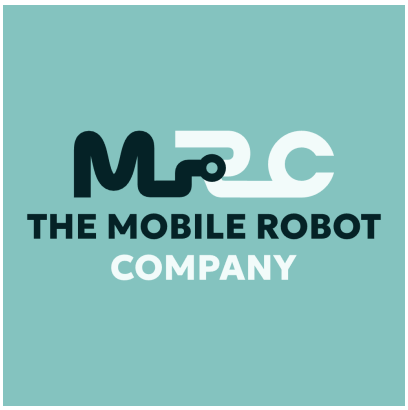

The Mobile Robot Company

Knowledge Center — Dynamic Route Changes · 2026-08-04

https://info.mobilerobot.com/applications/scenarios/dynamic-route-changes

Dynamic Route Changes

The J1600 does not follow fixed routes. It navigates to saved points, planning and re-planning its own path with 3D LiDAR SLAM (https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/). When the floor changes — an obstacle appears, a lane moves, a whole area is rearranged — the response is automatic re-routing, a minute of re-teaching (https://info.mobilerobot.com/documentation/concepts/teach-and-repeat/), or a human hand on the tiller, depending on the scale of the change.

Three layers of adaptation

1. The robot re-routes itself

The J1600 builds and continuously updates a three-dimensional map of the environment, scanning structures at heights reaching up to 70 m above the vehicle. It detects obstacles and drives around them in dynamic environments, so everyday changes — a pallet left in the aisle, a parked cart — do not require anyone to do anything. 3D mapping is designed for greater precision and reliability than traditional 2D navigation in complex or changing conditions.

Because navigation is point-based, the robot reaches any saved destination without having been taught every possible origin-destination combination. Preferred travel zones can be defined to keep autonomous traffic in safer corridors.

2. The operator re-teaches in minutes

When a destination itself moves — a staging lane shifts, a buffer opens somewhere new — the operator drives to the new point and taps **Save location**. No automation expert, no reprogramming project, no limit on saved locations. See Temporary Location Setup (https://info.mobilerobot.com/applications/scenarios/temporary-location-setup/).

3. The human takes over

For changes that need judgment right now — a blocked area to improvise around, an urgent reprioritization — the operator grabs the tiller and drives. Route changes and crowded-floor improvisation are among the jobs deliberately kept human. See

Handling Exceptions and Irregular Loads (https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/) and Mixed Manual and Autonomous Work (https://info.mobilerobot.com/applications/scenarios/mixed-manual-and-autonomous-work/).

No infrastructure to move

Fixed-route automation embeds its routes in the building — tracks, wires, magnets, reflectors. The J1600 uses none of these, so a layout change never means construction work. This is the core of its fit for brownfield sites (https://info.mobilerobot.com/applications/use-cases/brownfield-automation/), cross-docking (https://info.mobilerobot.com/applications/use-cases/cross-docking/), and temporary storage (https://info.mobilerobot.com/applications/use-cases/temporary-storage/).

Safety while re-routing

Obstacle avoidance belongs to the navigation stack; personnel protection is separate and certified (https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensors-vs-safety-sensors/). Two 2D safety LiDARs, an independent safety controller, and a speed-dependent 360-degree protective field guard every route the robot chooses, with person detection (https://info.mobilerobot.com/safety-compliance/safety-functions/person-detection/) and braking (https://info.mobilerobot.com/safety-compliance/safety-functions/braking/) assigned Performance Level d. See Operation in Crowded Environments (https://info.mobilerobot.com/applications/scenarios/operation-in-crowded-environments/) and how J1600 safety works (https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/).

Limits

Re-routing happens within the operating envelope: indoor, level floors (https://info.mobilerobot.com/applications/planning/route-and-floor-suitability/) (0% automatic gradeability), bumps up to 25 mm, gaps up to 20 mm, floors to TR34 FM3. No figures are published for minimum aisle width or localization tolerance — for site-specific feasibility, see the product and capabilities FAQ (https://info.mobilerobot.com/support/faq/product-and-capabilities/) and the J1600 technical specifications (https://info.mobilerobot.com/products/j1600/technical-specifications/).