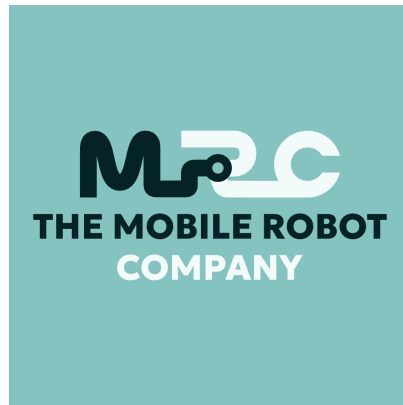




The Mobile Robot Company

Knowledge Center — Technology Stories · 2026-08-04

<https://info.mobilerobot.com/newsroom/stories/technology-stories>

Technology Stories

The [J1600](https://info.mobilerobot.com/products/j1600/overview/) is built on a handful of technical choices that define the product. This page tells the story behind each.

A new tier between two extremes

Manual pallet jacks preserve flexibility but require [operator walking](https://info.mobilerobot.com/applications/results/reduction-in-manual-walking/) and travel time. Fully automated systems can eliminate labor from a task but often need expert configuration, integration, infrastructure, and stable processes. [Dual mode](https://info.mobilerobot.com/products/j1600/dual-mode/) creates a tier between them: the operator performs judgment-heavy pickup and [exception handling](https://info.mobilerobot.com/applications/scenarios/handling-exceptions-and-irregular-loads/), and the robot performs repetitive travel and floor-level drop-off. The intended balance is roughly 80% automation rather than 100%, with greater flexibility and a lower entry cost. The IFOY jury recognized exactly this tier when the J1600 won [Industrial Truck of the Year 2026](https://info.mobilerobot.com/newsroom/awards/ifoy-award-2026/).

Navigation without infrastructure

The J1600 navigates with [3D LiDAR SLAM](https://info.mobilerobot.com/products/j1600/navigation-and-obstacle-avoidance/) (simultaneous localization and mapping) processed on an industrial NVIDIA Jetson AI computer. It builds and updates a three-dimensional map while an operator drives, then localizes and plans routes to saved destinations — no fixed tracks, wires, reflectors, or building modifications. The system scans environmental structures at heights reaching up to 70 m above the vehicle, and its 3D mapping is designed for greater precision and reliability than traditional 2D navigation in complex or changing environments. That is what makes the vehicle usable in [brownfield sites](https://info.mobilerobot.com/applications/use-cases/brownfield-automation/) with changing layouts. Full details are in the [technical specifications](https://info.mobilerobot.com/products/j1600/technical-specifications/).

Safety in layers

[Navigation and safety are deliberately separate](https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensors-vs-safety-sensors/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/navigation-sensors-vs-safety-sensors/>). The 3D LiDAR and RGB AI camera belong to the control stack; personnel protection uses two dedicated 2D safety LiDARs, certified components, and an independent safety controller. A 360-degree protective field supports forward and reverse autonomous travel, blue light strips display the protected area, and the field expands as speed increases. The operator must confirm entry into automatic mode, and grabbing the tiller returns the vehicle to manual control immediately. How the layers work together is explained in [how J1600 safety works](https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/) (<https://info.mobilerobot.com/safety-compliance/safety-overview/how-j1600-safety-works/>).

Teach and repeat, not programming

Locations are created by driving to a point and tapping **Save location**; there is no software limit on how many. Tasks recombine saved points, so an operator never demonstrates every possible A-to-B variation. Training takes about 30 minutes for an existing pallet-jack operator, and basic use requires neither Wi-Fi nor an IT project. The tutorial video is on [How-To Videos](https://info.mobilerobot.com/newsroom/videos/how-to-vid-eos/) (<https://info.mobilerobot.com/newsroom/videos/how-to-vid-eos/>).

Speaking the fleet language

For sites that grow beyond a single robot, the J1600's [Advanced software](https://info.mobilerobot.com/products/software/advanced-software/) (<https://info.mobilerobot.com/products/software/advanced-software/>) adds full [VDA 5050](https://info.mobilerobot.com/products/software/vda-5050/) (<https://info.mobilerobot.com/products/software/vda-5050/>) support — the interoperability standard that lets robots from different vendors coexist under a compatible fleet layer — a [REST API](https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/) (<https://info.mobilerobot.com/documentation/technical-integration/rest-api-documentation/>), [Fleet Manager](https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/) (<https://info.mobilerobot.com/documentation/technical-integration/fleet-manager-guide/>), and advanced mission planning. The company works with established VDA 5050 fleet-management providers. Automation can start small and scale progressively.

The philosophy underneath

All of these choices follow one principle: human judgment is not a system failure. The reasoning is laid out in [human-in-the-loop automation](https://info.mobilerobot.com/docum) (<https://info.mobilerobot.com/docum>

[entation/concepts/human-in-the-loop-automation/](#)), and the situations where people outperform machines are illustrated in [Customer Applications](https://info.mobilerobot.com/newsroom/stories/customer-applications/) (<https://info.mobilerobot.com/newsroom/stories/customer-applications/>) and [Behind the Scenes](https://info.mobilerobot.com/newsroom/stories/behind-the-scenes/) (<https://info.mobilerobot.com/newsroom/stories/behind-the-scenes/>).