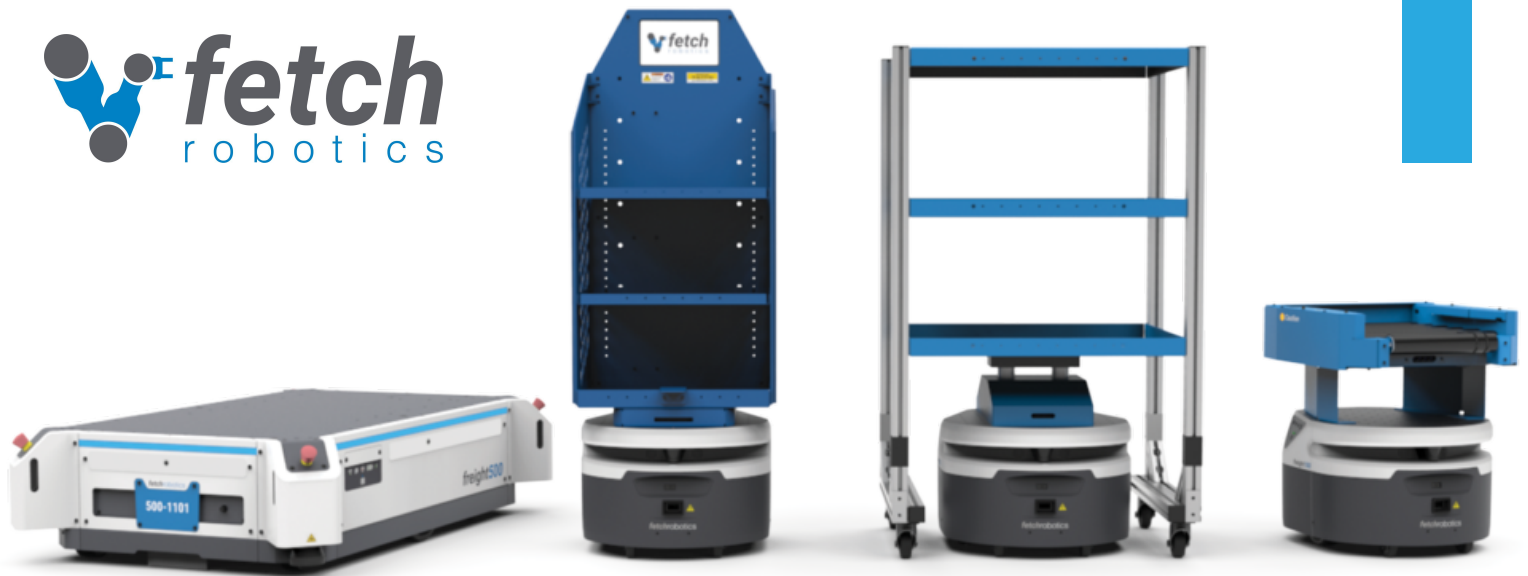# 6 Material Handling Robots and Their Applications

Cloud Robotics Platform for On-Demand Automation

MAINWAY

In recent years, material handling robots have seen a surge of popularity within warehouses, factories, and distribution centres. These robots are equipped with a rich abundance of features, all aimed to improve your operating processes. Some automated guided robots can transport materials across different locations, while other robots collect useful data about your inventory.

With the rapid advancement in technology, these material handling robots have become even more versatile. They are constantly enhancing the safety, efficiency, and productivity of many facilities worldwide. Check out these six popular material handling robots and their innovative applications:

HMIShelf

HMIShelf is a material handling robot designed for use inside warehouses. This is a standard Autonomous Mobile Robot (AMR) that can be deployed to transport various warehouse materials, such as packages, totes, and bins. With adjustable shelving and integrated touchscreens, HMIShelf robots provide an easy, flexible way to offload manual material handling tasks. They are great for optimizing the transporting processes in your warehouse facility.

The HMIShelf has a quick and user-friendly initialization process. Almost no prerequisite training is required for you to put this robot to use and improve the efficiency of your processes. With its dynamic obstacle avoidance technology, the HMIShelf is configured to work alongside people, forklifts, and other types of material handling equipment. It also has a sturdy and practical design, which is ideal for busy warehouse environments.
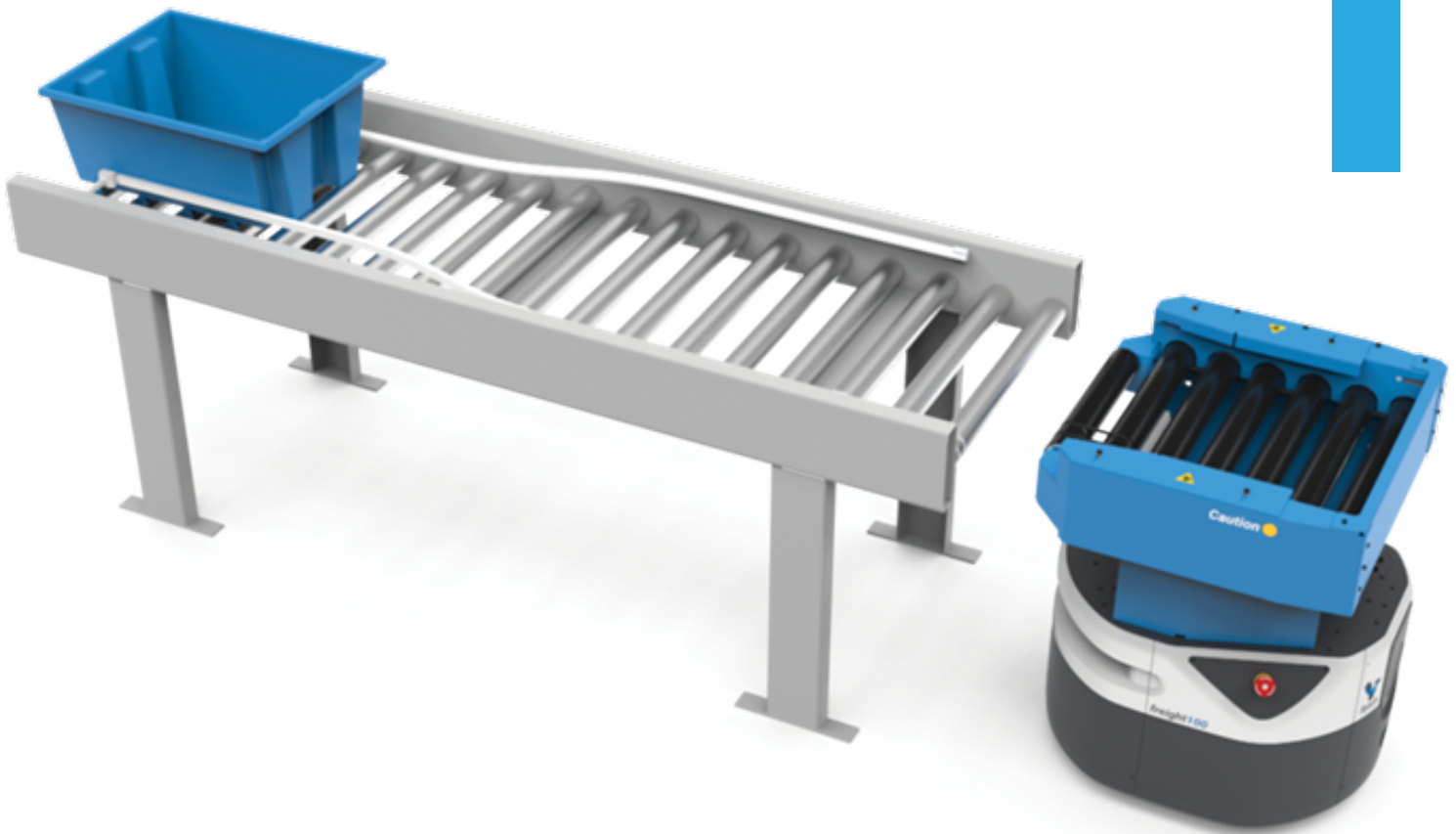
RollerTop

The RollerTop robot specializes in autonomous conveyor-to-conveyor material transport. Once deployed, this robot travels between various conveyor belt systems and enables the transport of materials. It can load and unload bins from conveyors or other automated storage and retrieval systems (ASRS). By using this robot, you can extend your existing workflows and increase the adaptability of the conveyor systems in your facility.

FetchLink controllers facilitate the coordination of conveyor-to-conveyor handoffs with the RollerTop robot. By simply connecting a FetchLink to a conveyor controller, the handoffs between powered conveyors and RollerTop robots become automated. You can trigger induction or deduction automatically using the Fetch Robotics' FetchCore software.

CartConnect

The CartConnect robot helps to automate the transportation and material handling tasks of warehouse carts. This material handling robot uses multiple sensors to navigate between locations efficiently. Moving at an agile speed of 1.5 meters per second, the CartConnect's navigation system is both speedy and secure.

CartConnect's technology is designed for use alongside FetchCarts, which can carry payloads of up to 150lbs in one single trip. The CartConnect is also equipped with plenty of technical safety features, such as occlusion detection, dynamic obstacle avoidance, and turn-in-place functionality. It offers a floor-illuminating blue light, along with 2D and 3D camera integration.
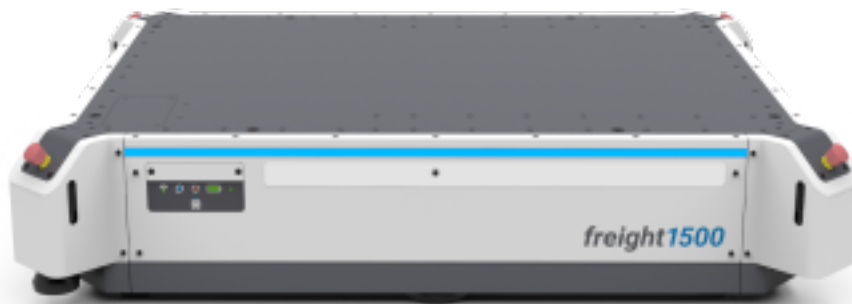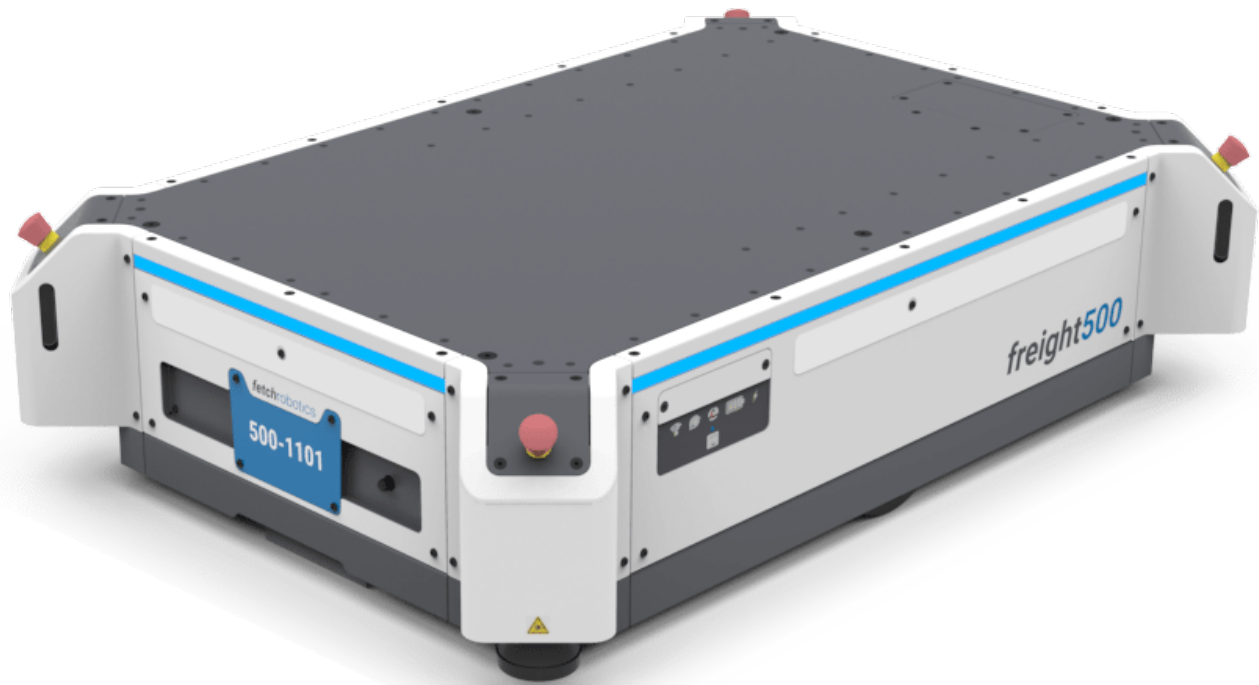
Freight500

Designed by Fetch Robotics, the Freight500 is a versatile and agile automated pallet mover. This material handling robot can move palletized loads and case goods autonomously. With a width of 40 inches, it can maneuver through tight areas while still handling payloads of up to 500kg. The payload surface area of the Freight500 is 1265mm x 838mm, which is enough to accommodate EUR6 pallets, boxes, totes, cases, and other sizable items.

This material handling robot has a fast charge feature that allows up to one hour of charge, lasting for up to nine hours of nonstop operation. The Freight500 features 360° robot vision, which helps with the obstacle avoidance technology. It is equipped with two LiDAR sensors and eight 3D cameras for superior navigation, allowing the robot to make safe but fast stops whenever it detects an obstacle.

With certified hardware-based safety systems, these large AMRs can operate and navigate safely around vehicles or associates. For enhanced safety, the 360-degree LED strip provides the Freight500 with high-visibility indicator lighting.

Freight1500

The Freight1500 is the larger version of the Freight500, equipped with similar warehouse automation features to its more petite counterpart. Known as the workhorse of the warehouse, this material handling robot safely transports large, heavy workloads throughout facilities. The standard 40" x 48" North American pallet can be accommodated on the payload surface area of the Freight1500.

The design of this robot and the built-in sensor will provide smooth movement, resulting in class-leading speeds and safety. With this automated device, a forklift operator doesn't have to spend valuable time manning the travel. Plus, the automation of the pallet transport can reduce traffic and accidents, creating a safer and less congested warehouse environment.

TagSurveyor

The TagSurveyor is an automated inventory cycle counting robot. It reduces inventory loss by tracking, locating, and collecting RFID tags on bins and products within warehouse environments. This robot achieves efficient tag discovery with the use of precise path and positioning technology. The TagSurveyor can reach tagged items on tall shelving with up to 7.6m of reading range, 82° of sensor coverage, and three RFID antennas.

Equipped with powerful data visualization features, you can use the TagSurveyor to easily locate misplaced inventory. It features accurate reporting tools that draw attention to discrepant inventory counts. The TagSurveyor also has autonomous charging and 24/7 automated data gathering processes, making it a powerful tool for continuous inventory tracking.

The TagSurveyor helps with automating your inventory tracking and cycle counting processes. This material handling robot is often used as a dedicated collection solution to complement existing RFID tracking strategies. It can also be used to verify outbound and inbound activity at docks, factories, or warehouses.