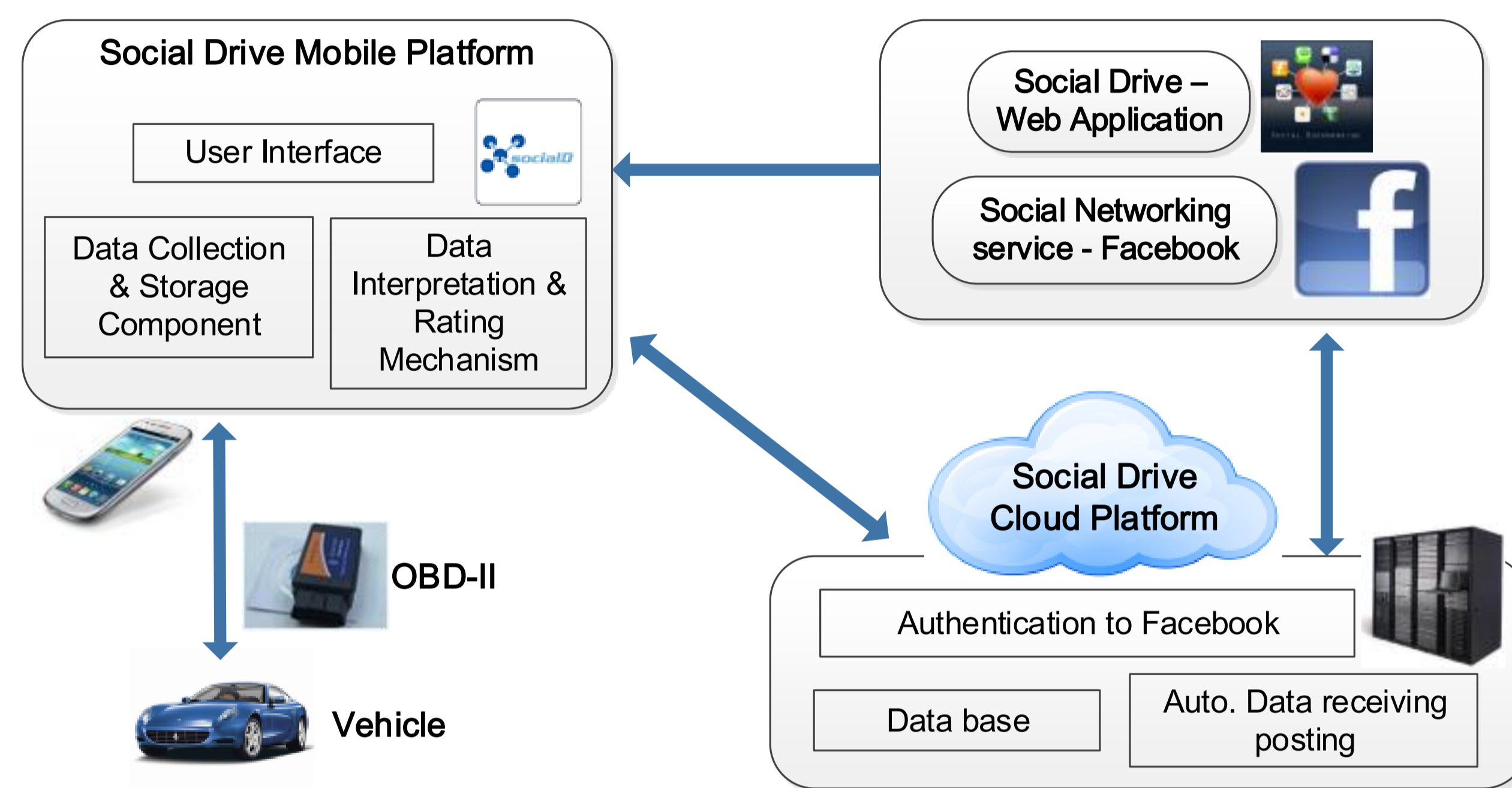


Social Drive: A Crowdsourcing-based Vehicular Social Networking System for Green Transportation

Xiping Hu, Victor C. M. Leung

Social Drive System



System architecture of Social Drive

Social Drive: a novel crowdsourcing-based vehicular social networking system for green transportation.

Object

- Provide a seamless and comprehensive solution that could support real-world deployment of vehicular social networking (VSN) applications.
- Leverages advantages of OBD-II and popular social networks with friendly user interface (UI), so as to help the drivers to improve their driving behaviors with an easy and pleasure with their friends, that towards green transportation

Design Overview

Score	Rating
< 0	F
0 - 0.5	D
0.5 - 1.0	C
1.0 - 2.0	B
2.0 - 3.0	A-
> 3.0	A

HA = Total number of hard accelerations recorded
 D = Total distance travelled
 If $HA = 0, HA = 1$
 TE = Targeted average fuel economy (10L/100km was chosen)
 E = Actual average fuel economy
 S = Servicing status
 If service is overdue, $S = 0.7$
 If service is due today, $S = 1.0$
 Otherwise, $S = 1.3$

The grading criteria of Social Drive for assessment

OBD-II

Real-time vehicle information

(a) Overall Rating: 13.3km
Total Distance: 627.1/100km
Average Fuel Economy: 17.2km
Current Fuel Level: 17.2%Service Date: Next service is recommended in 177 days

(b) Trip 1: Trip Name: Minto Track, Date: Fri Jan 18 13:12:39 PST 2013
Trip 2: Trip Name: Minto Track, Date: Sat Jan 19 14:07:16 PST 2013

(c) User Status Activity: Econ: 10.74L/100km, Distance: 7.42km, Throttle: 10.59%, Fuel Remaining: 0.0%

(d) Map Activity: Vancouver Trip, Description: This is our vacation this year. Average Economy: 10.3L/100km, Total Trip Distance: 12km

(e) Settings: Enable updates, Update frequency, Vehicle Name, Date of last service

(f) Trip information upload

Screen-shots of the Social Drive user interface

Trip information upload

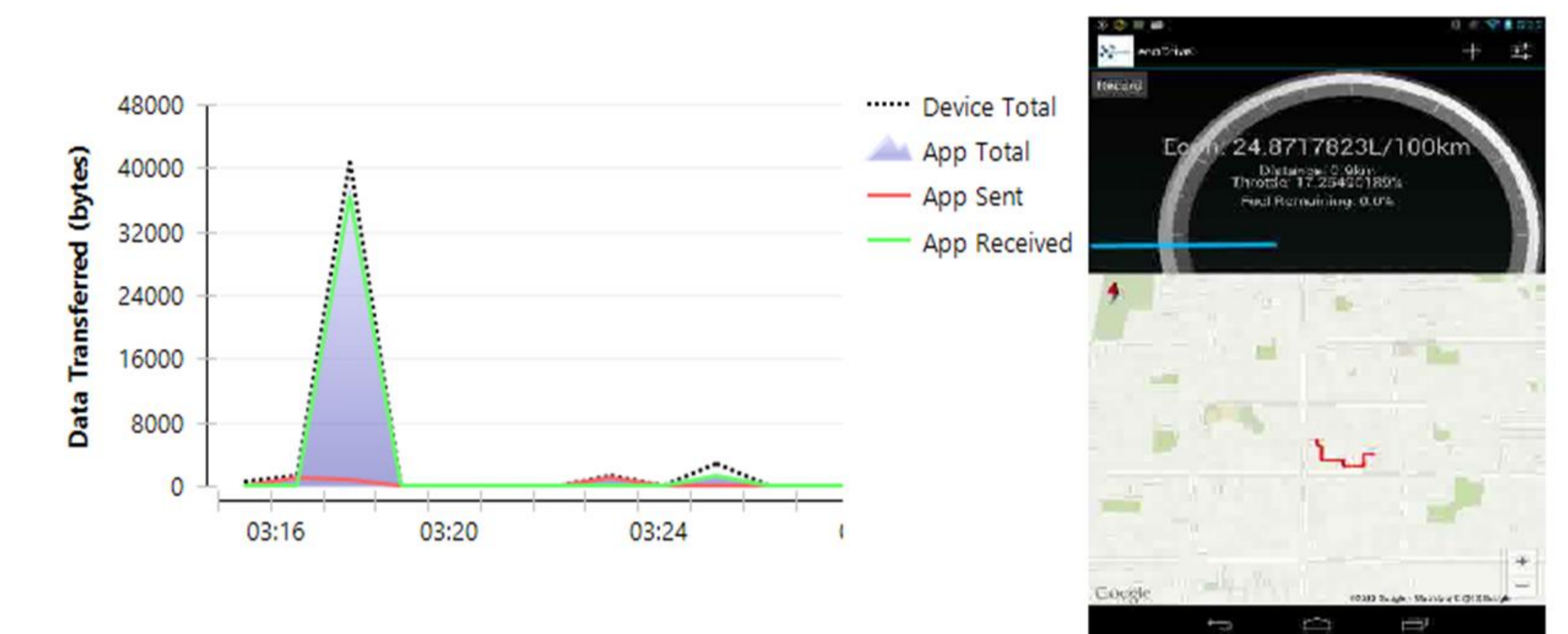
Welcome, Edmond Kong

Edmond Kong

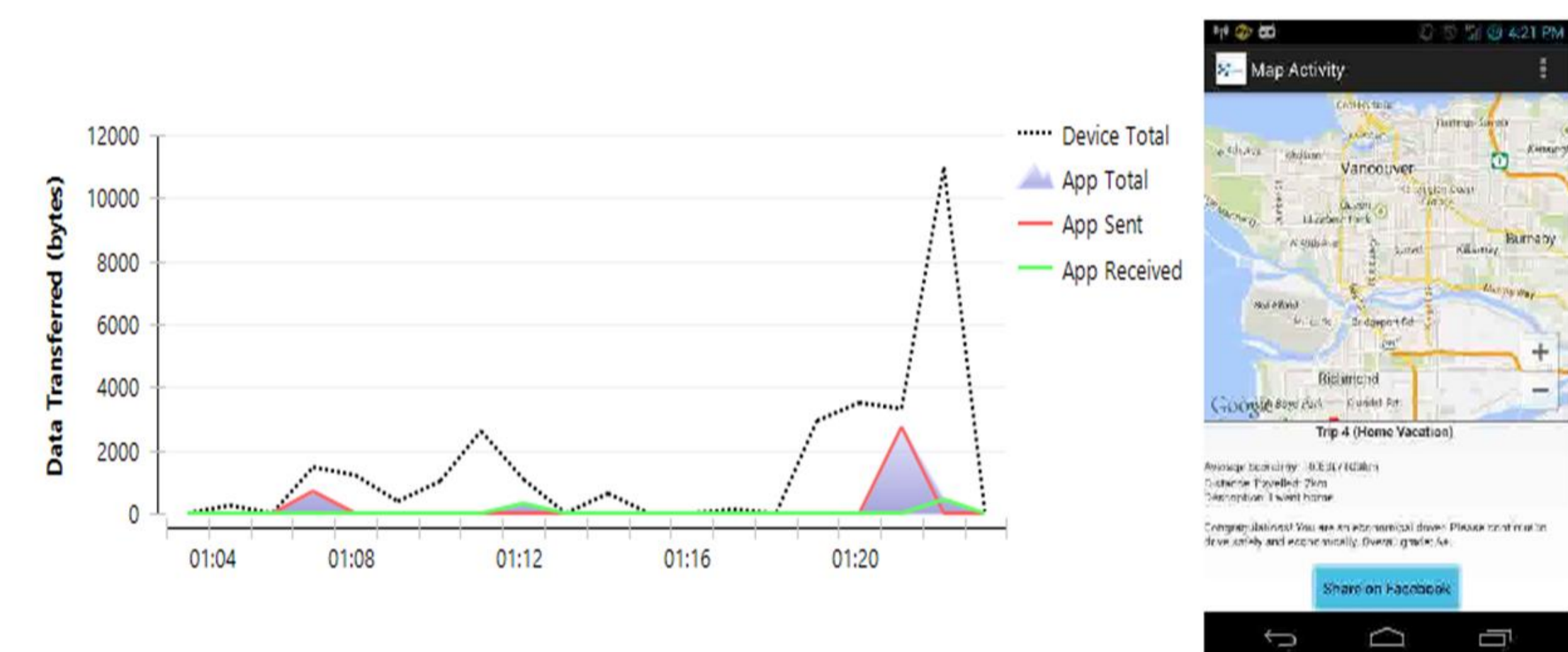
Trip Information posted by Social Drive

User interfaces of Social Drive- social web application

Evaluations



Networking overhead of social drive - in driving period



Networking overhead of Social Drive - posting trip

Contributions

Social Drive provides the first seamless solution with a user friendly mobile application

- Provides drivers with feedback about their driving behaviors
- Supports sharing of users' trip information via widely used social networks, to stimulate people to improve their driving habits for better fuel economy with friends

We deploy and evaluate Social Drive through a set of real-world scenarios

- Verify the feasibility of Social Drive.
- Provide practical experience that inspire future research and development of mobile social networking applications for green transportation.

X. Hu, V.C.M. Leung, et al, "Social Drive", *ACM MobiCom Mobile App Competition finalist*, 2013 (acceptance rate 19.2%=10/52)

X. Hu, V.C.M. Leung, et al, "Social Drive: A Crowdsourcing-based Vehicular Social Networking System for Green Transportation," *In Proc. ACM DIVANet 13*, Barcelona, Spain, 2013. (acceptance rate 14.5%=16/110)

