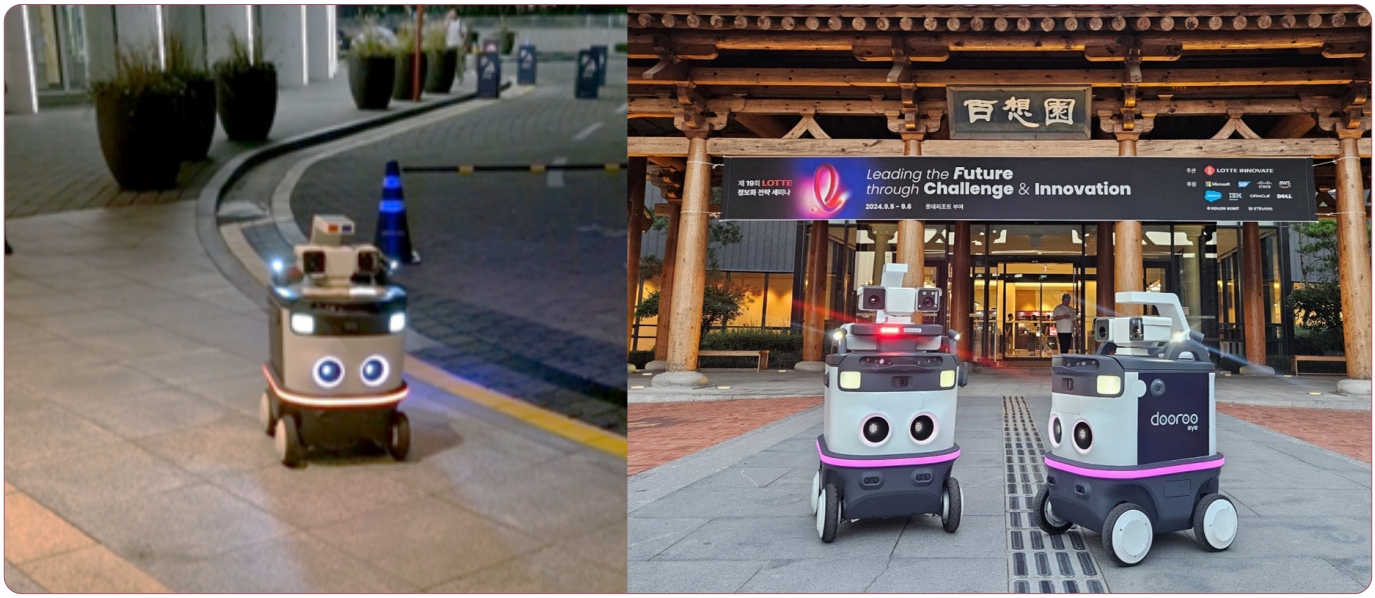
Autonomous Patrol Robot

Autonomous patrol robot utilizes autonomous robotic technology to monitor patrol areas for images, fires, and abnormal noises. It transmits real-time situation and image data to the control center, enhancing security and surveillance.

The robot is versatile and can be deployed for various patrol tasks, including residential security, park maintenance, and factory surveillance. In critical situations, it can transmit event images to a control center or sound an alarm to effectively respond to incidents.



▲ The autonomous patrol robot is monitoring areas that are difficult for patrol officers to access.

Issues to Tackle

- Need to efficiently manage fixed CCTV poles in urban areas, enhancing surveillance of building interiors and exteriors while reducing the workload of security personnel.
- Address the productivity decline caused by the aging security workforce.

Expected Benefits

- Enhances surveillance at vulnerable locations, reduces the workload of security personnel, and establishes a safer residential environment by preventing pole-related hazards.
- Enables monitoring of telecommunications and electrical infrastructure to detect fires and disasters early, preventing incidents.

Key Services

· Real-time event monitoring in residential areas, traditional markets, educational facilities, industrial complexes, construction sites, and other spaces.
*Autonomous patrol for low-population areas or those lacking CCTV installations.

· Detects overheating poles using thermal cameras, halting patrols and sending alerts to control centers.

· If necessary, fire extinguishers, AEDs, and first aid kits are stored inside the robot to support rescue operations in collaboration with on-site security personnel and police.

Use Cases

· In June 2022, the Gwanak District in Seoul introduced the country's first autonomous patrol robot service for urban safety, monitoring residential and park areas.
· Starting in 2024, Seoul plans to deploy patrol robots in four major traditional markets, including Gwangjang and Majang, to monitor fire risks, prevent early disasters, and guide evacuations.

· The national pilot city of Busan's Smart Delivery City launched patrol robots in November 2022 for early disaster detection and pole monitoring.

· Other cities like Songdo, Siheung, and various private and construction sites are also adopting patrol robot technologies.

Key Components

Configuration

Thermal and Visual Cameras

- Detects heat-based fires, high temperatures, and smokers.
- Expands the monitoring range using PAN and TILT functions to detect multiple objects or individuals.
- Equipped with IP67 waterproof and dustproof ratings and wipers, ensuring clear video even in rainy conditions.

Emergency Response Equipment

- Stores throwable fire extinguishers, AEDs, and first-aid kits inside the robot for immediate use. (Optional components available separately.)

Warning Lights and LED Panels

- Equipped with warning lights and high-intensity reflective panels to indicate motion from both front and rear.

Gas Sensors

- Features suction-type gas sensors.
- Installed inside the robot to detect up to four types of gases at designated locations.
- Allows customizable combinations of four gas sensors as needed.

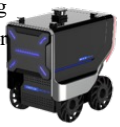
Key Technologies

1. Ultra-Precision Positioning (RTK, Real-Time Kinematic) Satellite Navigation System
   - Reduces errors to less than 2 cm within a 10 m radius.
2. Autonomous Driving Technology
   - Detects and recognizes nearby structures using precise sensors, enabling accurate location mapping and autonomous driving.
3. Object Recognition
   - Identifies people, vehicles, and objects while detecting dynamic and stationary obstacles.
4. AI Analysis Technology
   - Detects objects in video and images in real time, and provides risk information to the city control center when a risk factor is detected.

Related Technology

MOBINN, MOBIN

- Uses 3D LiDAR-based real-time 3D positioning technology and a wheelbase control structure for indoor and outdoor movement.



POINT Equipped with a flexible wheel structure to overcome obstacles such as stairs and maintain stability during transport.

NEUBILITY, NEUBI

- Combines GPS, cameras, and sensors for autonomous patrol, with SKT LTE models for real-time video streaming.

POINT Performs autonomous driving using a camera-based system without relying on expensive LiDAR sensors.

IROP, Fireguard Bot

- Performs 24/7 industrial site monitoring and emergency detection using 3D LiDAR and heat detection sensors.

POINT Provides comprehensive disaster response by detecting electrical equipment malfunctions and offering fire suppression solutions.

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