CYCLE TORONTO

A KNOWLEDGE MEDIA DESIGN SOLUTION FOR TORONTO CYCLISTS

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START HERE!

INTRODUCTION

54%
of Toronto's population are cyclists.

Toronto has a growing population of bicycle riders, but the city's current infrastructure makes travelling by bicycle a dangerous endeavour. It is important that bikers have access to an information platform that sufficiently supports their needs and requirements in regards to biking around Toronto. Our goal is to investigate the need for a sufficient, user-targeted information system and to generate recommendations that will inform the design of such a utility.

Utilitarian
Biking with a practical purpose (e.g. commuting to work or school).

The City of Toronto aims to increase utilitarian cycling to improve health and well-being in the city[1].

Recreational
Biking purely for fitness and leisure.

#1 reason recreational riders are not also utilitarian: lack of safety-infrastructure, e.g. segregated lanes[2].

LITERATURE REVIEW

BIKE SAFETY #1 DETERRENT

- Bike route infrastructure is directly related to bicycle crash characteristics, increased risk for injuries, and injury severity[5].
- 32% of the bike crashes are linked to streetcar tracks[3, 4].
- The City of Toronto is promoting cycling safety by introducing more new bike lanes[6].

EXISTING APPLICATIONS

RIDE THE CITY
allows riders to choose their route on a safety scale based on number of bike lanes available on the route[7], but there are other significant factors that determine a route's safety level[4]. It could be improved by having a complete selection criteria and the ability choose and eliminate routes by constraints[8].

TORONTO CYCLING
offered by the City of Toronto. It provides a trip planning service and generates route data for the city to use in infrastructure planning.

CONCLUSION

There is a demand for a solution to secure cyclists' safety. Existing applications have very specific functions and are not comprehensive. They fail to manage the knowledge derived from data in a way that is reliable, usable and attractive. There is a gap that can be solved by a knowledge media design solution.

RESEARCH QUESTIONS

1. WHAT FACTORS PLAY A ROLE IN RIDERSHIPS?
2. HOW DOES TECHNOLOGY CURRENTLY SUPPORT THOSE FACTORS?
3. WHAT PROBLEMS CAN BE ADDRESSED OR SOLVED BY A BETTER DESIGN OF TECHNOLOGY?

RESEARCH PROTOCOL

SURVEYS

10 QUESTIONS 10 MINUTES	PARTICIPANTS AGES: 15 - 65+	PLATFORM DISTRIBUTION	138 RESPONSES IN TOTAL
IN FIELD FOR A WEEK	98% ARE TORONTO CYCLISTS	REDDIT .COM; CYCLING ASSOCIATIONS	

INTERVIEWS AND FOCUS GROUP

30 - 60 MINUTE SEMI-STRUCTURED INTERVIEW	4 INTERVIEWEES	10 FOCUS GROUP MEMBERS	NO AUDIO/VIDEO RECORDING

DATA ANALYSIS

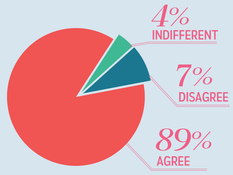
SUMMARY

Despite the high number of experienced bikers, a higher percentage feel unsafe than safe when cycling. Based on our focus group results, we found that because of the infrastructure, cyclists feel that they have less control over their safety. Combining our interview, survey and focus group results, there are many factors that can lead to improvement of riding safety and security.

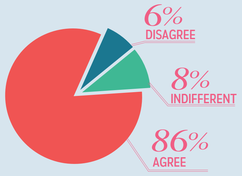
Cyclists seem to be actively using Google Maps and Strava. Strava is a fitness mobile application that allows users to track riding speed and distance with the ability to share this information with other cyclists. Cyclists mainly use Google Maps to navigate and plan their routes, but it has limitations as well.

SURVEY DATA

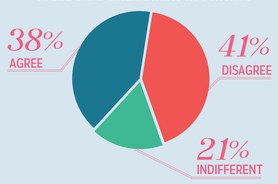
"I AM AN EXPERIENCED BIKER"



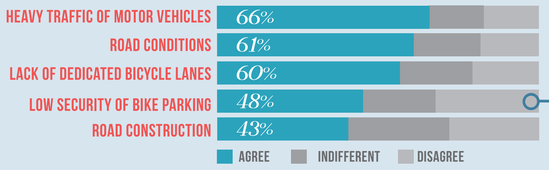
"I HAVE NO DIFFICULTY WITH BIKING IN TORONTO"



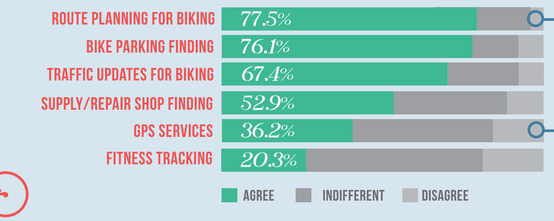
"I FEEL SAFE WHEN BIKING IN TORONTO"



LIMITING FACTORS TO CYCLING MORE OFTEN:



TECHNOLOGIES CYCLISTS WANT MORE:



INTERVIEW INSIGHTS

"I can find parking almost anywhere... but if I know there is more secure bike parking available a block away, I would bike the extra distance."

"I use route planning more when I'm not familiar with the streets in that area."

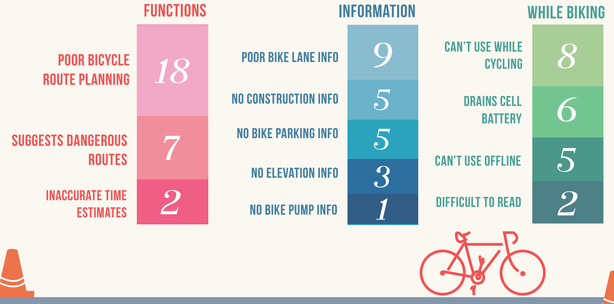
"Most of the time I find the location with Google and then map the route in my head."

OTHER SUGGESTIONS | Air pump info • Road or bike lane conditions • Directions prioritizing bike lanes • Parking info • User ratings of bike paths • Theft/incident locations • Illegal car parking reporter • Winter road conditions

WHAT CYCLISTS LIKE MOST ABOUT GOOGLE MAPS & STRAVA

- 33 mentions of general route planning
- 31 mentions of simplicity and convenience
- 22 mentions of performance tracking
- 18 mentions of bike-specific route planning
- 16 mentions of the maps/GPS/navigation features
- 13 mentions of accuracy

DISLIKED FEATURES OF CURRENT TECHNOLOGY



RECOMMENDATIONS

CRITICAL
IMPORTANT
NICE TO HAVE

1. Make data accessible while biking
   Hands-free/voice recognition technologies
   Support offline use (e.g. download maps/route information)
   Live-route changing based on real-time traffic: "*I wouldn't consider checking traffic information at the beginning of my journey because the availability is inaccurate by the time I arrive.*"[9]

2. Include biking relevant information
   Have up to date bike lane, construction, bike parking, elevation, bike pump information

3. Include a social aspect
   User reviews for streets & paths: "*I want to know if someone rated a street 4/5 stars because there aren't too many hills.*"[9]
   Allow people to connect with other bikers: "*I like to see what my friends are doing.*"[9]
   Health/progress tracking

4. Include biker friendly route planning
   Ability to filter routes based on customized criteria, for example: safest route, fastest route, avoid traffic, scenic route: "*When time is not a factor, I prefer a more scenic route.*"[9]
   Avoid routes dangerous for bikers based on elevation, infrastructure, road conditions
   Direct route manipulation: "*I'd like to customize my route by dragging points on the path.*"[9]
   Estimated time based on customized speed: "*Google always under-/over-estimates my required time.*"[9]

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Knowledge Media Design Institute

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