Bike Safe

Sepand, Jingwen Bai, Charlene Nicer, Brandon Tai, Amelia He, Nicholas Chin

Problem

Our Objectives

Safety and Sustainability

- <u>Assess risk factors</u> along bike routes.
- Enable cyclists to make <u>informed decisions</u> about bike path

- Google Maps = shortest possible route
- Our algorithm = emphasis on safest possible route

Cycling Accidents and Cycle Traffic DATA

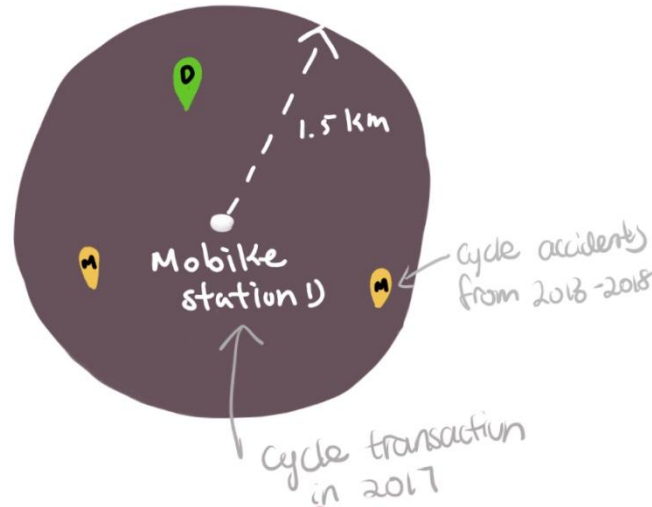1053 entries with cycle related accidents from 2013-2018

- Modes of accidents: Cycle-cycle, cycle-motorcycle, cycle-vehicle, cycle-pedestrian, cycle only, cycle-unknown
- Injury type: Severe, minor, death

573707 entries of mobike share from 2017

- Found geopoints of all mobike station
- Mapped accidents to the closest mobike station (radius 1.5km). If not within radius, no station is marked
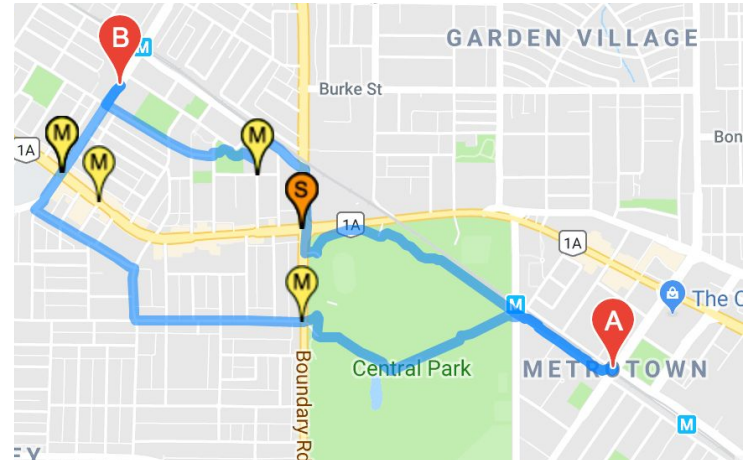
Risk Assessment

- Approximated cycle traffic from # of bicycle transactions at each Mobike station in 2017
- Find # of accidents and their type of injuries

Example of Risk assessment: average of 0.4 Minor injuries, 0.2 Death per year from 2801 cycle transaction
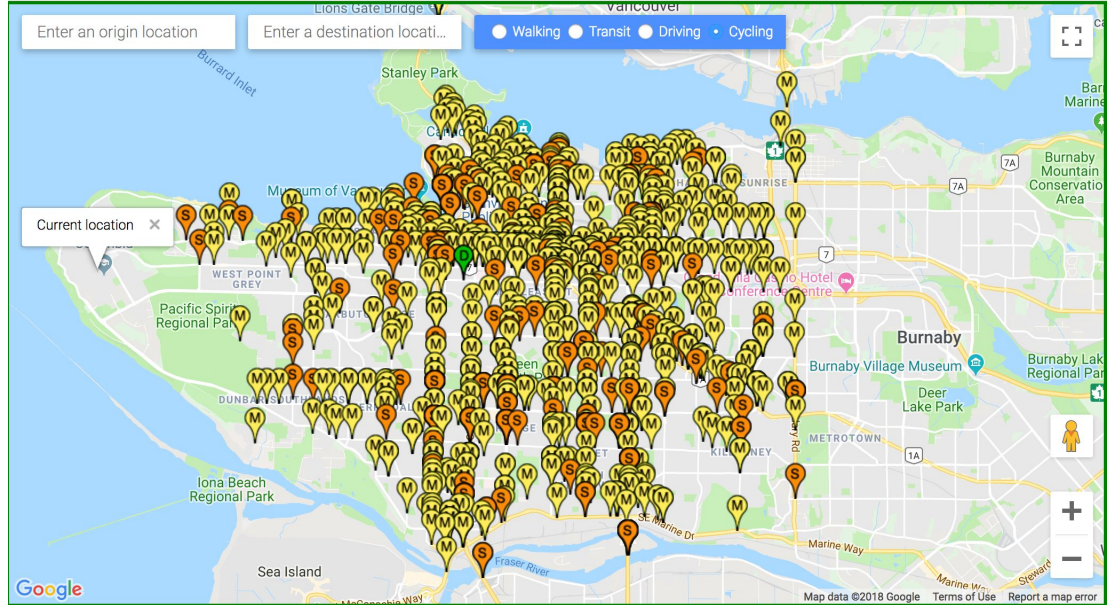
Demo

- Display several alternative paths
  options with approximately same
  distance as main paths

- Markers within r distance from
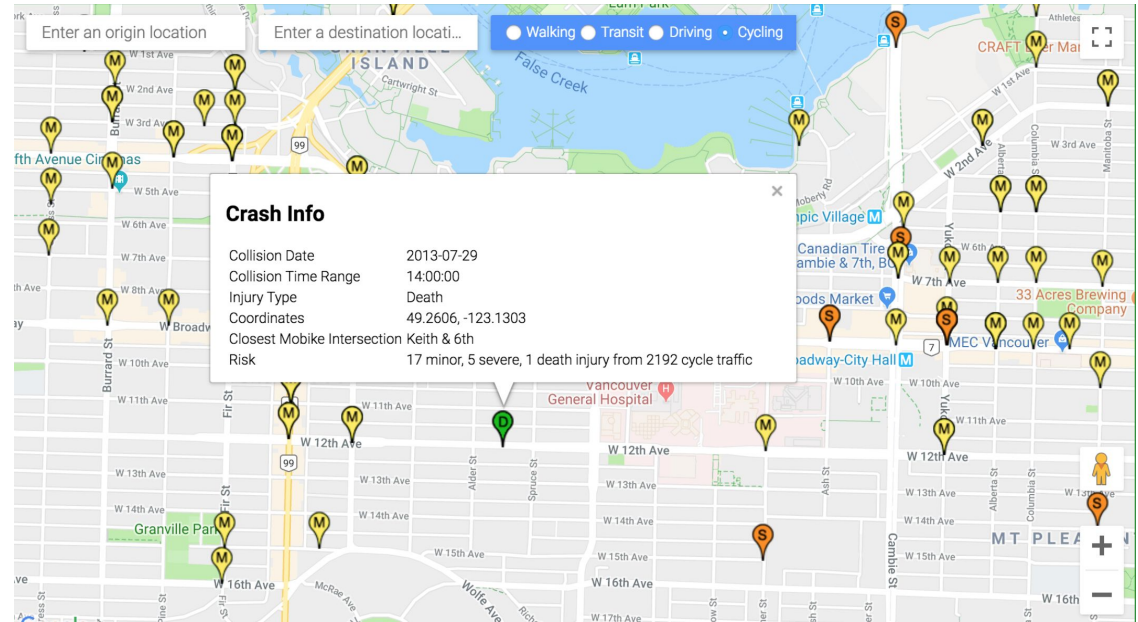 selected route will be displayed

Demo

- Using back end data, mark all accidents as markers.

- Injury types:
  - Minor (red)
  - Severe (yellow)
  - Death (green)

- When marker is clicked, display info box: collision date, time range, lat, long, modes, closest bike station, risk
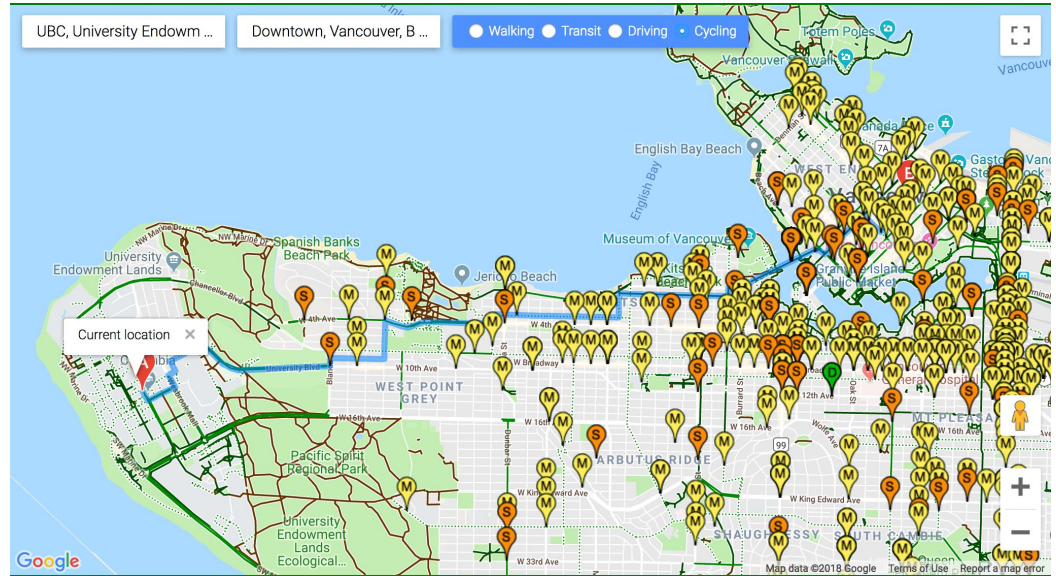
Info Box

- Collision date
- Time range
- Lat, Lng
- Modes
- Closest bike station
- Risk assessment

Search Bar

- Autocomplete feature

- Track user current location

- Option to select cycling route

- When route is selected, display alternative routes to destination and markers within 10 meters of route range

Impacts

- Encourage sustainability and improve safety
    - Makes up for the lack of SAFE cycling routes
    - Help meet the Vancouver's Zero goals.

What's Next?

- More Features (e.g color code routes according to risk, risk according to time of accidents)
- Scale Beyond Vancouver
- Real Time Data Input by Community
- Available on Widely Used Applications (Browser Extension, GMaps Navigation, Translink) as a Safety Feature