

# 2025

## Fire and Rescue Innovation

### Demonstration Project: Real-Time Fire & Victim Detection

**Innovator:** Longan Vision Corp.

**Product:** Fusion Vision System (FVS)

**Demonstration Period:** July 2, 2025



## Executive Summary

The City of Vaughan is testing leading-edge technology to evaluate how innovative solutions can address real-world mobility and transportation challenges.

Through the Ontario Vehicle Innovation Network (OVIN) Demonstration Zone, Long Vision Corp tested their augmented reality Fusion Vision System (FVS) to evaluate their solution in firefighting and search and rescue scenarios with low visibility and limited signal connectivity.

The OVIN Demonstration Zone is an initiative that is part of Vaughan's Transportation Innovation Program (TIP), which aims to test smart mobility solutions in real-world environments. This demonstration was completed in partnership with Vaughan Fire and Rescue Service and Emergency Planning Department.

### The Innovator

Longan Vision Corp. (Longan Vision) is a cutting-edge technology company specializing in augmented reality (AR) solutions designed to enhance situational awareness and safety. Founded seven years ago from McMaster University's Startup Program, Longan Vision has become a global pioneer in developing AR tools for first responders, particularly firefighters.

The flagship product, the Fusion Vision System (FVS), integrates AR displays with thermal imaging sensors to provide critical real-time data, improving operational efficiency and safety during emergency situations.

### Demonstration Overview

The demonstration took place on July 3, 2025, across two locations: the Vaughan Joint Operations Centre and the Expo 5 CG Tower underground parking garage in the Vaughan Metropolitan Centre (VMC). A live, emergency situation was simulated at Vaughan Fire and Rescue Service's fire tower training facility to stress test the Future Vision System in a live, operational environment.

Three FVS units were deployed during the demonstration, mounted on firefighters' helmets. The devices were tested to evaluate the effectiveness of improving visibility in low-visibility situations and to gain insights into the potential benefits of the system's features in improving the detection of heat sources to identify and recover victims or locate heat sources. The demonstration was constructed for two scenarios, which were the primary and secondary tests:

1. **Thermal Vision Test:** Conducted in a smoke-filled fire tower to assess visibility and heat detection in a fire tower (Vaughan's training facilities).
2. **Connectivity Test:** Conducted in an underground parking garage to evaluate signal strength in a low-coverage area in the Vaughan Metropolitan Centre.

The connectivity test was evaluating an auxiliary metric in the demonstration. The mesh network for Longan Vision's Fusion Vision System is in-development, and provided the Project Advisory Team insights on the current status of the technology's ability to potentially improve communications in environments with connectivity barriers.

A command center was established to monitor live feeds from the devices, simulating real-time coordination during emergency response. This ground control unit was present to evaluate the overall quality of live footage from both tests.

## Key Outcomes

Firefighters noted that the FVS increased helmet weight and bulk, however, the hands-free design was seen as beneficial for search and rescue operations.

Mesh communication capabilities were mentioned but not conclusively tested during the demonstration – as this was an auxiliary test for the scope of the demonstration.

Key outcomes include:

- The Fusion Vision System successfully provided clear thermal imaging in low-visibility conditions.
- All three Fusion Vision System units were exposed to live fire testing at elevated temps in Vaughan's Fire Tower.
- The Future Vision System transmitted videos of the thermal image during each test of the demonstration.
- Communications network between the helmets and the mobile command centre was successful up to one and a half stories underground.
- Devices continued to function effectively in offline mode when connectivity was lost.
- Firefighters reported improved situational awareness and operational safety.
- The Project Advisory Team provided insights to Longan Vision on usability and comfort for product improvement
- The demonstration provided the City with insights on how augmented reality technologies could be potentially incorporated into operations, and allowed for an understanding of how it affects our best practices
- Longan Vision had an opportunity to create collaborative marketing materials to support the commercialization of their product

## Exclusions

Demonstration projects through the OVIN Demonstration Zone are temporary and limited in scope and duration due to the time constraints of the OVIN Demonstration Zone program. The project evaluated key features of Longan Vision's Fusion Vision System, as determined by the Project Advisory Team.

The devices were tested in a partially simulated situation to evaluate the technology in a safe and controlled operational environment.

## Conclusions and Recommendations

The demonstration validated the Fusion Vision System (FVS) as a promising tool for enhancing emergency response. It aligns with Vaughan's objectives to investigate future mobility and leverage data for smarter, safer city operations. Continued collaboration with innovators like Longan Vision will strengthen Vaughan's position as a leader in smart city development.

Recommendations for the product include: further flexibility to the design of the Future Vision System, for example, easier installation or removal of the device, and better integration with different types of helmets.

Demonstration Zone Project Profiles: [www.vaughanbusiness.ca/demozone/projects](http://www.vaughanbusiness.ca/demozone/projects)