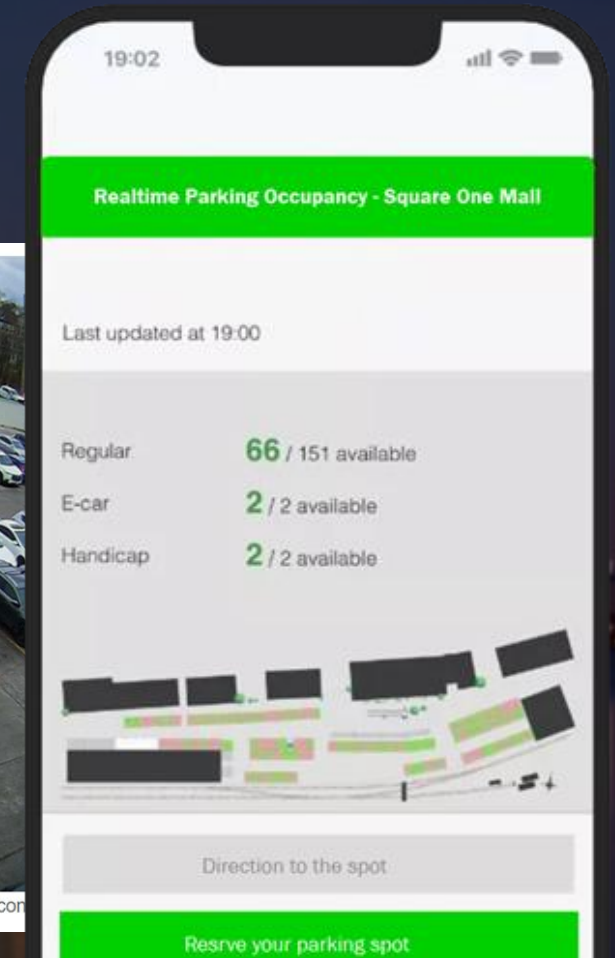


# ParkSense +: AI Parking Detection System

For City of Brampton



Steeson Mathew



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[Info@LoopParking.ca](mailto:Info@LoopParking.ca)



# Problems



Parking is very expensive



Hard to find empty parking spots



Increase in parking violations, due to high parking demand



Looking for on-street parking leads to High Traffic Congestion



Increase in Bike Lane Parking Violation





# Problems

## Increase In Bike Lane Parking Violation

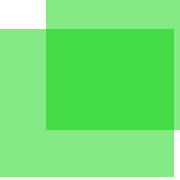


Credits - Barry Lavelle





# Problems



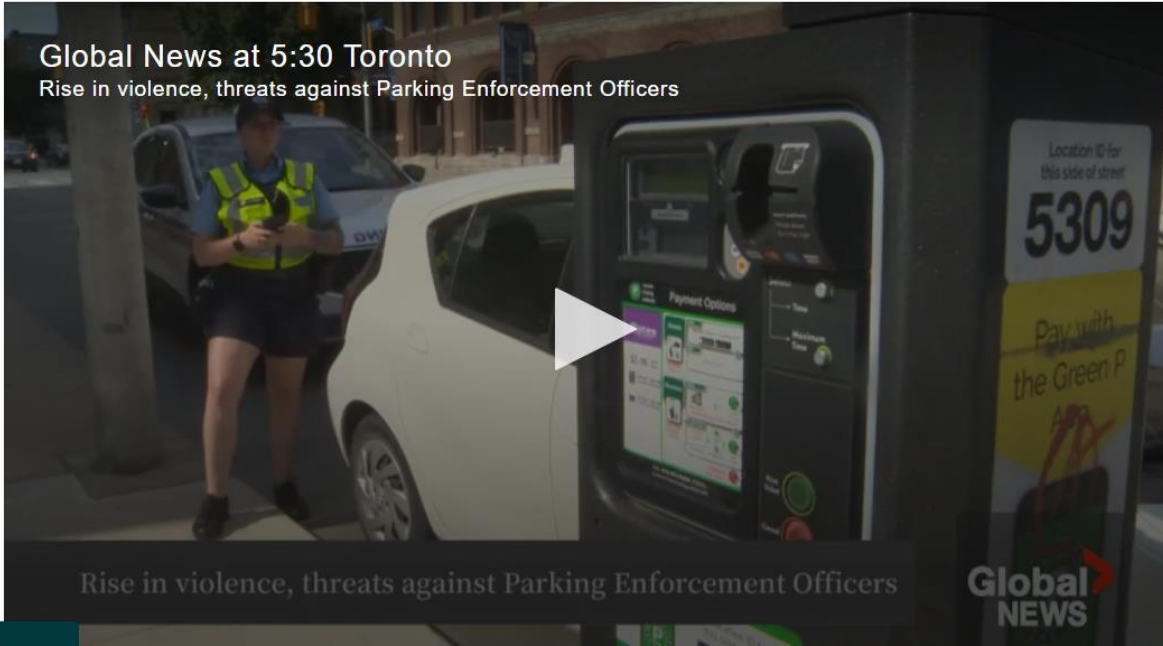
## Increase in hate crime against parking enforcement officers

### Toronto parking enforcement officers experience rise in violence, threats



By Erica Vella · Global News

Posted July 20, 2023 3:44 pm · Updated July 20, 2023 6:10 pm



Global News at 5:30 Toronto  
Rise in violence, threats against Parking Enforcement Officers

Rise in violence, threats against Parking Enforcement Officers



### Toronto man charged after allegedly trying to run down parking enforcement officer



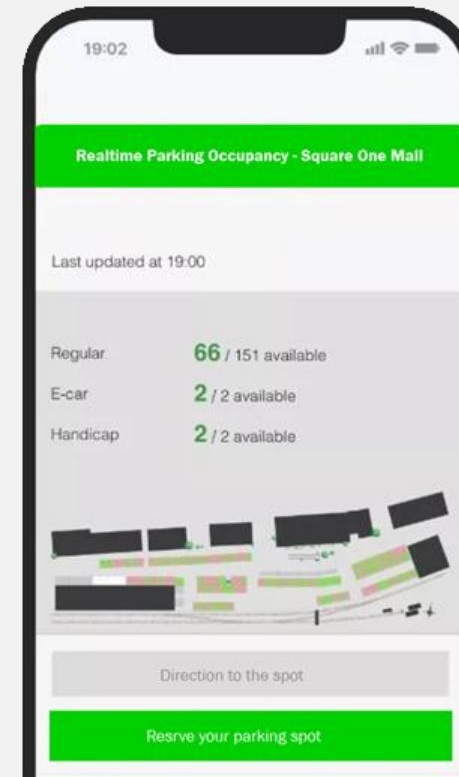
# ParkSense+ : AI Curbside Parking Detection System



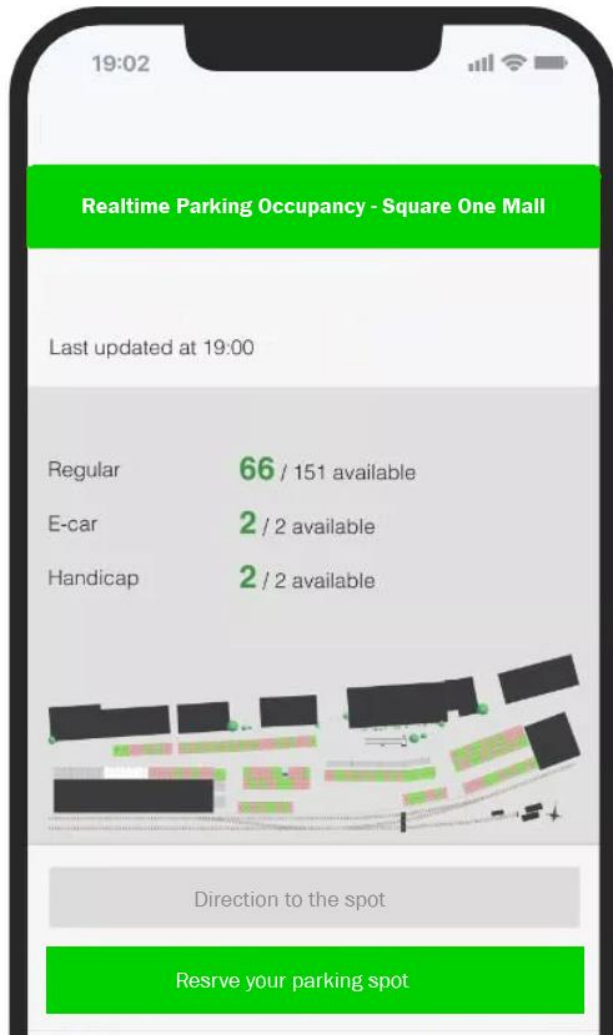
- ✓ Real-Time Parking Detection System
- ✓ Overtime & illegal parking detection - Bike Lane Parking
- ✓ Historical Datas & Insights can be very helpful for future Planning

## Benefits of AI Curbside Vehicle Detection System

- ✓ Real Time Parking Occupancy Data
- ✓ Reduce search time
- ✓ Reducing traffic congestion & Co2 emission
- ✓ Can able optimize parking usage



## Solutions



Users can plan their commute, which will reduce the traffic

- ✓ With real-time availability of parking, for On-Street & Off-Street commuters can plan their commute
- ✓ Commuters can able to reserve parking spots as well.
- ✓ Navigate commuters to the exact parking spots.



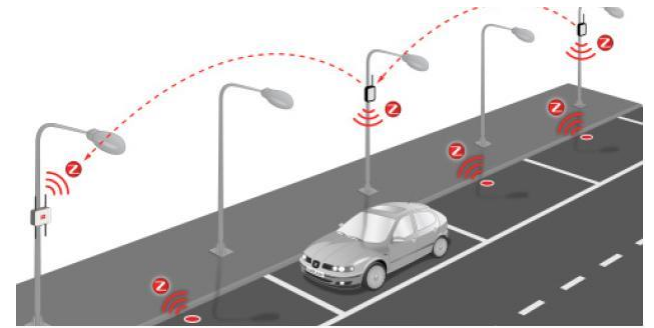
# Case Study – Comparison – ParkSense+ vs Ground Sensors

For 230 Parking spots

- Setup Cost for ground based sensor : \$ 90,000
- Setup Cost for ParkSense+ : \$ 15,000  
**Saving nearly \$75k, Six times cost savings**



V/S



Less Cost, More Reliable



Easy to Install



Expensive , Less Reliable

# Add benefits over sensors



- ✓ Cost effective – Using Regular IP cameras
- ✓ No Need for civil work with ease of Installation
- ✓ Can use existing CCTV & IP cameras to cut the cost
- ✓ New IP cameras ? Cost can be shared
- ✓ Unlike ground sensors, No obstruction for Snow removal
- ✓ Less Maintenance work



[Click Here For Live Demo](#)



Real-time data



Fully privacy-compliant



Automatic real-time alerts



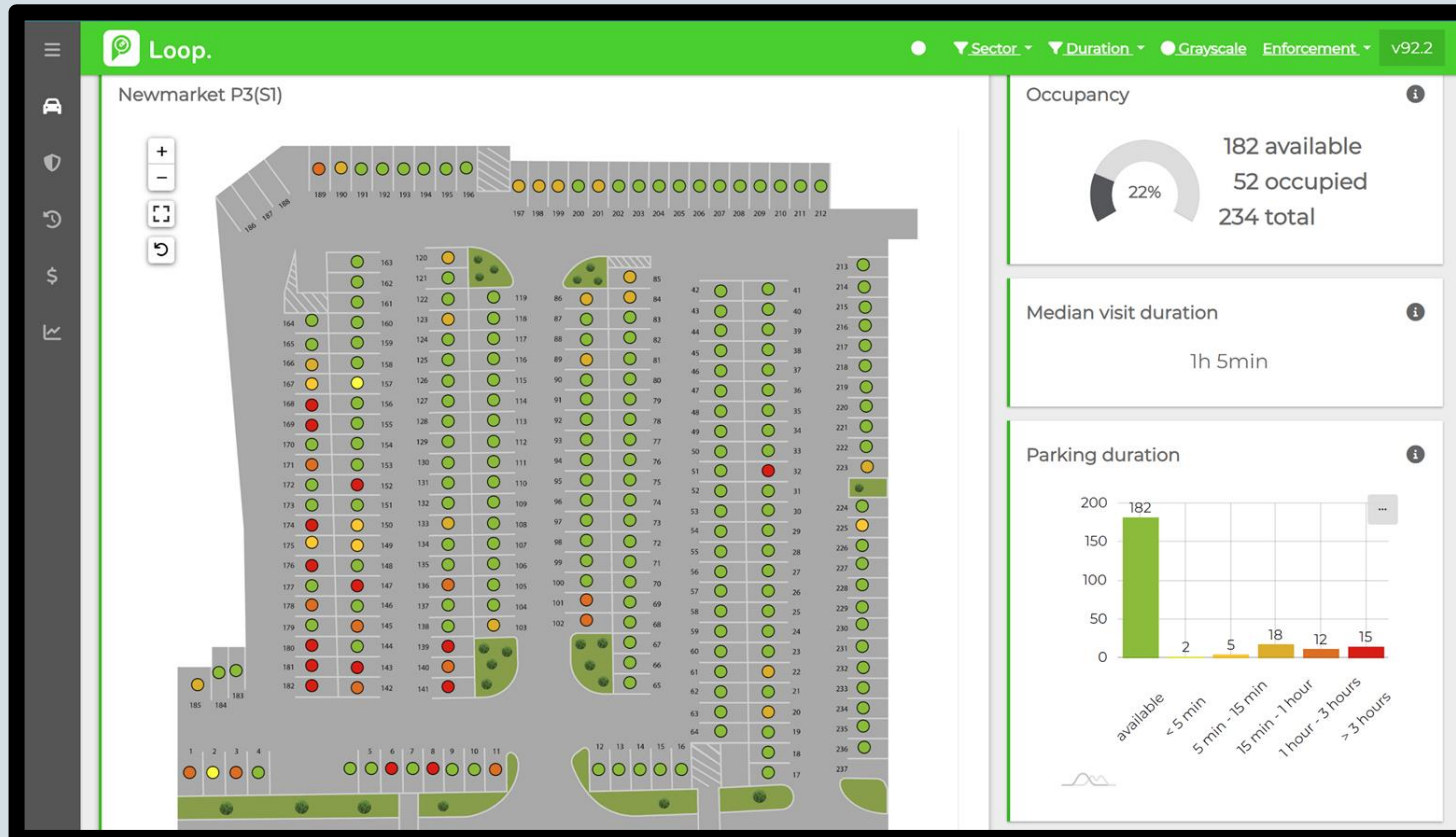
Insights  
historical statistics



License Plate Recognition

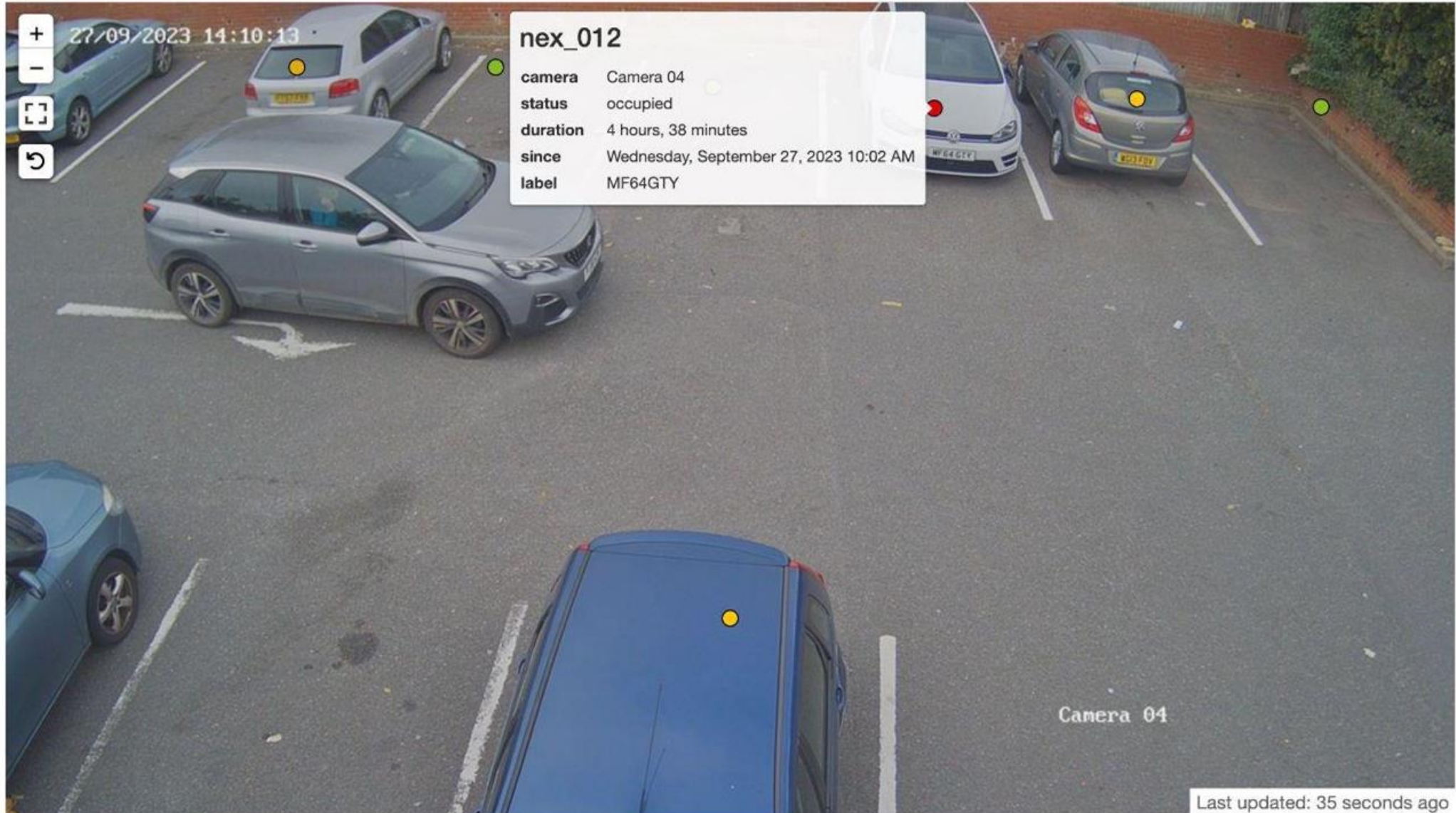


Evidence for Issuing Citations



# License Plate Recognition - Capability - New feature

Camera 04





# Ask



We are eager to collaborate with City of Brampton on a pilot project, showcasing the transformative capabilities of ParkSense+

Supported By



Featured On



# Making Parking Affordable & Sustainable

Join us in our  
Journey



Loop Parking

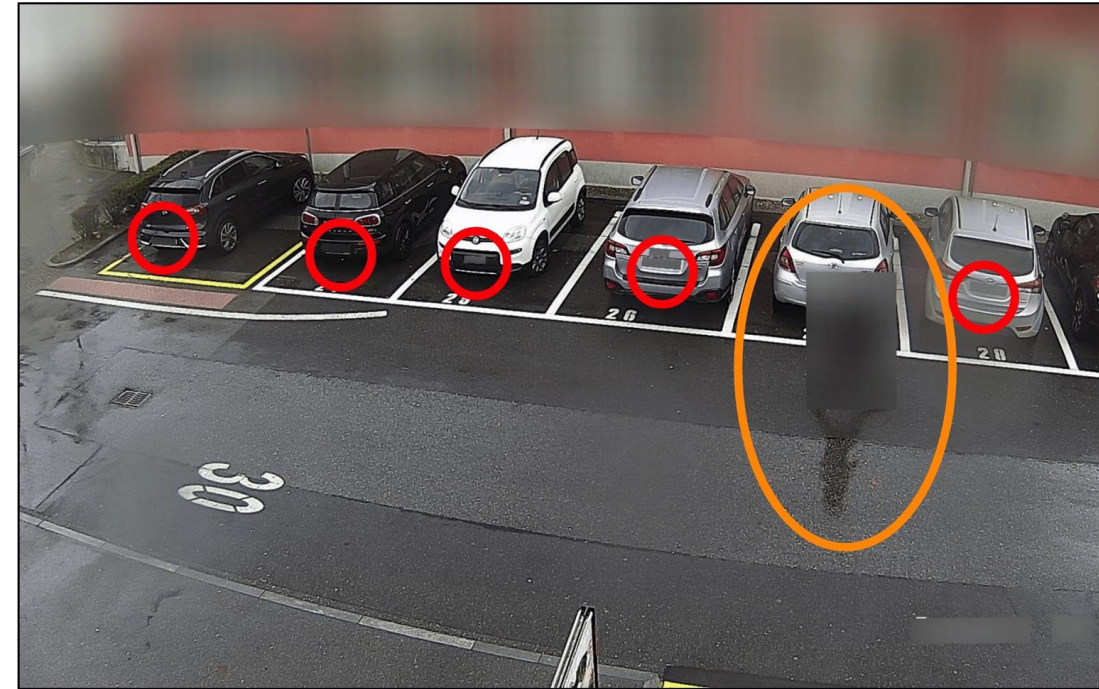


[Info@loopparking.ca](mailto:Info@loopparking.ca)



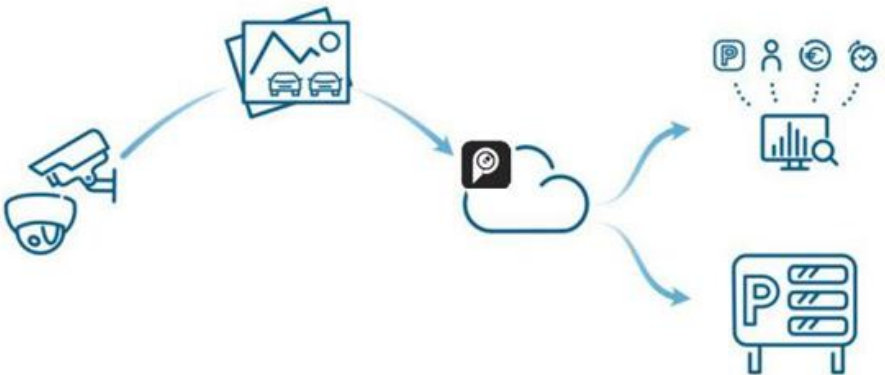
Both, On-premise & cloud analysis comply

- ✓ We do not store any images.
- ✓ We automatically delete images after processing.
- ✓ Our solution automatically blurs pedestrians & vehicle number plates before image analysis to ensure data remains anonymous.
- ✓ If analyzed on-premise, the images do not leave the customer's premises but are processed and analyzed on a server on-site.

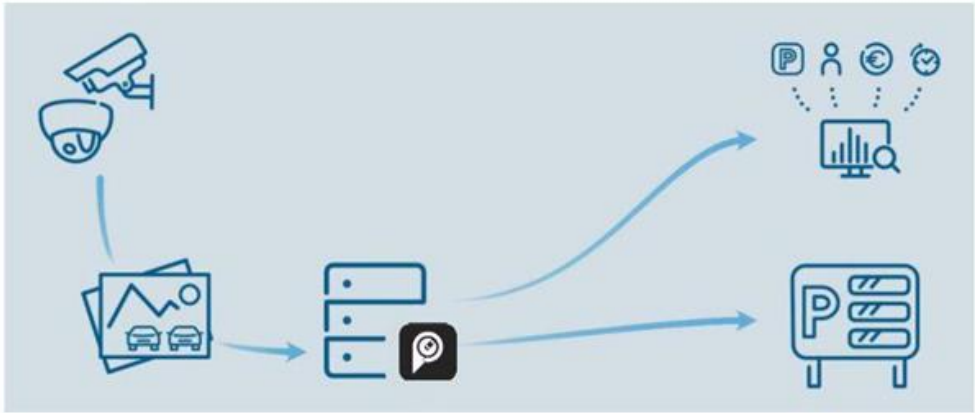


# Server Options

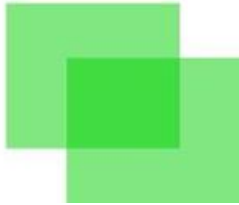
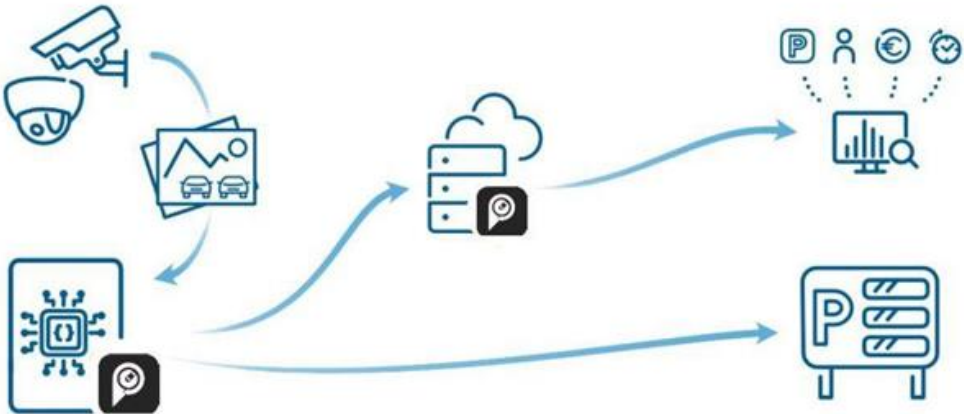
### Directly From IP Camera - Cloud Processing



### On-premise – Processing using Server

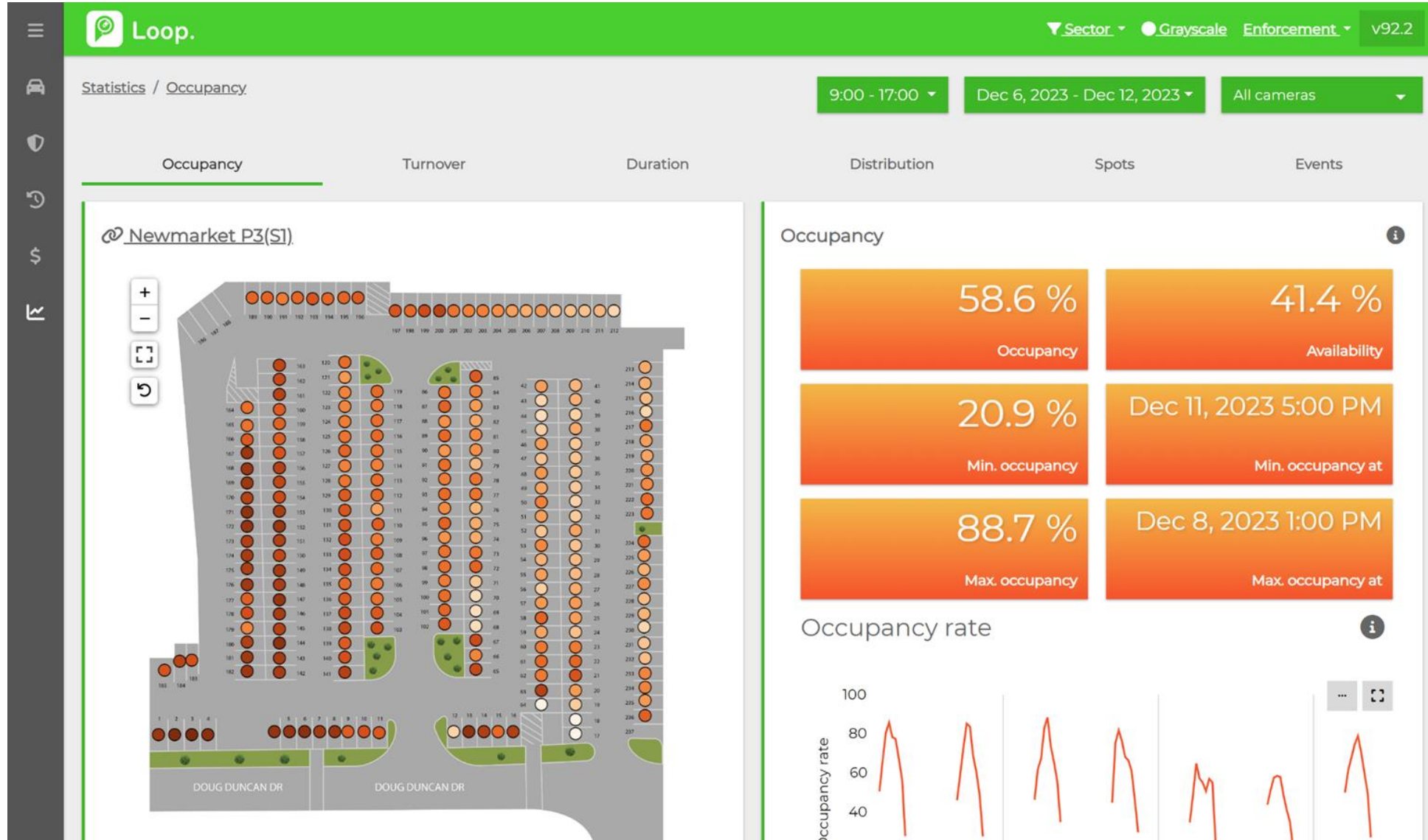


### On the edge – Processing in edge



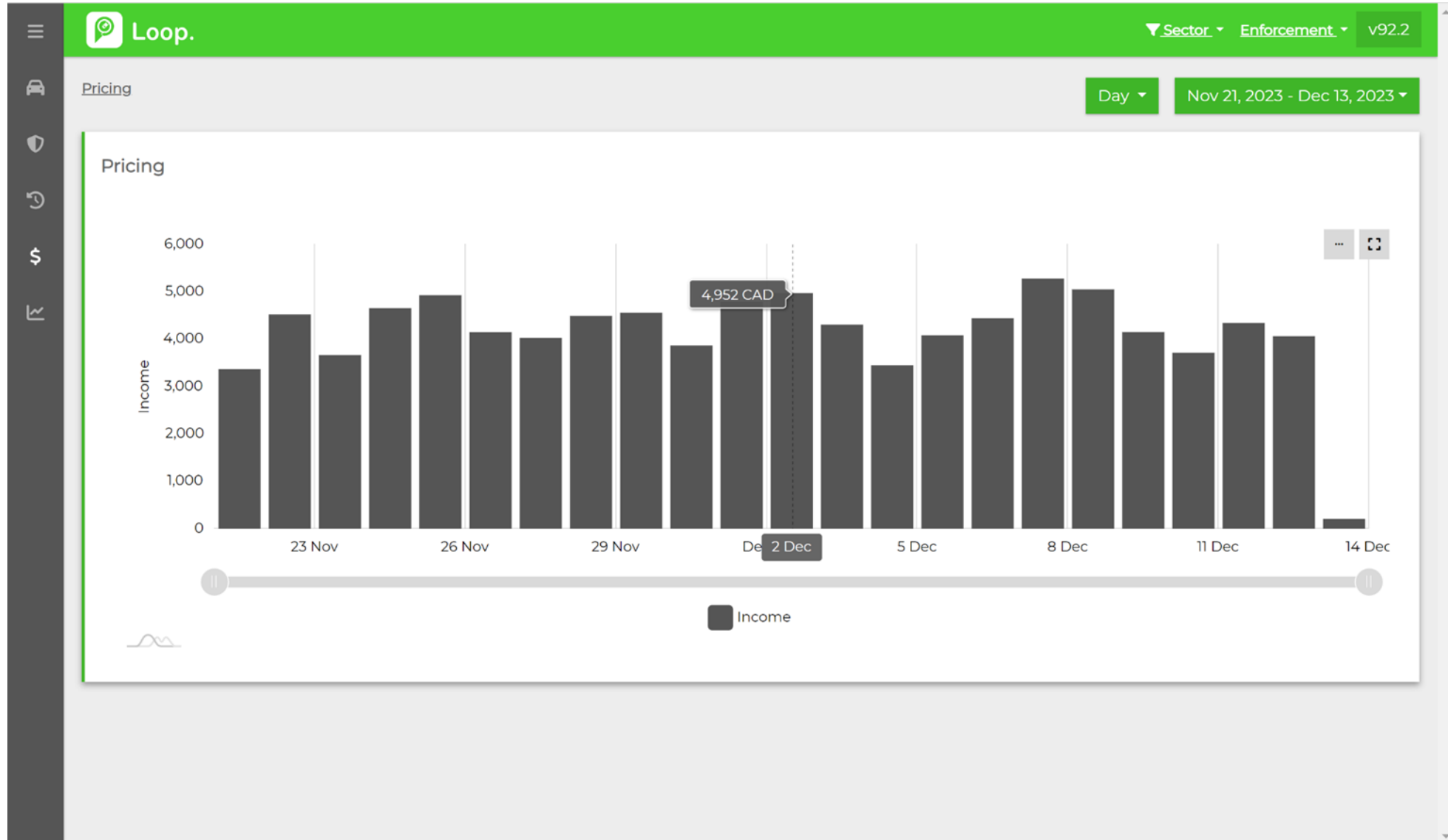


Screenshot from Town of Newmarket pilot project dashboard



# Potential Revenue Generation - If \$1/Hr

Screenshot from Town of Newmarket pilot project dashboard





# Violations - Overnight Parked Vehicles



Screenshot from Town of Newmarket pilot project dashboard

Loop.

Enforcement / Newmarket P3(SI)
10 hours

[Newmarket P3\(SI\)](#)

Last updated: 33 seconds ago

ec2-3-99-44-123.ca-central-1.compute.amazonaws.com/thenewmarket/parking/?spot...

141	15h 31min			
185	15h 28min			
140	14h 14min			
5	13h 52min			
137	13h 40min			
3	12h 3min			








# ParkSense+ Performs well during Winter

loopparking-2280





# App Screenshots

-  Reserve Spot
-  IoT Sensors
-  Real Time Occupancy Data
-  SpotSwap
-  Integrated Parking Management Software
-  In App Payment
-  Optimized Route

