Autonomous Patrol Robot

This surveillance solution uses advanced robotic technology to patrol sites, detect fires and abnormal sounds, and connects real-time video and status updates to a control center.

It offers various patrol functions, such as securing key facilities, residential areas, parks, and industrial sites. It can transmit relevant video footage to the operations center, issue alarms, and facilitate immediate responses to incidents on-site.

▲ An autonomous robot patrols areas that are inaccessible to human patrol officers.

Issues to Tackle

- In cities, it is necessary to address blind spots not covered by fixed CCTV systems and monitor unauthorized access to buildings, alleviating the workload of security workers.
- Solutions are needed to tackle issues such as high turnover rates of security workers resulting in a lack of expertise and decreased productivity among an aging workforce.

Expected Benefits

- Robots are deployed more frequently in areas with high crime rates, alleviating the workload on security workers, and they address blind spots to foster a safer living environment.
- It conducts patrols of infrastructure, such as communication and power facilities, and identifies potential disasters like fires, thereby preventing accidents.

Key Services

· Enables real-time surveillance across various locations, including residential areas, traditional markets, schools, industrial zones, and construction sites.
*Autonomous Patrol Robots operate in outdoor and isolated areas.

· When detecting high-temperature sources, the robots stop, utilize thermal imaging cameras to measure the heat, and relay the data to the control center.

· If unusual activity or emergencies arise, the robots issue immediate on-site audio warnings and collaborate with the control center to broadcast guidance messages through speakers.

Use Cases

· Seoul: From January 2024, self-driving fire detection robots were introduced in four traditional markets, such as Gwangjang Market and Majang Livestock Market. They focus on nighttime fire detection, early suppression, and safety guidance.

· Busan Eco Delta City Smart Village (National Testbed): In November 2022, self-driving patrol robots were deployed to validate patrol-type CCTV robot technology.

· They are also deployed in diverse areas, including Songdo Central Park in Incheon Metropolitan City, Siheung-si in Gyeonggi-do, factories, and construction sites.

Key Components

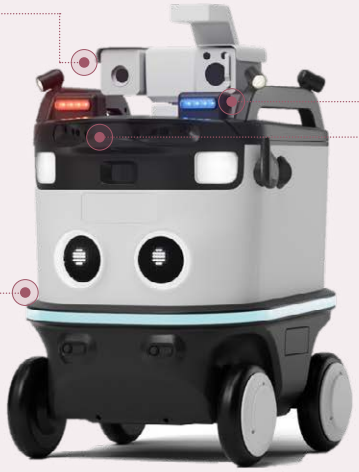
Configuration

Thermal and Visual Cameras

- Detects fires, elevated temperatures, and smoking individuals using temperature detection.
- Capable of recognizing objects and multiple people.
- Equipped with PAN and TILT mechanisms to expand the camera's coverage area.
- Built with IP67-rated waterproof and dustproof protection, as well as a wiper, ensuring clear video even in the rain.

Emergency Response Equipment

- Features throwable fire extinguishers, AEDs, and first aid kits, all housed within the robot for quick deployment (availability varies depending on optional configurations).



Warning Lights and LED Indicators

- Warning lights and high-brightness reflectors signal operational movement, visible from both the front and rear.

Gas sensor

- Suction-based gas sensor
- Integrated within the robot to identify four specific gases in targeted locations.
- Supports the combination of gas sensors to detect four specific gases.

Technology

1. High-Precision Positioning System (RTK)

- Minimizes GPS errors from 10 meters to an average of under 2 cm.

2. Autonomous Navigation

- Features advanced sensors to identify nearby structures and cross-reference them with detailed maps, enabling accurate positioning and driving assistance.

3. AI-Powered Object Detection

- Identifies moving objects like vehicles, pedestrians, and bicycles to evaluate the environment and promote safe driving.

4. AI-Driven Analysis

- Analyzes image and video data through object detection, classification, and pattern recognition to identify and mitigate potential risks.

Mobinn, Patrol Robot

Utilizes 3D LiDAR technology for precise 3D position locating day and night, and its adjustable wheelbase enables smooth movement indoors and outdoors.

POINT Addresses the challenges of wheel-based mobility, such as navigating stairs or obstacles.

Neubility - Neubi

Integrates GPS, cameras, and sensors for effective patrolling around the clock.

POINT Delivers autonomous navigation using a camera-based approach, without costly LiDAR sensors.

Irop, Fireguard Bot

Provides 24/7 monitoring and emergency surveillance for industrial facilities.

Employs 3D LiDAR technology for autonomous navigation and real-time fire safety monitoring.

Technology Companies

IROP
www.irop.co.kr

MOBINN
www.mobinn.co.kr

NEUBILITY
www.neubility.co.kr

UNMANNED SOLUTION
www.unmansol.com