

# Autonomous Outdoor Delivery Robots

This technology allows robots to safely deliver items to outdoor locations such as residential areas and workplaces, utilizing sophisticated devices and control systems.

The autonomous outdoor delivery robots ensure the secure delivery of food and goods to both indoor and outdoor destinations. In regions with high order volumes, these robots support delivery personnel by helping to reduce delays and improve delivery efficiency.



▲ An autonomous delivery robot loaded with goods is crossing a pedestrian crosswalk.

## Issues to Tackle

- ☑ The surge in online orders has led to delivery delays and higher fees due to a lack of delivery drivers.
  - \* Delivery orders increased by 360,000 cases, while the number of drivers grew by only 1,000 people.
- ☑ The increase in single-person households has resulted in greater demand for services delivering small quantities of goods and food.
  - \* 82.8% of people reported ordering more than what they needed to meet the minimum order amount for delivery.

## Expected Benefits ☑

- ☑ Equipped with cutting-edge technology, these robots can operate safely in various weather conditions such as nighttime, snow, or rain. This significantly lowers the likelihood of traffic accidents during deliveries.
  - \* Nearly half (47%) of food delivery workers have reported being involved in traffic accidents.

## 💡 Key Services

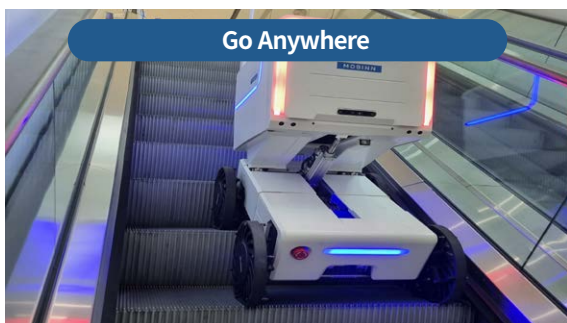
- Delivers food ordered through a smartphone app, ensuring seamless transport from producers to consumers' entrances or doorsteps.
- Designed to connect with elevator systems, enabling vertical movement within buildings.
- Certified for outdoor use and granted pedestrian status, these robots can perform delivery and patrol tasks within the limits of 500 kg and 15 km/h.

## ⚙️ Use Cases

- **Konkuk University:** Since 2021, a pilot program for autonomous delivery robots has been implemented using address-based navigation. The university has set up indoor/outdoor pathways connecting 15 convenience stores so that autonomous robots deliver goods ordered on campus.
- **Seongnam-si:** Since 2024, autonomous delivery robots have been deployed around the Pangyo Station and Seocheon-dong, enabling efficient goods delivery from local small businesses to their customers.
- These robots are also used in new apartment complexes, resorts, hotels, campgrounds, and surrounding regions.

## Key Components

## Configuration



## Technology

## 1. Reliable Outdoor Autonomous Navigation

- Autonomously avoids obstacles and maintains safe operation in challenging conditions such as nighttime, supported by precision sensors.

## 2. Robot Design Optimized for Goods Delivery

- Transports load up to 500 kg, operate for 8 hours on a single charge (Neubility), and offer superior flexibility by adjusting the wheelbase (Mobinn).

## 3. Autonomous Charging on Low Battery

- After delivery is completed, the robot autonomously returns to its docking station and starts recharging.

## 4. Obstacle Navigation

- Overcomes physical obstacles as well as smoothly operates on wheels.

**POINT** The robot can ascend stairs while keeping its cargo box balanced (Mobinn).



## Certified Delivery Robots

## ROBOTIS, GAEMI

Width: 551, Max. speed: 7.2 km/h  
Max. climbing angle: 10.2°  
Max. weight: 97 kg (Max. payload: 30 kg)



## NEUBILITY, NEUBIE

Width: 617, Max. speed: 5.7 km/h  
Max. climbing angle: 15°  
Max. weight: 81.5 kg (Max. payload: 20 kg)



## WOOWA BROS, DILLY X2

Width: 550, Max. speed: 3.6 km/h  
Max. climbing angle: 11°  
Max. weight: 128 kg (Max. payload: 20 kg)



## Technology Companies

## DOGU

www.dogu.xyz

## TWINNY

www.twinnny.ai

## MOBINN

www.mobinn.co.kr

## WOOWA BROS

robot.baemin.com

## NEUBILITY

www.neubility.co.kr

## HYUNDAI WIA

www.hyundai-wia.com

## ROBOTIS

www.robotis.com

