



IDEA HACKATHON

TOWARD A SMART TORONTO

TORONTO, ONTARIO JUNE 25 – 26, 2019

Toward a Smart Toronto

Say “smart cities” and most people think technology—sensors, networks, big data, the Internet of things. At Stantec, we think people. We see how smart mobility, utilities, buildings, and public spaces can improve city life and believe the smartest cities are designed with community in mind.

The first Stantec Idea Hackathon gathered industry professionals over a two-day forum to share ideas, build relationships, and deliver results that are relevant and meaningful for the citizens of Toronto and beyond. Alongside stunning views of the Toronto east side, participants worked to address the following challenge statement:

How can we use technology to ensure Toronto is a thriving, livable, and resilient city for all?

Comments from Stantec President & CEO Gord Johnston

We chose Toronto as the site for this hackathon because it is a dynamic and rapidly growing city, Canada's largest municipality, and Stantec has a long history here. We've been involved with the growth of the city since 1954, and have been involved in the development of buildings, roadways, transit, and civil infrastructure. We've been part of the social fabric supporting residents through the design of iconic buildings for the Toronto Police Service, Centre for Addiction and Mental Health, Bridgepoint Health, George Brown College Waterfront Campus, and the University of Toronto. We've been involved in residential communities for

clients such as Mattamy Homes and Menkes. We're supporting recreational activities through our work on Rail Deck Park for Create Toronto, and most recently we're supporting our client with the infrastructure and mobility needs related to the proposed Sidewalk Labs development along the eastern downtown waterfront.

We have over 600 people based in five offices throughout the GTA, the closest of which is our office at Spadina and Wellington, where we repurposed a former sock manufacturing facility into a LEED Gold certified workspace.

As we considered various themes for this hackathon, we thought about the unprecedented challenges that cities around the world are facing, ranging from pressures from growth and densification, aging infrastructure, climate issues, and the impacts from more severe storms, to social issues like affordable housing and income disparity. And we started to think about the ways that technology could improve the quality of life for a city's residents.

The pace at which technology is advancing is making it hard for a city, and its citizens, to keep up. We recognize the need to continue

to lead and innovate in this arena. At Stantec, our promise is to Design with Community in Mind, and we have been working with community leaders for over 65 years to improve the quality of life for citizens in communities around the globe. But we need to continue to engage with the communities we serve and to bring new and innovative solutions to the table. So that's what we're here to talk about over the next 2 days: how can technology, through the development of a smart city, enhance the livability and resilience of a large, urban city like Toronto?



Speaker & Panel Highlights

“The best way to have a good idea is to have lots of ideas,” said Nobel Prize winning chemist, Linus Pauling.

To get the Stantec Idea Hackathon participants’ minds racing, we invited smart city experts to share their insights into the market shifts and technological advancements impacting our urban spaces. From blockchain to floodplains, mobility to livability, the four speakers and five panelists gave the hackathon teams lots to think about as they developed their own ideas.

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SPEAKERS



Kevin Magee

Microsoft
*National Director, Intelligent Cloud Emerging Technologies,
Canadian Global Black Belts*



Don't start with a cool technology like blockchain. Find an issue that you want to solve first. Then look at what technologies can solve those problems and reverse engineer the technology. That's where the magic happens.



Helen Platis

Quest
Director, Client Services



Smart for the sake of smart doesn't make sense. But smart that allows us to better engage with each other inside our communities, that promotes the idea of a healthy, affordable, resilient, and prosperous community—that's where smart comes together with everything that is in our traditional spaces.



Jason Schrieber

Stantec
Senior Principal, Urban Places



The biggest threat of the technology revolution is that, as affordable as [transportation options have] become for many people, they're still not affordable for everyone living in our cities. So how do we make smart mobility equitable, with the right kinds of information and the right kind of intuition?



Steve Heuchert

Toronto and Region Conservation Authority (TRCA)
Associate Director Development Planning and Permits



Sometimes we have droughts and sometimes we have more water than we can handle. How do we develop smart water technologies and scale them up to reuse, treat, and recreate the natural heritage system? What smart water technologies are on your wish list to better future proof our communities?

Please note that the speaker and panelist quotes have been edited and condensed yet faithfully represent the speakers' ideas.

PANELISTS



Josipa Petronic

Canadian Urban Transit Research and Innovation Consortium (CUTRIC)
Executive Director & CEO



Do you really want Uber and Lyft defining how your city should grow and how land use should operate? I can't buy a unit of livability from one of these companies. So cities must set a vision and take the lead.



Abhinav Tiwari

Alectra Utilities
Director – Head of Advanced Planning



If you have to create a connected economy of the future, how can you create a data and analytics platform which could be leveraged to collaborate across industries and help connect those to achieve tangible outcomes and success?



Aeron Hodges

Stantec
Associate



I want to challenge everyone to rethink the word smart. Smart means places where people of different means and backgrounds can connect as communities and don't have to go out of their way to use energy efficiently.



Erin Skimson

Miovision
VP Product Management & Corporate Programs



Five to ten percent of congestion is caused by mistimed traffic signals. How do you know what you should do about that? Without access to data, it's anybody's guess.



Jesse Coleman

City of Toronto
Big Data Innovation Team Lead



It's your data, too. That needs to be the new vision: engaging the public with these projects from the get go, explaining why data is being collected.

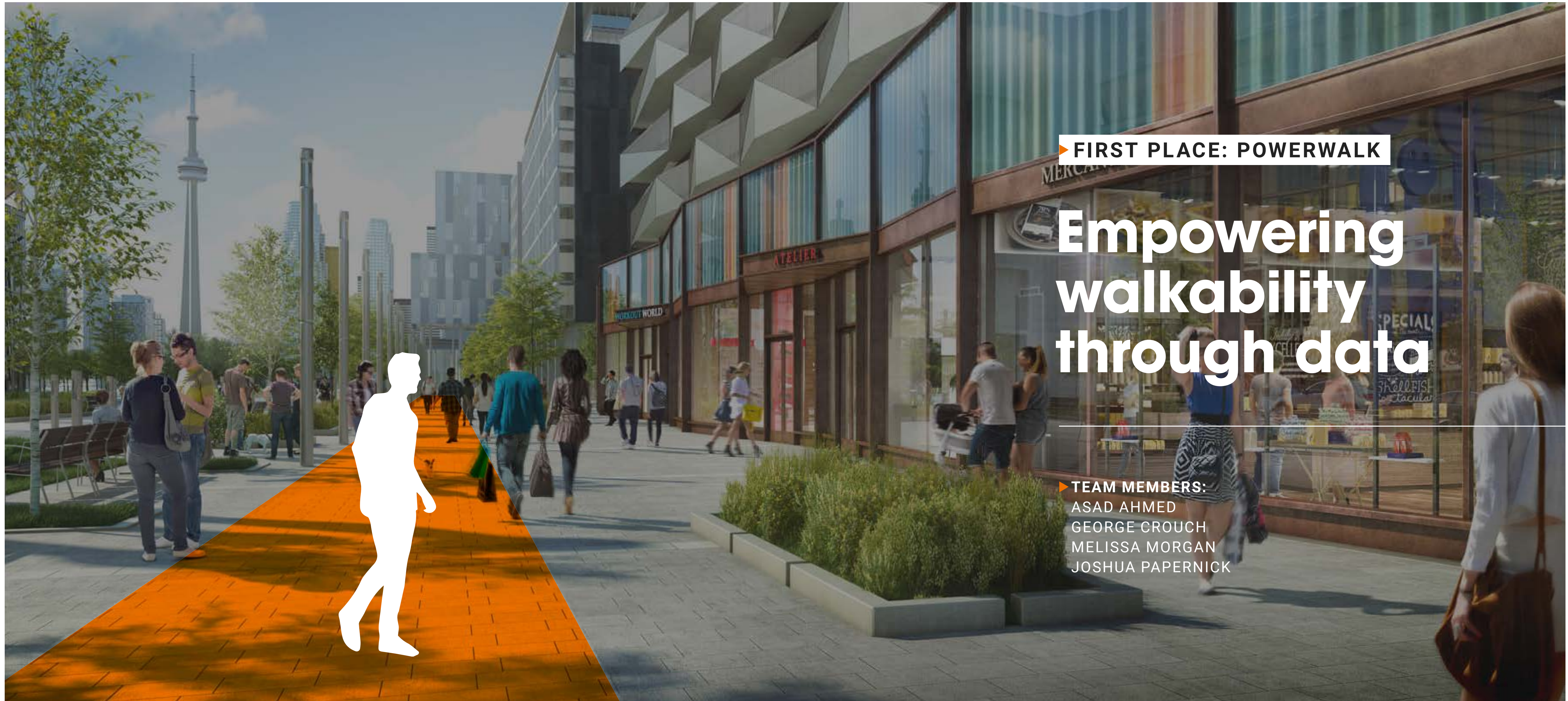
Please note that the speaker and panelist quotes have been edited and condensed yet faithfully represent the speakers' ideas.

Ideas

They came from tech start-ups and consulting firms, graduate programs and municipal organizations. In total, over 50 participants formed 10 teams who tackled the challenge statement of how to use technology to ensure Toronto is a thriving, livable, and resilient city for all.

And they delivered. Solutions to empower Toronto citizens to improve mobility and flood protection and make life better for the city's immigrant and senior populations.

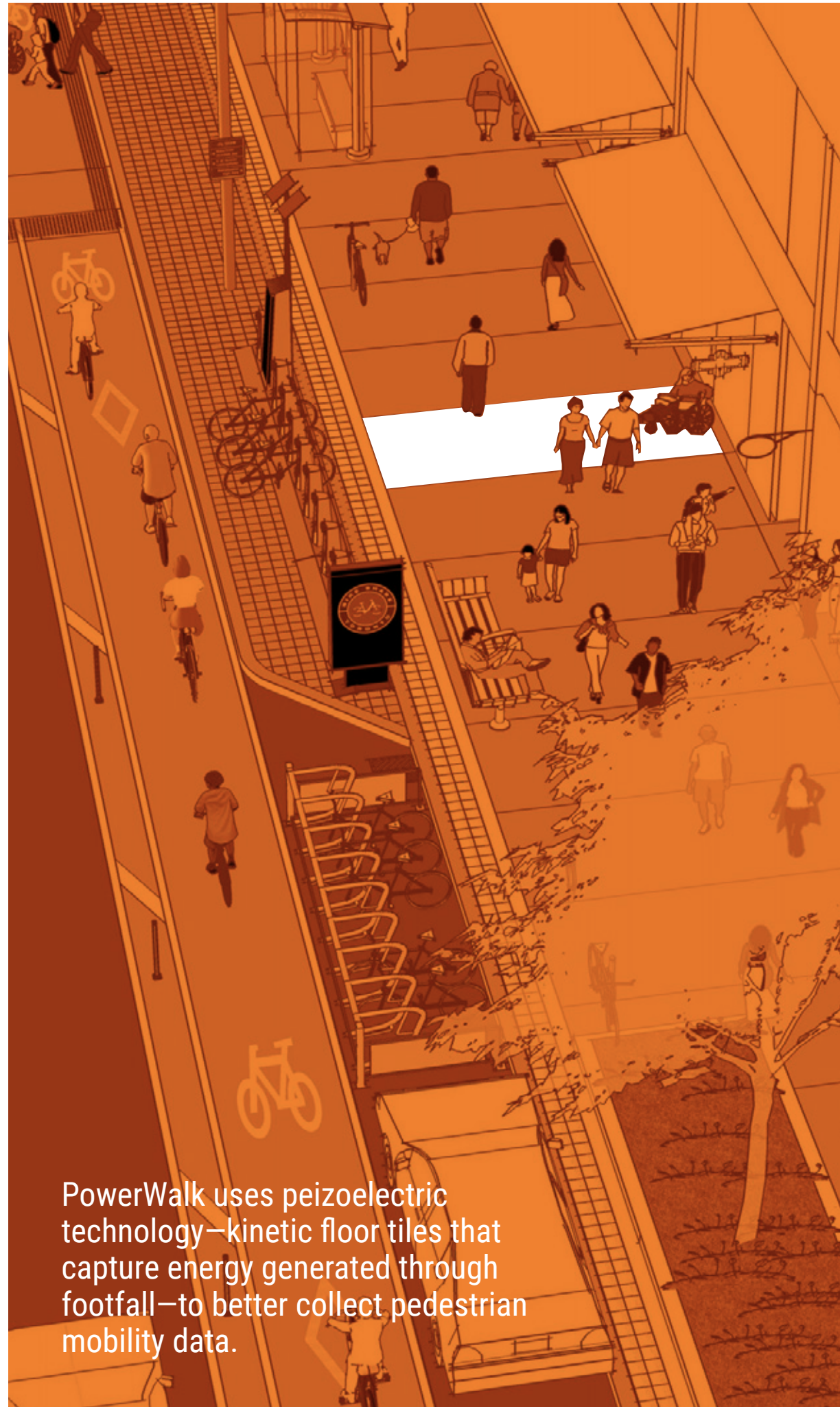
Thank you to all of the participants—for your passion, your creativity, and your contribution to the Toronto community.



▶ **FIRST PLACE: POWERWALK**

Empowering walkability through data

▶ **TEAM MEMBERS:**
ASAD AHMED
GEORGE CROUCH
MELISSA MORGAN
JOSHUA PAPERICK



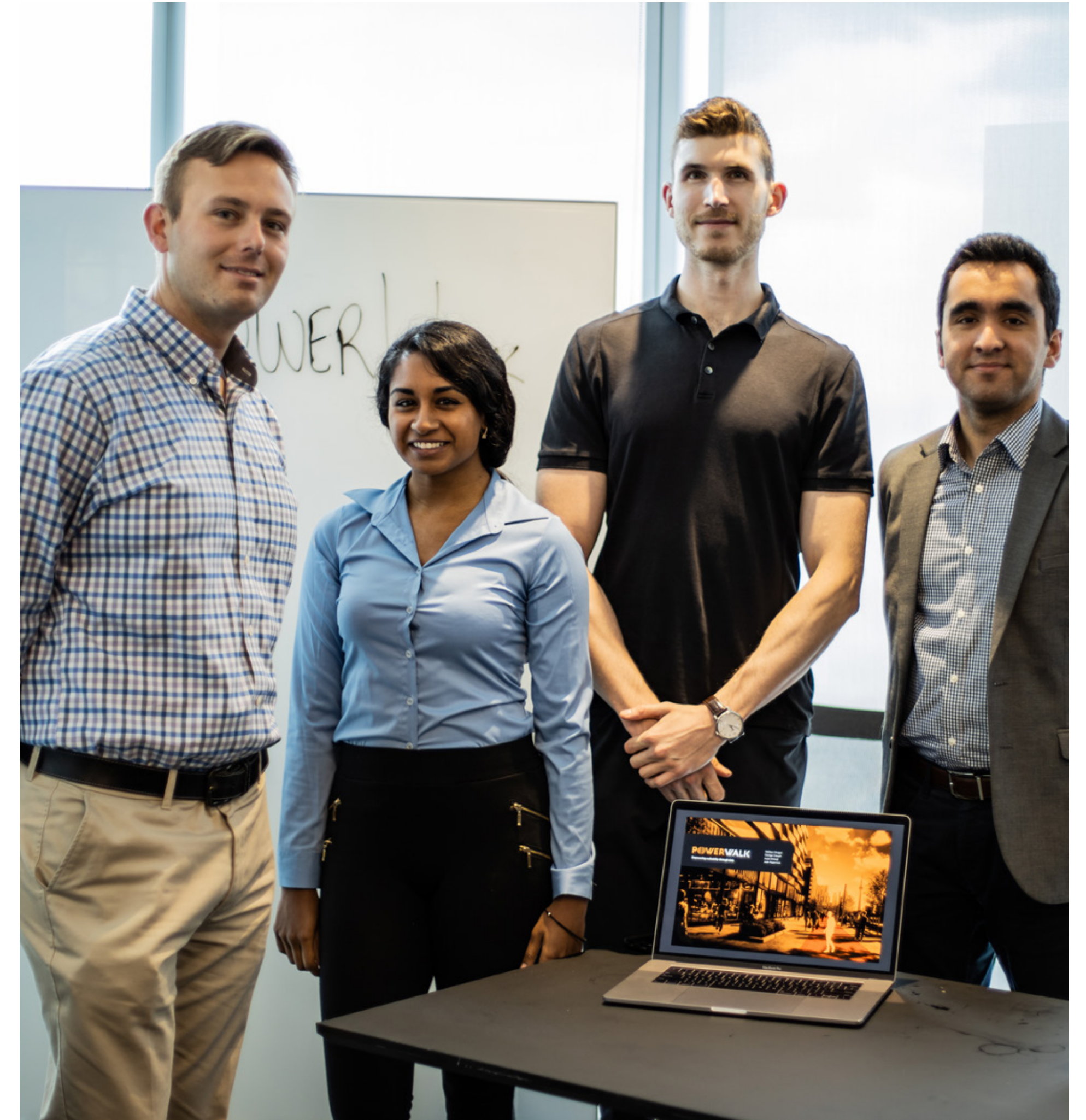
PowerWalk uses piezoelectric technology—kinetic floor tiles that capture energy generated through footfall—to better collect pedestrian mobility data.

Walking is the dominant form of transportation in downtown Toronto. It is associated with improved public health outcomes and happiness. Yet pedestrians are granted a disproportionately small share of city streets, and often their behavior and travel patterns are left unmeasured due to the difficulty and expense associated with gathering this data.

Better data is needed to understand the travel behaviors of pedestrians, and help optimize our streets and capital project portfolios to serve the community.

PowerWalk uses piezoelectric technology—kinetic floor tiles that capture energy generated through footfall—to better collect pedestrian mobility data. This data will improve mobility by quantifying footfalls. As well, it will assist government agencies to better quantify the economic impact of pilot projects in order to optimize investment in pedestrian infrastructure, quantify fare evasion, and evaluate lighting needs for urban trails to improve security and use.

For commercial use, data will be used to justify reduced parking minimums, validate and compare traffic to popup events, and attract potential tenants in retail centres.





John
0 Coins 0 Gems 100 Credits
@john • joined April 2019
13 followers 16 following

Timeline Profile Connections Groups Forums Photos Points Achievements



John:
Write here or use @ to mention someone.

John changed his photo

MEMBERS






Newest **Active**

-  John
-  adele
-  Alyssa
-  Arianna
-  Charles




▶ SECOND PLACE: 3WEEKSOLD

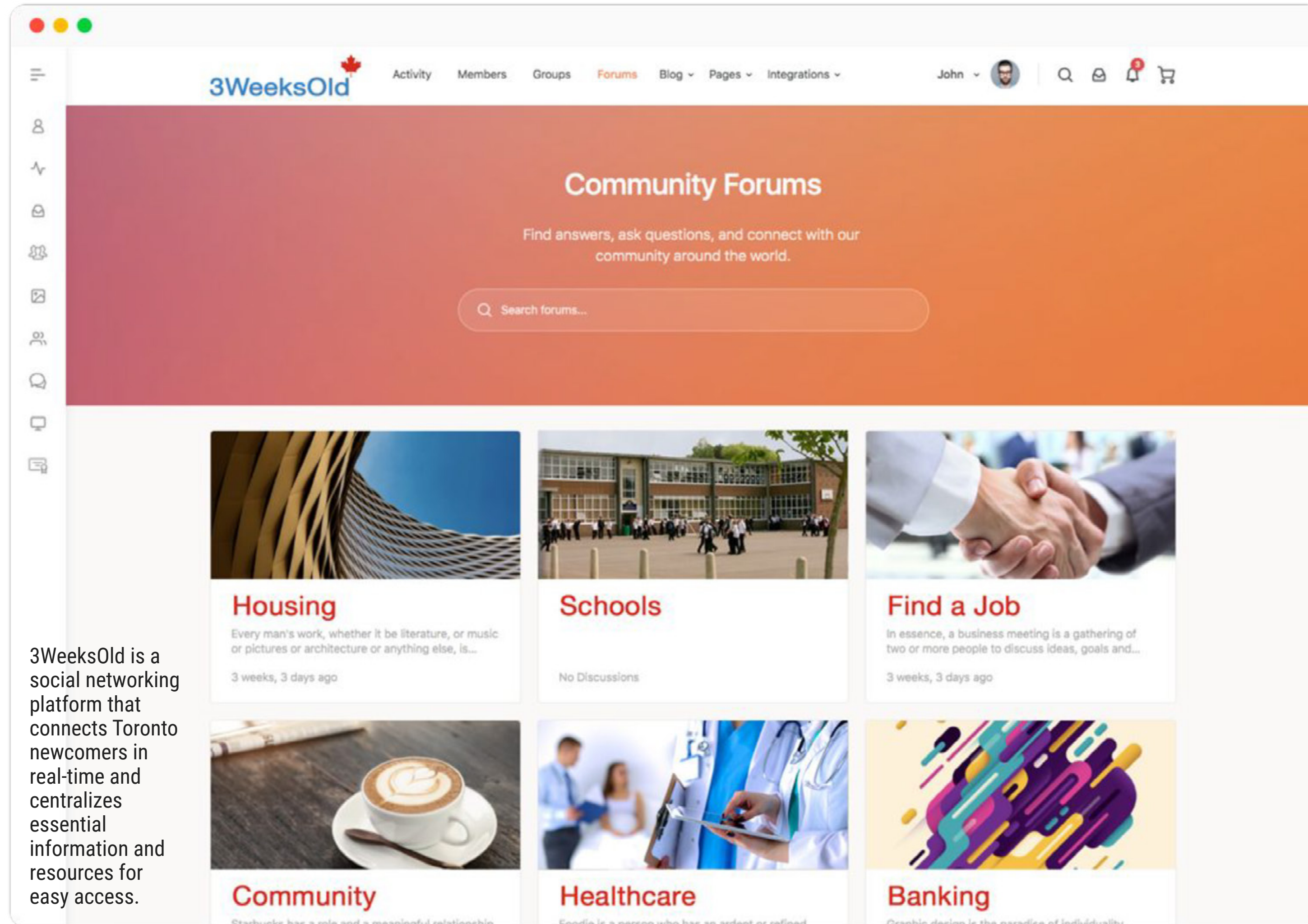
The connected platform for newcomers

LATEST UPDATES

-  John posted a group  Avia 13 days ago
-  John named the badges Social Friend 11 days ago
-  Sana posted an update 13 days ago
-  Marla posted an update 13 days ago

▶ TEAM MEMBERS:
AISHA ADDO
GIL KATZ
EYAL KATZ
TRYAMBAK KAUSHIK

-  **Alyssa**
0 friends Follow
-  **Arianna**
1 friends Unfollow
-  **charles**
0 friends Unfollow



3WeeksOld is a social networking platform that connects Toronto newcomers in real-time and centralizes essential information and resources for easy access.

There are many services available to newcomers to Toronto, but they don't know about them.

3WeeksOld is a social networking platform that connects Toronto newcomers in real-time and centralizes essential information and resources for easy access.

The platform can help newcomers find jobs, housing, banks, schools, healthcare providers, community, and more.



▶ **THIRD PLACE: LITMUS**

Climate resilience through a micro-climate data network

▶ **TEAM MEMBERS:**
PRIYA PATEL
KATE GOODALE
MICHAEL PHILLIPS
ALEXANDER PAU
HADI EL-SHAYEB

OVERVIEW

STANTEC COMMENTS

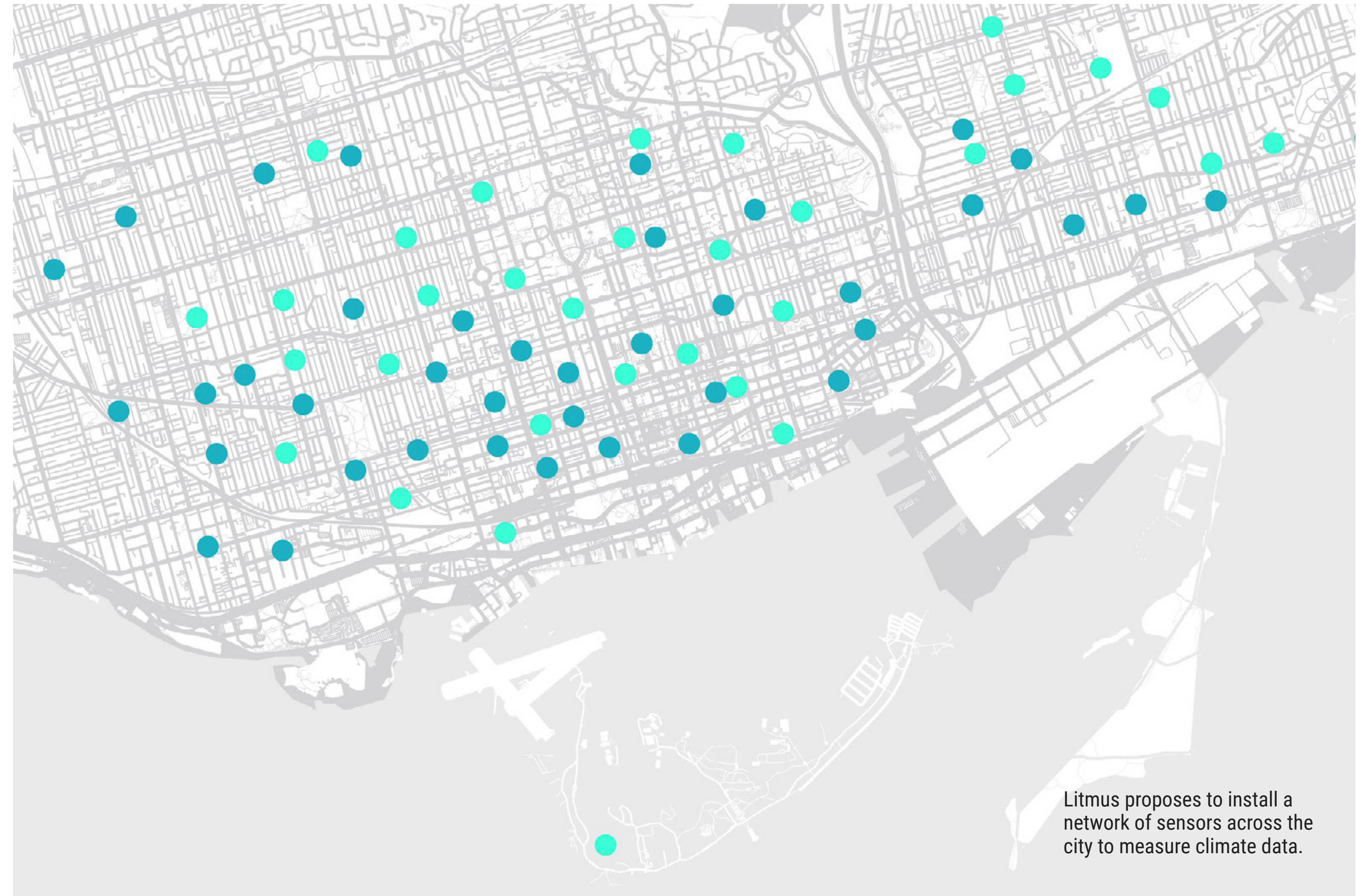
SPEAKER & PANEL HIGHLIGHTS

IDEAS

THANK YOU

The City of Toronto currently has three weather stations. This causes a significant gap in real-time micro-climate data, such as temperature, wind, sunlight, air quality, and more.

Litmus proposes to install a network of sensors across the city to measure climate data. In the short term, this data can be used to better inform building energy systems. And in the long-term, the system can contribute to better city planning, cost-savings, and climate resilient city planning and development.



Litmus proposes to install a network of sensors across the city to measure climate data.

A community engagement tool to help connect the city and its residents

To report a pothole online to the City of Toronto requires over 20 clicks as you navigate through a complex web structure.

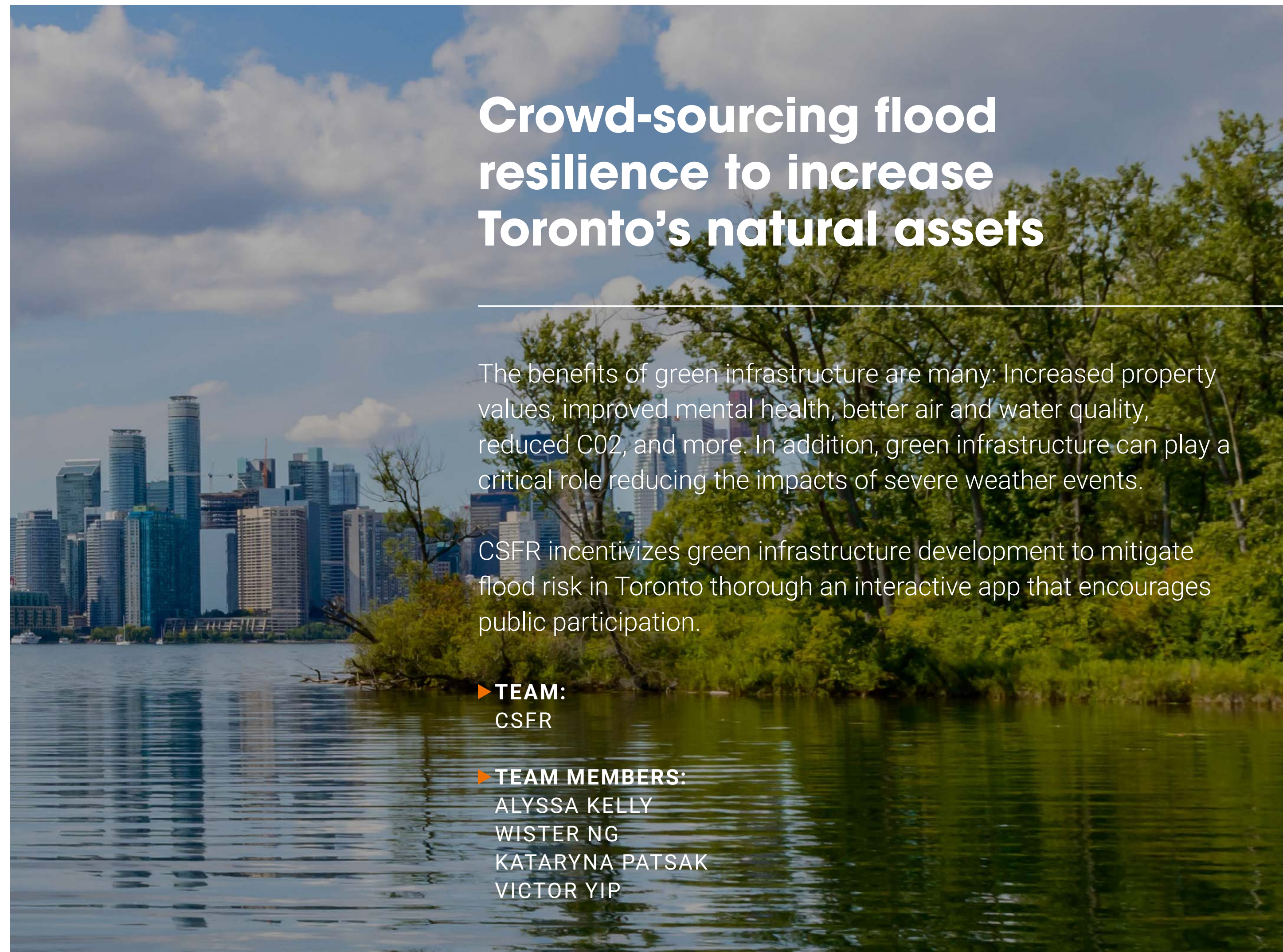
StableHacks' app makes reporting potholes easy. Users simply input their identity and the pothole's location and severity.

Geo-encoding, blockchain, and AI prioritize which potholes the City should fix first. Good citizen badges, real-time tracking, and local merchant incentives keep citizens engaged. And fewer potholes reduce both citizen frustration and damage claims.

► **TEAM:**
STABLEHACKS

► **TEAM MEMBERS:**
SHABS BADSHA
NAVDEEP KAUR
ATHIRA PILLAI
MAGDALENE SCHIFFERER
GUNEET SINGH





Crowd-sourcing flood resilience to increase Toronto's natural assets

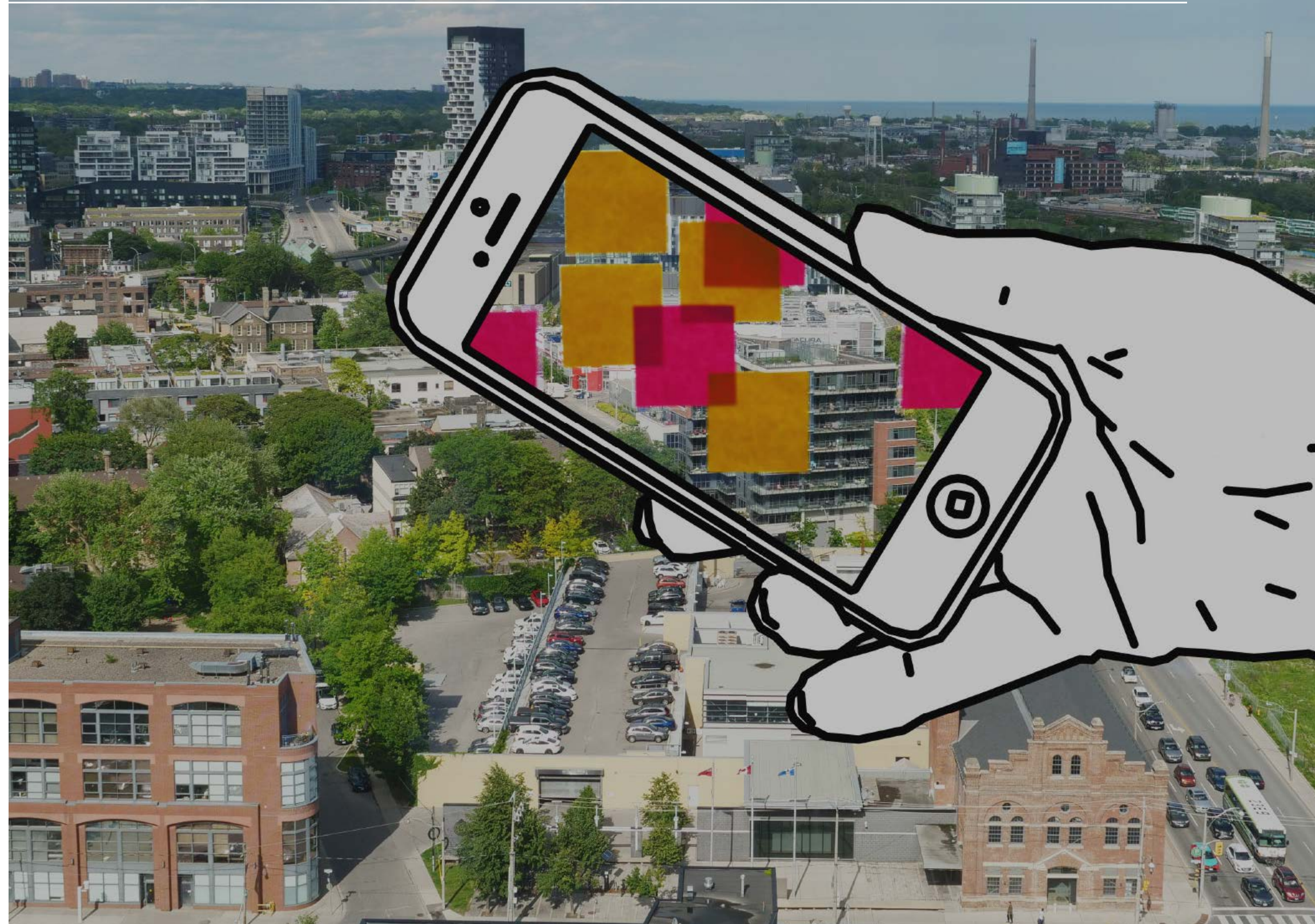
The benefits of green infrastructure are many: Increased property values, improved mental health, better air and water quality, reduced CO2, and more. In addition, green infrastructure can play a critical role reducing the impacts of severe weather events.

CSFR incentivizes green infrastructure development to mitigate flood risk in Toronto through an interactive app that encourages public participation.

► **TEAM:**
CSFR

► **TEAM MEMBERS:**
ALYSSA KELLY
WISTER NG
KATARYNA PATSAK
VICTOR YIP

Visualization of a smart city network to empower citizen science



Everyone is concerned about the environment. We want to leave the world a better place.

But how do we get citizens to feel involved and get their say? How do we get citizens to provide governments with vital feedback? And how do we motivate citizen to take-on pressing tasks and start organizing their own citizen science initiatives?

Post-it City is an augmented reality application that citizens can use on-the-go. Using their smart phones, people can stick virtual post-it notes to anything in the city—buildings, roads, parks—to say what they like or don't like.

Post-it City can influence regulations and policies, help consumers make informed decisions, and get better insights directly from citizens.

► **TEAM:**
POST-IT CITY

► **TEAM MEMBERS:**
CAMILO ACOSTA
AAYUSH BHUTANI
ALEXANDER CHUDINOV
YVAN MACKINNON
SANDRA SEENAUTH

Smart Integrated Transit

Multiple platforms and payment processes make commuting less convenient for Toronto residents and harder to monitor for local governments. Smart Integrated Transit provides a multi-modal transit system to improve utilization and expand transport network by integrating long-haul and last mile connectivity.

▶ **TEAM:**
URBAN THRESHOLD

▶ **TEAM MEMBERS:**
KARTIK BHAT
IRSHAD KAPATRALLA
DIBA RASHIDI
GAURAV SHARMA
AKASH TALWAR
JASON YE





Civic innovation for healthier mobility

Longer commute times and use of single-person vehicles contribute to less physically active citizens and an inefficient and environmentally damaging transit system in the City of Toronto, creating a livability issue.

The SmartSix app combines public and private sources of transportation data to provide commuters with real-time insight into traffic conditions in order to alleviate congestion and promote healthier and greener mobility habits.

▶ **TEAM:**
SMARTSIX

▶ **TEAM MEMBERS:**
CHRISTINA CHOLKAN
ARVIND KARIR
ANNA LIM
AVISHAI MOSCOVICH
KELLY WONG
DEREK WONG



Inclusive living solutions for Toronto seniors

200,000 people in Toronto will seek to live in independent retirement communities in next 5 years. However, these communities are not a preferred choice for seniors due to their cost, distance from family, and inability to meet personal needs.

The Perennials smart hub will improve quality of life for retirement community residents by providing easy access to healthcare, family, community, meals, mobility options, and home maintenance services.

▶ **TEAM:**
PERENNIALS

▶ **TEAM MEMBERS:**
SHIVASHISH GHOSH
ZEESHAN HABIB
ANAND NANDAKUMAR
AMI SAHA





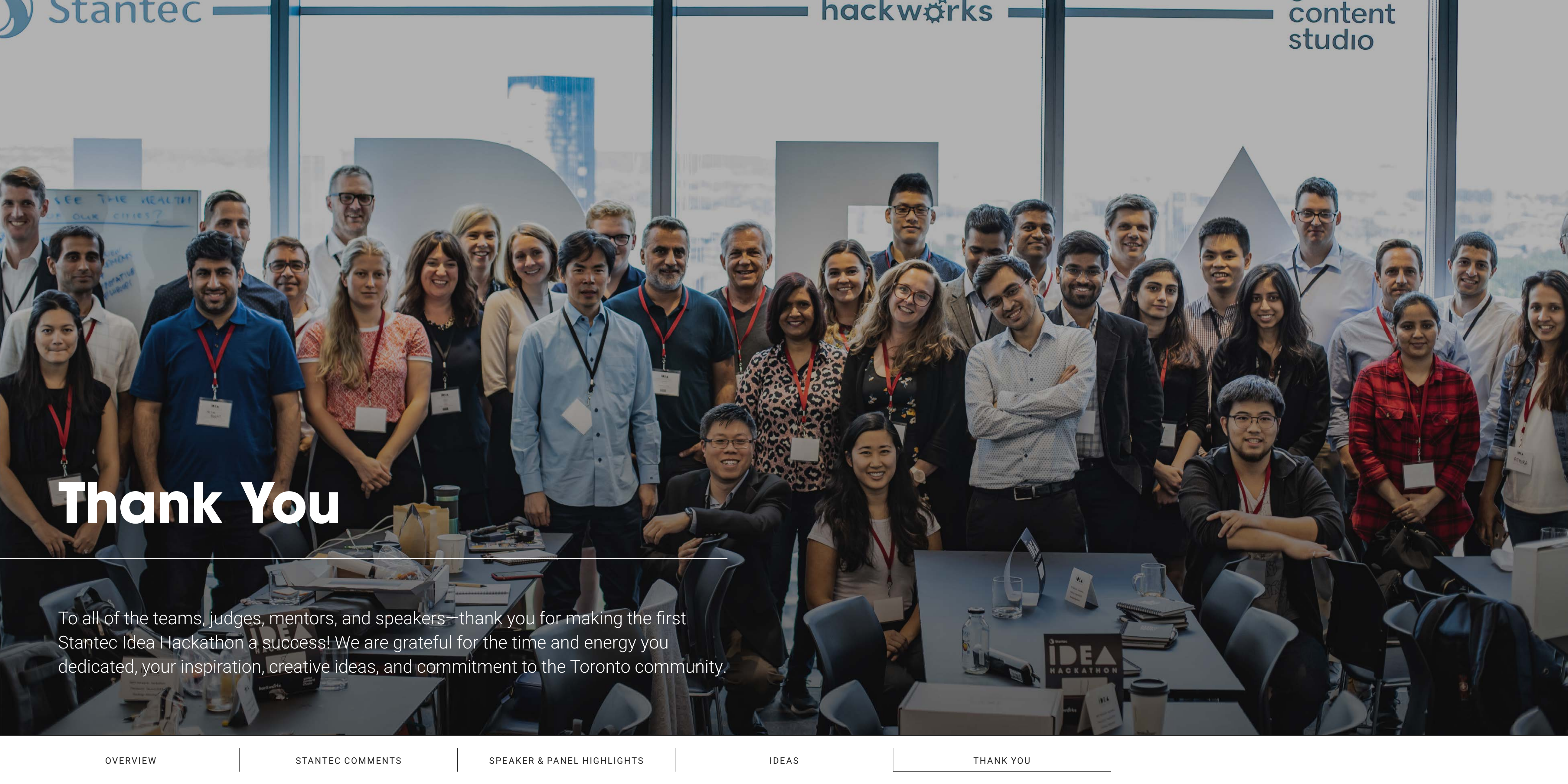
Promoting civic participation in collecting localized environmental data to improve life in the City of Toronto



Weather or Not will develop low-cost weather sensor kits to be installed by residents of Toronto in their own homes. Data will be fed to a central cloud database using residents' Internet connections. The data can be used by public and private institutions to provide citizens with real-time information about localized weather conditions, flooding, sewer back-ups, and more.

▶ **TEAM:**
WEATHER OR NOT

▶ **TEAM MEMBERS:**
JUSTINE GERROIR
LINA KIM
MAZIAR MASOUDI
JORGE OLENWWA
DIANA SO



Thank You

To all of the teams, judges, mentors, and speakers—thank you for making the first Stantec Idea Hackathon a success! We are grateful for the time and energy you dedicated, your inspiration, creative ideas, and commitment to the Toronto community.

Expo Judges

Julie Fader

Evergreen
Program Officer

Dan Ruby

Ontario Centres of Excellence
Business Development and
Commercialization Manager & Sector Manager,
Automotive and Mobility

Zaheer Muhammed

Siemens
Director, Strategic Business Development

Sasha Sud

MaRS Discovery District
Director, Smart Cities

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Habitat for Humanity
CEO, GTA

Alice Xu

City of Toronto

Dave Sauve

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Regional Leader, Canada (Ontario GTA)

Janine Turner

Stantec
Vice President, Programs & Business Solutions

Mark Wilson

Stantec
Principal, Sector Leader – Power (Eastern Canada)

Arya Rohani

Stantec
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Kevin Johnson

Stantec
Vice President, Intelligent Platforms



Finale Judges

Hugh Clark

Allied REIT
Executive Vice President, Development

Simon O'Byrne

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*Senior Vice President,
Community Development*

Erin Leslie

City of Toronto
Relationship Manager

Russ Wlad

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*Executive Vice President,
Regional Operating Unit Leader, Canada*

Rod Schebesch

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*Senior Vice President,
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Julie Morin

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*Internet of Things – Canada – Solution Lead –
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Toni Rossi

Infrastructure Ontario
President, Real Estate Division

Salima Rawji

CreateTO
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Daniel Carr

Alectra Utilities
Manager, Smart Cities

Matt Hexemer

HUGE
Executive Design Director – Physical Design

Geoff Olsen

Enwave
Director of Partnerships

Mike Voll

Stantec
Power Sector Lead, Smart Technologies

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Senior Principal, Community Development

Richard Baker

Stantec
*Program Designer,
Information & Communications Technology*

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Stantec
Principal, Water

Brenda Webster-Tweel

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Senior Associate, Community Development

Aeron Hodges

Stantec
Associate, Buildings

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Alectra Utilities
Allied
Bell Mobility
Blank
BlueSurge Technologies, Inc.
Byotics
Canadian Urban Transit Research and Innovation Consortium (CUTRIC)
Carbon49
CBC
CIBC
Cisco Systems
City of Brampton
City of Richmond Hill
City of Toronto
COLE Engineering
CreateTO
De Havilland Aircraft of Canada Ltd.
Done By Data
Dream Unlimited
DriveHER

Electrefy
Environment and Climate Change Canada
Enwave Energy Corporation
Evergreen
Geometriica
George Brown College
Georgian College
Giant Step
Green Fund
Habitat for Humanity
Hatch
Home Depot
Huge
Husky Injection Molding
IBM
Independent Engineering Consultant
Infrastructure Ontario
Knit Technologies
Limitless
MapYourProperty
MaRS Discovery District
Maxsys Staffing and Consulting

McMaster University
MHBC Planning
Microsoft
Miovision
Mircom Technologies Ltd
Morgan Consultants Inc.
Naborly
Ontario Centres of Excellence
Over Under Inside Out
Partners in Performance
Quartermaster Inc.
Ratio City
RBC
reed
RWDI
Scalar Decisions
Schulich School of Business
ShipperBee
Siemens
SmartEyes
Speer
Spore

Stablehacks
Sunlife
TD
tinyDroplet
Toronto and Region Conservation Authority
Toronto Public Library
Tridel
TrustD
University Health Network
University of Guelph
University of Toronto
University of Waterloo
Urban Living Futures Inc.
Women in International Security Canada-Toronto Chapter
Xylem Inc.
Yes Services General Contracting
Yip Ventures
York University

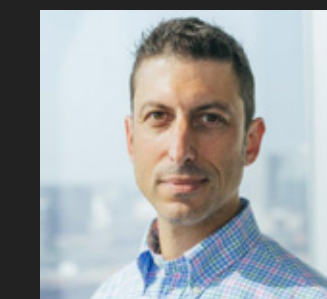


And special thanks to our emcees:



Nancy MacDonald

Stantec
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Sean Stanleigh

The Globe and Mail
Head of Globe Content Studio