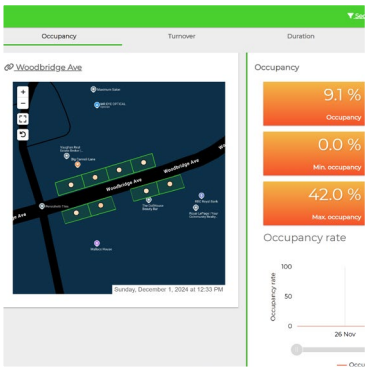
Demonstration Zone

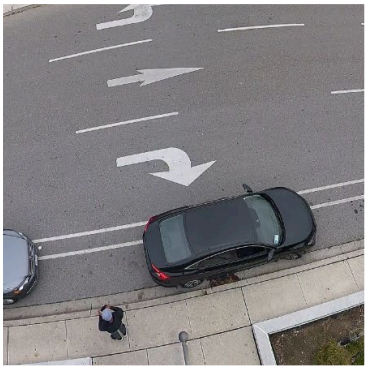
2024

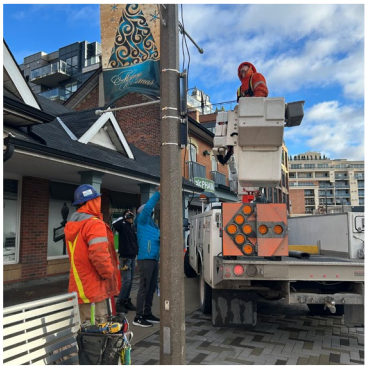
Parking Detection Innovation

Demonstration Project: Real-Time Parking Detection

Innovator: Loop Parking Inc.
Product: ParkVue
Demonstration Period: November 15, 2024 – February 25, 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, Loop Parking Inc. tested its ParkVue video analytics platform to evaluate its ability to detect parking occupancy and violations using real-time footage from cameras analyzing on-street parking activities.

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's By-Law and Compliance, Licensing and Permit Services** team.

The Innovator

Loop Parking Inc. (Loop Parking), a company operating for approximately four years, has developed ParkVue – a video analytics platform that uses AI to detect parking occupancy and violations using real-time footage from street or lot-mounted cameras. The system is designed to support municipalities and private operators in improving parking compliance, optimizing enforcement resources, and providing real-time parking availability data to the public.

Demonstration Overview

Two demonstration test sites were selected for this project. At both locations, cameras were temporarily installed to monitor on-street areas with coverage for 4-6 vehicles. The ParkVue system successfully captured and analyzed observed parking activity, providing real-time data on occupancy and violations. The demonstration confirmed the system's ability to provide data that could support proactive enforcement and improve visibility into parking patterns. The Loop Parking demonstration test sites were located at:

1. Millway Avenue at Highway 7 (Vaughan Metropolitan Centre): To monitor a no-stopping zone in front of a transit station and assess the system's ability to detect illegal parking in real-time.
2. Woodbridge Avenue (west of Islington Avenue): To monitor parking stalls in a timed parking zone within a retail area to evaluate the system's ability to detect time-of-use violations.

Key Outcomes

The ParkVue system successfully demonstrated its ability to detect parking violations and monitor occupancy in real-time.

- Loop Parking detected 482 overtime violations and 4,609 no-parking violations over 31 operating days.
- 482 vehicles committed overtime parking violations at on-street parking stalls at the Woodbridge location.
- Parking Availability Index (PAI) at the Woodbridge location was measured as Moderate.
- 4,609 violations were detected in the no-parking zone in front of the Vaughan Metropolitan Centre (VMC) transit station.

- An average of 148 violations was reported daily in front of the VMC, with 216 recorded as the highest day.
- The demonstration effectively evaluated the flexibility of the ParkVue solution to discern different conditions for parking violations (with examples of no-parking zones and timed parking stalls).
- The Loop Parking dashboard (Parquery) showcased its ability to configure settings to export report information.
- The Project Advisory Team successfully received notifications of violation activities by a Parquery-generated email.
- The Project Advisory Team provided insights to Loop Parking on municipal operations for routine parking violation practices.
- The demonstration provided the City with insights on how AI-powered detection solutions could be potentially incorporated into operations, and allowed for an understanding about how it affects our best practices.

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 Loop Parking's solution, as determined by the Project Advisory Team.

The demonstration did not include testing of automated violation issuance, as this would require additional infrastructure and changes to Ontario's regulatory framework.

Conclusions and Recommendations

The demonstration confirmed the potential of ParkVue to modernize municipal parking management. While automated ticketing via license plate recognition was not tested, the system's real-time data capabilities can already support enforcement teams and inform parking policy and infrastructure planning.

The demonstration was developed to include specific parameters for the restricted parking zones. ParkVue required about a month to train its system on the new parameters at one location but successfully demonstrated its ability for flexible monitoring constraints. This system is meant for long-term installation, and the calibration period should be calculated for any potential adoption schedule.

The demonstration provided insights to the City of Vaughan on how cameras and software analysis could monitor different conditions for behaviours for on-street parking. The scope of the project included evaluating the ParkVue system to detect parking capacity for dedicated timed spots and violations in no-parking zones. Further testing would be required to evaluate the effectiveness of other monitoring features in the software solution.

This technology could significantly improve a municipality's ability to enforce parking regulations and optimize municipal enforcement resources. The system offers a scalable solution for municipalities, and the solution may reduce traffic congestion, improve enforcement efficiency, and enhance the parking experience for drivers.

Loop Parking Inc. is encouraged to develop standardized camera specifications and mounting guidelines to support broader deployment. Partnerships with Ontario-based Intelligent Transportation Systems (ITS) or electrical contractors could more effectively enable turnkey solutions to conveniently provide service for municipalities.

To fully activate this technology on municipal infrastructure, regulatory updates would be required to enable automated enforcement. A future demonstration project is recommended to evaluate the system's performance with both high- and low-mounted cameras and to assess its effectiveness in issuing automated citations.

Demonstration Zone Project Profiles: www.vaughanbusiness.ca/demozone/projects