Keep On Trucking: SenSen Harnesses Drones, NVIDIA Jetson, Metropolis to Inspect Trucks

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Sensor AI solutions specialist SenSen has turned to the NVIDIA Jetson edge AI platform to help regulators track heavy vehicles moving across Australia.

Australia's National Heavy Vehicle Regulator, or NHVR, has a big job — ensuring the safety of truck drivers across some of the world's most sparsely populated regions.

They're now harnessing AI to improve safety and operational efficiency for the trucking industry — even as the trucks are on the move — using drones as well as compact, portable solar-powered trailers and automatic number-plate recognition cameras in the vehicle.

That's a big change from current systems, which gather information after the fact, when it's too late to use it to disrupt high-risk journeys and direct on-the-road compliance in real time.

Current license plate recognition systems are often fixed in place and can't be moved to areas with the most traffic.

NHVR is developing and deploying real-time mobile cameras on multiple platforms to address this challenge, including vehicle-mounted, drone-mounted and roadside trailer-mounted systems.

The regulator turned to the Australia-based SenSen, an NVIDIA Metropolis partner, to build these systems for the pilot program, including two trailers, a pair of vehicles and a drone.

"SenSen technology helps the NHVR support affordable, adaptable and accurate road safety in Australia," said Nathan Rogers, director of smart city solutions for Asia Pacific at SenSen.

NVIDIA Jetson helps SenSen create lightweight systems that have low energy needs and a small footprint, while being able to handle multiple camera streams integrated with lidar and inertial sensors. These systems operate solely on solar and battery power and are rapidly deployable.

NVIDIA technologies also play a vital role in the systems' ability to intelligently analyze data fused from multiple cameras and sensors.

To train the AI application, SenSen relies on NVIDIA GPUs and the NVIDIA TAO Toolkit to fast-track the AI model development using transfer learning by refining the accuracy and optimizing the model performance to power the object-detection application.

To run the AI app, SenSen relies on the NVIDIA DeepStream software development kit for highly optimized video analysis in real time on NVIDIA Jetson Nano- and AGX Xavier-based systems.

These mobile systems promise to help safety and compliance officers identify and disrupt high-risk journeys real time.

This allows clients to get accurate data reliably and quickly identify operators who obey road rules, and to help policymakers make better decisions about road safety over the long term.

"Using this solution to obtain real-time heavy vehicle sightings from any location in Australia allows us to further digitize our operations and create a more efficient and safer heavy-vehicle industry in Australia," said Paul Simionato, director of the southern region at NHVR.

The ultimate goal: waste less time tracking repeat compliant vehicles, present clearer information on vehicles and loads, and use vehicles as a mobile intelligence tool.

And perhaps best of all, operators who are consistently compliant can expect to be less regularly intercepted, creating a strong incentive for the industry to increase compliance.

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