

# Autonomous Mobility (Bus & Taxi)

Autonomous mobility refers to autonomous vehicles and related technologies that enable vehicles to recognize and analyze their driving environment without driver intervention, moving independently to their destinations.

These vehicles operate primarily on roads without driver involvement, navigating independently and responding to potential hazards. They are expected to address various economic and social challenges, such as preventing traffic accidents, alleviating congestion, and improving energy efficiency.



▲ Citizens using autonomous vehicles.

### Issues to Tackle

- ☑ Protection of drivers and passengers from traffic accidents caused by reckless driving, driver errors, or sudden events.  
\* 2,551 fatalities due to traffic accidents in 2023.
- ☑ Need for transportation services during off-peak hours in areas with limited accessibility to public transportation and taxis.

### Expected Benefits ☒

- ☑ Solving safety issues for elderly drivers, novice drivers, and overall traffic safety.
- ☑ Enhancing accessibility to public transportation systems in regions with low service availability during off-peak hours.

### 💡 Key Services

- Enabling users to select destinations and call autonomous taxis or shuttles via a smartphone application.
- Providing features for vehicle, route, reservation, and payment management for user convenience.
- Utilizing GPS and onboard sensors to analyze real-time locations and surroundings for autonomous driving.
- Remote control and monitoring of autonomous vehicles.

### ⚙️ Use Cases

- The Seoul Metropolitan Government chose ‘Kakao T’ as its autonomous driving platform. From September 2024, it will serve as the platform operator for Seoul's autonomous driving services, including the late-night autonomous driving service in Gangnam, Seoul, Metropolitan City.
- NEMO Ride: Designated as a test operation district for autonomous vehicles in 2024, operating on an 11.74 km road connecting Jeju City, Cheomdan Complex, and Jeju National University.
- Ministry of Land, Infrastructure and Transport (MOLIT): Launched autonomous mobility services for passenger and parcel delivery in 2023 in partnership with Ottomouse Investment & Construction.
- Regional Operations:
  - RAXI: Service available in metropolitan areas, Gangnam, and major cities like Daegu and Gwangju.
  - Olink: Operates in Sejong City and Pyeongtaek.
  - TASIO: Covers Gyeonggi Province and urban areas like Seongnam and Pangyo.
  - WITH:US: Available in Seoul's Sangam and Sejong City.

## Key Components

## Configuration

**Camera**

Identifies the movement of nearby objects in real-time.

**LiDAR**

A device that detects object locations using laser (light).

**Radar**

A device that detects object locations using radio waves.

## Key Technologies

## 1. Cameras for Surrounding Environment Recognition

- Uses four cameras to capture and display 360-degree visual data around the vehicle, providing signage and signal recognition for navigation assistance.

**POINT** Video generation for parking assistance and guide line display technology.

## 2. Image Detection Sensors for Surrounding Recognition (LiDAR, RADAR, etc.)

- Measures electric and radio wave reflections from surrounding objects to detect fixed structures (lanes, signs) and moving objects (pedestrians, vehicles).

## 3. GPS and High-Precision Map-Based Accurate Tracking

- Determines the vehicle's location and speed while recognizing fixed geographical landmarks, ensuring accurate tracking information by lane for predictive driving and obstacle detection.

## 4. Decision-Making and Strategy Planning

- Uses real-time autonomous driving algorithms to plan optimal routes to the destination, adjusting speed and trajectory while recording data for event analysis.

## 5. V2X Module

- Vehicle-to-Everything (V2X) communication enables data exchange between vehicles and external infrastructure, improving traffic flow efficiency.

## 6. Control System

- Collects real-time vehicle interior data to monitor the driver's status and ensure optimal decision-making for vehicle control.

## Technology Companies

**AUTONOMOUS A2Z**  
www.autoa2z.co.kr

**HYUNDAI MOTOR GROUP**  
www.hyundai.com

**KAKAO MOBILITY**  
www.kakaomobility.com

**RIDEFLUX**  
www.rideflux.com

**SEOUL ROBOTICS**  
www.seoulrobotics.org

**SONNET**  
www.sonnet.ai

**SWM**  
www.swm.ai

**42DOT**  
www.42dot.ai

