

AsReader releases HAKOBU Magnetic Robot Transport System

*Autonomous Mobile Robot technology
HAKOBU is designed to save production
time and can move in any direction, all
without having to charge a battery*

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Following in the footsteps of its parent company Asterisk Inc., [AsReader](#) is bringing a new technology to the US called [HAKOBU](#), a magnetic robot transport system that utilizes linear motor technology. HAKOBU, which literally means "to deliver" in Japanese, was developed and patented by Asterisk. AsReader is a wholly owned subsidiary of [Asterisk, Inc.](#) of Japan.



The new HAKOBU magnetic robot transport system can move vertically, horizontally, and in a circular motion (rotary) using linear motor technology. The basic magnetic robot transport system consists of a panel-shaped "base part" equipped with a linear motor and a "tray part" for transporting items such as a pallet. The tray does not require battery power and can be operated continuously without charging.

Each tray part can move freely, creating a free transport space according to the operation. With these technologies, AsReader offers an approach to automation and production time saved for activities such as transporting items in logistics and serving food in restaurants.

HAKOBU is currently available for viewing as a prototype, and will be for sale in the US in summer of 2025. The company is also simultaneously developing an AI system that uses cameras, and plans to build a solution that combines these technologies during on-site operation.

About linear motors

A typical rotary motor consists of a rotating part in the center and a fixed part around it. A permanent magnet is built into the rotating part, and electromagnets are arranged so as to encase it on the fixed side, and the magnetic poles of the electromagnets are switched sequentially to perform continuous rotary motion.

A linear motor is made by cutting open the fixed part of a rotary motor and laying it in a straight line. A permanent magnet is built into the moving side (vehicle), and the magnetic poles of the electromagnets arranged on the fixed side (rail) are switched continuously to directly obtain the propulsive force of linear motion. Based on this basic principle, it is used in machine tools and linear motor cars.

The HAKOBU linear motor is a two-dimensional linear motor that expands the general linear motion in a planar manner. Asterisk applies conventional linear motor technology to achieve a high-degree of freedom of operation, including not only vertical and horizontal movement, but also rotational motion.

Advantages of Linear Motors:

- 1. High speed and high precision
- 2. Low noise, low vibration, low dust
- 3. Can be used for continuous operation as charging is not required
- 4. Multi-control (moving multiple trays individually) possible
- 5. Less prone to deterioration over time and easy to maintain

As the trend towards automation accelerates, by combining them with Asterisk's AI technologies such as image recognition, the company will be able to provide synergistic products and services to HAKOBU.

Product Specs for AsReader HAKOBU

Product Overview: HAKOBU consists of a panel-shaped "base unit" equipped with a linear motor and a "tray unit" for transporting items such as a pallet. The controller operates the tray unit by controlling each of the coils arranged on the base unit.

Features of the base unit: The base unit incorporating a linear motor is planned to be provided in a "tile-like" form so that it can be assembled and installed flexibly. The tray for transporting it does not have a power source, so there is no need for charging, and it is characterized by its ability to move vertically and horizontally as well as rotate, and multiple units can be controlled simultaneously.

Features of the tray unit: The tray unit operates based on permanent magnets, which are the basic component of a linear motor, so it does not require power from batteries or other sources, and can therefore operate continuously without the need for troublesome operations such as

charging.

Expected usage scenarios:

Load transport at logistics sites

- o Automatic transport and sorting of load on trays
- o Automatic transport of pallets, basket carts, etc. on trays
- o Picking devices with moving shelves, picking with rotating operation, etc.

Production sites

- o Manufacturing lines where semi-finished products are placed on trays that run in all directions and handed over to the next process
- o Assisting operators with operation through the rotating motion during production

Restaurants

- o Transporting food and drink on trays to customers' seats, transporting meals in the right direction, etc.
- o Assisting with cleaning up after eating and drinking

□

These are expected uses, and HAKOBU can be used for various purposes, with more to come. The size will vary depending on the expected scenario, and commercialization will change due to applications and uses at specific sites.

HAKOBU has been shown at only a handful of exhibitions to date, including international Logistics Exhibition, September 10-13 in Tokyo, the A3 Autonomous Mobile Robots & Logistics Conference 2024 in Memphis Tennessee October 8-10, and PACK Expo November 3-6, 2024 in Chicago, IL.

More information on AsReader

AsReader, Inc. specializes in AutoID, particularly mobile Barcode Scanners, RFID Readers/Writers, and all things Automatic Identification and Data Capture (AIDC). AsReader, headed by COO Paul Whitney, is an Oregon Corporation and a wholly owned subsidiary of Asterisk, Inc. of Japan. Asterisk was founded in 2006 by charismatic CEO Noriyuki Suzuki and is headquartered in Osaka with additional offices in Tokyo, Kyoto, Shiga, and Nagoya in Japan, Dalian and Shenzhen in China, and Portland, Oregon in the U.S.A. The company went public on the Tokyo Stock Exchange in 2021 (TSE:6522). Major clients include manufacturers Toyota and Kawasaki, retailers Tokyuu Hands and Aoyama, over 350 hospitals worldwide, a household-name beverage and snack logistics/transportation company in North America using over 20,000 AsReaders, and well-known package delivery companies in Japan using over 30,000 and 80,000 AsReaders each.

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