FLEET OPERATIONS WORKSPACE CORE

OMRON

DISCOVER FLOW CORE. OMRON'S SOFTWARE FOR MOBILE ROBOTS

Bringing Continuous Enhancement to Your Flexible Material Transport System

OMRON's solution for setting up, integrating and managing autonomous mobile robot (AMR) fleets within a factory environment.

FLOW Core provides the software tools to connect the AMR fleet to the factory's manufacturing control solution, establish maps, define operational rules, and ensure safe, consistent operation on the factory floor.

FLOW SOFTWARE ENCOMPASSES THE FOLLOWING FEATURES

- Fleet Simulator
- Cell Alignment Positioning System (CAPS)
- Dynamic Obstacle Tracking
- Selectable Autonomy
- MobilePlanner 6
- FLOW iQ
- MobilePlanner Tablet Call Button
- Integration Toolkit (ITK)

CONTINUOUS IMPROVEMENT

- Optimize factory process with flexibility

ZERO DOWNTIME

- 24/7 operation without human interruption

BUSINESS ACCELERATION

- Improve planning and connectivity with WMS/ERP

FLEET SIMULATOR

Solve problems before they arise. Optimize your fleet before you deploy it.

The industry's first autonomous mobile robot fleet simulator for factory and manufacturing applications. Plan traffic and workflows for fleets of autonomous mobile robots to identify potential bottlenecks and optimize workflow without having to deploy a real robot.

SOME BENEFITS INCLUDE:

- Assess impact of map changes, scaling, route changes, and new software features
- Simulate a maximum of 10 robots in up to three separate fleets
- Visualize individual robot path planning and interaction with other robots
- Simulate custom environments based on real-world facilities
- Identify traffic flow bottlenecks
- Validate third-party software

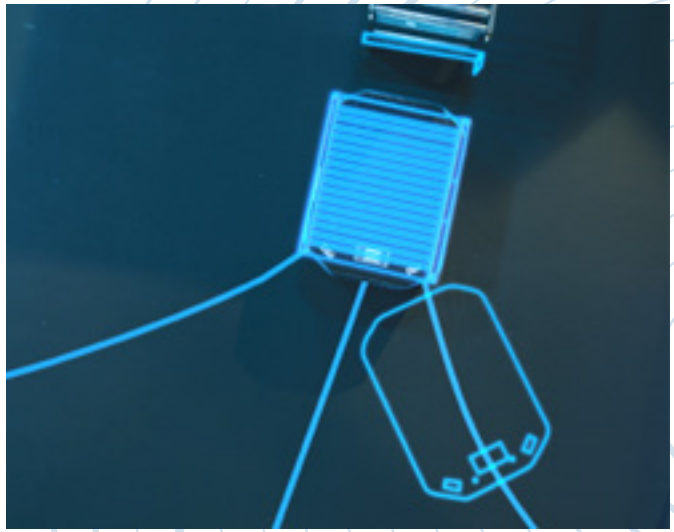
Cell Alignment Positioning System (CAPS)

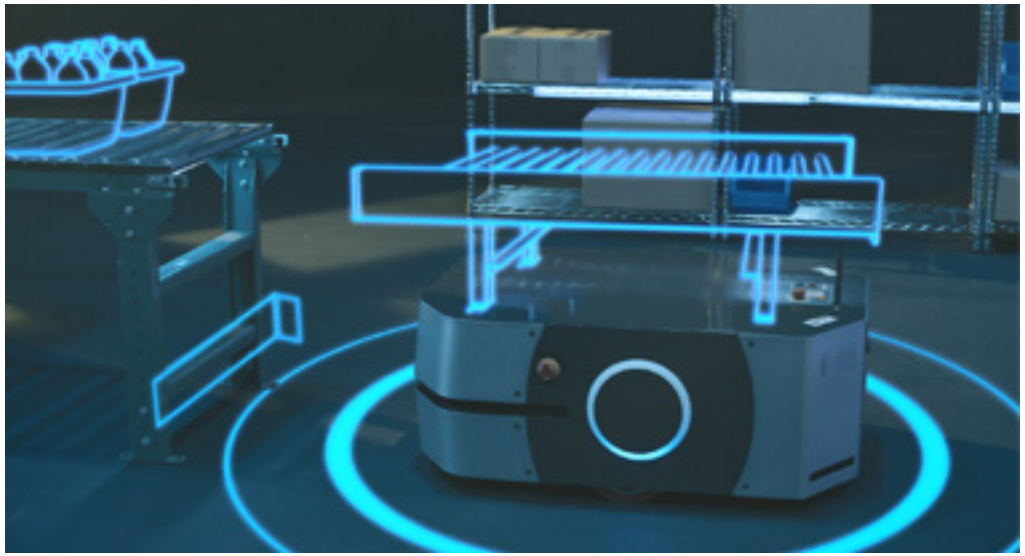
Cell Alignment Positioning System

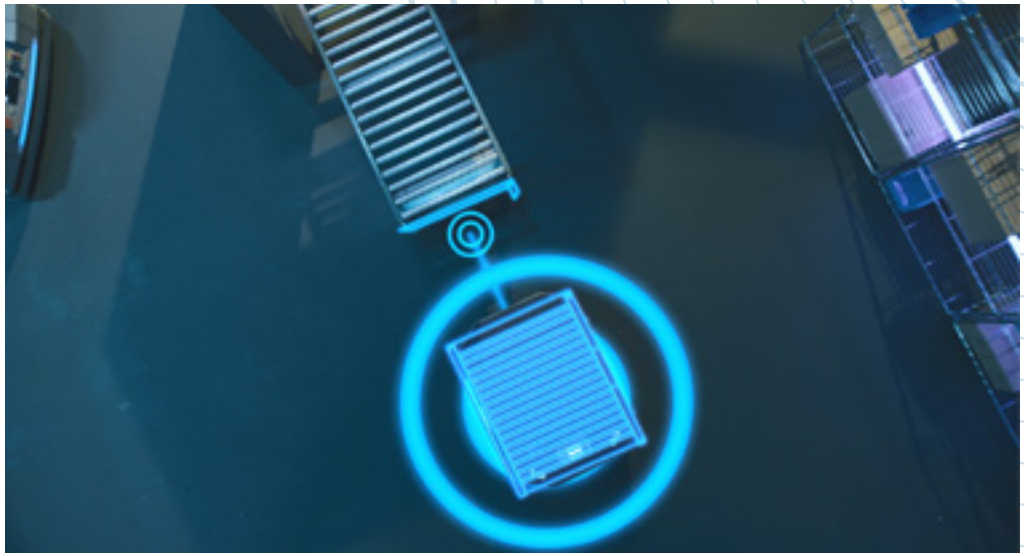
CAPS technology utilizes the main safety scanning laser to detect a target in the environment and enables the robot to drive to the desired location with unrivaled precision. OMRON's AMR's can dock to a machine with high accuracy. It can also approach from different angles so that customers do not need to worry about floor layout, nor the shape of the load. This allows for a smoother and quicker handover of material, contributing to a shorter cycle time and increased efficiency.

BENEFITS INCLUDE:

- Improved accuracy enables a smoother and quicker loading & unloading of material, leading to shorter cycle times
- Aligns mobile robots with machinery at ± 8 mm position accuracy and ± 1° rotation accuracy
- Allows robot to dock from different angles
- No physical magnetic markers are needed
- No additional sensors required, resulting in less equipment cost







Dynamic Obstacle Tracking

Avoid collisions and employ safer passage in the warehouse

Allows for smoother motion around pedestrian traffic, forklifts, or any other moving vehicles. The tracking algorithm projects the path of moving objects in the same space as the robot to avoid collisions and traffic jams. If a person is walking in the path perpendicular to the robot, rather than trying to cross in front of the person's path, a robot with Dynamic Obstacle Tracking will slow down and move behind the person.

Selectable Autonomy

Choose your robot's level of autonomy

With Selectable Autonomy, you can now choose when you want your robot to move along the same path repeatedly, similar to the behavior of an Automated Guided Vehicle (AGV). Unlike AGV's, the OMRON advantage is enabled without any magnetic tape nor physical guides. This brings a flexible and new level of motion control to complex material transport applications.

BENEFITS INCLUDE:

- Cycle time improvement up to 15% for actual fleets. Improvement can be greater, depending on application
- Fewer deadlocks in doorways and narrow spaces
- Fewer traffic control devices needed in Map
- More consistent motion of robots leading to improved sense of safety for human operators working in vicinity

MobilePlanner 6

Fleet Orchestration Ehancements

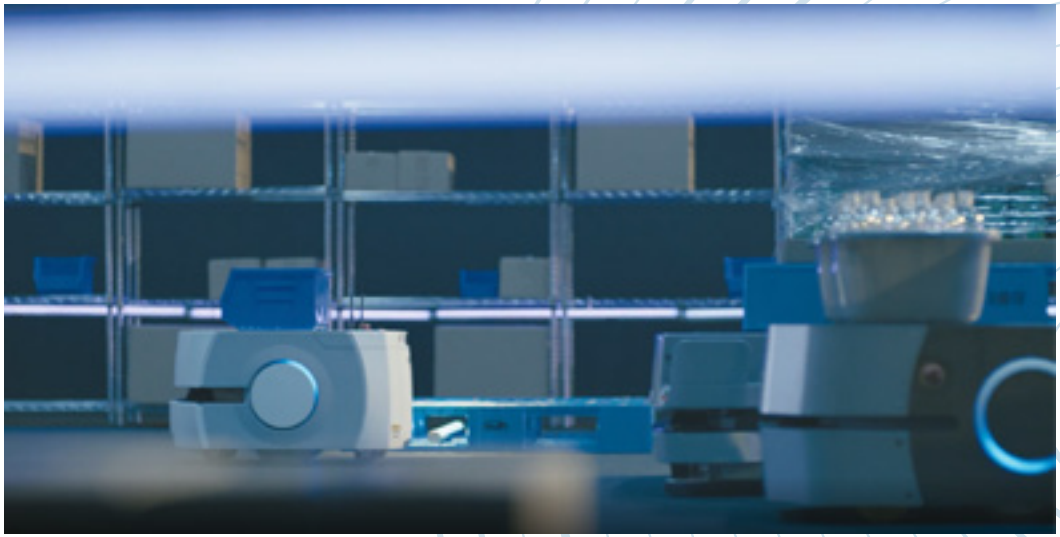
Configure, customize and group your fleet of mobile robots

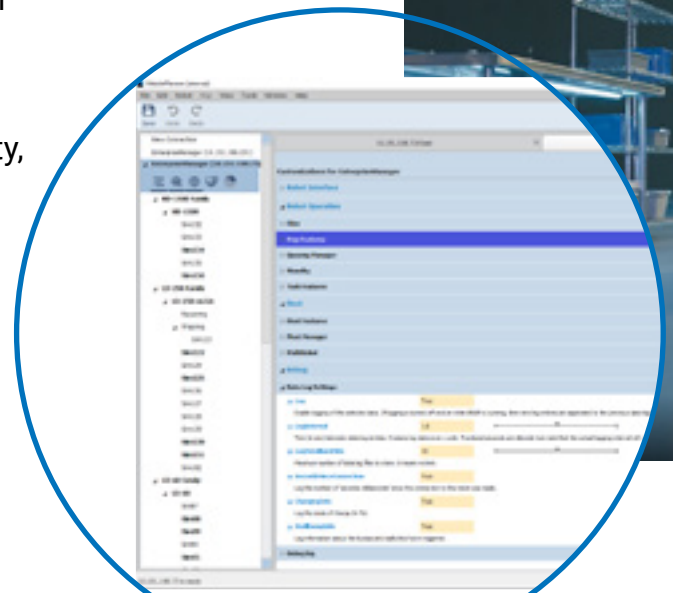
Allows customers to easily and effectively utilize fleets of heterogeneous robot types alongside one another to optimize their automation solution.

MobilePlanner 6 expands our Fleet Management ecosystem as the best in the industry.

BENEFITS INCLUDE:

- The Fleet Explorer sidebar groups robots by family and customized sub-fleet for easy configuration and management
- Easily distinguish between AMR location or functional operation and apply changes
- Acclerated installation of new fleets with configuration inheritance
- Quick access buttons for Fleet observability, Map editing, configuration management, system management and data analytics
- Fleet Explorer shows enhanced visibility of mobile fleet





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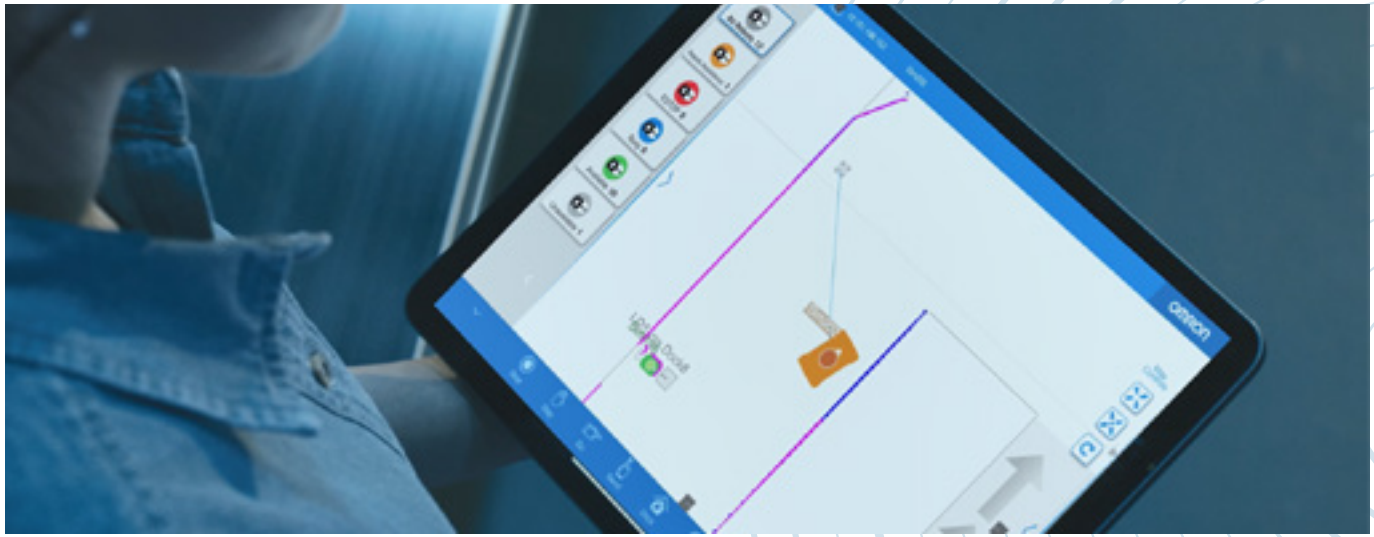
Fleet Operations Workspace iQ

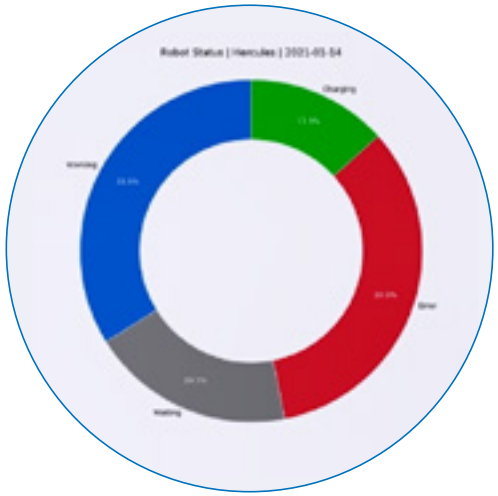
Enhances the core user experience with powerful data collection and analytics through an intuitive user interface

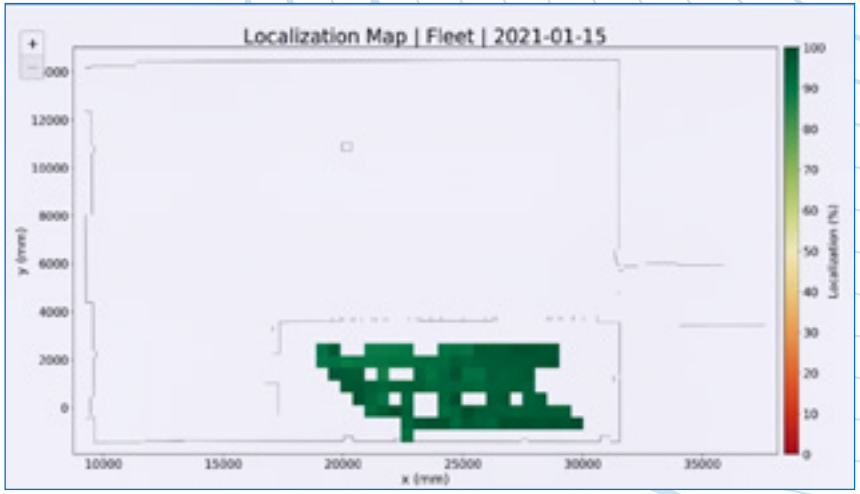
FLOW iQ provides the visualization tools to generate graphics on the fly, such as heat maps, robot path map, robot utilization, and more, giving users the information they need to track and optimize their application.



BENEFITS INCLUDE:

- Quickly view which robots are working, charging, waiting, and reporting an error
- Visualize the impact of facility changes with the Localization Map
- Examine the wireless quality map data to pinpoint network weak spots
- Track robot health with the fault map and history
- Tailor fleet traffic with the position Density Map to maximize cycle time





MobilePlanner Tablet

Monitor and control on the go

MobilePlanner Tablet Edition is an easy to use interface designed for monitoring and controlling your mobile robot fleet from a tablet. With MobilePlanner Tablet Edition, users can localize or manually drive robots when needed, initiate the map making process, and monitor the robot fleet anytime from anywhere inside their facility.

MobilePlanner Tablet Edition can also be used a call button, allowing users to send a robot to up to 6 predefined positions with a single button press.

BENEFITS INCLUDE:

- View the robot's laser readings
- Send robots to dock or to other points on map
- Manually drive robots
- View your fleet anytime & anywhere within the facility
- Observe location and status of robots in color-coded map

Integration Toolkit

Integration Toolkit

The Integration Toolkit is OMRON's interface application that enables integration between the Fleet Manager and the end user's client application, manufacturing execution system (MES), or warehouse management system (WMS).

This integration layer facilitates autonomous control for a fleet of AMRs using standard communication methods including REST, SQL, and AMQP. The Integration Toolkit facilitates queuing and monitoring of all AMR job types such as pickup, drop-off, and multi-segment.

BENEFITS INCLUDE:

- Provide a single contact point for managing a fleet
- Automate collection of robot and fleet data for use in MES or WMS systems
- Flexible job assignment allows tasks to be submitted in bulk or dynamically in response to external input

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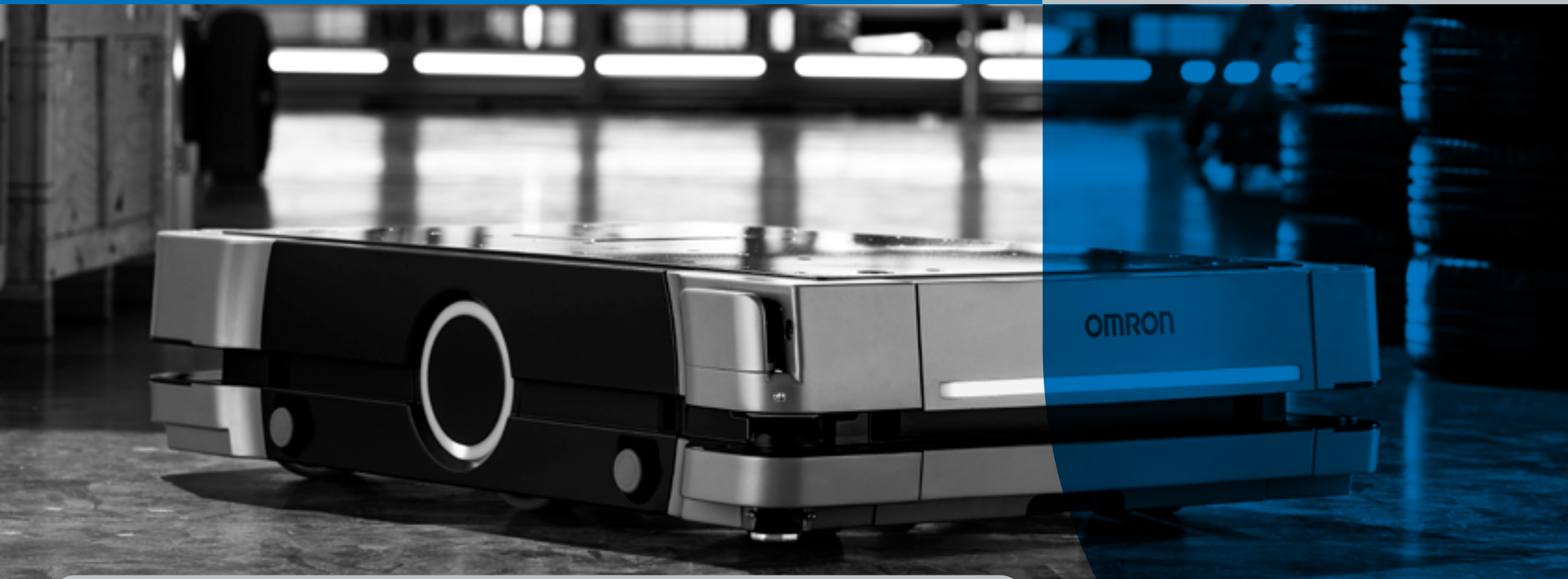

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