

# Hamilton Enhanced Parking App<sup>1</sup>

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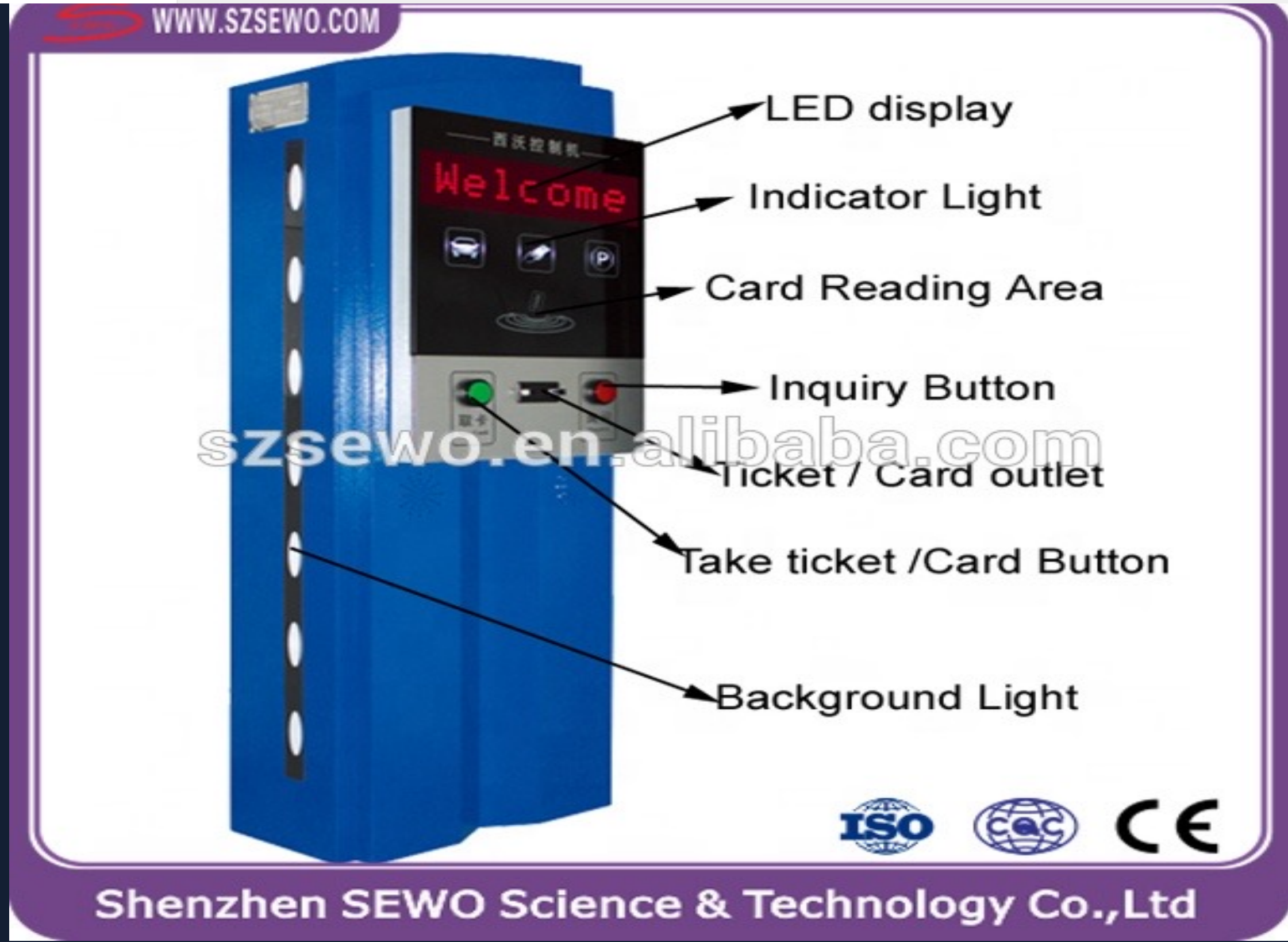
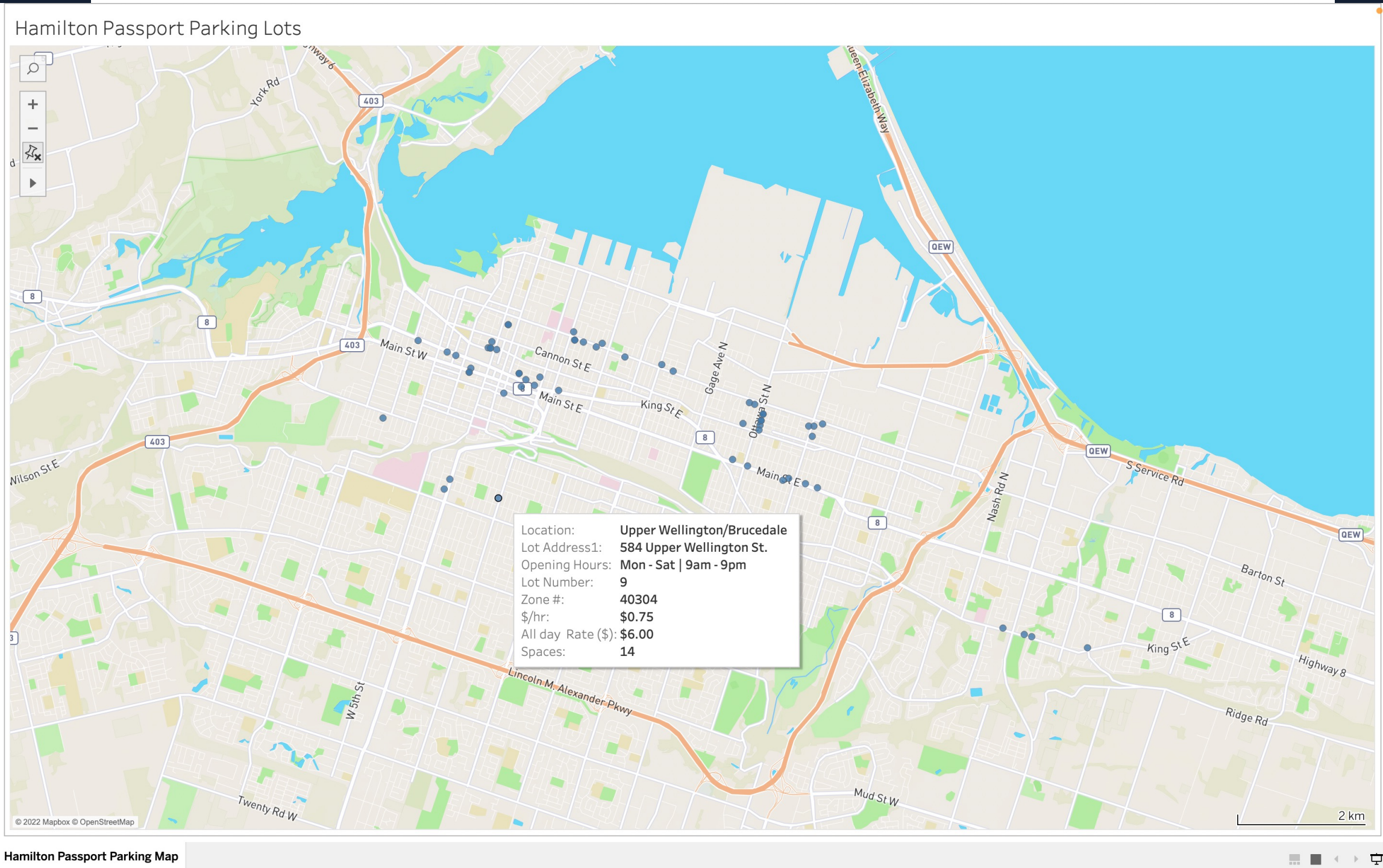
## PROBLEM <sup>2</sup>

Is it worth to use AI sensors for the municipal parking?

## HYPOTHESIS

Enhancing the current mobile Passport Parking will make it more user friendly

- 1. Parking lots' map<sup>3</sup>
- 2. Parking spots availability
- 3. New AI Gate Sensors, Scanners, and Cameras linked to Application <sup>4</sup>



## PROCESS<sup>2,5</sup>

### CITY OF HAMILTON

Step 1: Collect Transponder Deposit

Step 2: Set-up Cameras & Sensors

Step 3: Link Sensors to App

Parking App Development

Step 4

Link Parking lot map to App Upgrade existing App with map

Step 5

Write algorithm: Input Gate sensors Output parking spot counts

Step 6

Add new algorithm features to App Partner with Ontario government to get authorization for checking license plate

Parking Patrons

Choice 1:  
Transponder  
\$50 Deposit

Choice 2:  
No Transponder  
\$10 Camera  
charge / visit

## Enhanced Parking App

### Discussion



FINANCING

- Cost of the transponder rental
- Camera fees



PAYMENT

- Transponder
- Camera



SECURITY

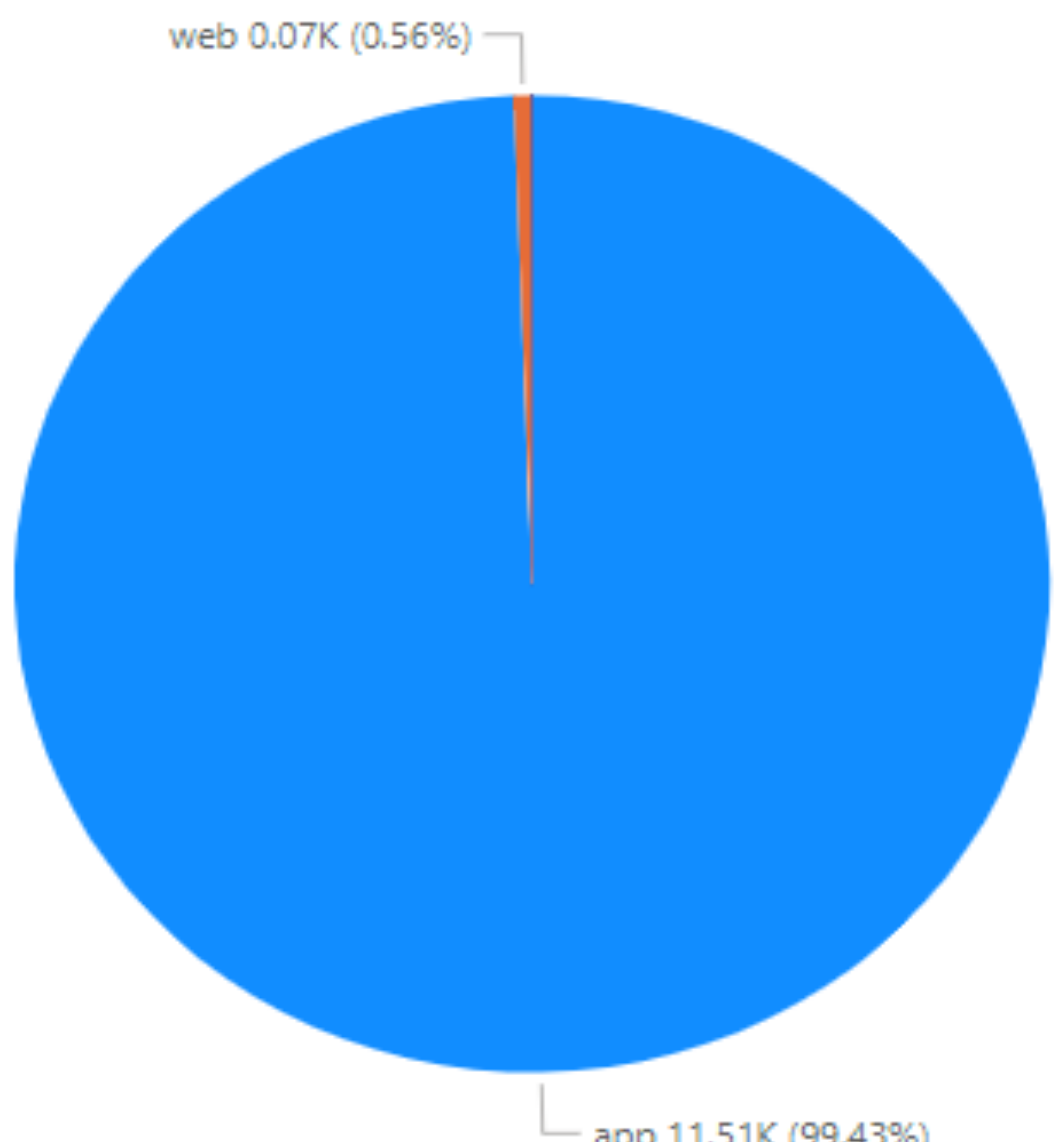
- Camera



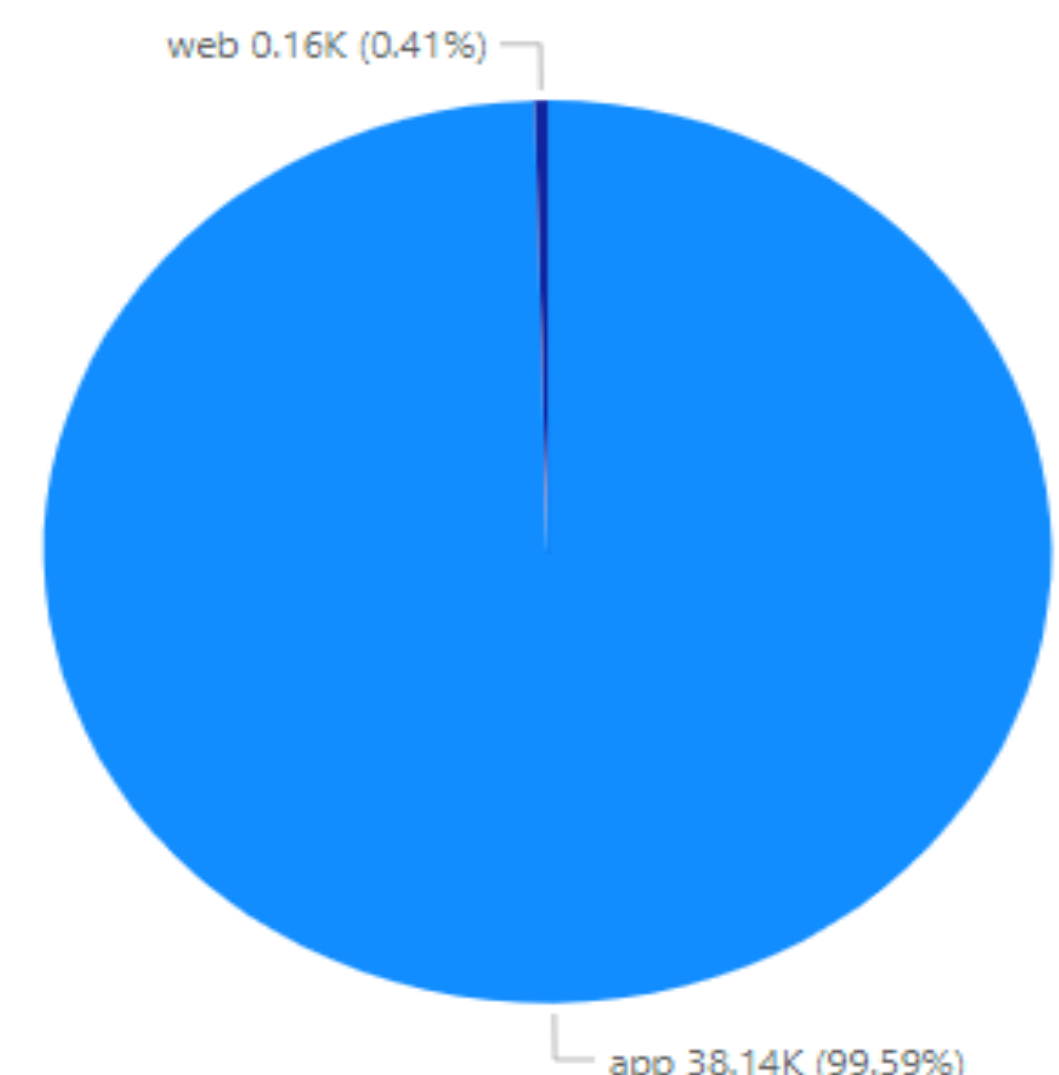
PRE-BOOK SPACE

1. Pre-book on App
2. Pay
3. Get Barcode
  - On App
  - Print
4. Scan at gate
5. Full parking lot: will not open
6. Encourage pay-first

Method Of Payment 2020



Method Of Payment 2021



## RESULTS & CONCLUSIONS

We find that it is worth to place AI sensors in each of the municipal parking lot.

- Over 99% of parking patrons already use the App to pay.
- New features are more user-friendly.
- "Park first, pay later" System is convenient
  - Hamilton: Do not need to be the bad guy
    - Camera and transponder keep track of vehicles in & out.
    - No more parking loathers: It's fair, everyone get charged the same way --- Bills send to them afterwards.
  - Patrons: Worry free
    - Do not need to keep track of time.
    - Do not need to check if they have brought enough money to pay.
- The transponder deposits and camera charges will offset the costs for AI camera and sensors.

## REFERENCE

1. 2022 University of Illinois Board of Trustees. (2022). *Research Poster Template*. <https://publicaffairs.illinois.edu/resources/research-poster-template/>
2. Mohawk College. (2022 January). *Higher Education Analytics Data Competition March 24th - 25th, 2022, Protected: 2022 Data Links*. <https://datacompetition.mohawkcollege.ca/2022-data-links/>
3. City of Hamilton. (2018 – 2022). *Municipal Parking Lots*. [https://open.hamilton.ca/datasets/d56d996d4725499da2a5555aa5e5b651\\_5/explore?location=43.275400%2C-79.863650%2C12.65](https://open.hamilton.ca/datasets/d56d996d4725499da2a5555aa5e5b651_5/explore?location=43.275400%2C-79.863650%2C12.65)
4. Alibaba.com. (1999-2022). *RFID Card and Barcode Ticket Auto Pay Machine Car Parking Management System*. [https://www.alibaba.com/product-detail/RFID-Card-and-Barcode-Ticket-Auto\\_60525400896.html](https://www.alibaba.com/product-detail/RFID-Card-and-Barcode-Ticket-Auto_60525400896.html)
5. Canadian Centre for Economic Analysis. (2019 July). *Economic Impacts of Hwy 407 ETR: Implications for Travellers, Transportation and Prosperity*. <https://www.cancea.ca/sites/economic-analysis.ca/files/CANCEA%20407%20ETR%20FINAL%20REPORT%20-%2020200115.pdf>