysia Digital (MD) Status Company

Technology Excellence Award, Malaysia Smart Manufacturing Awards (MSMA) 2025

Tribute 30 Industry Leaders Award Nominee, SEMICON SEA 2025, Singapore

INPenang International Award for Excellence in Industrial Automation

National Technology Solution Provider, recognized by MIDF

CHT Excellence Award for I4.0 Solution Provider

STATSChipPAC Gold Award for Epoxy Tooling Management System (ETMS)

Awarded for Innovation and Support in the Lights-Off Manufacturing Journey with Western Digital

Delivered one of the first lights-off semiconductor backend lines with SanDisk Shanghai

How's the UB Smart Ecosystem works



Connects machines, data, and workflows seamlessly



Automates material movement to enhance productivity and safety



Tracks inventory and optimizes storage with real-time visibility



Seamlessly uniting digital backbone into a powerful, integrated solution.



Synchronizes control across production and warehouse systems



Scales easily to maximize operational efficiency

Smart Material Handling

Transform the way materials move across your factory floor.

UB's AMR lineup is designed to automate every stage of material movement — from horizontal transfer to vertical stacking and intelligent robotic handling. Each AMR plays a key role in UB's Smart Material Flow Ecosystem, connecting machines, systems, and workflows to achieve higher efficiency, productivity, and operational safety.

With intelligent navigation, modular design, and seamless system integration, UB AMRs help manufacturers accelerate throughput, reduce manual handling, and achieve 24/7 operational performance.



INCOMING MATERIAL



Faster inbound logistics, reduced manual handling, improved safety, and seamless traceability from dock to storage.

Under-Drive / Towing AMRs

Transport material carts and racks for bulk movement and line feeding.

Autonomous Forklift

Automates pallet transfer from receiving dock to designated storage zones.

Handling AMR with Roller Conveyor

Transfers totes, bins, and boxes between receiving, staging, and buffer conveyors.

Conveyor & Sorting System

Streamlines the flow of incoming goods for staging and put-away.

Material Control System (MCS)

Captures incoming material IDs, verifies lot data, and dispatches tasks to AMRs/forklifts.

Fleet Management System

Coordinates routes, priorities, and traffic across the robotic fleet.

ASSEMBLY LINE



Improves production rhythm, balances workloads, and increases first-time-right quality through synchronized automation.

Collaborative AMR

Mobile pick-and-place handling with robotic arm and machine-loading capability.

Handling AMR with Roller Conveyor

Transfers parts, WIP trays, and assemblies between cells and equipment.

Cobot Workstations

Automate repetitive handling, fastening, or pick-assist tasks.

Conveyor System

Maintains continuous material movement between processes.

MCS & MES Integration

Ensures accurate sequencing, line-side supply, and material verification.

QUALITY INSPECTION



Delivers consistent inspection accuracy, reduces manual checks, and enables real-time defect analytics.

Collaborative AMR with Vision

Performs inspection, measurement, and sorting tasks autonomously.

Handling AMR with Roller Conveyor

Transfers inspected or rejected materials between QA and rework zones.

Autonomous Forklift

Relocates pallets or bulk items requiring secondary inspection or disposition.

MCS

Logs inspection data for traceability and real-time quality reporting.

WAREHOUSE & STORAGE



Achieves 24/7 automated warehousing, improved space utilization, shorter cycle times, and reduced manpower reliance.

Autonomous Forklift

Automates pallet put-away, retrieval, dispatch staging, and truck interfacing.

Under-Drive/ Towing AMR

Move racks, pallets, and bins between warehouse zones and outbound areas.

Handling AMR with Roller Conveyor

Connects automation cells such as storage, packing, and consolidation.

Automated Sorting & Conveyor Systems

Handle inbound/outbound flow, buffering, and sequencing.

WMS Integration

Enables real-time visibility, automated task assignment, and optimized route planning.



Transform Material Flow with Autonomous Mobility

Let automation handle the movement — so your people can focus on what matters most.

In today’s dynamic manufacturing landscape, keeping materials moving efficiently is key to meeting delivery targets and maintaining quality.

Autonomous Mobile Robots (AMRs) offer a smarter way to manage production and warehouse operations, automating repetitive transport tasks so your team can focus on higher-value work.



Ensures safe and precise navigation with LiDAR SLAM and obstacle-avoidance sensors



Supports continuous operation with auto-charging and efficient power management



Enables easy deployment across different production layouts with a compact, modular design

How AMRs Drive Measurable Impact

AMRs combine smart navigation with real-time material tracking, giving full visibility into every movement on the production floor. This bridges the gap between physical handling and informed decision-making, turning everyday movement into measurable results.

KEY METRIC	Before AMR	After AMR
Operator handling workload	100%	↓ 40 – 60 %
Transport throughput	Baseline	↑ 30 – 50 %
Handling accuracy	Baseline	↑ ~ 80 %
ROI timeframe	Baseline	12 – 24 months

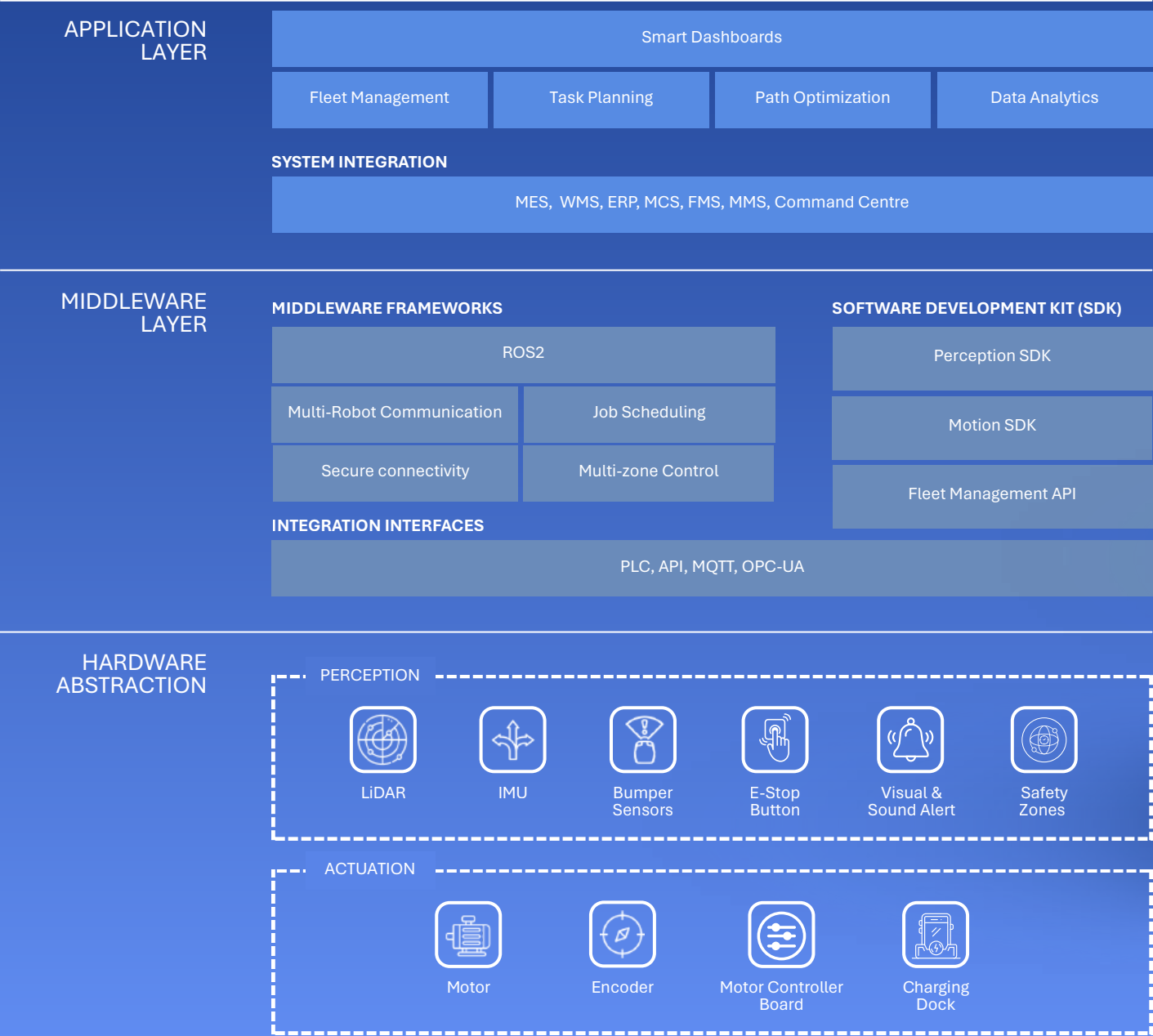
Performance metrics are based on outcomes from typical AMR deployments in manufacturing & warehouse environments. Actual results may vary depending on layout, operations, and fleet size.

Built for Real-World Manufacturing and Warehouse Environments

Driven by UB's long-term commitment to client success.

UB AMRs are engineered for consistent performance across diverse production and logistics settings. With a strong local presence in Malaysia, UB provides **24/7 on-site support, rapid troubleshooting, and operator training** when needed. This ensures long-term reliability and sustained performance across every deployment.

UB AMR System Architecture



From light-load transfers to heavy-duty pallet handling, UB's AMR range automates material flow across every stage of production and warehouse operations.

- Under-Drive Lifting AMR
- Handling AMR with Roller Conveyor
- Autonomous Forklift
- Collaborative AMR



Under-Drive Lifting AMR Series

Horizontal material movement support for racks, trolleys, and fixtures across production and warehouse areas. Best suited for WIP flow, line-side supply, and buffer zone transfers.

Light-Duty AMR for Line-Side Material Transfer UD-300

Ideal for light-load transfers between workstations and line-side locations, supporting frequent movements in compact layouts and narrow aisles.



- LiDAR SLAM Navigation
- Narrow Aisles Passing
- Quick Change Battery

Medium-Duty AMR for Intralogistics Handling UD-600

Suitable for heavier WIP, tooling carriers, and mid-weight racks, ensuring stable movement and accurate docking in multi-shift industrial environments.



- Multi-sensor Fusion
- Precise Positioning
- Intelligent Dispatching

High-Capacity AMR for Rack and Bulk Movement UD-1000

Built for transporting large racks or heavy loads over longer distances, supporting high-volume operations and automated warehouse workflows.



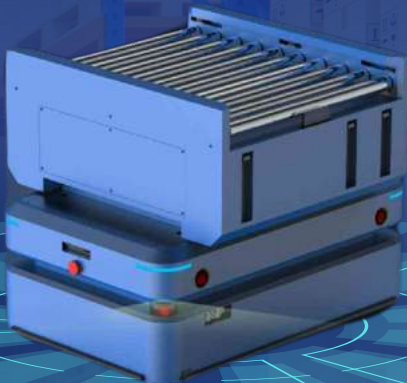
- 360° In-place Rotation
- Comprehensive Safety Protection
- Precise Positioning

Handling AMR with Roller Conveyor

Automated conveyor-to-conveyor mobility designed for smooth loading, unloading, and staged transfers. Ideal for linking workcells, inspection points, and storage processes without manual handling.

Light-Duty Roller AMR for Automated Conveyor Transfer UR-100

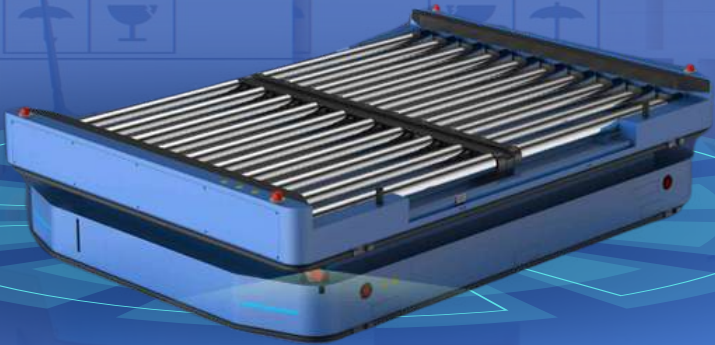
Enables seamless pick-up and hand-off between conveyors, buffers, and workcells, streamlining material flow with minimal manual intervention.



- Support Customized Development
- Roller Conveyance
- High Precision Docking

Heavy-Duty Roller AMR for Pallet and Fixture Movement UR-1000

Supports pallet, fixture, and high-capacity tray transfer, maintaining continuous flow across staging, buffering, and production zones.



- Intelligent Fusion Perception
- Omni-directional Movement
- High Precision Docking Production Line
- Intelligent Dispatching

Autonomous Forklift

Pallet logistics automation for production and warehouse environments where safe lifting, staging, and dispatching are required. Suitable for repetitive pallet flow, material receiving, and outbound handling.

Counterbalanced Autonomous Forklift for Warehousing

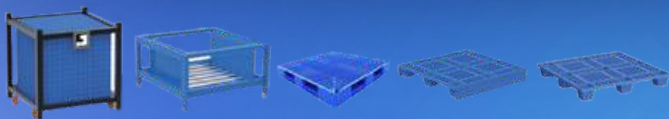
UFP-1500

AGV built for warehouse pallet handling and racking operations, delivering stable lifting and precise placement while supporting deployment with minimal layout adjustment.

- 1.5T High Payload Capacity
- 6m Extended Lifting Height
- Narrow Aisles Passing
- ± 10mm Precise Positioning



Load Type



Autonomous Forklift for Narrow-Aisle Handling

UFL-300L

Optimized for tight spaces and workstation replenishment, enabling efficient pallet transport and short-distance movements in production environments.



- 360° Comprehensive Safety Protection
- High-precise LiDAR SLAM Navigation
- Narrow Aisles Passing

Autonomous Forklift for Racking & Dispatch

UMF1000-CDD14

Suitable for low-height lifting and pallet transfers between receiving, staging, and dispatch areas, improving throughput in mixed-operation layouts.



- 3m Lifting Height
- 360° Comprehensive Protection
- 2D/ 3D LiDAR Navigation

Autonomous Forklift for Pallet Transport

UMF1000-CBD30H

Designed for ground-level or low-shelf pallet movement, supporting buffer-zone operations, storage transfers, and repetitive point-to-point logistics.



- 3T High Payload Capacity
- 360° Comprehensive Safety Protection
- LiDAR SLAM Navigation

Collaborative AMR

Flexible handling capability combining mobile robotics and manipulation for mixed-production environments. Well suited for machine tending, inspection, sorting, and adaptive small-batch operations.

Mobile Cobot AMR for Intelligent Picking & Inspection

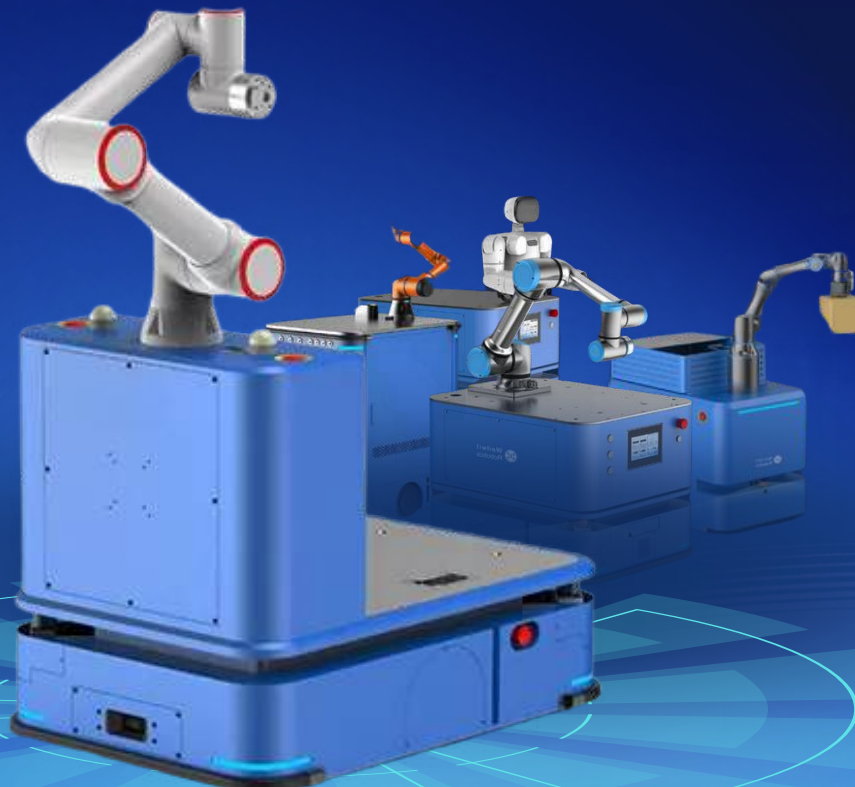
UAR100

Combines autonomous mobility with robotic manipulation to execute dynamic pick-and-place, inspection, and sorting tasks in flexible or high-mix environments.

 360°
Comprehensive
Safety Protection

 Flexible Grasp
with 2D/3D
Vision

 Multi-vehicle
System
Scheduling



“

AMRs don't
just move
materials ,
they move
performance.

”



Specification

These models represent UB’s standard AMR and AGV lineup, with additional variants available to support different load capacities and workflow requirements. UB works closely with clients to define the ideal model and fleet configuration through workflow assessment and capacity planning, ensuring efficient and reliable material flow.

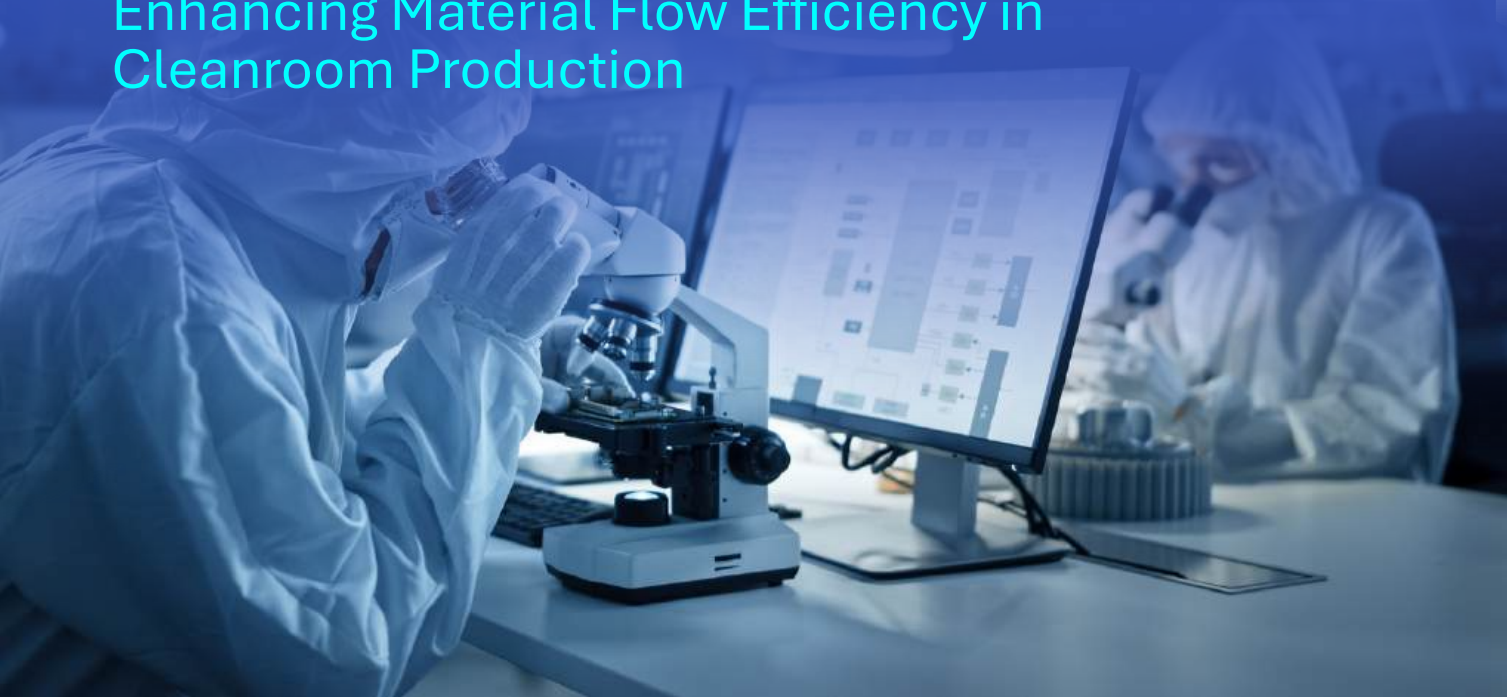


MODEL		UD-300	UD-600	UD-1000	UR-100	UR-1000	UFL-300L*	UMF1000-CDD14*	UMF1000-CBD30H*	UFP-1500	UAR-100
BASIC SPEC	Weight	150KG (±10KG)	180KG (±10KG)	220KG (±10KG)	120KG (±5KG)	980KG (±5KG)	210KG (±10KG)	680KG (±10KG)	620KG (±10KG)	2650KG (±10KG)	185KG (±10KG)
	Payload	300KG	600KG	1000KG	100KG	1000KG	300KG	1400KG	3000KG	1500KG varies based on lift height	100KG
	Dimension (L×W×H)	792×580×250mm	950×650×250mm	954× 650×250mm	1235×1000×942mm	2694×1932×635mm	1366×590×1676mm	1766×980×2045mm	1720×980×2037mm	2675×1188×2277mm	890×712×800mm
	Fork Size	-	-	-	-	-	800×300mm/ Customized	1150×180mm	2450×180mm	1020×120×40mm	-
	Lifting Height	60mm ±2	60mm ±2	60mm ±2	-	-	70mm ±5~90mm ±5	1600/3000mm	210mm ±5	4500/6000mm	-
	Navigation Type	LiDAR SLAM	LiDAR SLAM	LiDAR SLAM	LiDAR SLAM	LiDAR SLAM	LiDAR SLAM	LiDAR SLAM	LiDAR SLAM	Laser SLAM	LiDAR SLAM
PERFORMANCE	Driving Method	Differential drive	Differential drive	Differential drive	Differential drive	Steering wheel (Omnidirectional)	Steering wheel	Steering wheel	Steering wheel	Steering wheel	Differential drive
	Position Accuracy	±5mm	±5mm	±5mm	±10mm	±5mm	±10mm	±10mm	-	±5mm	±10mm
	Angle Accuracy	±1°	±1°	±1°	±1°	±1°	±1°	±1°	-	±1°	±1°
	Max Speed	≤1.5m/s	≤1.5m/s	≤1.5m/s	≤1.5m/s	≤1.5m/s	≤1.4m/s	≤1.5m/s	≤1.5m/s	≤1.5m/s	≤1.5m/s
BATTERY	Battery Type	DC48V 20Ah (LiFePO4)	DC48V 24Ah (LiFePO4)	DC48V 27Ah (LiFePO4)	DC48V 30Ah (LiFePO4)	DC48V 40Ah (LiFePO4)	48V 23Ah (LiFePO4)	24V 210Ah (LiFePO4)	24V 210Ah (LiFePO4)	24V 210Ah (LiFePO4)	DC48V 40Ah (LiFePO4)
	Working Time	8h	8h	8h	8h	6~ 8h	8h	8h	8h	-	6h
	Charging Time	≤1h	≤2h	≤2h	≤1.5h	≤1.5h	≤1.5h	≤2h	≤2h		≤2h
	Charging Method	Automatic/ Manual	Automatic/ Manual	Automatic/ Manual	Automatic/ Manual	Automatic/ Manual	Automatic/ Manual	Automatic/ Manual	Charging Brush Plate	Automatic/ Manual	Automatic/ Manual
SAFETY	LiDAR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Status Light	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	E-stop Button	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OTHER	Wireless	Wi-Fi/5G	Wi-Fi/5G	Wi-Fi/5G	Wi-Fi/5G	Wi-Fi/5G	Wi-Fi/5G	Wi-Fi/5G	Wi-Fi/5G	Wi-Fi/5G	Wi-Fi/5G
	API	Open API	Open API	Open API	Open API	Open API	Open API	Open API	Open API	Open API	Open API

* CE and/or UL safety compliance applies at the product level and only to specific AMR models as indicated

Success Story

Enhancing Material Flow Efficiency in Cleanroom Production



Summary

In cleanroom environments where efficiency and precision are critical, even minor handling delays can affect production output. By integrating AMR-based material transfer between dispatch and production zones, the manufacturer improved delivery speed, traceability, and space utilization — achieving smoother flow across 72 workstations while maintaining Class 8 cleanroom compliance.

Business Challenges

- High operator workload for manual material refills.
- Bottlenecks and inconsistent delivery times across multiple workstations.
- Limited visibility and tracking of material requests.
- Cleanroom compliance restrictions limiting space and human movement.

Solutions

- Deployed the **300 kg under-lifting AMRs** with top-module shelves.
- Installed **push-button request and feedback modules** at 72 production workstations.
- Integrated the **Robot Dispatch System (RDS)** for real-time task scheduling and monitoring.
- Added **auto-charging stations** for continuous operation.

Results

- Reduced operator travel time and improved task consistency.
- Minimized handling errors while maintaining cleanroom integrity.
- Improved overall productivity and traceability of material movement.

Industry

Medical Device Manufacturing

Client Profile

A global provider of medical devices that support surgical, anesthesia, and critical care procedures. The Malaysian facility operates cleanroom manufacturing lines producing precision medical components that require controlled material flow and high process reliability.

Success Story

Automating Multi-Floor Reel Transfer and Packaging in Semiconductor Production



Summary

To improve productivity and reduce cross-floor logistics bottlenecks, the client implemented an AMR-based reel transfer and auto-packing solution. The project connected three production floors through intelligent transport routes and lift integration, enabling fully automated reel movement from QC to packaging and warehousing areas. This marked a major step toward smart factory operations and 24/7 unmanned logistics.

Business Challenges

- Manual transfer of reels between QC, production, and warehouse floors.
- Limited lift coordination and narrow corridor spaces.
- Frequent handling errors and inconsistent flow between packaging stages.

Solutions

- Deployed cleanroom-capable **AMRs (500 kg payload)** for multi-floor reel transfer.
- Integrated **lift and auto-door systems** to connect QC, packaging, and warehouse floors.
- Implemented a **fully automated reel packing system**, including robotic pickup, auto-folding, labelling, and palletizing functions for 24/7 unmanned operation.
- Added **smart charging stations** to support continuous operation.

Results

- Enabled continuous 24/7 reel transfer and packaging operations.
- Improved space utilization and flow coordination between floors.
- Reduced human error and manual handling fatigue.
- Achieved digital visibility of material movement and packing status in real time.

Industry

Electrical and Electronics

Client Profile

A leading global manufacturer and supplier of advanced electronic components, sensors, connectors, and antenna solutions. The Malaysian facility manages high-volume assembly and packaging operations under cleanroom conditions, where precision handling and continuous production efficiency are critical.

Success Story

Automating Wafer Storage and Retrieval with ASRS & Robotic Integration



Summary

Modern semiconductor warehouses are evolving toward intelligent material handling, where automated storage systems and collaborative robots work together to streamline movement, improve traceability, and minimize human intervention. The integrated system combines ASRS, cobot-assisted sorting, and warehouse management intelligence to deliver continuous, data-driven operations and readiness for future connected automation.

Business Challenges

- Manual wafer storage and retrieval processes relying on operator handling.
- Inefficient manual tracking and data recording caused delays in material retrieval and stock accuracy.
- Inconsistent accuracy during picking and inventory audits.

Solutions

- Implemented a fully automated **ASRS (Automated Storage and Retrieval System)** with integrated **Warehouse Management System (WMS)**.
- Installed **8 storage rack lanes** with **RFID-enabled rackmasters**, load/unload platforms, and dual-layer conveyors for continuous material flow.
- Integrated a **cobot sorting station** to automatically pick and place wafers from multiple containers into designated bins.

Results

- Increased throughput and picking accuracy across wafer storage operations.
- Improved floor-space utilization through vertical storage.
- Reduced manual intervention and enhanced material traceability.
- Established a scalable foundation for future AMR-warehouse integration.

Industry

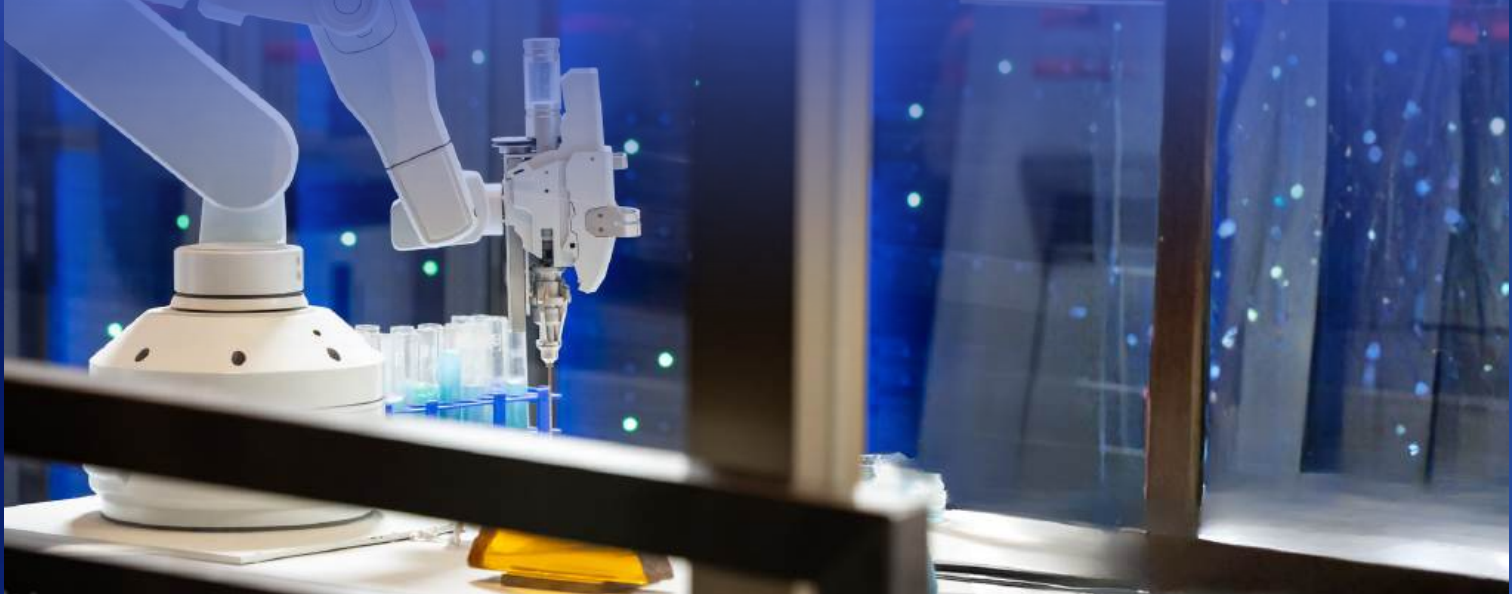
Semiconductor

Client Overview

A global semiconductor company that designs and manufactures chips for automotive, industrial, IoT, mobile, and communication infrastructure applications. The Malaysian facility manages wafer storage and material distribution operations supporting continuous production across regional assembly and testing sites.

Success Story

Consolidating Epoxy Storage and Handling with Cobot-Integrated MMS



Summary

A collaborative robot integrated with the Material Management System (MMS) automates epoxy handling inside –40 °C freezers, managing thawing, weighing, scanning, and loading with consistency and care. The setup improves safety, accuracy, and process traceability while eliminating common misoperations such as using wrong, expired, or not-ready epoxy. This supports a more connected and efficient production environment.

Business Challenges

- Manual epoxy management under –40 °C conditions created safety and quality risks.
- Limited visibility and traceability across material storage and preparation steps.
- High operator dependency for repetitive handling tasks.

Solutions

- Integrated a **cobot-assisted MMS** for automated epoxy storage, thawing, and preparation.
- Installed **dual –40 °C freezers** with auto-weighing, barcode scanning, and real-time monitoring.
- Deployed a **6-axis collaborative arm** to handle loading, unloading, and dispensing.
- Centralized control under the MMS platform for consistent and traceable operation.
- MMS enforces automated material validation to prevent wrong, expired, or not-ready epoxy from entering the production process.

Results

- Improved workplace safety and reduced exposure to low-temperature handling.
- Increased consistency and precision in epoxy preparation.
- Enhanced material traceability and process visibility.
- Eliminated misoperations involving wrong, expired, or not-ready epoxy.
- Reduced manual work through full automation and integrated control.

Industry

Semiconductor

Client Overview

A global semiconductor manufacturer specializing in backend assembly and testing operations, producing electronic components for automotive, industrial, and consumer applications. The facility’s operations revolve around epoxy dispensing, molding, and testing processes.

Success Story

High-Density Warehouse Automation with Autonomous Forklifts



Summary

UB delivered an integrated warehouse automation solution to support high-density semiconductor warehousing, comprising VNA autonomous forklift AGVs for high-density pallet storage and retrieval, supported by low-profile AMRs for horizontal pallet transfer.

Business Challenges

- Narrow-aisle warehouse layout limiting safe and efficient forklift operations
- High-density racking requiring precise pallet handling at height
- Continuous 24/7 operations demanding consistent throughput and uptime
- Congestion and safety risks in high-traffic material handling areas

Solutions

- Deployment of **VNA Autonomous Forklift AGVs** for pallet put-away and retrieval
- Support **AMRs for horizontal pallet transfer** between incoming, staging, and distributed areas
- High-density racking system optimised for VNA operations
- LiDAR-based navigation with high positioning accuracy (± 5 mm class)
- Automated charging and centralised control via AGV management software

Results

- Stable 24/7 automated warehouse operations with reduced manual handling
- Improved throughput in narrow-aisle, high-density racking environments
- Enhanced operational safety and consistency in material handling
- Scalable warehouse automation platform ready for future expansion

Industry

Semiconductor

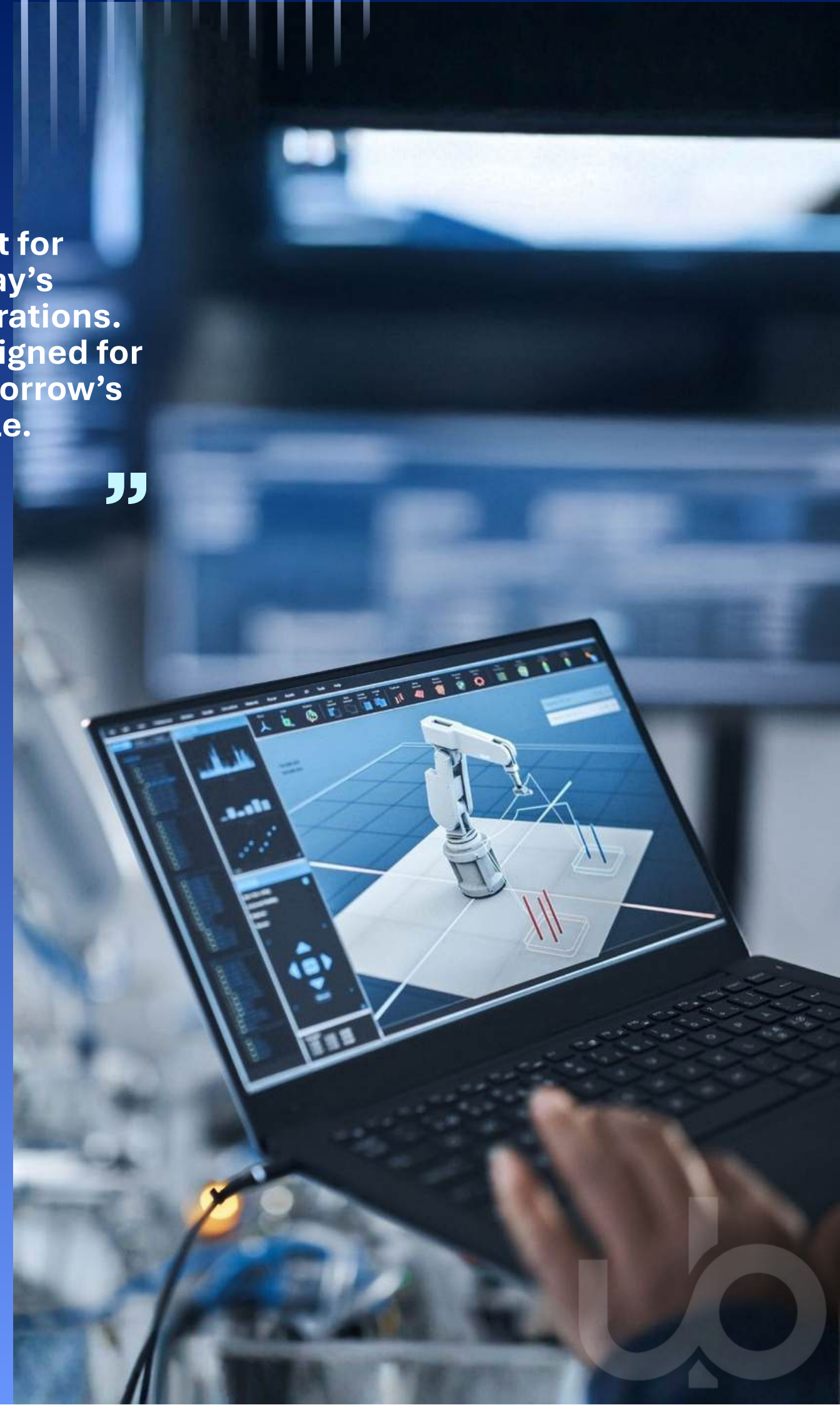
Client Overview

A major semiconductor manufacturing facility in Malaysia, supporting high-volume production of essential components for global automotive and electronics industries as part of a worldwide manufacturing network.

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Built for today's operations. Designed for tomorrow's scale.

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About UB Group

UB is a leading Smart Manufacturing and Warehouse Automation solutions provider with more than 30 years of innovation. Specialising in industry automation, UB empowers organisations to achieve higher efficiency, precision, and sustainability through digital backbone technologies, material flow systems, warehouse automation, and AI-driven solutions.

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