Analytics and Data Products for Smart Cities and Social Services

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2° Encuentro de Ciudades Inteligentes para la Inclusión - IM

Mechanical & Industrial Engineering





Consens

FACULTY OF APPLIED

Smart Cities need Smart Social Services



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About the Centre

Our research explores how each stage of the social services chain can benefit from engineering design, planning and delivery.



In The News

India Smart Cities Initiative



CSSE Director Mark Fox joins U of T team in India to discuss Prime Minister Modi's 100 Smart Cities Plan

Interview: Simulating Social Service Clients



A conversation with the engineering team that is spearheading the Social Services Simulator Project at the CSSE.

Publications

Wang, Y., and Fox, M.S., (2015), "A Shelter Ontology for Global City Indicators (ISO 37120)", Working Paper, Enterprise Integration Laboratory, University of Toronto, Revised: 28 August 2015.



Projects

- 1. Social Needs Marketplace
 - Product, Services and Skills Ontologies
 - Volunteer Logistics Fleet Management
 - Virtual, Integrated NGOs
- 2. Social Services Simulator
- 3. Ambient Activities for People with Dementia
- 4. Centivizer Behaviour Management
- 5. Findhelp Web and Call Centre Data Analysis
- 6. Design of Toilets Blocks for the Slums of Mumbai
- 7. Ve'ahavta Street Academy Process Map
- 8. Social Services Finder
- 9. Immigrant Skills
- 10. Predictive Analytics for Homelessness Prevention



Talk Overview

- Analytics for 211 FindHelp – Spark, Notebooks, Visualization
- Data Products for Smart Fleet Management

 Cloud+Fog, Real-time Analytics, Visualization



FindHelp Case Study

- Grads: Yuhong Liu, Mazvita Johnston
- Findhelp Information Services is a charitable nonprofit organization that is a leader in Information and Referral
- Findhelp offers information on human services through a three digit (211) community telephone information line available to all those who live, work or visit the city of Toronto, York and Durham Regions, as well as a bilingual website
- Supported by diverse sources including the United Way of Toronto and municipal, provincial, and federal governments



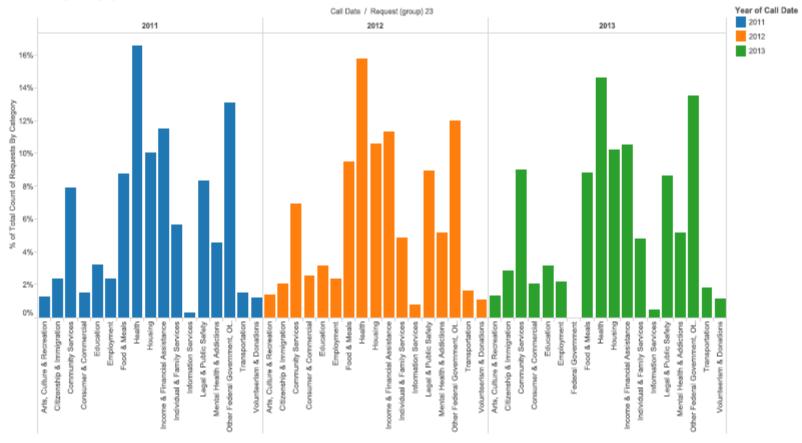
211 Service

- Assigned by the FCC (US) and CRTC (Canada) for the purpose of providing quick and easy access to information about health and human services
- Dial 211 to speak to an Information and Referral Specialist that helps callers find the right community and social services
- Similar to 311 (same number in New York), or 1950 Intendencia de Montevideo (vs. *4141)



Analytical Insight into Toronto's Needs

Year-Year by Category





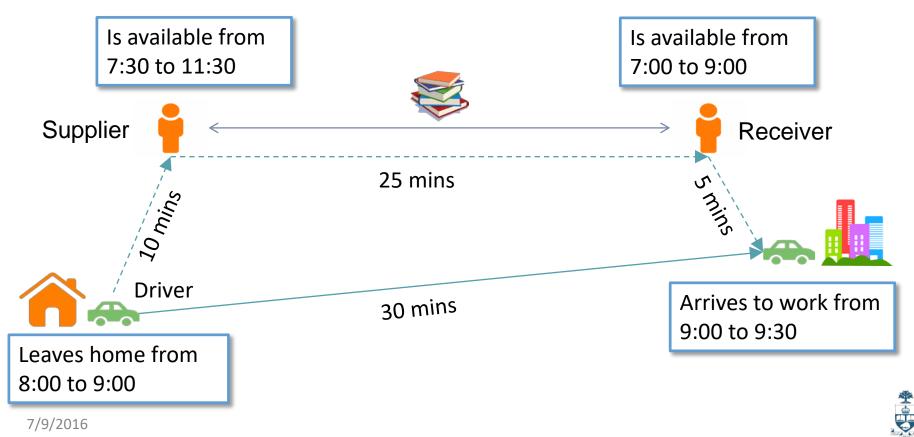
Overview

- Analytics for 211 FindHelp
 - Spark, Notebooks, Visualization
- Data Products for Smart Fleet Management
 - Cloud+Fog, Real-time Analytics, Visualization



Volunteer Logistics (Liu, Aleman, Beck)

The logistical problem of transporting goods from donors to requestors



UofT

Senior Transportation Problem

- Provided 88,000 trips to 7,300+ seniors in 2015
- 4% of daily trips not scheduled resulting in 3,500 unmet requests yearly
- Vehicles are not used under full capacity 85% of the time



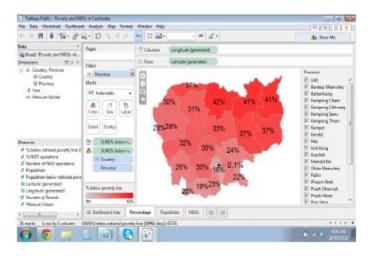


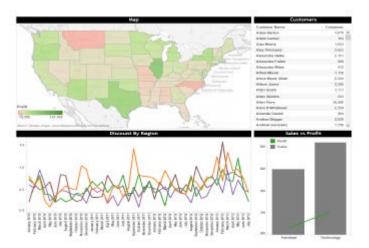


Analytics for Fleet Management

• Grads: Vandana Saini, Fiona Zhao









Geotab Devices (Internet of Things)

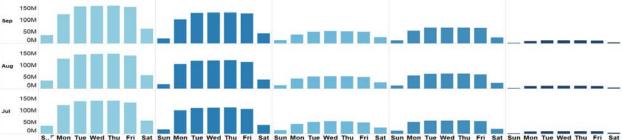
- Sensors connected to GPS, On-board diagnostics (OBDII)
- Add-ons: Driver, Cargo, Traffic, Weather





Analytics for Fleet Management

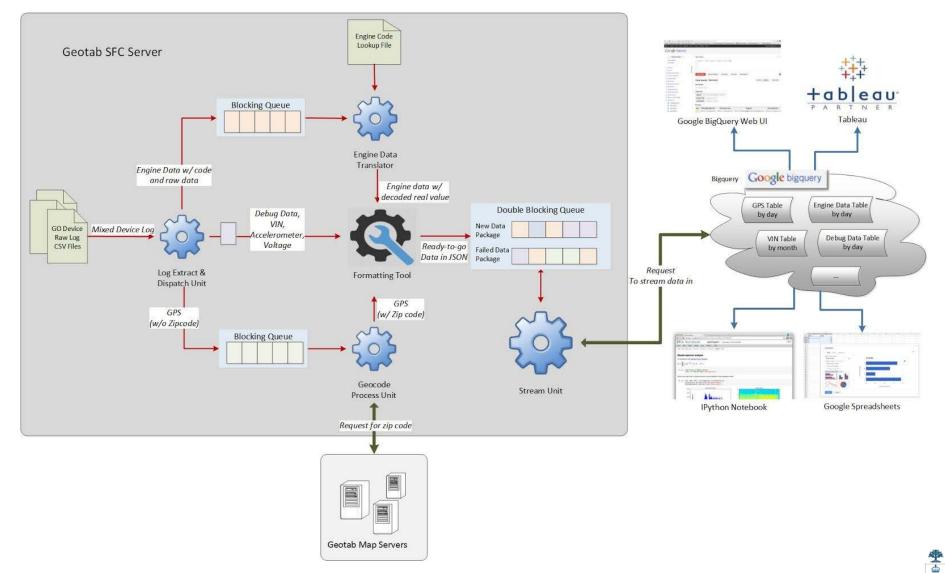
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