Pallet Handling Robot
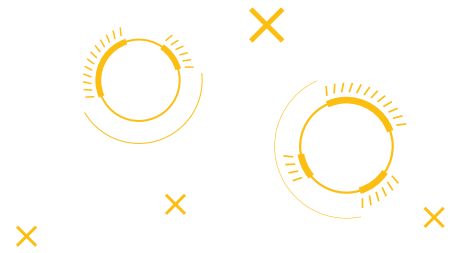
Plug-and-play autonomous mobile robots that lift and transport loads of up to 800 kg. Equipped with Gideon Brothers' breakthrough Advanced Visual Perception.

GIDEON
BROTHERS

Pallet Handling Robot

Product Overview

Gideon Brothers' self-driving robots bring game-changing improvements in performance compared to robots relying on standard 2D LiDAR ('laser radar') sensors.

We paired stereoscopic cameras and AI to allow robots to recognize and understand what surrounds them for improved navigation, obstacle detection, workplace safety, and new value-added cases.

AI infused vision

Trained on tens of thousands of images, our proprietary AI algorithms provide us with a competitive advantage and an in-depth understanding of the environment.

Hot-swappable battery

There is no downtime for charging: a hot-swappable battery system means that you can exchange batteries without shutting down the robot. The batteries offer 10 hours of autonomy time.

Speed

The maximum speed of the platform is 2 m/s, but regulation in most jurisdictions limits this to 1.39 m/s (a pace close to walking speed, at 5 km/h).

Load capacity of 800 kg

The robot transports loads of up to 800 kg on standard pallets or goods in containers or cages. The robot can pick up (and drop off) the load from pallet stands, or the goods can be placed on the robot.

Simple user interface

The robots are controlled through a browser-based Fleet Management Interface app on any device connected to a shared network. An integrated touchscreen device on a stand is optional.

Proprietary stereo-cameras

We have developed a proprietary vision module as none of the cameras available on the market provided an adequate level of image quality and processing capabilities for an application on a moving platform in indoor environments.

WMS integration

The robots can be integrated into warehouse management software using our simple API.

360° sensor coverage

Other than visual input from stereoscopic cameras, Gideon Brothers' robots rely on safety certified LiDAR sensor.
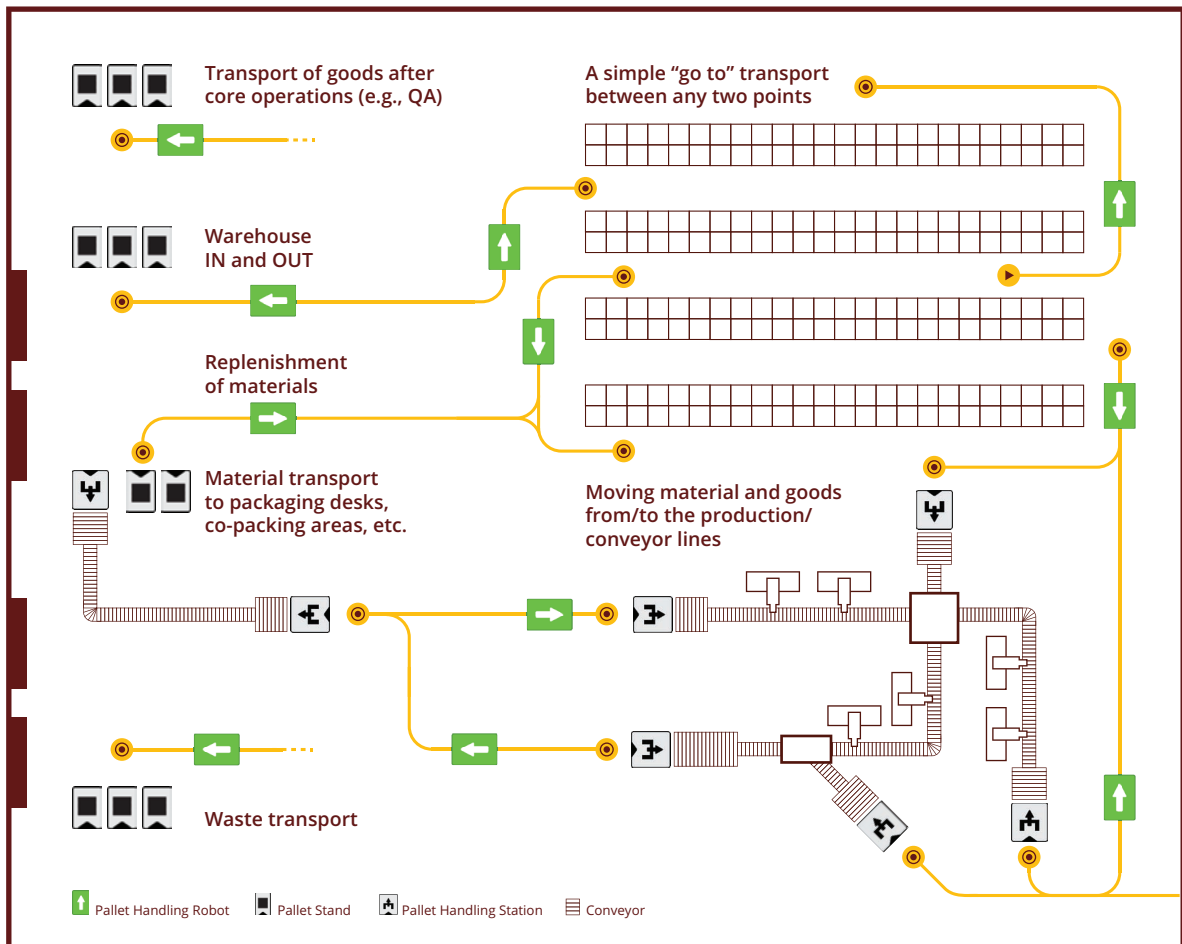
Light & sound indicators

A light band around the robot indicates direction and mode of operation, and audio signals, fully customizable according to zones with specific sounds and tunes, are an added safety feature. Furthermore, a standard safety blue light is available to provide an extra level of caution.

Use Cases

Examples

The diagram illustrates:
- **Transport of goods after core operations (e.g., QA)**
- **Warehouse IN and OUT**
- **Replenishment of materials**
- **Material transport to packaging desks, co-packing areas, etc.**
- **Waste transport**
- **A simple "go to" transport between any two points**
- **Moving material and goods from/to the production/conveyor lines**

Legend:
- Pallet Handling Robot
- Pallet Stand
- Pallet Handling Station
- Conveyor

On-Demand Use Case examples

Warehouse IN and OUT – transport from the inbound area to the facility and from the facility to the outbound area

Material transport to points of interest – supplying packaging desks, co-packing areas, and custom zones in the facility

Moving material and goods – from/to the production line and into a warehouse or between two conveyor lines

Transport of goods after core operations – for example, moving the goods to the QA area after the picking process

Replenishment of materials – transport between two facility zones

Waste transport – from various points in the facility to the central waste disposal zone

Custom "on-demand" – transport missions designed for client – specific requirement

Simple "go-to" – transport between any two points in the facilit

Technical Specifications

Pallet Handling Robot

Mechanical	Length	1333 mm
	Width	902 mm
	Height	310 mm
	Load surface	1200 mm x 800 mm (other pallet types possible)
Powertrain system	Max inclination	1% (with maximum load)
	Max speed	2 m/s (depending on the customer's facility and use case)
Pallet-lifting system	Lifting speed	0-100% in 9 s
	Lifting capacity	800 kg
	Lifting height	168 mm
	Sensing	Speed, position
Power system	Type	Swappable external battery with backup internal battery (Li-Ion)
		Internal battery powering the systems during battery swap
Sensor system	Laser scanners	Safety, localization, mapping, navigation
	Stereo cameras	3D awareness and object detection, navigation, object recognition, safety
Interaction	Wireless connection	Wi-Fi AC/G/N/B
	Local connection	Ethernet 10/100/1000, USB
	Light indication	360º indication of current operating mode
	Audio interface	Speakers (indication of current operating state); high volume safety buzzer, configurable
	RF interface	Link to external hardware (elevator call, safety light, remote switch)
Safety	Drive system	Mechanical brakes
	Battery system	Electronically protected Li-Ion cells
	Sensor system	Safety-certified Sick LIDAR sensors and redundant Sick encoder sensors; object recognition based on stereo camera input
	Control	Safety certified Sick PLC in dynamic ranging mode
	General	4 x safety switches and remote power kill
	Temperature	5º - 40ºC
	Humidity	10 - 95% non-condensing