WONIK ROBOTICS

Total Solution Provider for Factory
Material Handling and Automation

OUR MISSION

WONIK ROBOTICS

Our team specializes in delivering innovative and customized automation and robotics solutions, designed to meet the needs of our clients.
Our mission is to drive efficiency, increase productivity and empower companies to reach their full potential.

Business Area

- **AGV/AMR** Automated Guided Vehicle/Autonomous Mobile Robot

  ### Supplying Customized AGV/AMR

  AI-based self-driving robots having built-in sensors and cameras identify the environments and search for the best routes by themselves. As they do not require additional facilities for sensing, you are able to flexibly use them even if your process or equipment changes.

- **ACS** AMR Control System

  ### Network-based Self-driving Vehicle and Robot Control System

  The control system we developed can be linked with upper systems like MES. It collects and analyzes information from the manufacturing sites. And it enables the logistics efficiency for production optimized through multi-robot control and mission instructions for multiple robots.

- **Digital Twin**

  ### Customized Simulation to Optimize the Flow of Manufacturing Logistics

  We provide customized digital twins using a proven solution. Productivity improvement and cost reduction can be expected throughout the entire process, such as layout design for manufacturing logistics, operation optimization and predictive maintenance.

- **Logistics System Integration for Factories**

  ### Automating Manual Works for Logistics at Factories, CNC Machine Tending, etc.

  In accordance with customer requirements for manufacturing logistics automation, we provide integrated solutions from system design and optimal hardware selection to developing application software, system operation and maintenance solutions.

- **Logistics Automation for Secondary Battery Formation**

  ### Solutions Optimizing Logistics for Battery Formation Process

  Being a field where Wonik Robotics' fine technologies are combined, it provides an optimal logistics automation system by integrating various products such as logistics systems and inspection/measuring equipment for formation process.

AMR Autonomous Mobile Robot

Load Capacity
300/500/1000(kg)

Hours of Use
Avg. 10~12(hours)

Max. Speed
1.2 m/s

AI-based Mobile Robot that Efficiently Automates Internal Transportation and Logistics

- Mobile robots perform repetitive moving tasks on heavy objects more efficiently.
- Autonomous Mobile robots having LiDAR sensors which cover 360 degrees scan their surroundings, detect obstacles to avoid in real time and find the best route to their destination.

Free Up Employees from the Tasks of Lifting or Moving Materials

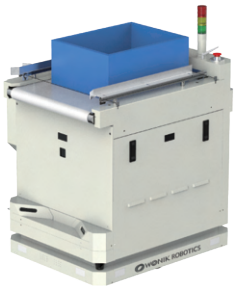
Excellent flexibility and smart technology automate almost any situation where employees push carts or move materials themselves. The employees freeing up can focus on other tasks.

Various Options Available for Upper Modules

Loads of up to 300kg/500kg/1000kg is capable to be transported autonomously, and customized modules such as lifts, conveyors and collaborative robot arms can be installed as required.

APPLICATION Options for upper module

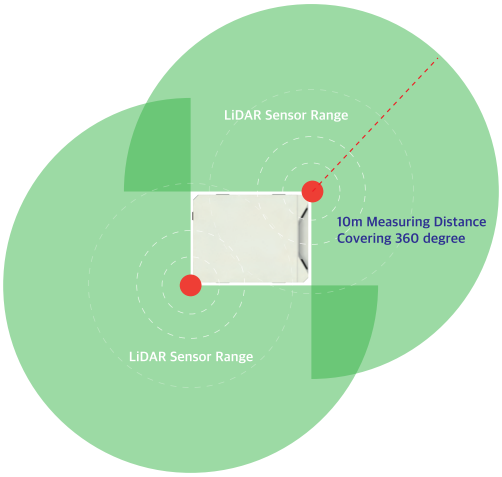
Conveyer Type

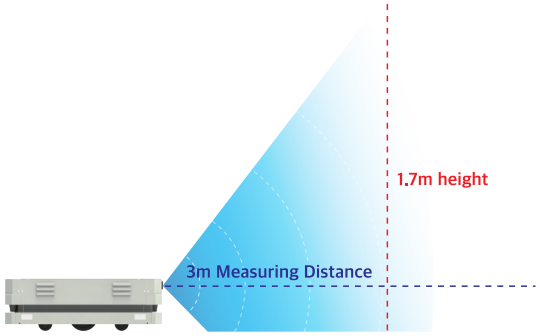


Shelf/Rack Carrier

Manipulator Type

Core Sensor Convergence Technology





2D LiDAR

Designed to measure the entire sensor range up to 360 degrees by placing two LiDAR sensors.

- LiDAR Sensor Range: 0 to 270 degrees
- Effective Measuring Distance: 10m / 360 degrees

3D Depth Camera

Placed on both sides of the front, it can recognize obstacles up to 170 degrees in the field of view.

- Effective Measuring Distance: 3m
- Capable to recognize obstacles located up to 1.7m.

Safe Operation and Convenient Mission Setting

Even those who are not proficient in programming can use a simple web-based interface to set up missions to safely navigate the AMRs around people and obstacles. The missions can be controlled using not only PC but a sm art phone or tablet PC.

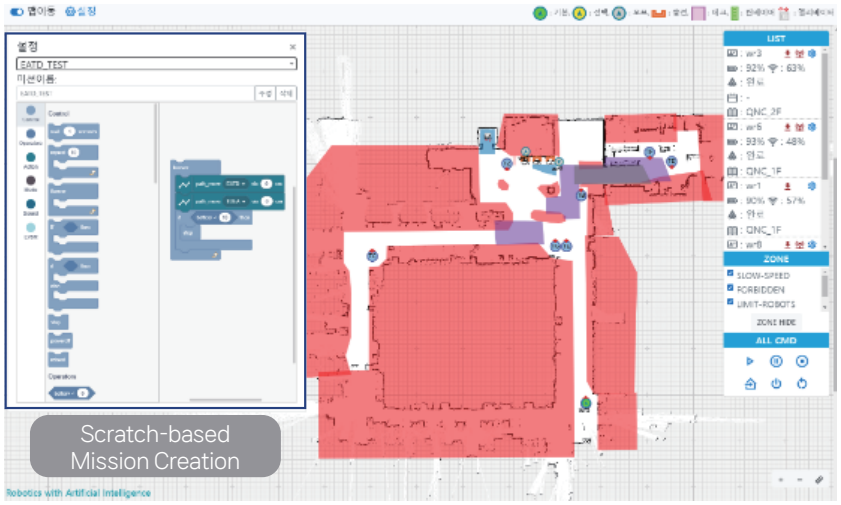
No Changes to Existing Facilities for Sensing Required

It uses built-in sensors and cameras to identify its surroundings and navigates the most efficient route. As it does not require guiding lines for sensing to be installed or changed, you can save the time and cost.

ACS AMR Control System

Real-time Integrated Control System for Multiple Robots

It controls up to 100 robots in real time, provides a network-based system, and enables efficient operation and management of AMRs by linking with upper systems such as MES or ERP.



Zones Set on the Map

- Site Configuration
- Scheduling
- Monitoring & Reporting
- Traffic Control
- Resource Management
- Communication with Other Systems

Mission/Route Settings

Using the open-source scratch framework, you can easily assign missions to robots and create mission groups.

Multi-robot Control

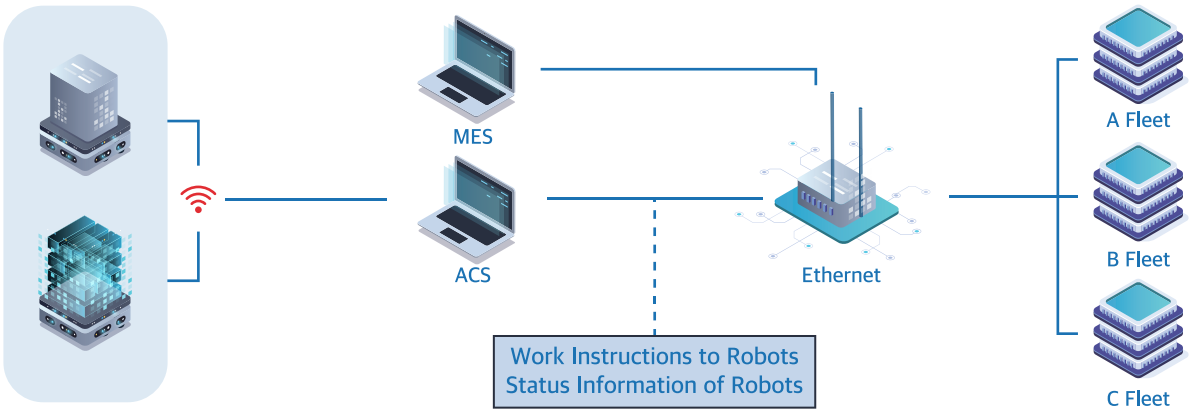
By providing real-time centralized control of mobile robots, it is designed to prevent bottlenecks and eliminate unnecessary AMRs when operating multiple AMRs simultaneously.

Mobile User Solution

We provide a mobile solution to enable AMR operation using a smartphone or a tablet PC.

System Linkage

Efficient company-wide operation and AMR management are possible by linking with upper systems such as MES, WMS and ERP.

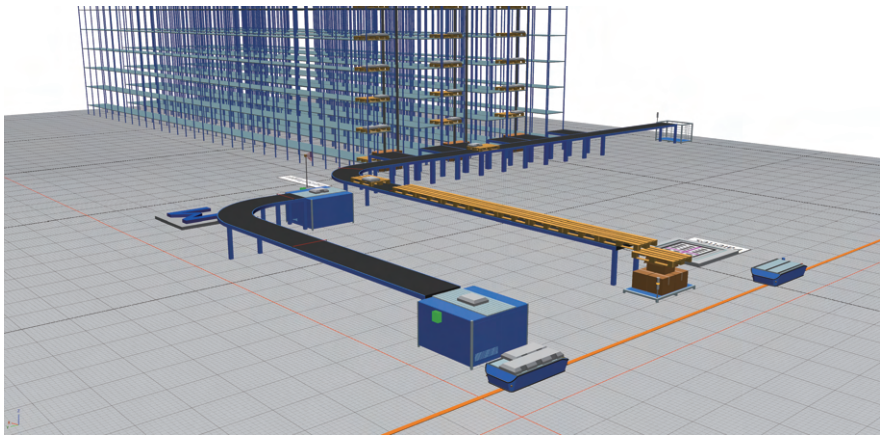


Linkage with Upper Systems

Digital Twin

Tailored Simulation for Manufacturing Logistics Optimization

Digital Twin is a metaverse technology that replicates and simulates reality in virtual space. By realizing and simulating physical objects or environments such as objects, systems, layouts, and facilities in the virtual space as in reality, it is possible to optimize the design and operation of manufacturing logistics and predict problems that may occur in the actual process in advance.

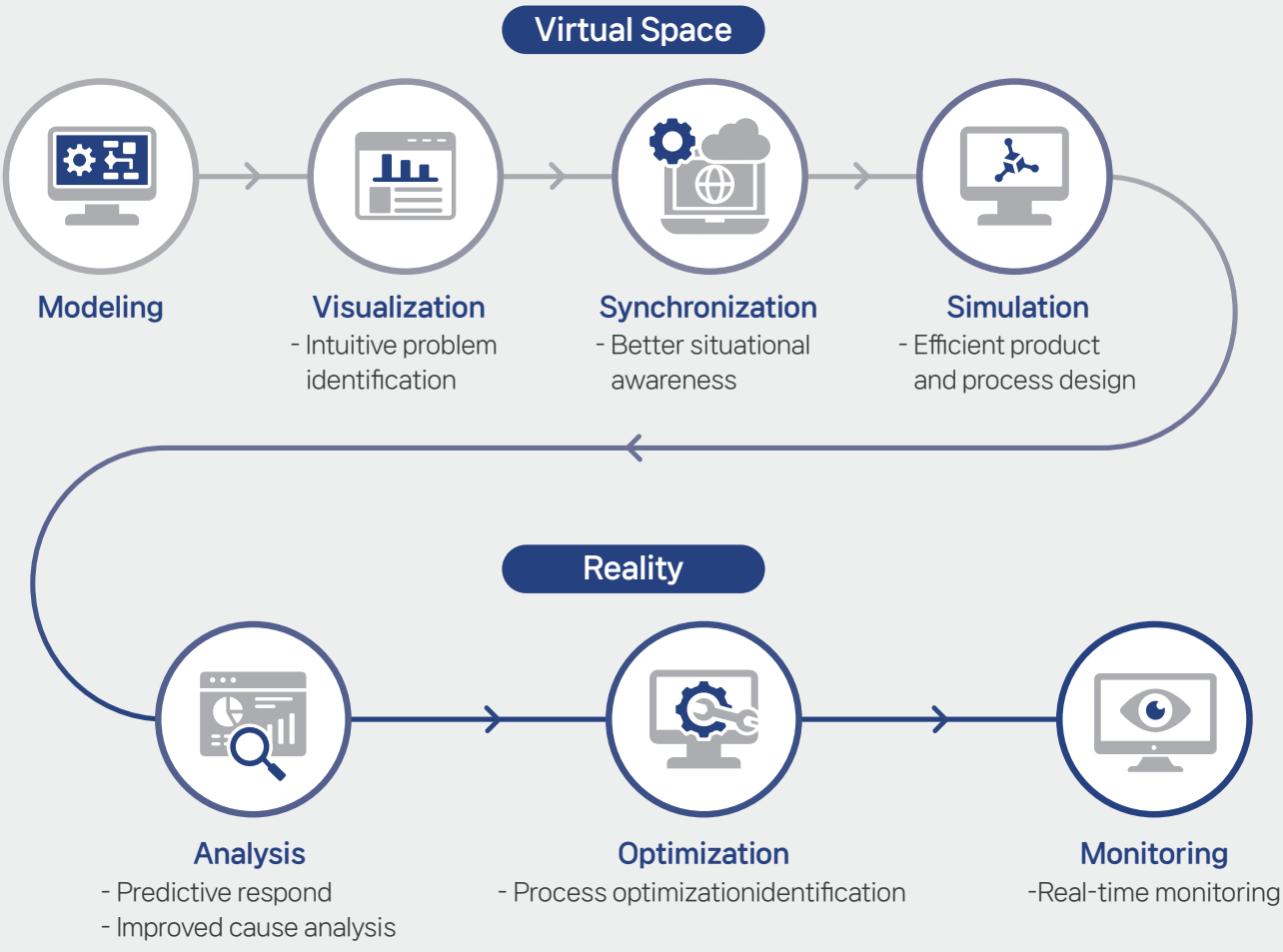


Logistics Simulation based on Digital Twin

Verifying capacity, Searching bottleneck in process, Reviewing system operation, appropriate storage and quantity.

Process & Advantages

After the data modeling is completed, it is processed and visualized. By linking data and virtual objects in real time, it analyzes the data and enables optimized process design and operation.



Logistics System Integration for Factories

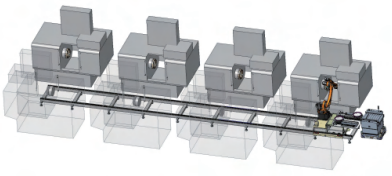
Logistics Automation Solution for Smart Factories

Consulting & Engineering

Based on an understanding of industry and client needs, we provide optimal consulting and engineering services for establishing automation In factory logistics.

Automation Facilities & Systems Linkage

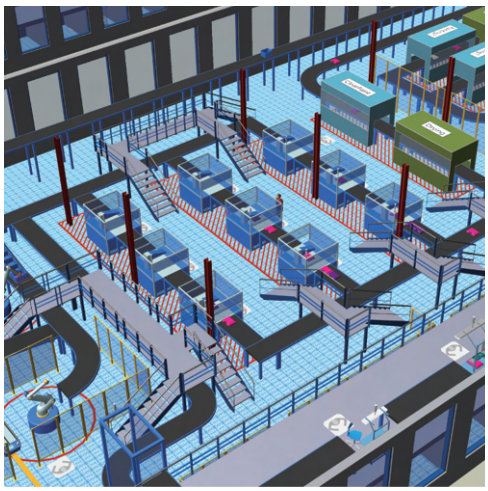
We provide integrated services for building and maintaining automation systems, from selecting hardware and developing application software to connecting with enterprise systems.



* 머신텐딩 적용 예

Process Simulation & Analysis

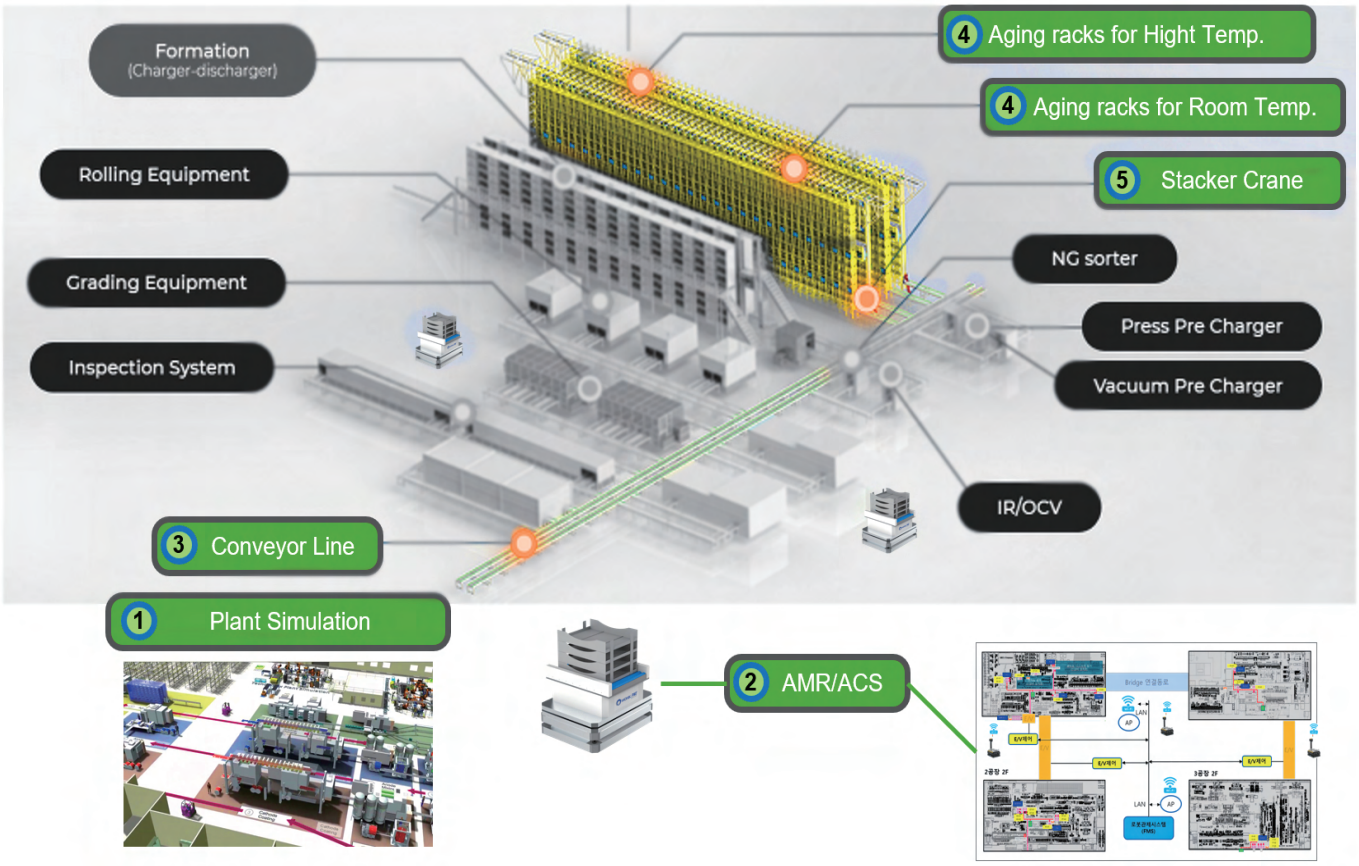
We virtualize the actual process by utilizing digital twin technology, predict and analyze problems that may occur in the process through simulation.



Solution for Secondary Battery Formation

Logistics Automation for Battery Formation Process

Wonik Robotics' outstanding technologies are fully integrated, we supply various items such as logistics systems and equipment for inspection or measurement required for battery formation process.
We provide optimal logistics automation services by combining digital twins, self-driving robots and control systems developed on our own.



Equipment for Logistics

- AMR (Autonomous Mobile Robot)
- High Performance Stacker Crane
- Aging Rack (Room Temperature, High Temperature)
- Conveyor

Simulation

- Plant Simulation

Equipment for Inspection

- Machine Vision Inspection System

AMR Specifications

Model		WR-300	WR-500	WR-1000
Exterior	Length	823 mm	1300 mm	1300 mm
	Width	630 mm	800 mm	815 mm
	Height	273 mm	380 mm	390 mm
	Wheels	2 main / 4 sub		
	Weight	Approx. 100 kg	Approx. 200 kg	Approx. 250 kg
Load Capacity	-	Up to 300 kg	Up to 500 kg	Up to 1000 kg
Driving Performance	Speed	Avg. 0.8 m/s (Max. 1.2 m/s)		
	Operation Time (Mileage)	10~12 hours (15~20 Km)		
Battery/ Charging	Charging Mode	Manual / Autonomous Docking		
	Charging Time	1~1.5 hours		
	Battery Specification	Li-ion DC24V / 50 Ah	Li-ion DC50V / 50 Ah	Li-ion DC50V / 50 Ah
Communication	-	Wi-Fi / LTE(optional)		
Sensor	Laser Scanner	SICK LiDAR (2EA)		
	3D Camera	3D Depth Camera (2EA)		
Safety Device	Emergency Stop Button	1 EA (Rear)	1 EA (Front), 1 EA (Rear)	1 EA (Front), 1 EA (Rear)
	Notification	Sound / LED		
Application Options	-	Carts, Lifts, Shelves, Manipulators, etc.		

Service Robots & Robotic Hand

Transfer/Delivery

AirPorter

- Baggage transportation service for the vulnerable in airports
- Autonomous-driving Indoors
- Intelligent surveillance
- User convenience
- Escort service in airports

JimBot

- Indoor autonomous driving and transport/storage service
- Intelligent surveillance
- Information and facility guide in terminals, shopping malls, hotels, etc.

Hospitality/Advertisement

Addy

* Hospitality & PR Service
- Greetings for visitors
- Information guide and escort
- Human/object recognition
- Entertainment service (e.g. taking photos)

* Prevention Guidance Servic
- Fever detection and warning
- Displaying public policies

Security/Patrol/Disinfection

SeRo

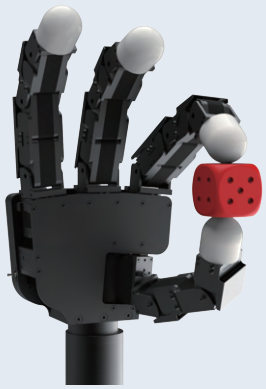
* Security, Patrol and Facility Management
- Visitors recognition
- Abnormal noise and fire detection

* Disinfection Guide
- Detecting body temperature
- Recognizing mask wearing

DiRo

- Fully unmanned disinfection with autonomous-driving
- Air purification & disinfection
- Self scheduling & charging

Robotic Hand



Allegro Hand

- Lightweight and portable anthropomorphic design
- Low-cost dexterous manipulation with applications in research and industry
- Multiple ready-to-use grasping algorithms

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