LEVEL 5
CONTROL TOWER
AUTONOMY THROUGH INFRASTRUCTURE

Autonomous Driving for
Finished Vehicle Logistics
The last few years have seen technical advancements in the automotive industry ranging from electric vehicles and fuel efficiency to long haul automation. Finished vehicle logistics, however, remains an area where high-tech solutions, including autonomous driving, are underdeveloped. Autonomous solutions tried by OEMs have only succeeded indoors and with a limited number of vehicles. Meanwhile, finished vehicle and supply chain logistics account for 3 to 5% of total assembly costs. Manual driving within this sector costs OEMs an average of $30-$60 per vehicle, every time a vehicle is moved. A new solution is needed.
Autonomous mobility faces a number of barriers to entry: it's cost-prohibitive, has unproven safety, and lacks intelligence because vehicles currently cannot fully perceive and anticipate obstacles, nor can they communicate with one another. OEMs spend billions of dollars each year on finished vehicle logistics, from driving vehicles off the production line, to intermediary distribution lots, ships, trains and trucks, to their final destination at dealerships. A vehicle moves on average through six to seven parking lots, from the assembly line until it is delivered to its final customer. Every time a vehicle moves, someone physically enters the vehicle and manually drives it within the lot. A smart, automated solution would reduce finished vehicle labor costs, limit damage to vehicles and ensure employee safety.
Seoul Robotics is taking a revolutionary approach to bring autonomy to finished vehicle logistics. It’s called Level 5 Control Tower (LV5 CTRL TWR). Here’s how it works:

INFRA-BASED PERCEPTION

Instead of individual autonomous vehicles equipped with sensors, computers and software, this game-changing technology guides vehicles from the surrounding infrastructure. 3D sensors are installed throughout a facility, ensuring that every vehicle is detected by at least two sensors at all times. This detection redundancy eliminates all blind spots on every vehicle.
CLOUD

Through the cloud, a safe path is determined for every autonomous vehicle, from its origin to its destination. LV5 CTRL TWR can detect, classify and track other vehicles and pedestrians, as well as predict their movement. The system updates every one tenth of a second to determine the location of all vehicles with 99.9% accuracy and a maximum deviation of 4cm.

WIRELESS CONTROL

LV5 CTRL TWR controls the car and takes the wheel using either local 5G or 4G networks that are standard on vehicles today, or other low latency V2X systems. The system sends encrypted control commands to the designated vehicle, resulting in Autonomy through Infrastructure. Now, thousands of non-autonomous vehicles can be driven autonomously, as long as they are connected to the LV5 CTRL TWR grid.

POWERED BY 3D PERCEPTION

LV5 CTRL TWR is powered by SENSR, Seoul Robotics' powerful perception platform. SENSR is an extremely robust and accurate 3D vision platform for LiDAR and 3D sensors. SENSR enables data from hundreds of sensors to be simultaneously fused, calibrated and processed with deep learning AI in real time, providing the localization information of all cars, personnel and physical entities within the LV5 CTRL TWR’s coverage area.
SAFETY
With multiple sensors placed on the infrastructure, the system can see around corners, ensuring zero blind spots for every vehicle. This capability reduces accidents, mitigates damage to vehicles and provides a safer environment for employees. In addition, each layer of software and hardware contains multiple fail safe systems.

OPERATIONAL EFFICIENCIES
LV5 CTRL TWR allows organizations to streamline their complex logistics operations by optimizing their processes, people and technology to realize gains in output. Autonomous vehicle capability enables a 24/7 logistics operation with the ability to move thousands of vehicles simultaneously without human involvement. Entire factories can be redesigned to maximum efficiency and increase space utilization by 20%.

COST EFFECTIVE
Investing in LV5 CTRL TWR technology is crucial to improving production costs and increasing overall profitability. OEMs can reduce finished vehicle logistics costs by over 70%. Because the technology is integrated into the infrastructure, no retrofitting of any vehicle is required. OEMs can expect a return on investment within two years.
LV5 CTRL TWR has massive potential to fuel autonomous mobility beyond the finished vehicle logistics market and transform operations for a wide range of commercial and public logistic applications and settings:

- VEHICLE DISTRIBUTION CENTERS
- CAR RENTAL COMPANIES
- USED CAR AUCTION SITES
- AUTONOMOUSLY NAVIGATED PARKING
- PUBLIC TRANSIT
- TRUCK AUTOMATION
- FORKLIFT AUTOMATION
- WAREHOUSE & ROBOT AUTOMATION
Founded in 2017, Seoul Robotics is a 3D perception solutions company using deep learning AI to power the future of mobility. The company’s 3D perception platform creates accurate 3D models of the world in real time and provides unrivaled object detection, classification and tracking of vehicles, bicycles and pedestrians. The patented technology makes sense of 3D data to increase accuracy, efficiency and ensure safety across a range of industries and applications including autonomous vehicles, smart cities, smart factories, security, ITS, retail, venues and much more. The company’s software platform is sensor-agnostic and compatible with nearly all commercially available LiDAR and 3D sensors.

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