

OpenStreetMap



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Vanier FLOSS 2024
slides by Jenny Zhu

Open Mapping Group McGill

- What are we?
- Who are we?
- What do we do?



Open Mapping Group McGill

Activities and Events

- Humanitarian Map-a-thons
- GeoGuessr game night
- Geography trivia night

Projects

- improving maps.mcgill.ca
- mapping the downtown underground city on OSM
- Affordable Food Map

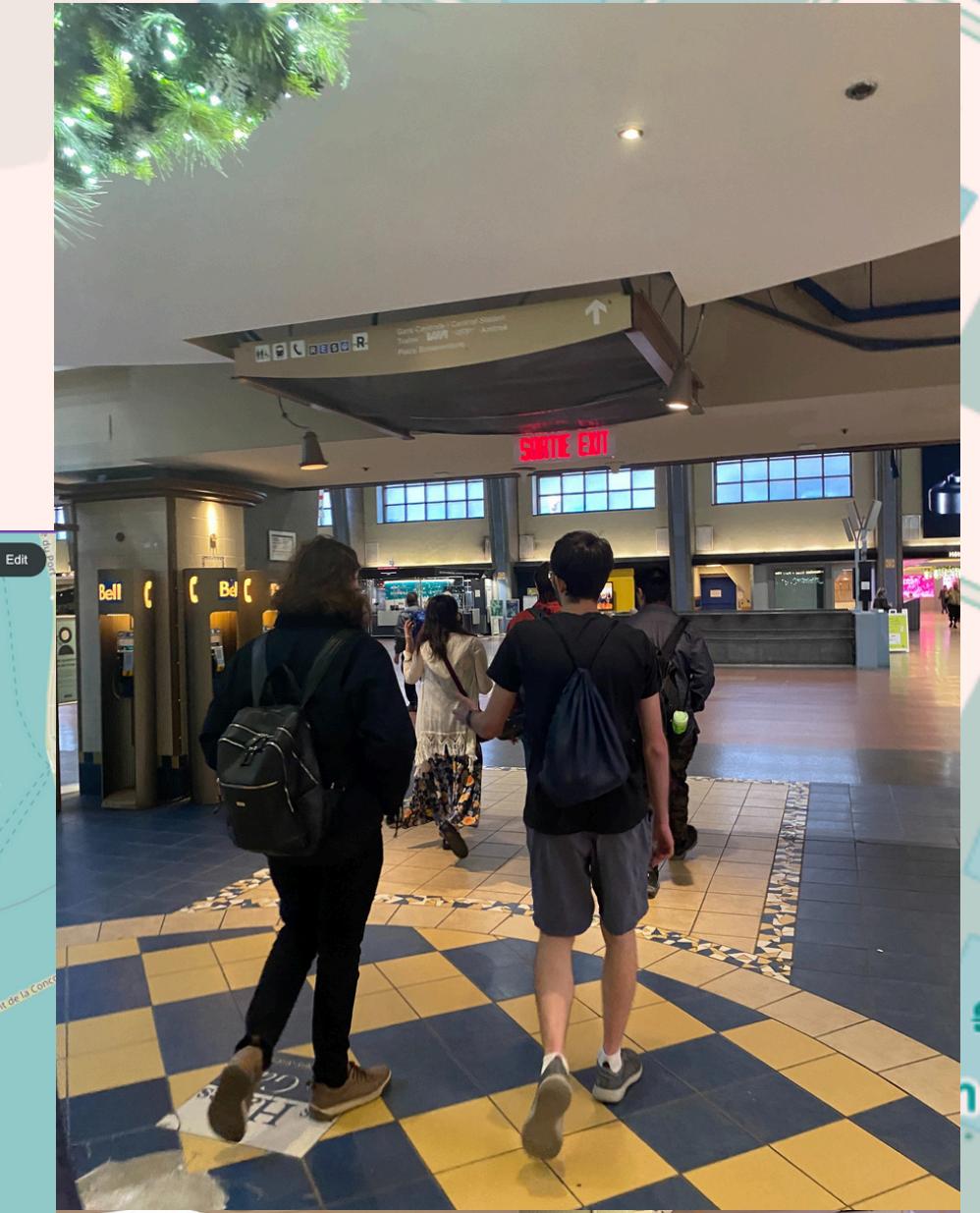
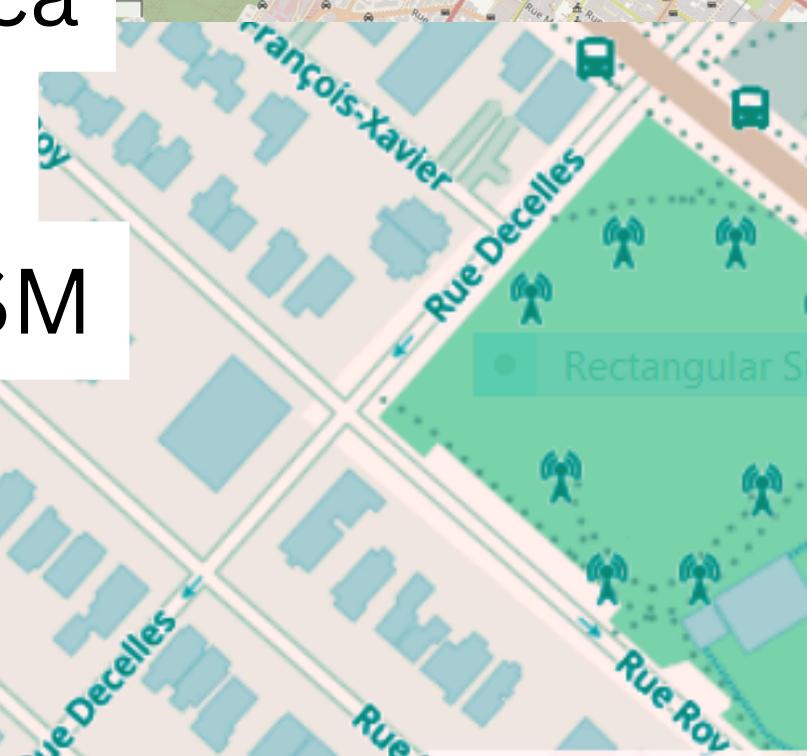
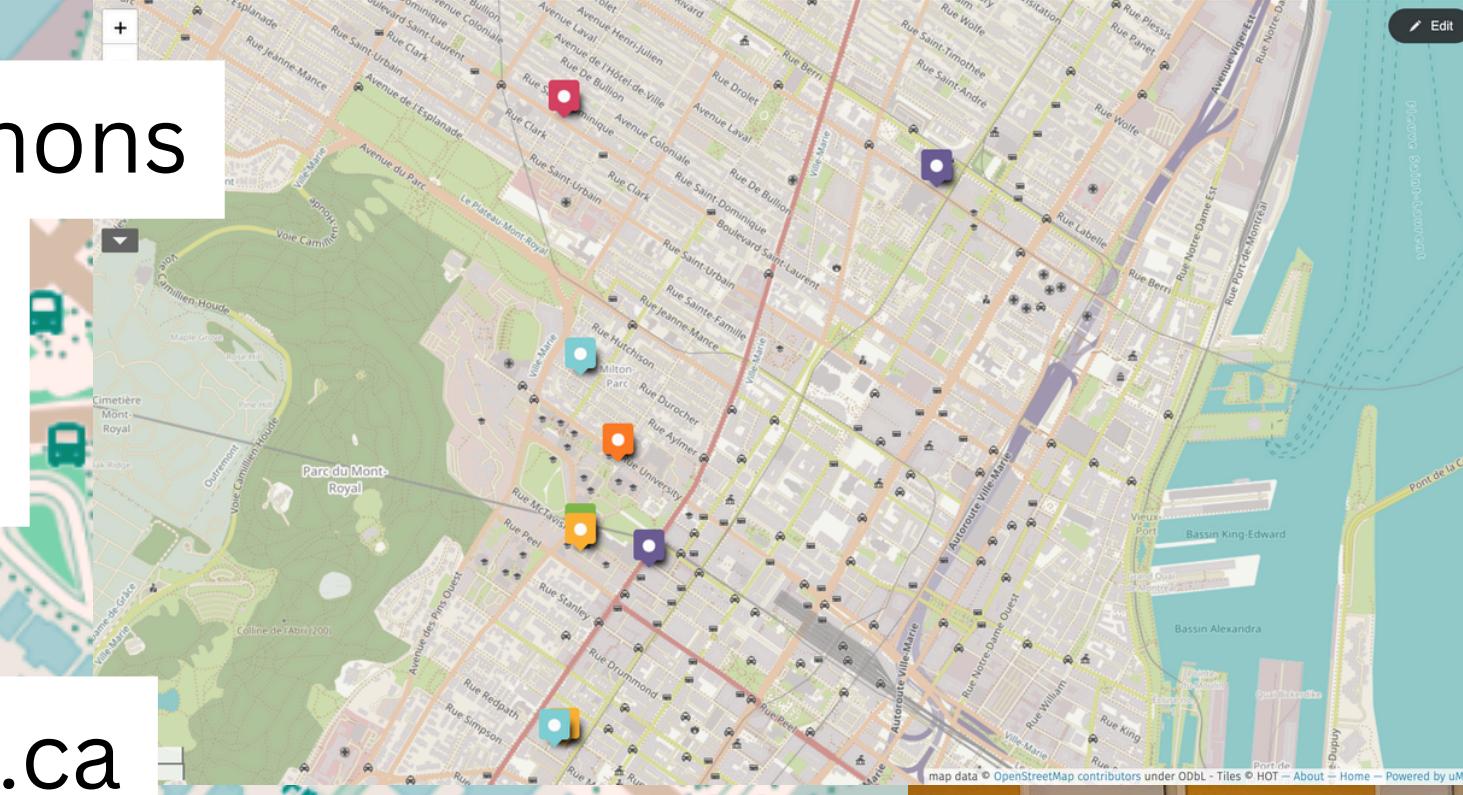


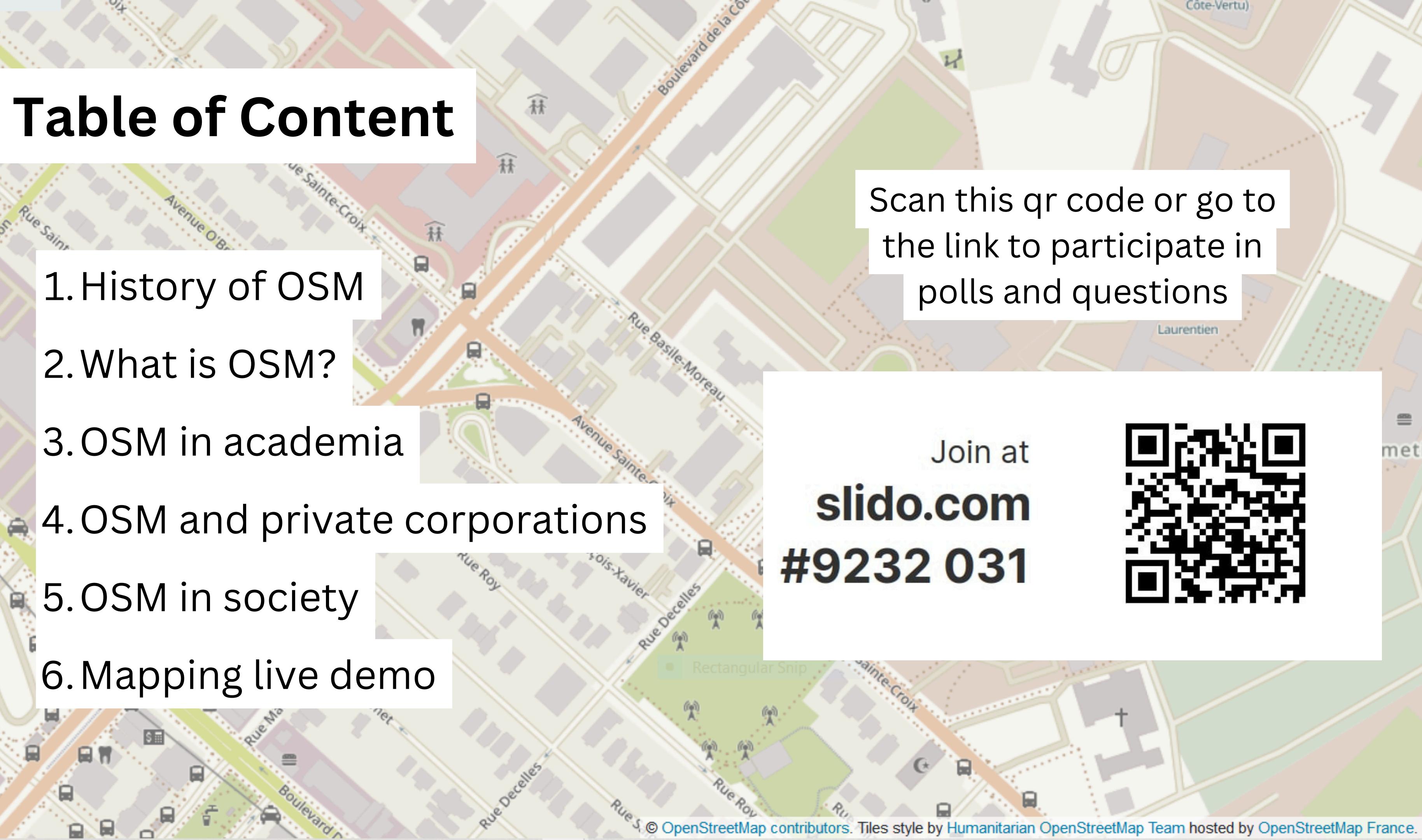
Table of Content

1. History of OSM
2. What is OSM?
3. OSM in academia
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5. OSM in society
6. Mapping live demo

Scan this qr code or go to
the link to participate in
polls and questions

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History

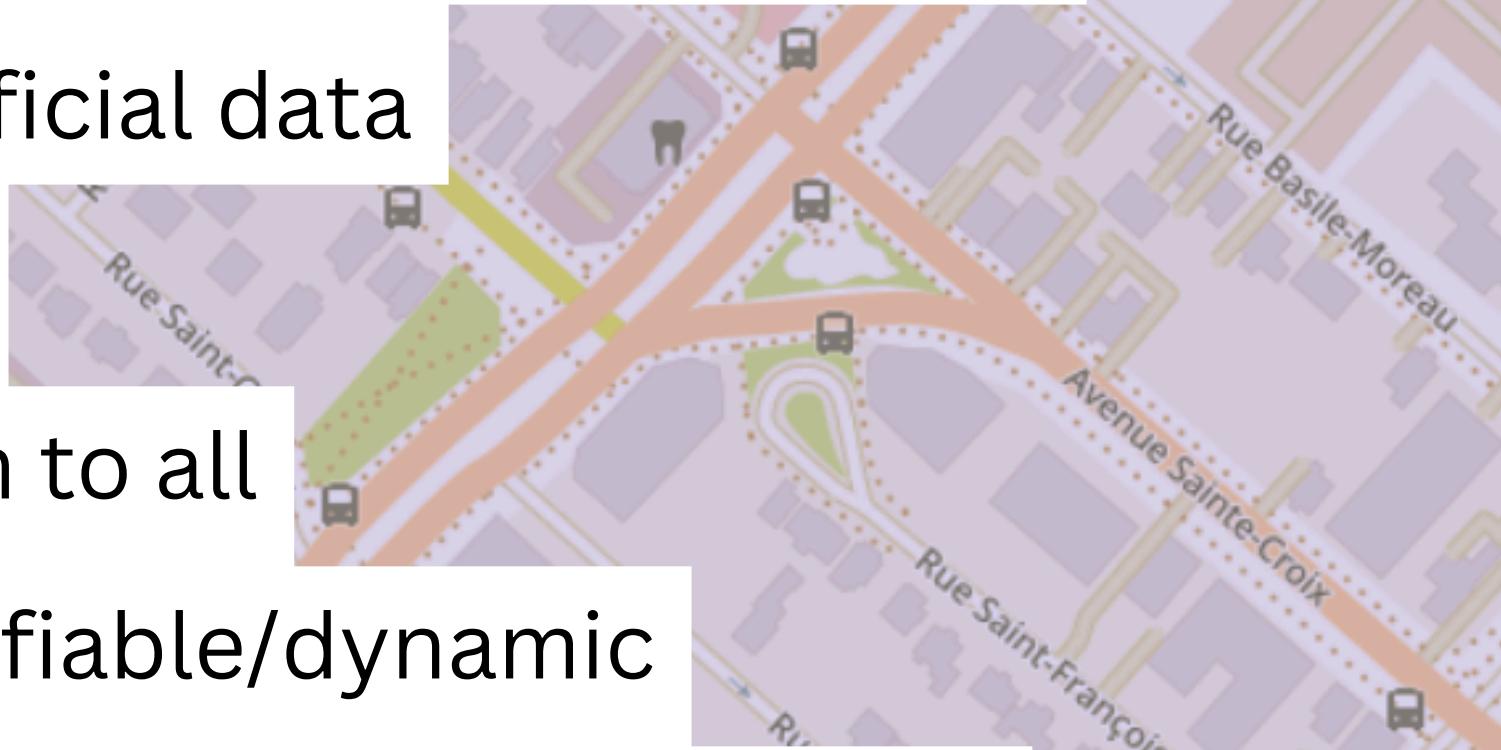
- Founded by Steve Coast in 2004
- Spatial data in the UK was gate-kept by the Ordnance Survey (OS)
 - Strict enforcement of how data is used and represented
- OSM was initially focused on mapping the UK
- Goal: free and easy distribution of data
- 2006: *OpenStreetMap Foundation* created to encourage the growth, development and distribution of free geospatial data

What is OpenStreetMap?

- A database!
- “the project that creates and distributes free geographic data for the world” - OSM Wiki
- Examples of data: roads, cafés, railways, benches, services etc
- Contribution from volunteers/VGI (volunteered geographic information)
- Open data: free data with credit to *OSM and the contributors*
 - Altered data can be distributed under the *Open Data License*

Benefits

- Can supplement the absence of official data
- Free
- Open to all
- Modifiable/dynamic
- Knowledge and details from locals
- Global data



Disadvantages

- Quality of data can vary
- most contributions in NA and Europe
- “digital divide”
- requires access to technology and internet



slido question

What kind of data do you find missing on commercial maps (ex: gg maps, apple maps, bing, etc,) that you wish were present?

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OSM in Academia

- Data source for analysis, system development, health research and more
- Research topic (quality assessment, studying contribution patterns, etc)
- Examples (Using OpenStreetMap for your research - SFU):
 - OSM Can-BICS 
 - OpenStreetMap data for Alcohol research: Reliability assessment and quality indicators by Bright, Jonathan *et al.*, 2018 
 - The design of road conditions mapping system by utilizing openstreetmap spatial data by Syaifudin, YW *et al.*, 2019

OSM Can-BICS

High Comfort



Medium Comfort



Low Comfort

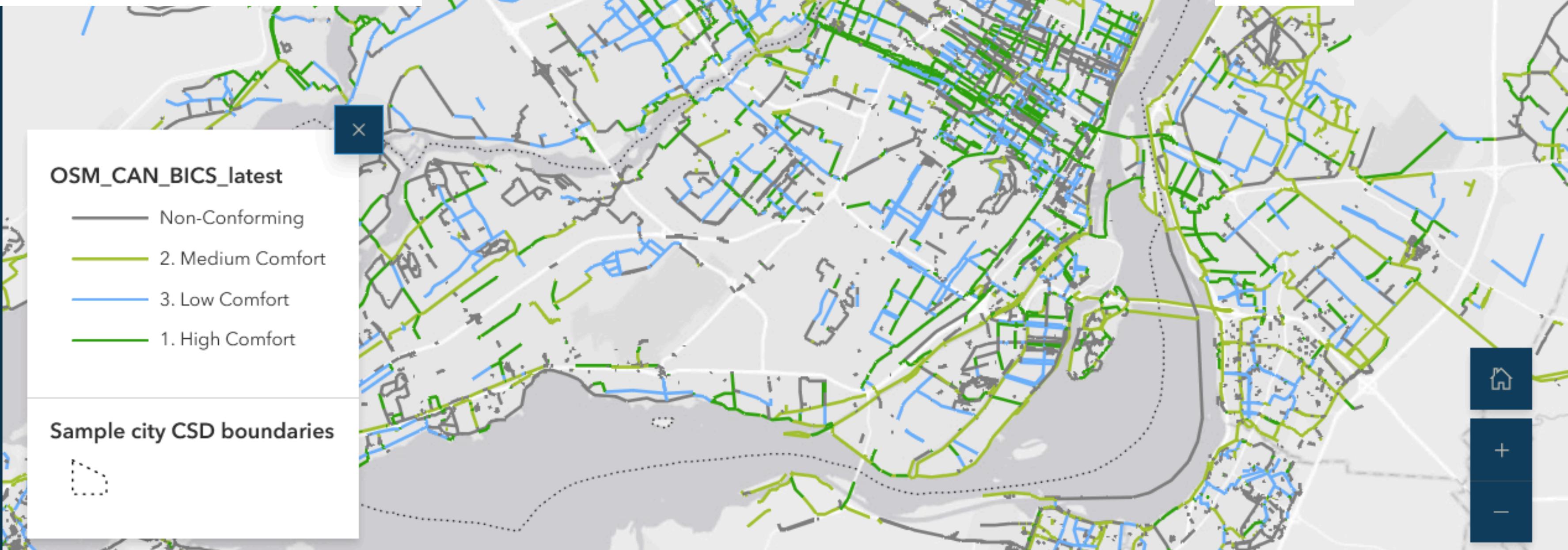


OSM Can-BICS website

- Canadian Bikeway Comfort and Safety Classification
- classification system of 5 bicycling infrastructure types
- 3 categories: high, medium and low comfort
- Why OSM data over municipal Open Data?
- OSM data was validated using aerial and ground-level imagery

OSM Can-BICS

- the Can-BICS classification was applied to OSM data
- Goal: create an up-to-date map of bicycle facilities across Canada that prioritises safety and comfort
- developed by researchers at Simon Fraser University and the Public Health Agency of Canada



The design of road conditions mapping system by utilizing openstreetmap spatial data by Syaifudin, YW et al., 2019

- Java, Indonesia
- data for the region was complete and up-to-date
- Goal: propose the use of OSM data to develop road conditions data

OSM data can be converted into .kml, .shp and more

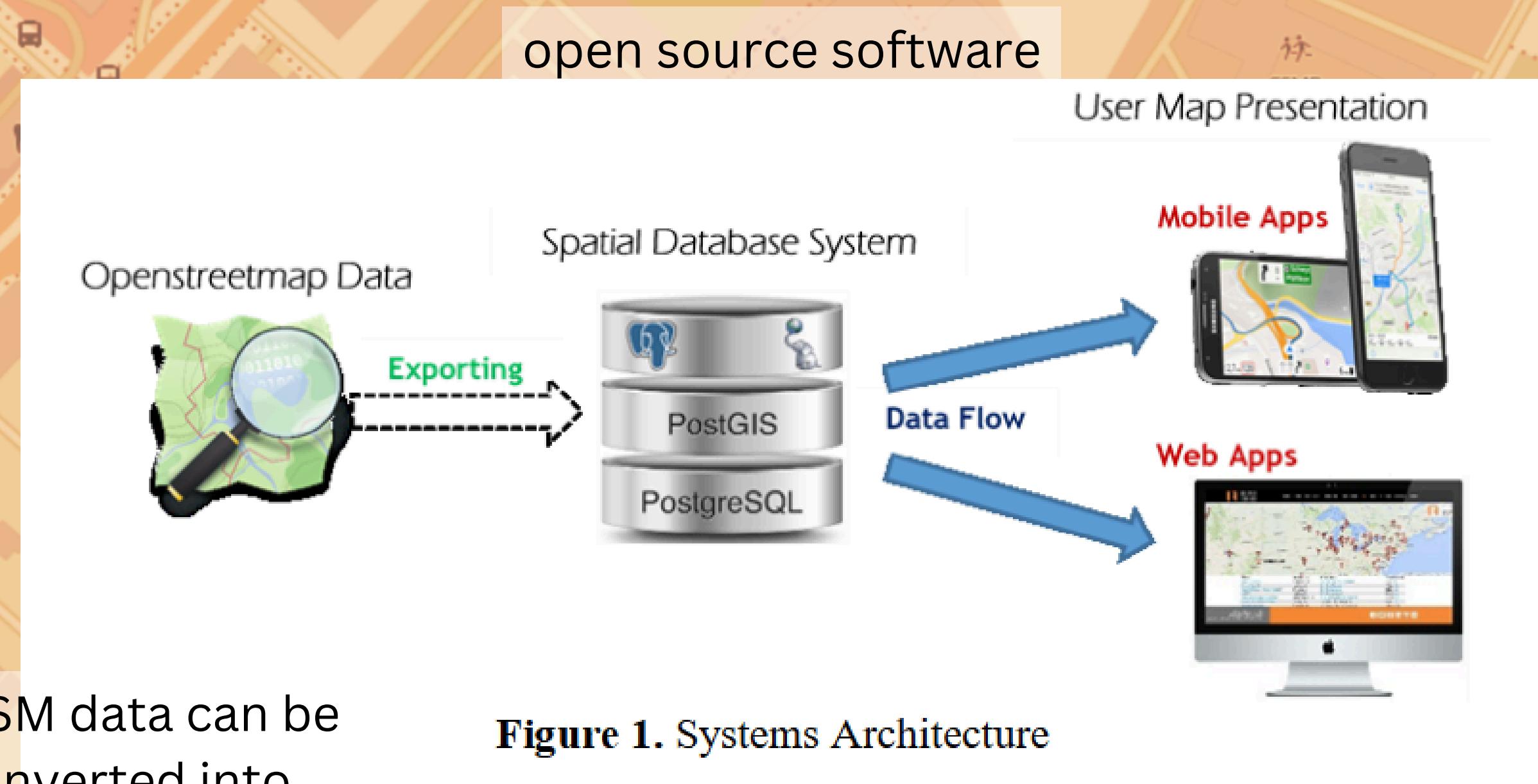


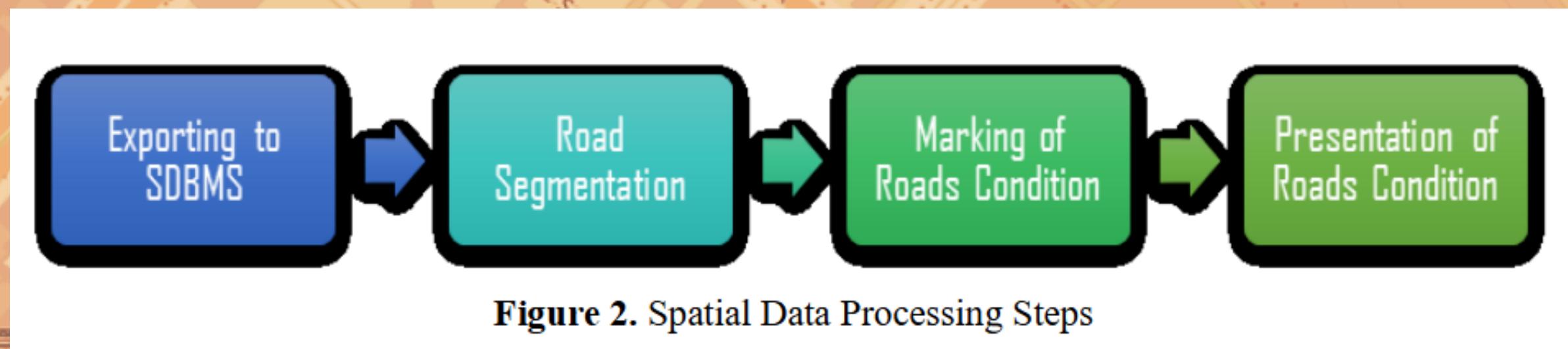
Figure 1. Systems Architecture

Syaifudin, YW et al., 2019, p.2

The design of road conditions mapping system by utilizing openstreetmap spatial data by Syaifudin, YW et al., 2019

Process

- cut all the roads into segments of max. 5 meters
- data collection proposal:
 - involve the community to report on cracks, distortions, erosion, etc.
 - reports then have to be approved by a system administrator
- Displaying the data: leaflet, Node.js, Github libraries

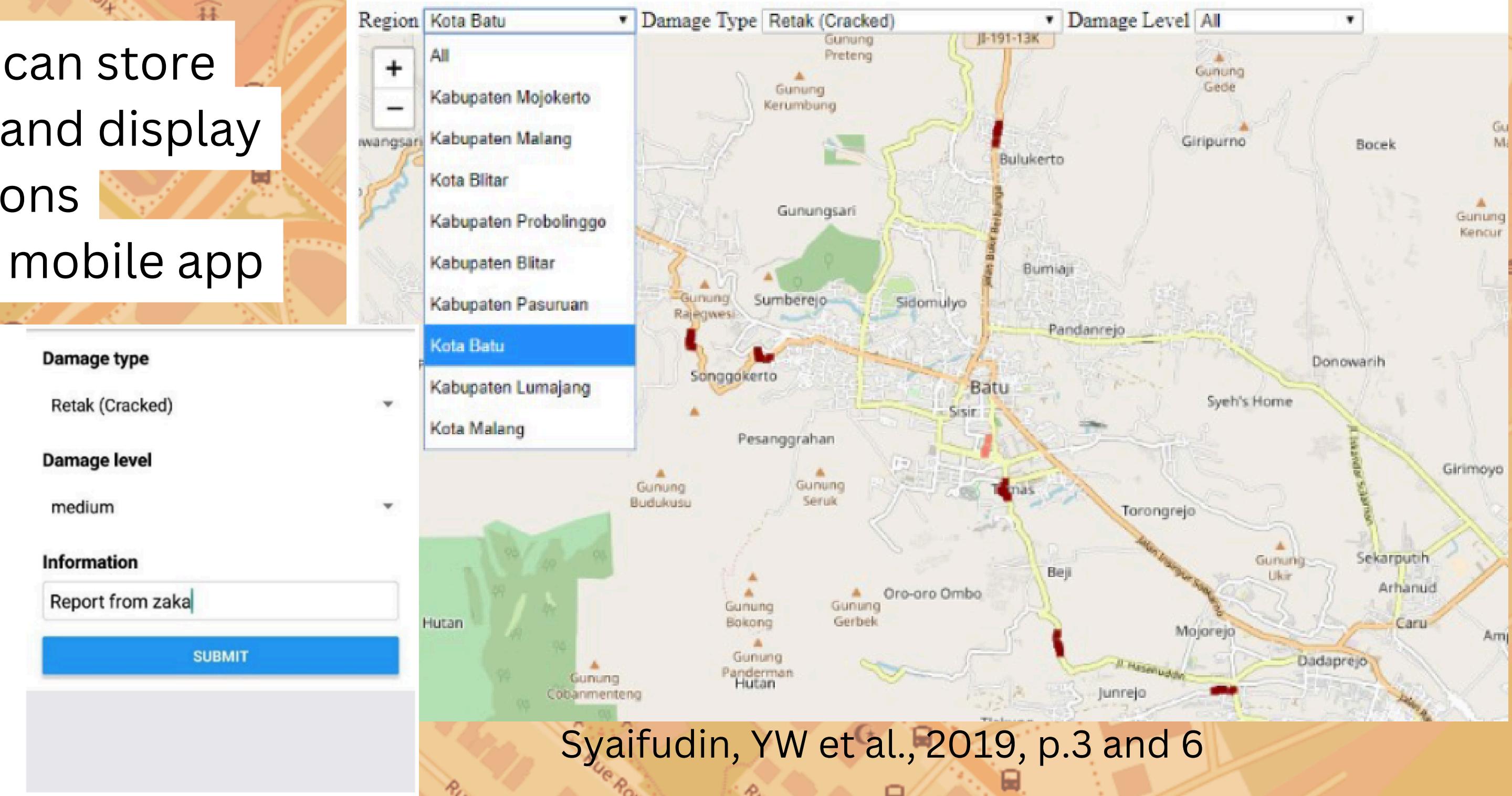
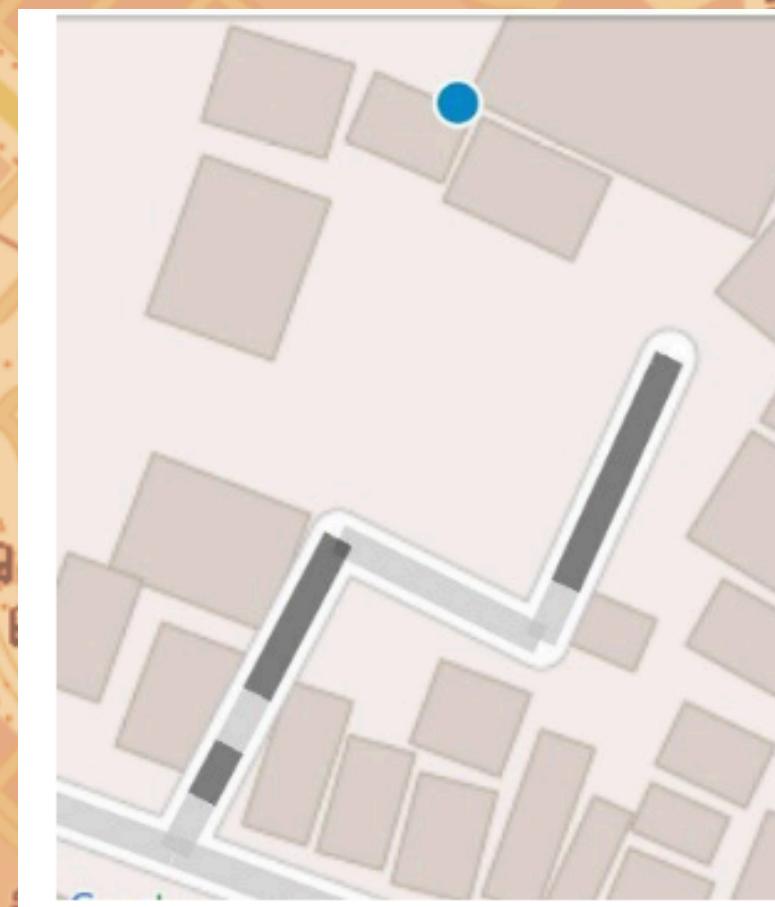


Syaifudin, YW et al., 2019, p.3

The design of road conditions mapping system by utilizing openstreetmap spatial data by Syaifudin, YW et al., 2019

Result

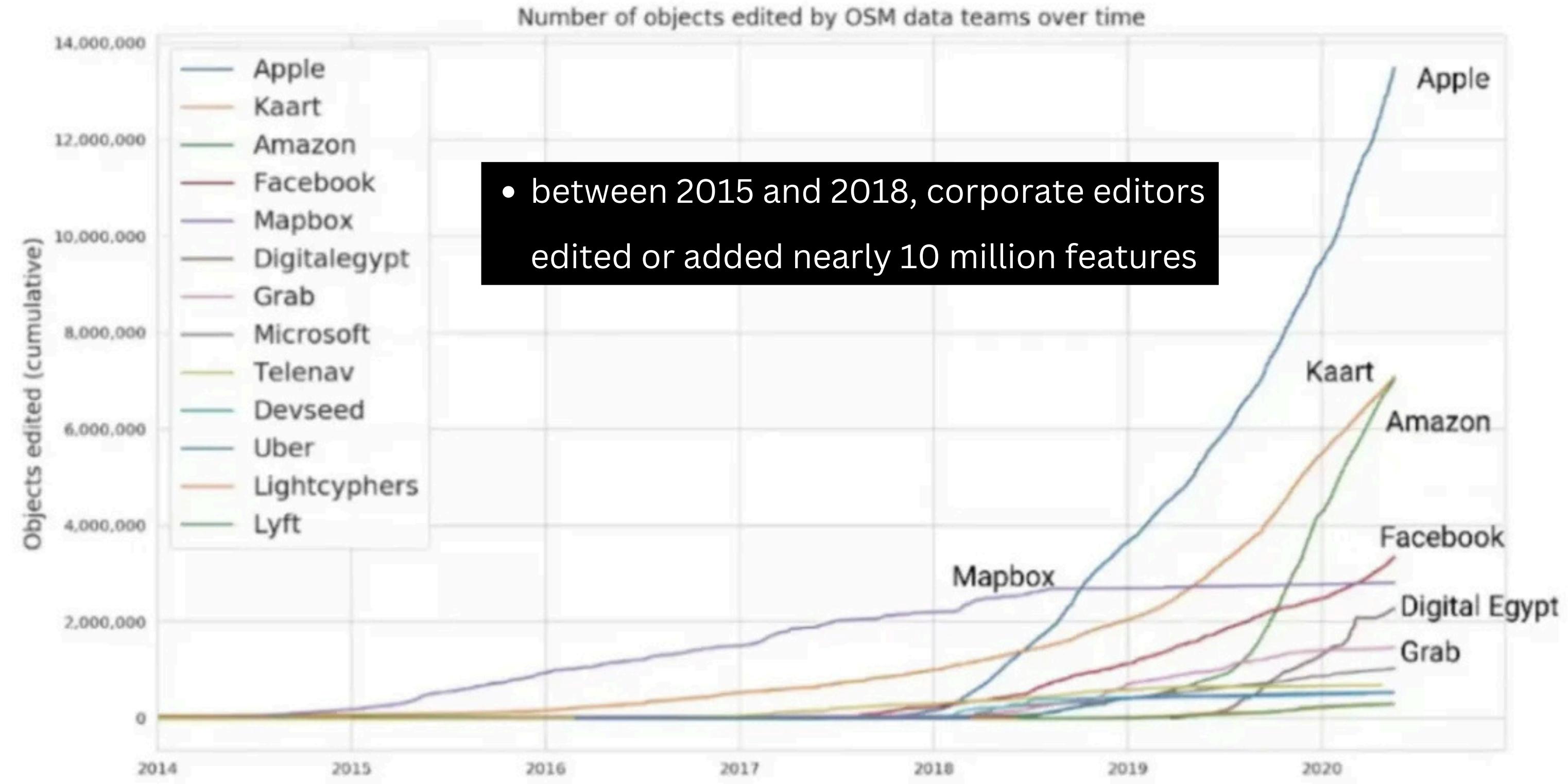
- system that can store spatial data and display road conditions
- website and mobile app



OSM and Private Corporations...

- Frequently used as a basemap
- increased cost of proprietary data ex: Google Maps business subscription
- Overture Maps Foundation
- corporate map editors
 - conflict of interest with individual volunteers
- between March 2019 and 2020, around 17% of contributions came from corporate teams (Anderson, Jennings. 2019)

OSM and Private Corporations...



Anderson, Jennings *et al.* (2019) in Bloomberg article

Overture Maps Foundation

- Founded in 2022
- Some of its members: Amazon, Meta, Microsoft, tomtom, Esri
- “Overture is dedicated to the development of reliable, easy-to-use, and interoperable open map data [...]” - Overture Maps

Food for thought

- Should private companies be allowed to use open data?

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What are your thoughts on corporate contributions on OSM?

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OSM in society

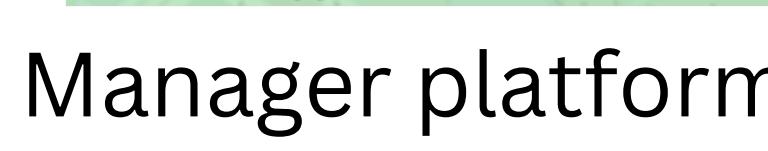
- Data source for social research and initiatives
- Data platform for hobbyists
- Open source software development for OSM and GIS (Geospatial Information Science)
- Examples:
 - Humanitarian mapping
 - Wheelmap.org
 - OpenSkiMap

Humanitarian Mapping



Humanitarian
OpenStreetMap
Team

- Mission: "...(HOT) applies the principles of open source and open data sharing to humanitarian response and economic development." - OSM Wiki
- Created for humanitarian aid after the 2010 Haiti Earthquake
- mapping damaged buildings and roads to help search and rescue teams by using satellite imagery pre-disaster
- contributions on HOTOSM Tasking Manager platform



Humanitarian Mapping



Humanitarian
OpenStreetMap
Team

showing 14 of 2,425 projects

#16178 **DRC Congo River floods response**
The heavy rains that began in mid-November 2023 intensified until January...
1810 total contributors

#17520 **Andhra Pradesh Flood Mapping 2024**
<https://tasks.hotosm.org/projects/17182>

#16950 **Kanlaon Volcano Eruption 2024 - Map Buildings - Negros...**
The Philippine Institute of Volcanology and Seismology (PHIVOLCS) has issued a...
1029 total contributors

#17731 **Nigeria Flooding: Maiduguri, Lamisula**

#17182 **Hurricane Beryl 2024 Grenada**
On July 01, 2024 Hurricane Beryl impacted St. Vincent and the Grenadine...
396 total contributors

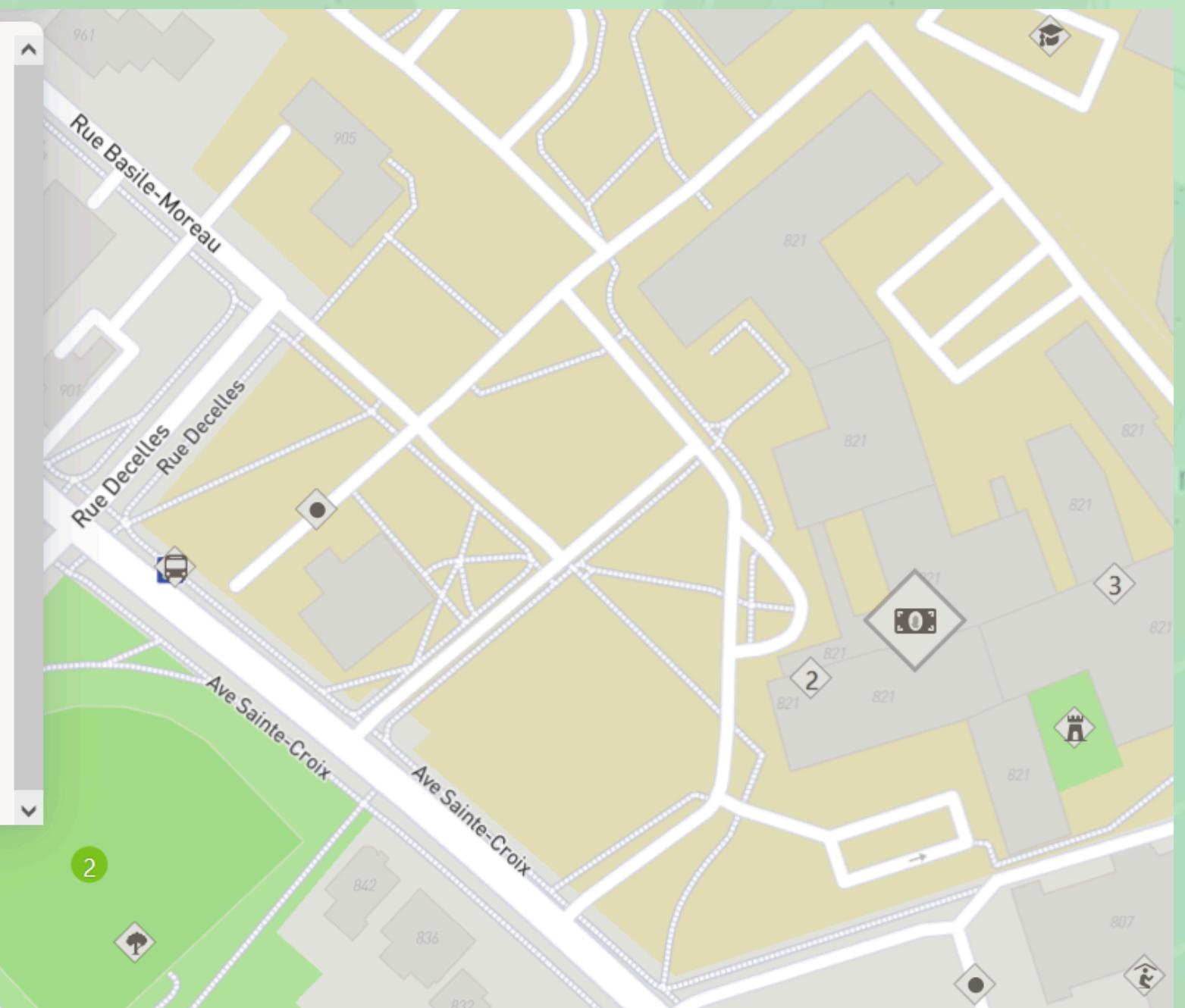
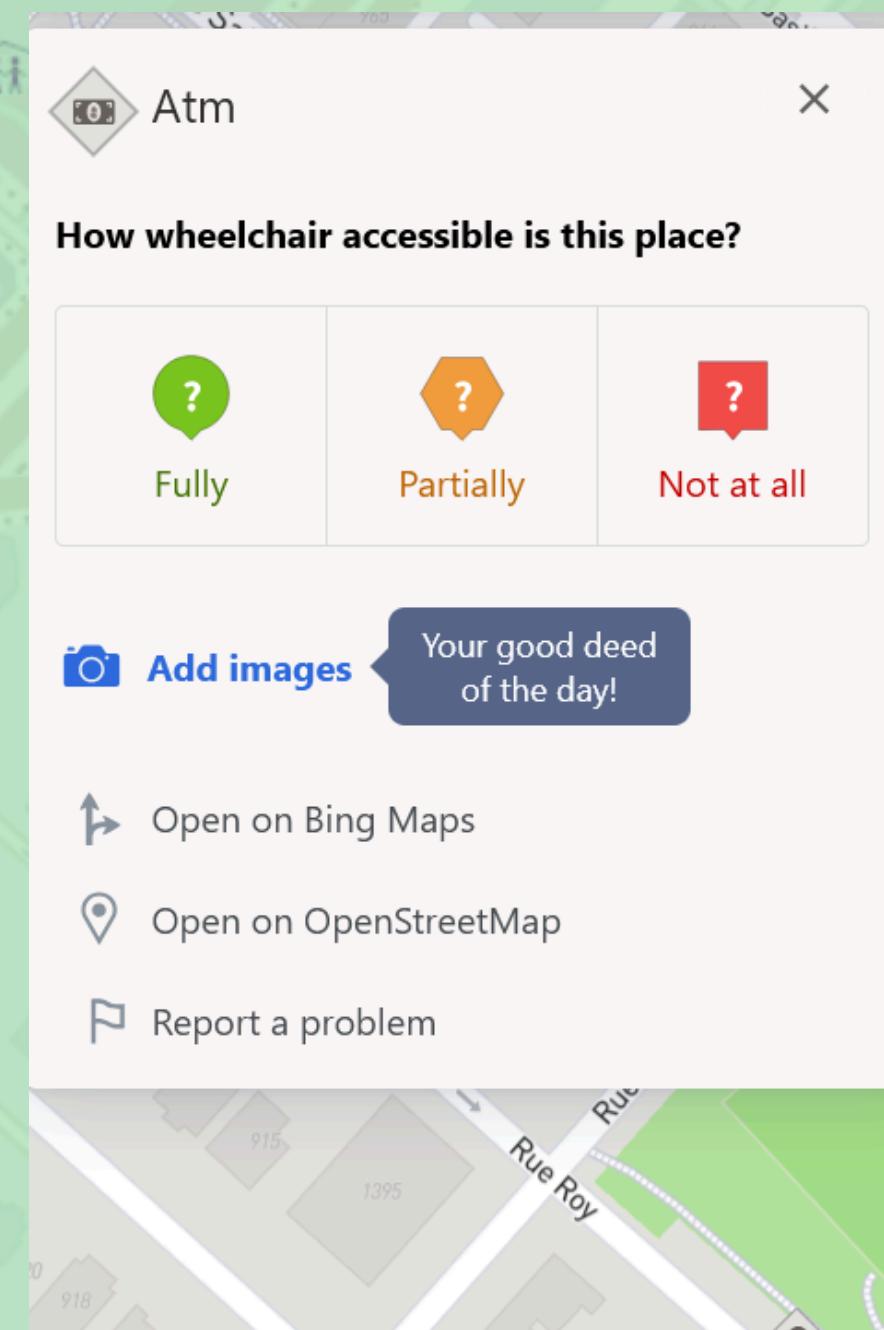
#10223 **Ras Ajdir - Sabratah Digital Base Map Project 2021**



screenshot

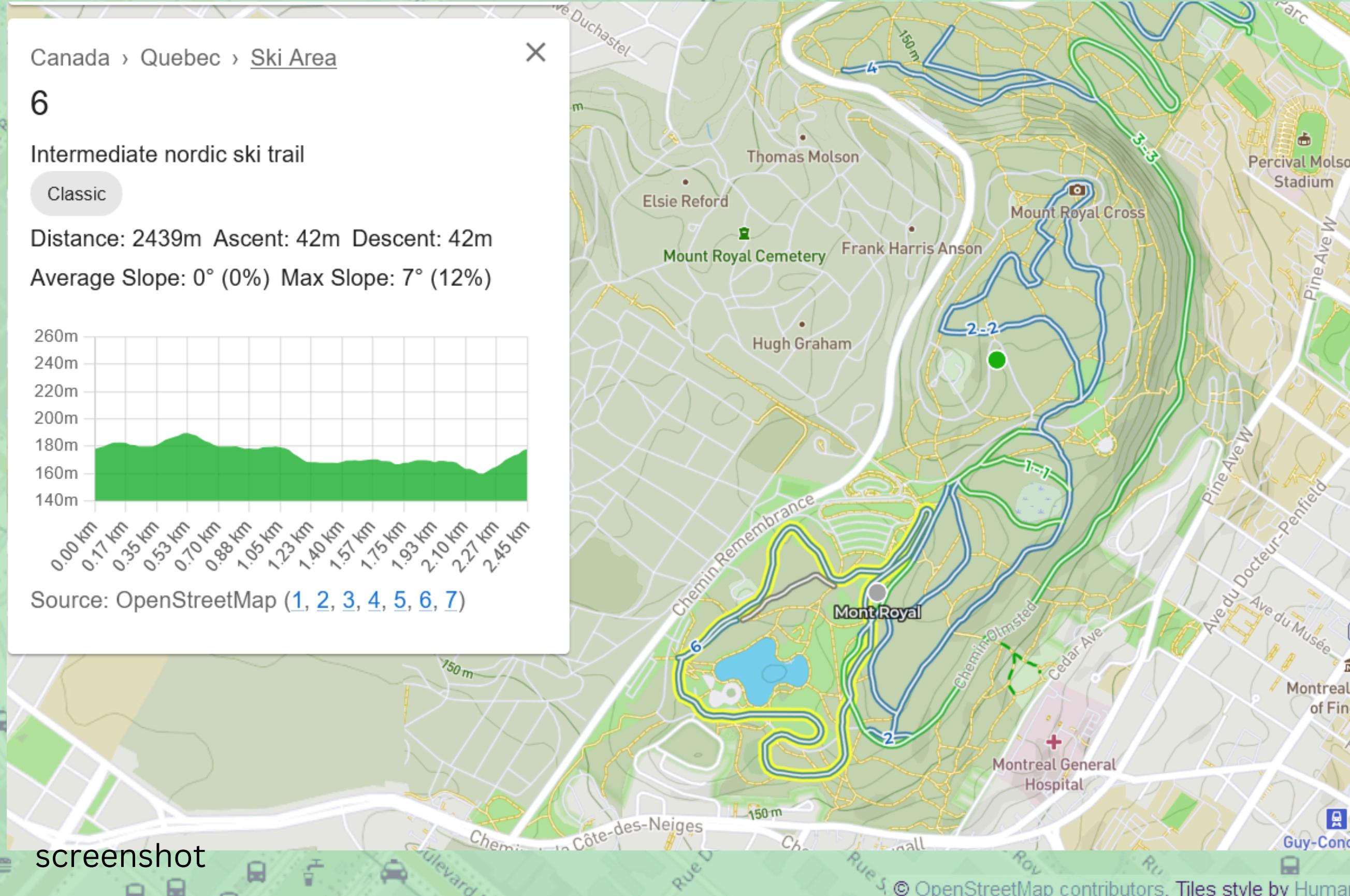


- an initiative by the npo SOZIALELDEN
 - Mapping and rating wheelchair infrastructure and accessibility
 - traffic light rating: green = no steps, yellow = 1 step, red = not accessible
 - anyone can contribute
 - wheelmap data is available as a free dataset
 - available as a website and a mobile app



screenshot

OpenSkiMap



- map of ski areas, trails, lifts and more
- some data from skimap.org
 - started in 2008
 - archive of crowd-sourced traditional ski maps
- edit the map by adding data directly on OSM and using ski tags

screenshot

slido question

Now that you've seen how OSM can be used, how would you like to use it?

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screenshot

live demo

Interested in learning how to use OSM?

Sign up for our workshop later!

Sources

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- OSM Can-BICS, <https://storymaps.arcgis.com/stories/a20689f708d940f1abd1492877f7b1e4>
- OpenStreetMap data for Alcohol research: Reliability assessment and quality indicators by Bright, Jonathan et al., 2018, DOI: 10.1016/j.healthplace.2018.01.009

Sources

(sorry! proper works cited page to come)

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- <https://overturemaps.org/>
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- <https://tasks.hotosm.org/>
- <https://wheelmap.org/>
- <https://openskimap.org/#14.03/45.50343/-73.58807>
- <https://skimap.org/pages/aboutus>

how to download OSM data online?

planet osm

<https://planet.openstreetmap.org/>

