DRIVESAFE

A SAFER WAY TO TRAVEL

THE PROBLEM

- Vehicle collisions
  - Potential result of **injury or death**

- Many high-risk intersections with flawed designs
  - Factor out of the traveler's control
  - Mistakes by pedestrian or driver has a higher chance of being fatal in these intersections

Areas where flawed design could occur:

Road width, speed limit, markings and signs, and intersection infrastructure such as dividers and shoulders

THE SOLUTION

– Navigation system which focuses on safety

– Mobile (Android) application

– Finds safest route rather than fastest

– Assigns safety weight for each route and intersection based on past collision data and factors

– Routes outputted based on travel conditions and method (e.g. vehicle, foot, bicycle)
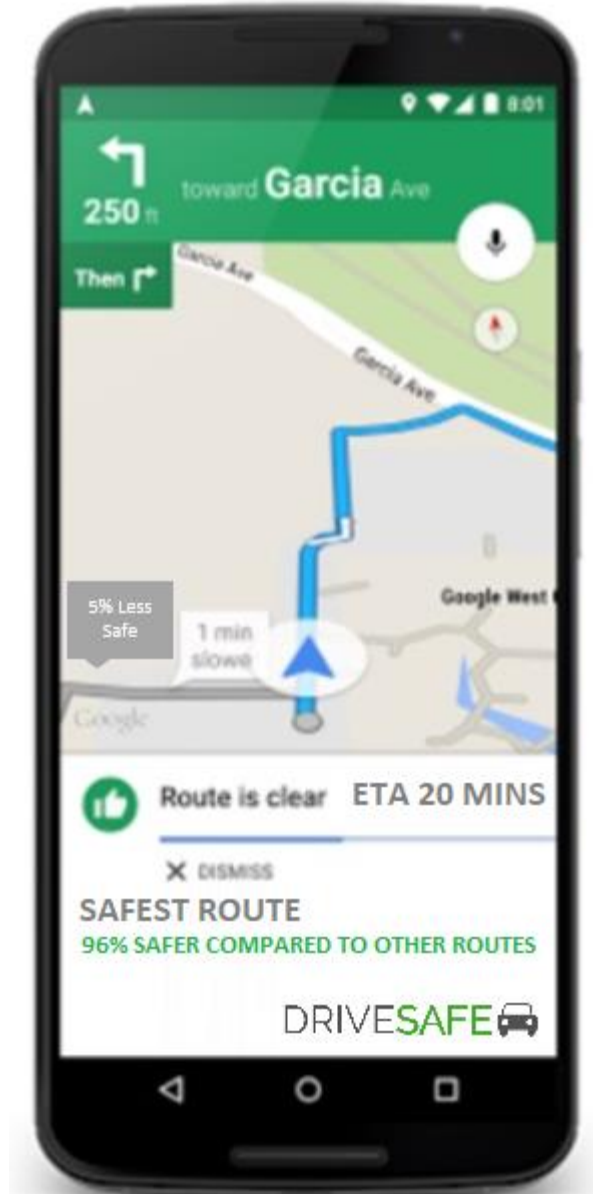
THE DATASET

- 'Collisions' from Seattle GIS Open Data

- Dataset of collisions at each intersection in Seattle (2004-Present)

- Factors obtained from dataset
  - Number of Collisions
  - Weather, road, and daylight conditions
  - Type of collision (pedestrian/vehicle)
  - Collision details (left/right turn, etc.)
  - Severity of collision
    - Severity code from 0-2
    - Injury/death

- Data will be needed to assign safety weight to each intersection and route

ALGORITHMIC CHALLENGES

– Searching and sorting algorithms for extracting data from dataset

– Searching and sorting algorithms for finding and calculating safest route

– Algorithm for calculating the weight of each intersection and route
  – Balance of safety and efficiency

– Graph to produce route
  – Intersections are vertex, and the roads are edges
  – The safest and shortest route will plotted as polyline and polygons graph

iClicker

Leon So

DRIVE**SAFE** 🚗

This was an interesting project and if it was one of the projects in my team, I would have liked to implement it.

A. Strongly disagree

B. Disagree

C. Neither agree nor disagree

D. Agree

E. Strongly Agree