Autonomous Outdoor Delivery Robot

The Autonomous Outdoor Delivery Robot is a robot system and control technology that allows the Autonomous Outdoor Delivery Robot to safely deliver goods to residences, offices, and other real-world destinations.

These robots safely transport food orders or packages indoors and outdoors. In high-demand areas, they can supplement human couriers and LiDAR-based navigation to minimize delivery distance.

▲ An autonomous delivery robot carrying goods is crossing a pedestrian walkway.

Issues to Tackle

- Shortage of delivery personnel due to the increase in online orders, leading to higher delivery costs and longer delivery times.
  * Delivery orders increased by 360,000, while delivery riders increased by only 1,000.
- Growing demand for small-scale delivery services for food and goods due to the rise of single-person households.
  * 82.8% of users have experienced ordering due to minimum purchase requirements.

Expected Benefits

- Supports human couriers by offering customized 24-hour delivery services, meeting demand during nighttime, early morning, and weekends.
- Autonomous delivery robots equipped with advanced technology can operate safely at night, in alleys, and at intersections, reducing traffic accidents involving delivery workers by 47%.

Key Services

· Delivers food orders from the production site to the customer's doorstep using a smartphone app.

· Integrates with robot control platforms and elevator platforms to enable indoor movement.

· Certified autonomous robots can legally operate on sidewalks under pedestrian safety regulations, limited to 500kg and speeds under 15km/h.

Use Cases

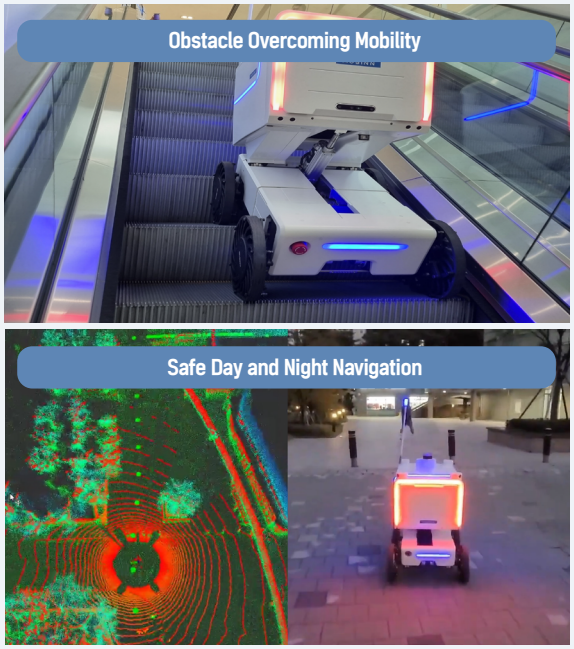
· Konkuk University (2021): Deployed 15 address-based autonomous delivery robots, establishing a dedicated indoor/outdoor delivery path for on-campus food and package deliveries.

· Seongnam, Gyeonggi Province (2024): Operates autonomous delivery robots in commercial districts to transport products between small business owners and customers.

· Tourist Areas: Introduced in apartment complexes, resorts, hotels, and campsites for efficient delivery operations.

Key Components

Configuration



MOBINN

Key Technologies

1. Safe Outdoor Autonomous Driving

· Equipped with precision sensors, the robot autonomously avoids obstacles and operates safely at night, on snowy roads, and on sidewalks.

POINT Uses 3D LiDAR, depth cameras, and ultrasonic sensors to recognize spaces and surroundings, ensuring accurate navigation to the destination.

2. Optimized Robot Design for Cargo Delivery

· Carries up to 500kg and can operate for 8 hours on a single charge (New Mobility standard). Adjustable wheel angles provide high mobility. (Mobinn)

3. Robot Service Management Platform

· Monitors real-time robot location and status, enabling remote control when necessary.

4. Autonomous Charging When Battery Is Low

· After completing a delivery, the robot returns to a standby location and automatically starts recharging.

5. Obstacle Overcoming Technology

· Overcomes daily obstacles and stairs using a crawler system.

POINT Maintains stable load handling while climbing stairs. (Mobinn)

Introduction to Outdoor Mobile Robots

Robotics GAEMI

Width: 551mm
Max Speed: 7.2km/h
Max Incline: 10.2°
Max Load: 97kg (Cargo Weight: 30kg)

New Mobility NEUBIE

Width: 617mm
Max Speed: 5.7km/h
Max Incline: 15°
Max Load: 81.5kg (Cargo Weight: 20kg)

Woowa Brothers DILLY X2

Width: 550mm
Max Speed: 9km/h
Max Incline: 11°
Max Load: 128kg (Cargo Weight: 20kg)

Technology Companies

DOGU
www.dogu.xyz

HYUNDAI WIA
www.hyundai-wia.com

MOBINN
www.mobinn.co.kr

NEUBILITY
www.neubility.co.kr

ROBOTIS
www.robotis.com

TWINNY
www.twinny.ai

WOOWA BROS
robot.baemin.com