



# Automation of Transportation Within the Factory by Utilizing the Existing Layout and Equipment

**Fully Automated Factory System Using  
AMR “AiTran” and Various Arms**

## Simultaneous lineup of 3 types: loading type, towing type, and fork type



**AiTran Lift**  
(Loading type)



**AiTran Trailer**  
(Towing type)



**AiTran Fork**  
(Fork type)

## ③ AiTran Trailer zone (Towing type)

Laser driving

Overall optimization

3 types of transport forms  
lane tracing run  
Laser driving

lane tracing

## ② AiTran Fork zone (Fork type)

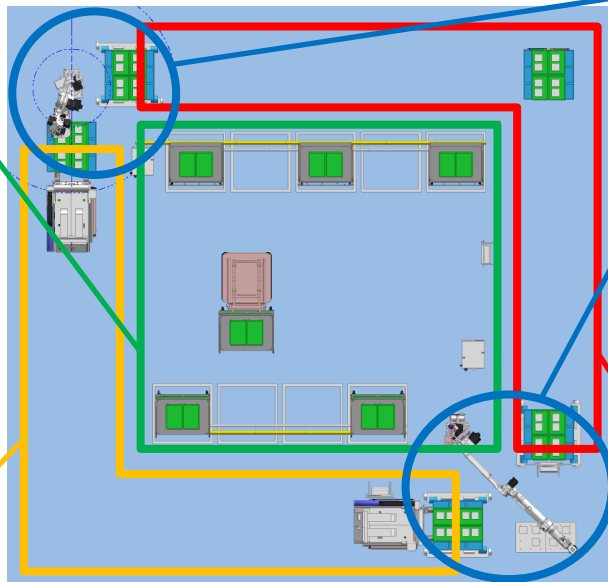
## ④ Robot cooperation operation zone

Systemization

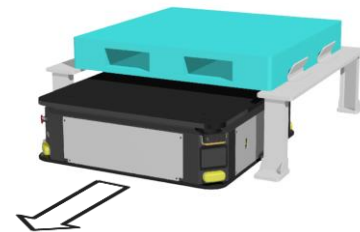
Industrial robot  
Link AMR

lane tracing run

## ① AiTran Lift zone (Loading type)



- Omni-wheel movement allows you to **change direction without changing posture**
- Compact body allows entry and exit into narrow mounts
- Can run through slopes, gratings, and grooves

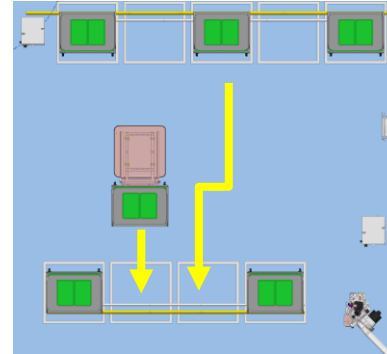


Installation area  
**45% reduction**  
(Compared to conventional)

Speed improvement  
**1.5 times**  
(Compared to conventional)

Stably travels the shortest distance and **transports with high efficiency**  
**Easy to install** without changing existing aisles or layouts

- Traction **mechanism grips and transports the trolley**
- Approach the conveyed object without **deviation by tracking the marker**
- Omni-wheels allow for **circular and lateral movement** for towing and transportation even in small spaces



We propose **automatic transportation of logistics supplies such as trolleys** that are often used in factories

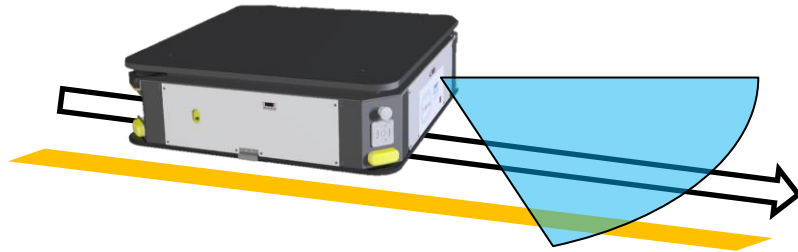
- It is possible to scoop up floor-standing pallets  
Movement in **all directions** allows for free posture  
Allows for **lateral movement** that cannot be done with a forklift
- The total length is approximately **1400mm** when the claws are retracted\*  
**More compact than a forklift**  
\*When loading luggage



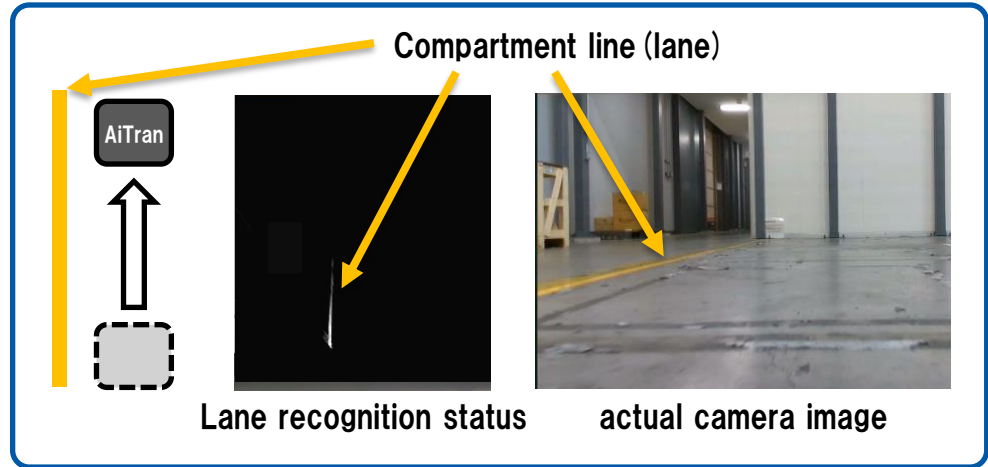
Combines **scooping up** of objects placed on the floor  
We propose **comprehensive automation of pallet transportation**

- I want to drive in a wide space with no targets
- There is a lot of baggage around, and potential targets are hidden

**AiTran is now able to drive along the lanes drawn at the factory!**

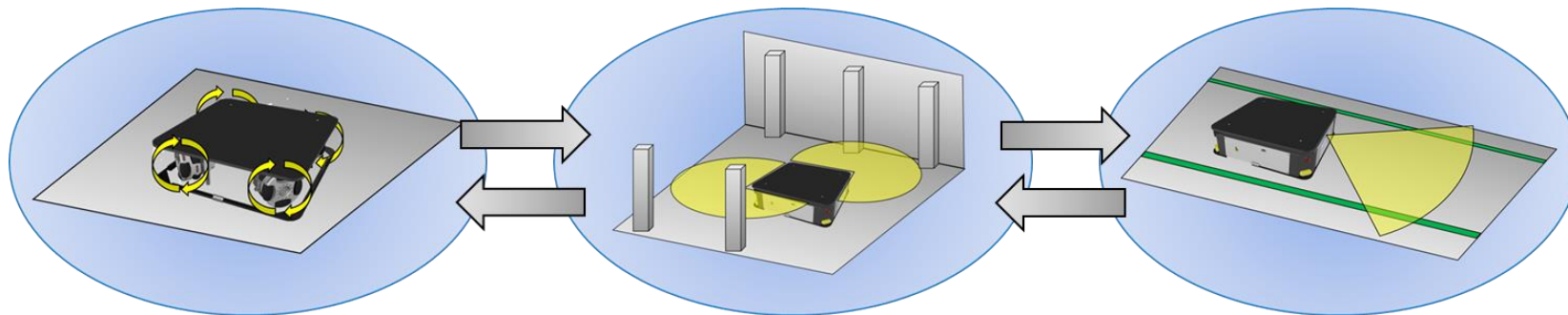


**The on-board camera detects the lane markings and drives**



## AiTran runs by switching between three driving functions

It is possible to switch between encoder driving, laser driving, and lane tracing driving according to the customer's factory environment and operation method



**Encoder**

Drive at wheel speed

**Laser**

Drive while looking at your surroundings with a laser

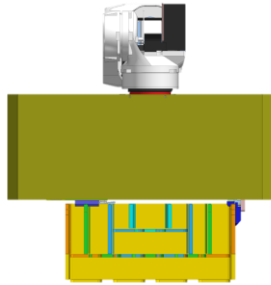
**Lane tracing**

Drive along the lot line

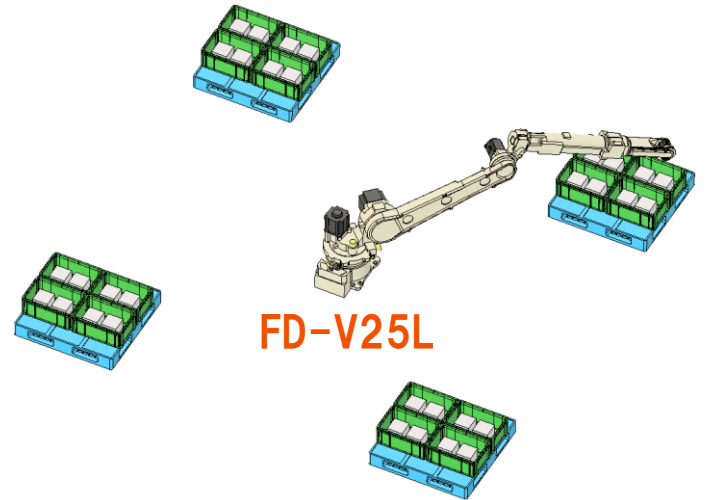
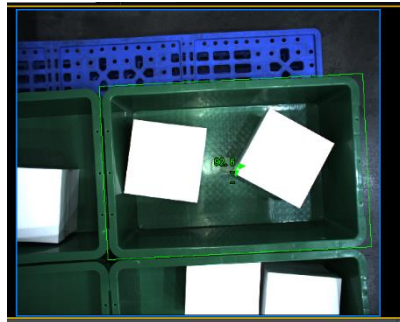


Contributes to improved **material handling** efficiency throughout the factory

- Picking containers of different sizes without changing tools
- Capable of **handling a wide range and welding long pieces**
- **Built-in vision sensor** automatically corrects container misalignment



Responding to design to your requests

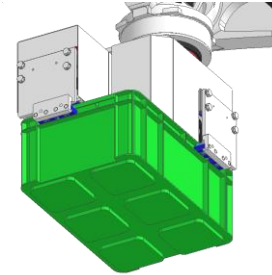


Wireless power transfer



AMR

Industrial robot



robot hand

vision sensor



We provide one-stop **factory automation solutions** regardless of process or between processes

**The autonomous transport vehicle AiTran can be used to automate transport within your factory.**

**DAIHEN**