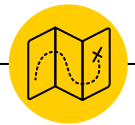
Oral Presentation 2
SwiftMap



Akarsh Singhal Hwang Wei Ju Hitansh Bhatt

Our Team

Hitansh Bhatt

ECE

William Wei Ju

ECE

Akarsh Singhal

ECE

Presentation Structure

1

INTRODUCTION

Core Message

2

M3 & M4 RESULTS

Discussion about M3 and M4 results

3

KEY FEATURES (VISUALIZATION)

Key features for accessibility

4

FUTURE PITCH

Team's plan to further develop the project

1

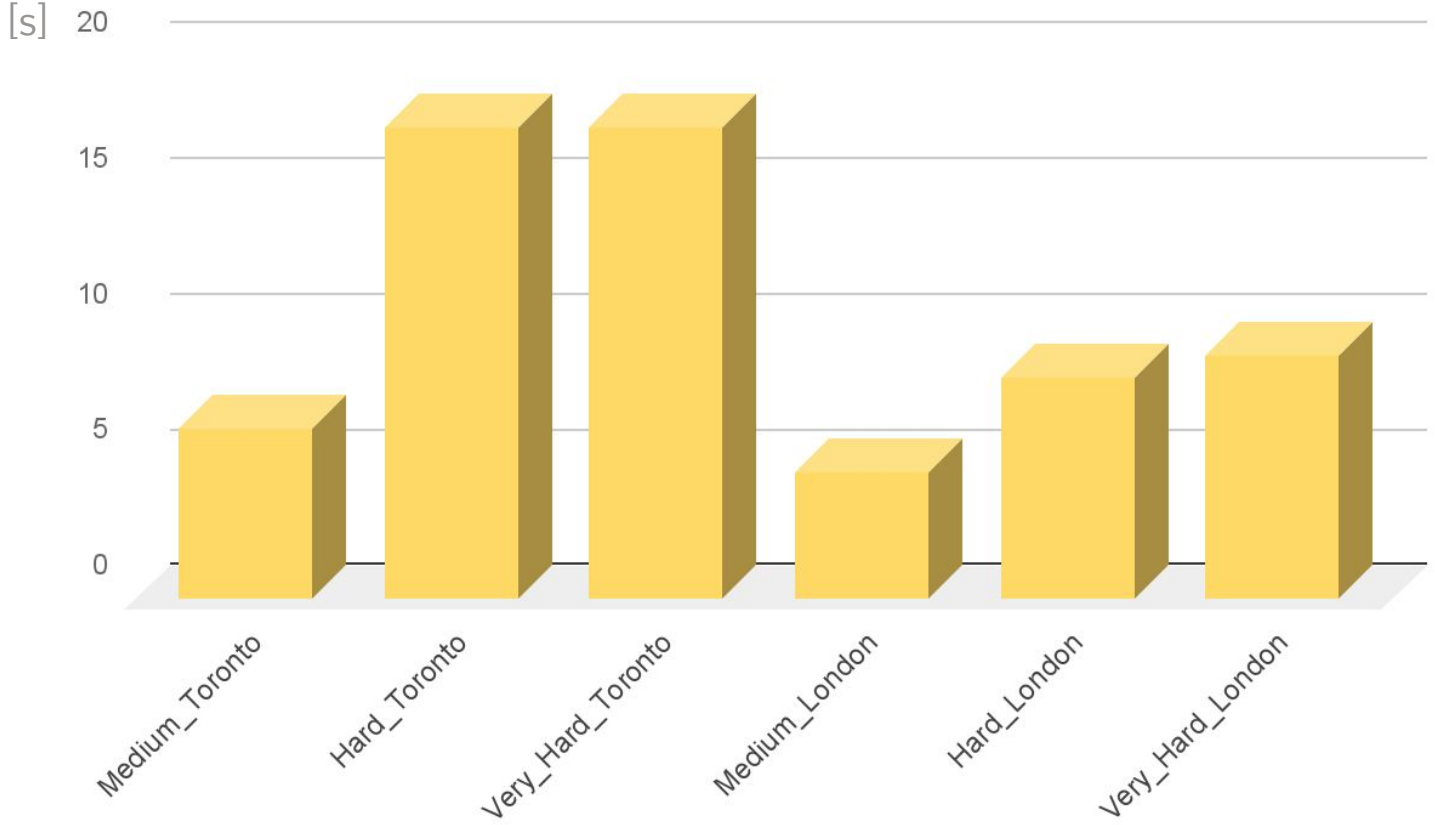
INTRODUCTION

“We're committed to creating a GIS that prioritizes inclusivity and accessibility to a diverse group of users.”

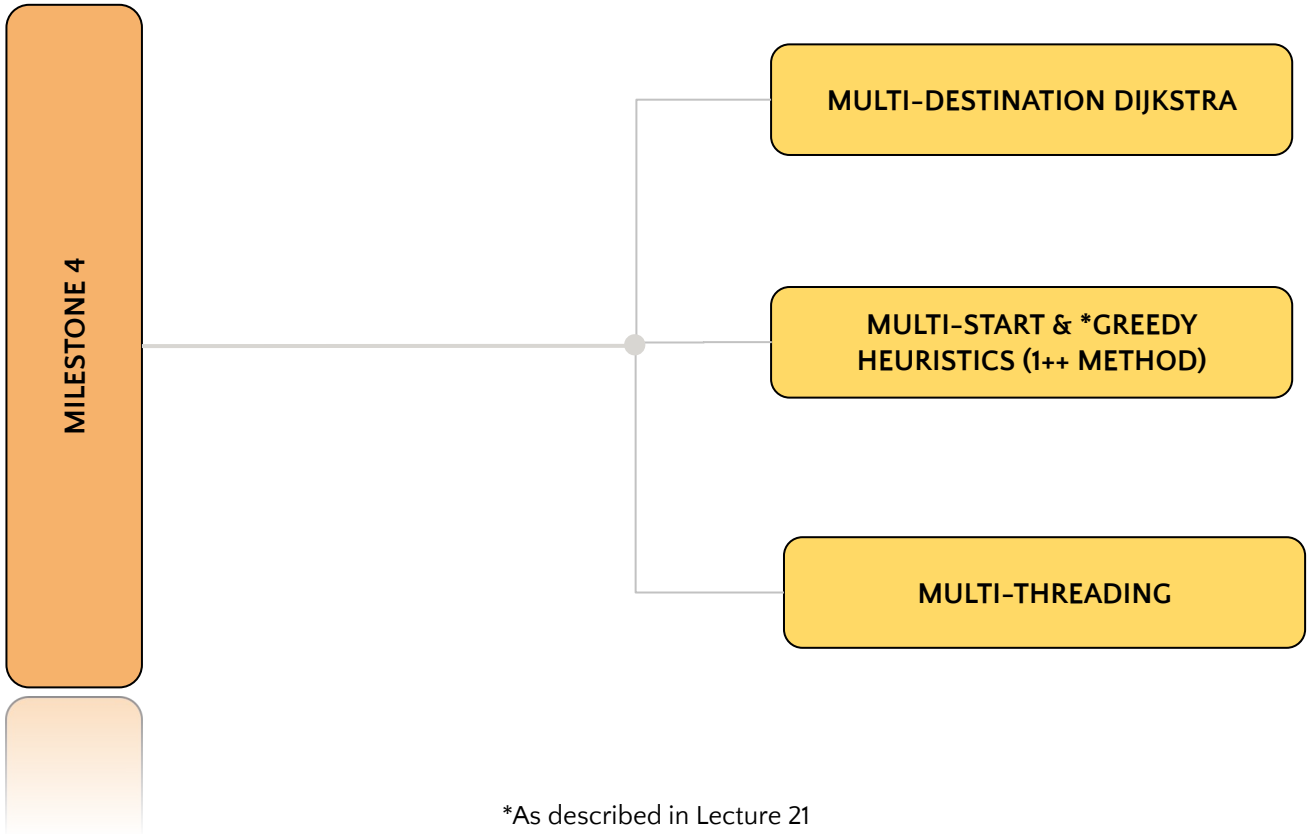
2

M3 & M4 PERFORMANCE

M3 Performance

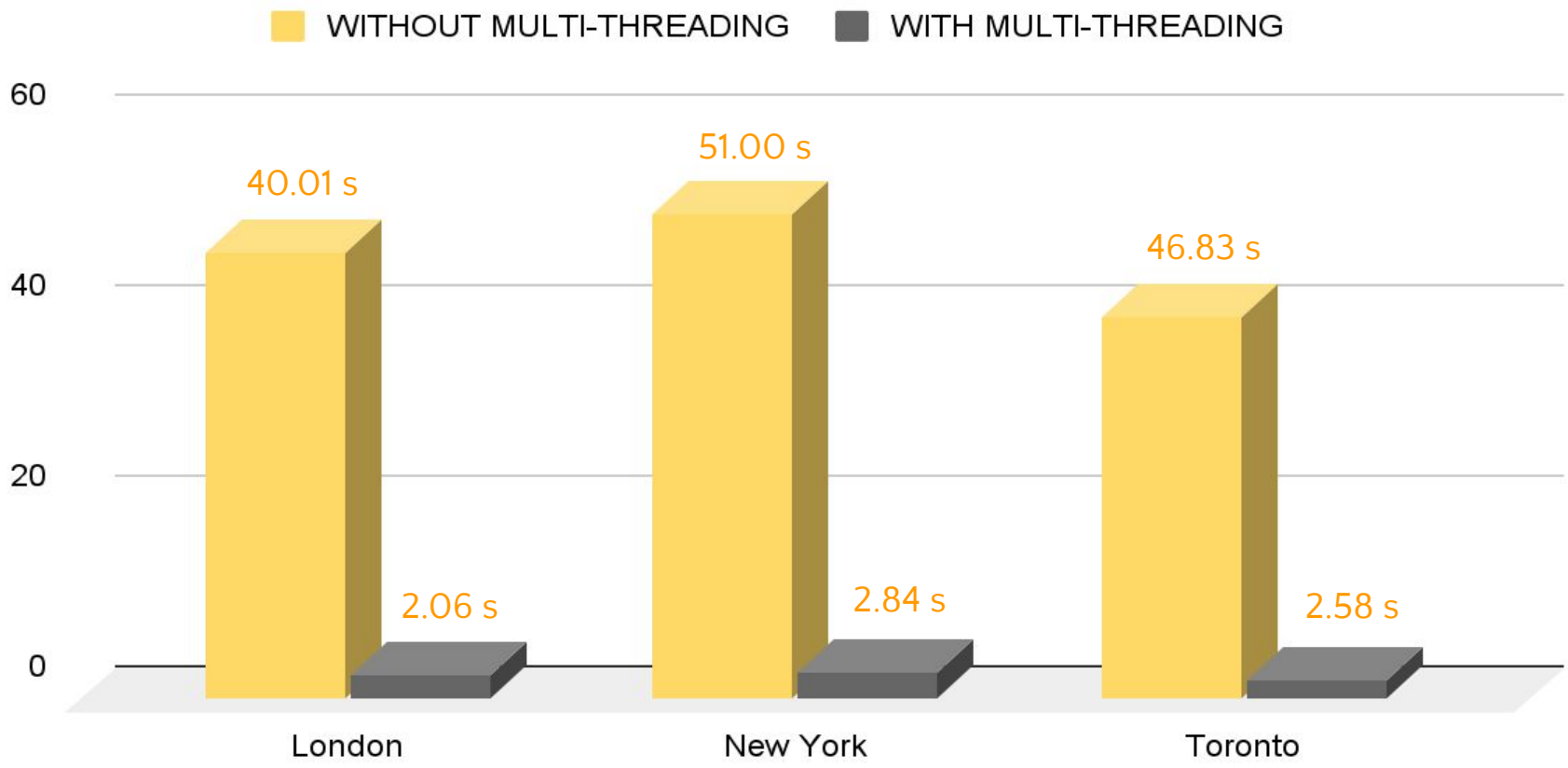


M4 Implementation



*As described in Lecture 21

M4 Performance



Note: Data for Extreme_Multi Test Cases

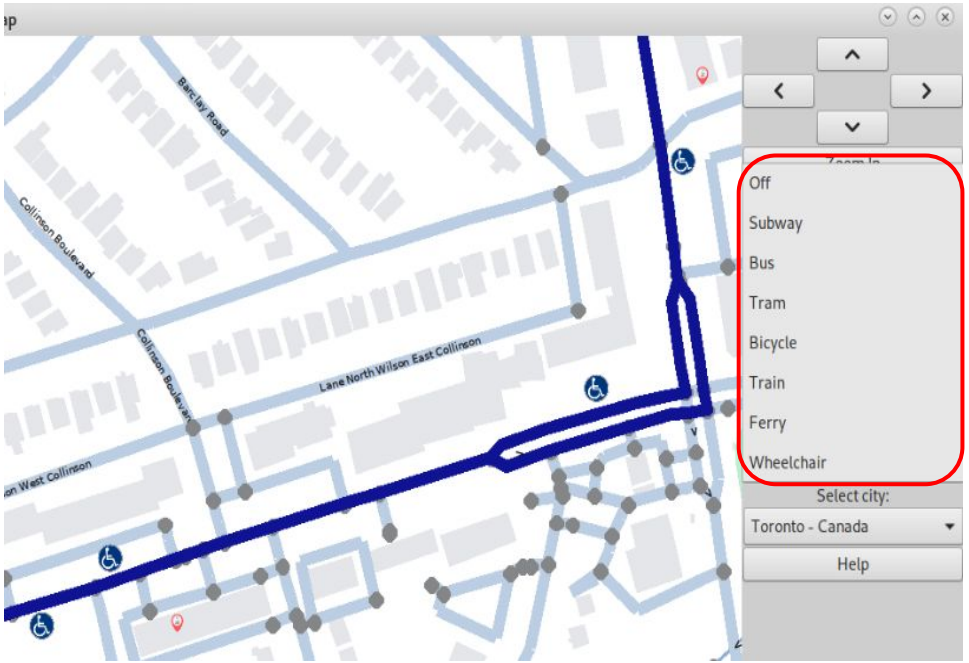
3

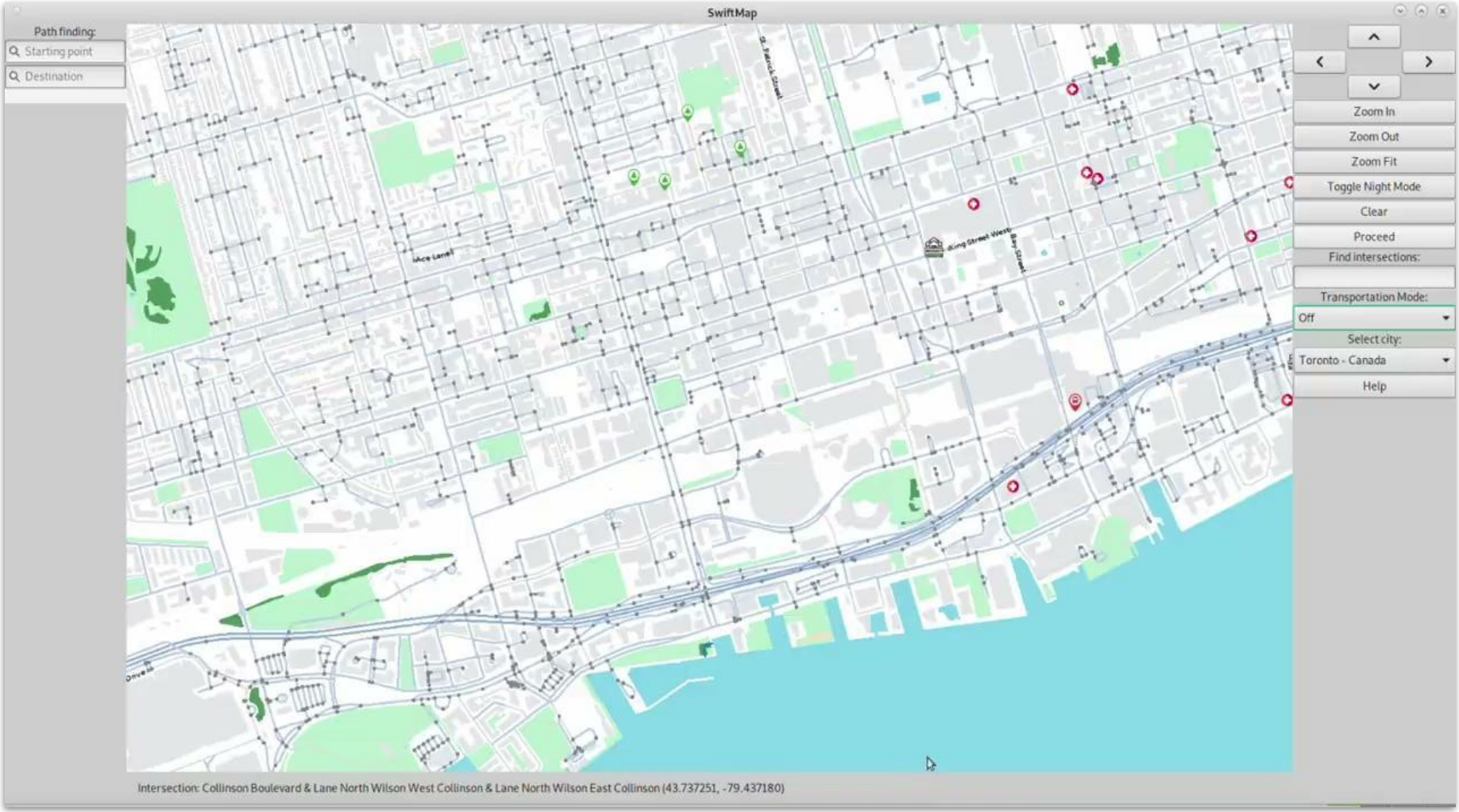
KEY FEATURES (VISUALIZATION)

- Transport Routes, Language Change, and Path Finding

Transport Routes

- Subway, Bus, Tram, Bicycle (M2)
- New features: Train, Ferry, Wheelchair
- Accessible to people with different needs and preferences
- User interface:
  - Dropdown box
  - Color code
  - POI icons

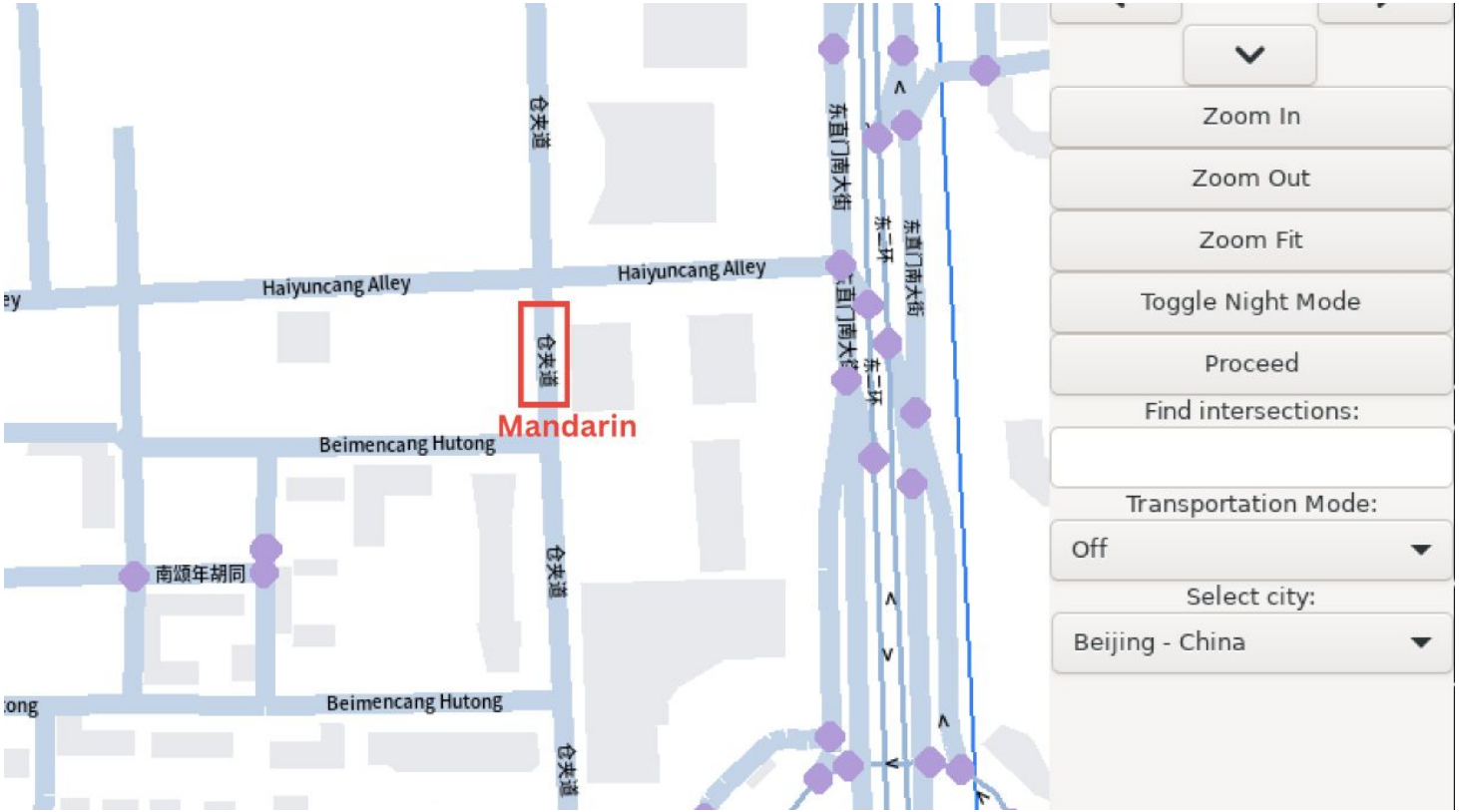



SwiftMap
Path finding:
Starting point
Destination
Zoom In
Zoom Out
Zoom Fit
Toggle Night Mode
Clear
Proceed
Find intersections:
Transportation Mode:
Off
Select city:
Toronto - Canada
Help
Intersection: Collinson Boulevard & Lane North Wilson West Collinson & Lane North Wilson East Collinson (43.737251, -79.437180)

Language Change

- Currently supported languages: Mandarin, Ukrainian, Japanese, Arabic
- Accessible to speakers of languages with different alphabets

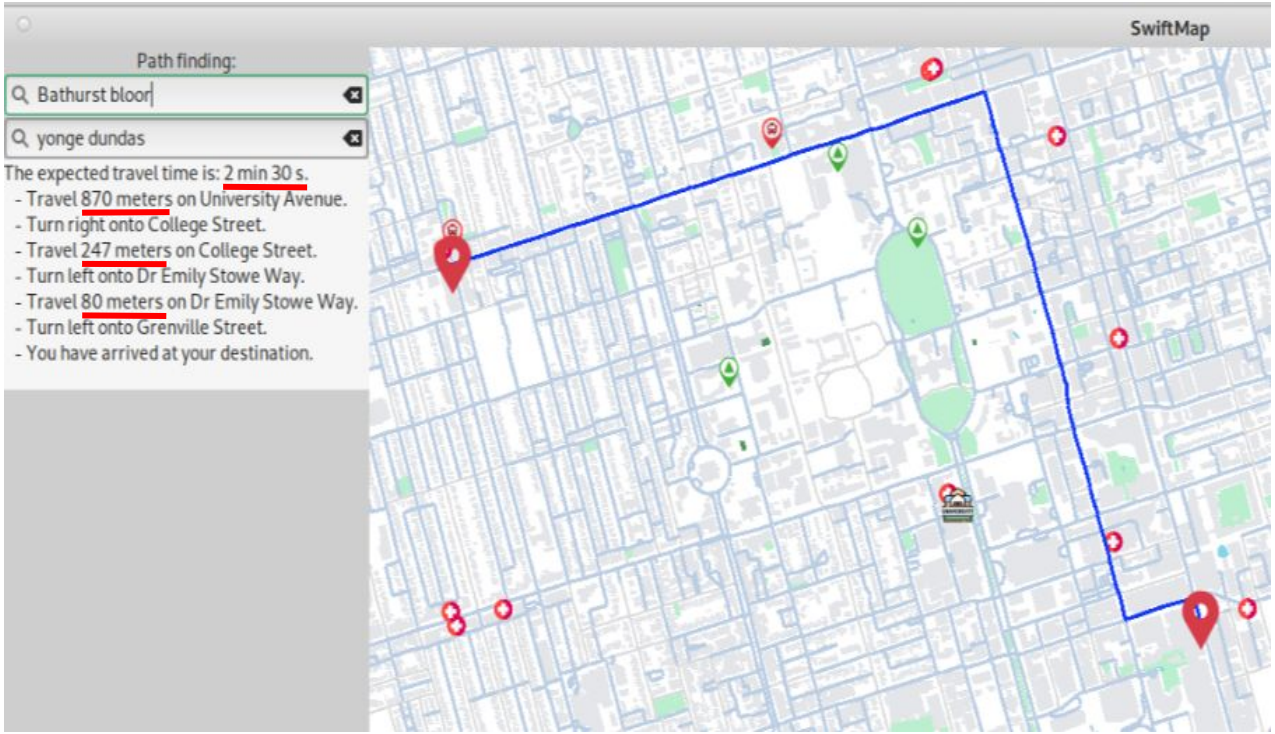
Language Change

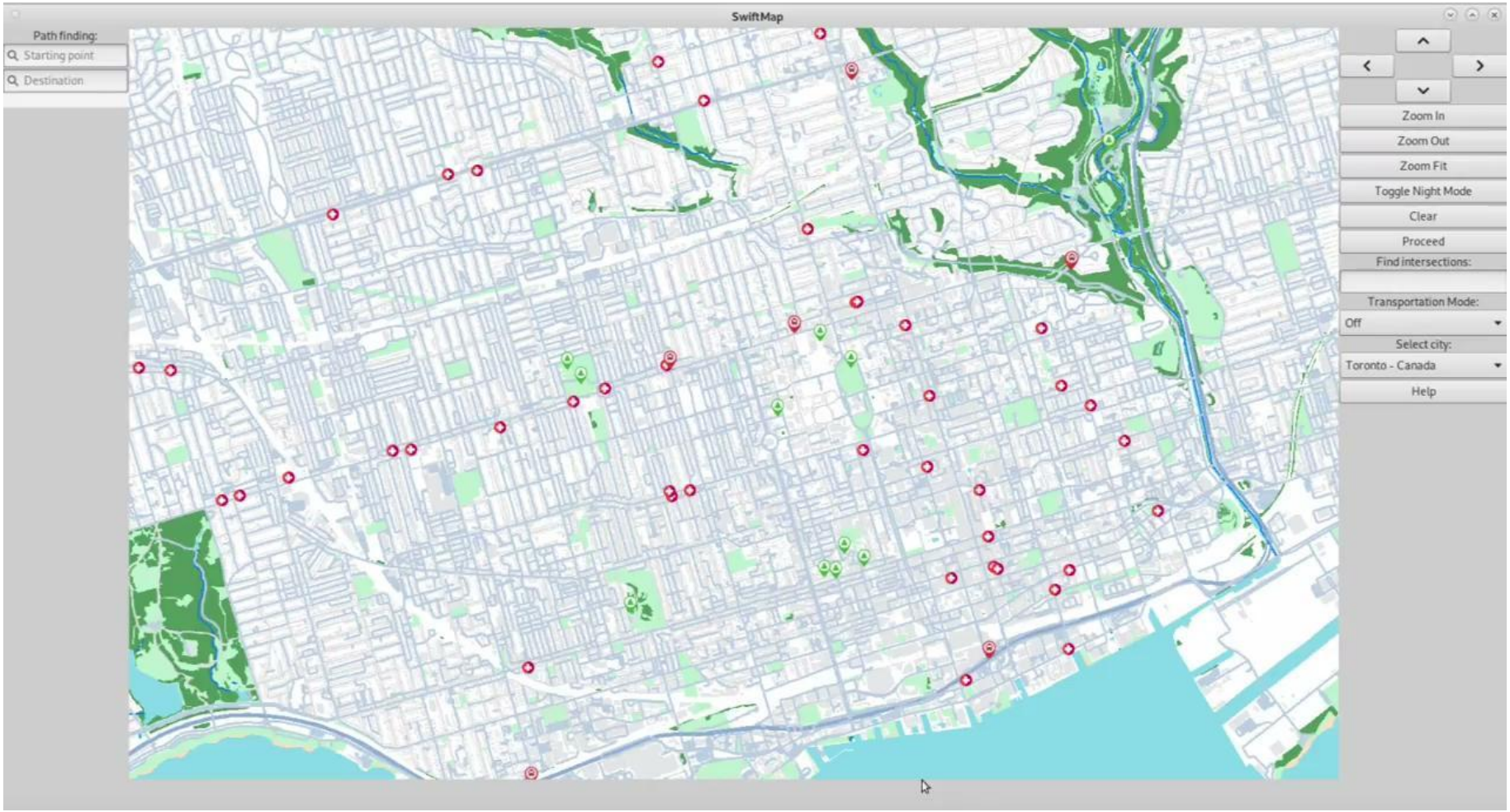


Path finding - Travel Directions

- User interface designed to be easy to use
  - Mouse click
  - Search box

- Travel guidance for users' convenience
  - Total time
  - Travel distance

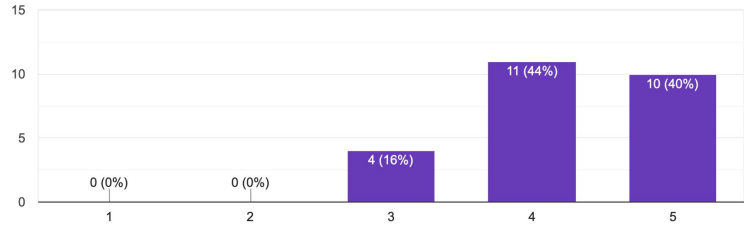



SwiftMap
Path finding:
Starting point
Destination
Zoom In
Zoom Out
Zoom Fit
Toggle Night Mode
Clear
Proceed
Find intersections:
Transportation Mode:
Off
Select city:
Toronto - Canada
Help

Survey

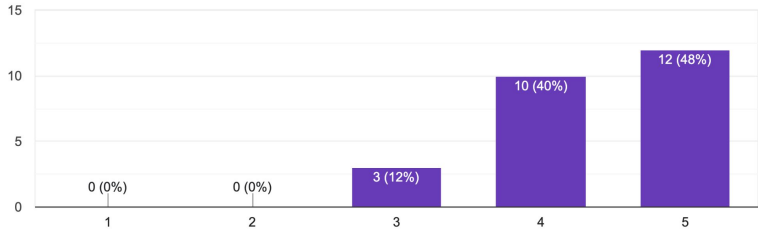
Did you find the available transport routes (bus, subway, tram, etc.) easy to locate and differentiate on the map?

25 responses



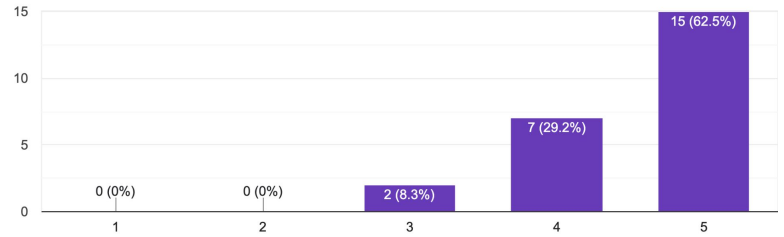
How accurately did the language change feature represent street/POI names in the language corresponding to the current location?

25 responses



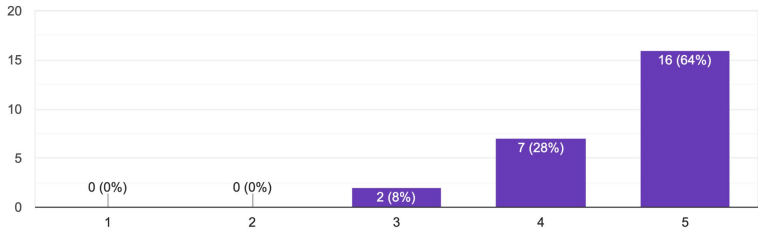
How confident are you that the path displayed as the shortest route is indeed the most efficient route to your destination?

24 responses



How difficult was it to input your starting point and destination using either the search bar or the mouse click?

25 responses



4

Pitch

SwiftMap

“Effortless Trips, Inclusive Paths: Ensuring Access for All”

Inefficient & unreliable transport for the disabled

Uncertainty in pickup & long wait times

- Average bus commuter spends **20-25 min** waiting for delays daily [1]

Long travel distances due to fixed routes

- Long travel causes discomfort and pain to people with disability

What's Currently in the Market

TTC Wheel Trans (Toronto)

- Minimum **4 hours** pre booking required [2]

Access-A-Ride (New York City)

- Minimum **1 day** pre booking required [3][4]

1,000,000,000

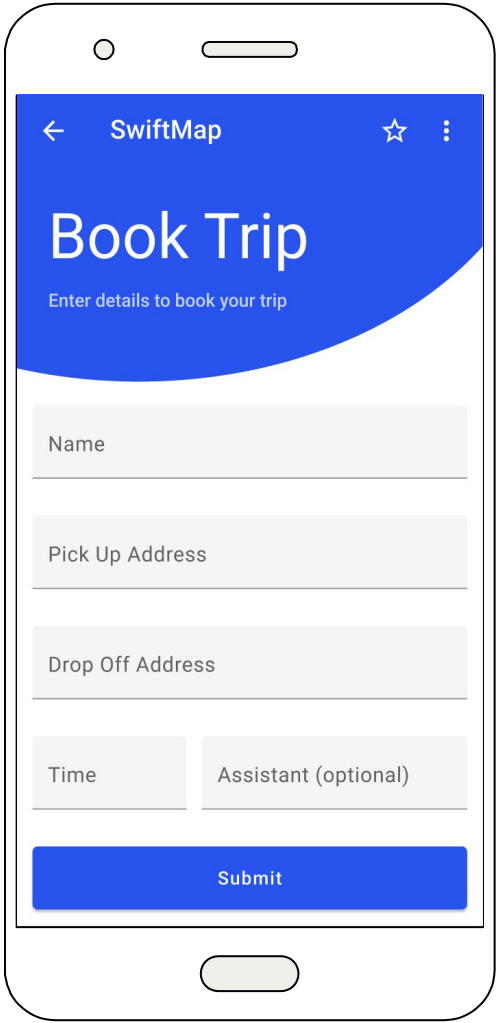
People with disabilities in the world [5]

34,000

Customers in Toronto (2022) [6]

2,200,000+

Trips in Toronto (2022) [6]

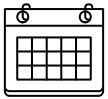

SwiftMap
Book Trip
Enter details to book your trip
Name
Pick Up Address
Drop Off Address
Time
Assistant (optional)
Submit

Stop in between
Drop off
From: 65 Example St, Toronto, ON
To: 297 Engineering St, Toronto, ON
Pick Up Time: 11:52 AM
Estimated Drop Off Time: 12:11 PM
Number of Stops: 3
Pick up

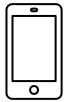
Development Plan

Integrate traveling courier algorithm

Make software available on web browser



Continuous integration & deployment



KEY TAKEAWAYS

Key Takeaways

Focus on accessibility and inclusivity

- Transport routes, Languages, and Path finding
- M3 and M4 performance
- Pitch: Development

Thank You!

Time for questions

References

- [1] T. Prajogi, ‘Analyzing TTC Delay Data to Improve Future Efficiency’, 2024.
- [2] TTC (Toronto Transit Commission), "Booking Your Trip and the Day of Your Trip," Wheel-Trans, Available: https://www.ttc.ca/wheel-trans/booking-your-trip-and-the-day-of-your-trip. Accessed: April 29, 2024.
- [3] MTA (Metropolitan Transportation Authority), "Making a Reservation and Managing Trips," Access-A-Ride, Mar. 12, 2024. Available: https://new.mta.info/accessibility/access-a-ride/making-a-reservation-and-managing-trips#. Accessed: April 29, 2024.
- [4] B. L. Kluger, "ACCESS-A-RIDE PERFORMANCE METRICS," MTA Inspector General, July 2018. Available: https://mtaig.ny.gov/Reports/18-03.pdf. Accessed: April 29, 2024.
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- [6] "Operating Statistics - 2022 - Wheel-Trans," TTC (Toronto Transit Commission), Available: https://www.ttc.ca/transparency-and-accountability/Operating-Statistics/Operating-Statistics---2022/Wheel-Trans. Accessed: April 29, 2024.