



ubigreen

Investigating a Mobile Tool for
Tracking and Supporting Green
Transportation Habits

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Sunny Consolvo^{1,3,4}, Beverly Harrison²,
Jen Mankoff³ James Landay^{1,2,3}**

dub

design:
use:
build:



¹ university of washington

² CSE, UW

³ Intel Research, Seattle

⁴ iSchool, UW

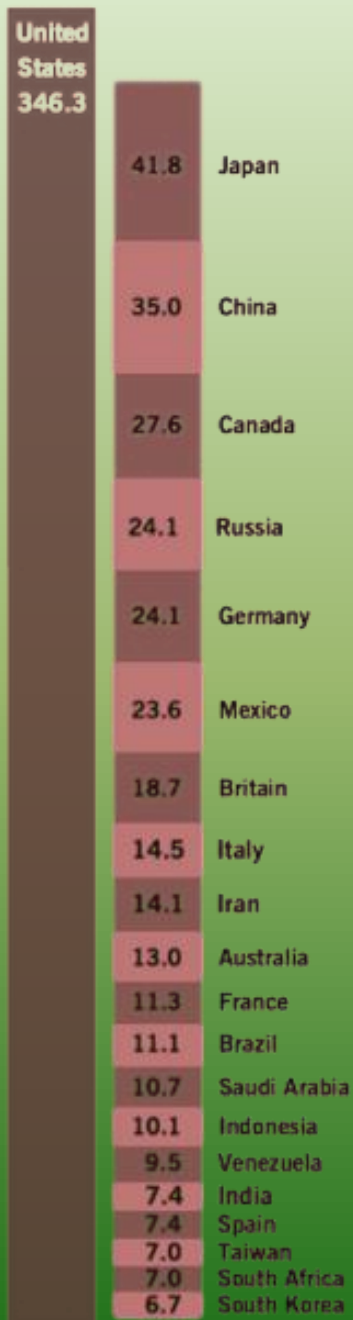
³ HCI Institute, CMU

If you asked me to name the three scariest threats facing the human race, I would give the same answer that most people would: nuclear war, global warming and Windows.

- Dave Barry
humor columnist, satirist, writer

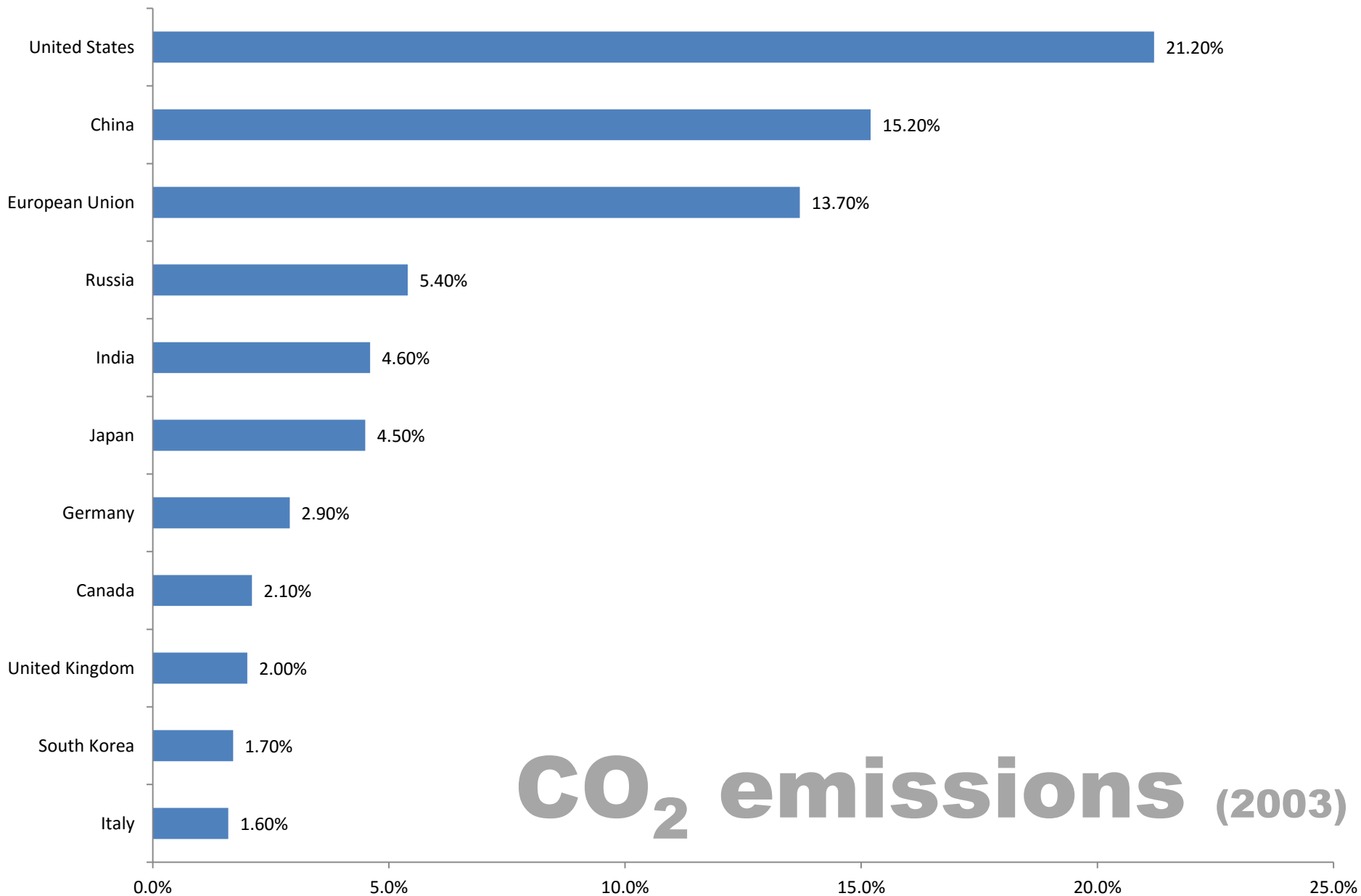
The danger posed by war to all of humanity - and to our planet - is at least matched by the climate crisis and global warming. I believe that the world has reached a critical stage in its efforts to exercise responsible environmental stewardship.

- UN Secretary General Ban Ki-moon
General Assembly, March 2007

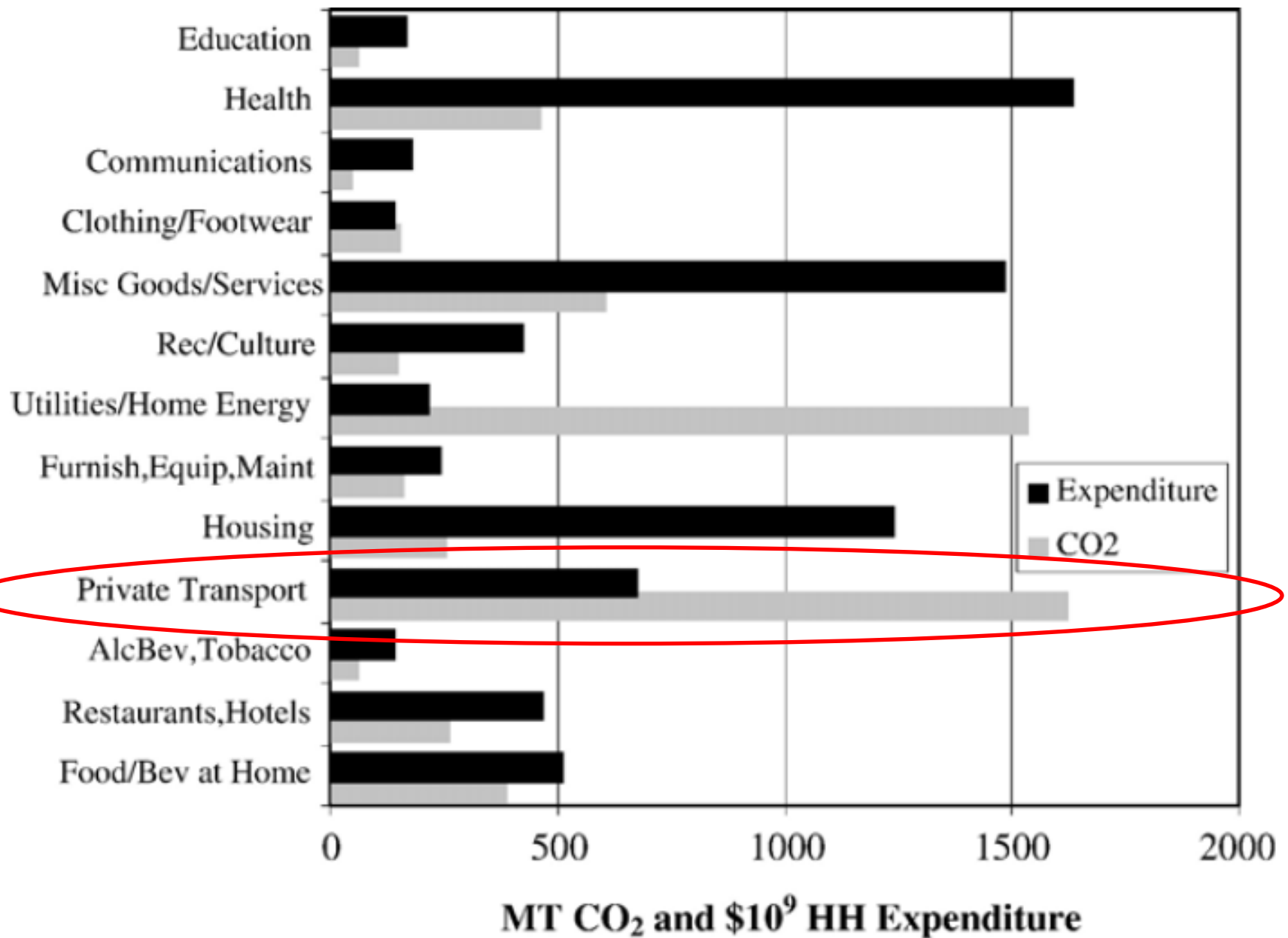


America is addicted to oil.

- President George W. Bush
State of the Union Address, January 2006



CO₂ emissions (2003)



persuasive technology

technology that intentionally changes attitudes or behaviors through persuasion and social influence



we're interested in studying how **mobile phones** can be used as **persuasive technologies** to affect **daily transportation practices**.

ubifit

Sunny Consolvo, Ph. D. Thesis

*runs on the background
screen of mobile phones, so
it's frequently seen by the
individual*



at-a-glance determination of:

- active or inactive week,
- variety in routine,
- this week's goal met
- recent goal met



strength



cardio



flexibility



walk



this week's goal met



recent goal met



transit activities



Train



Carpool



Bus



Walk

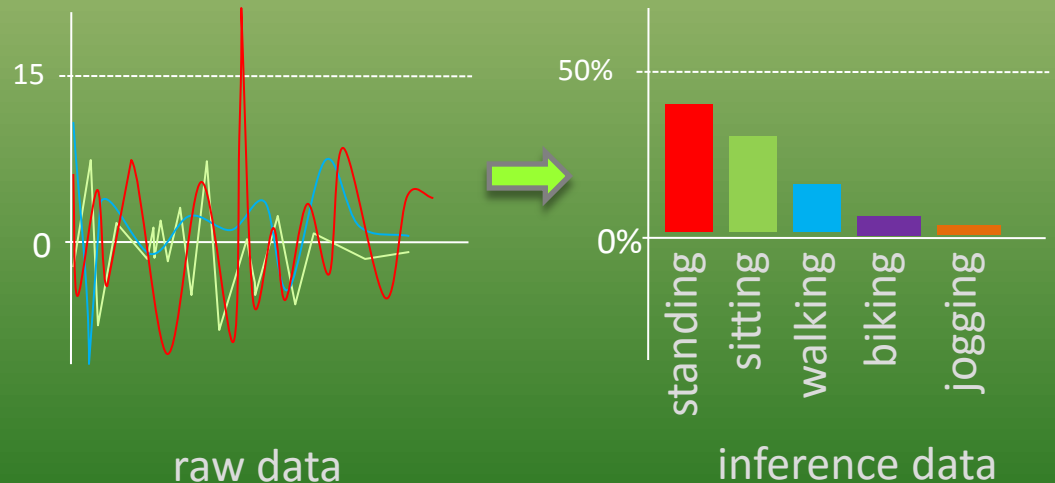


Bike

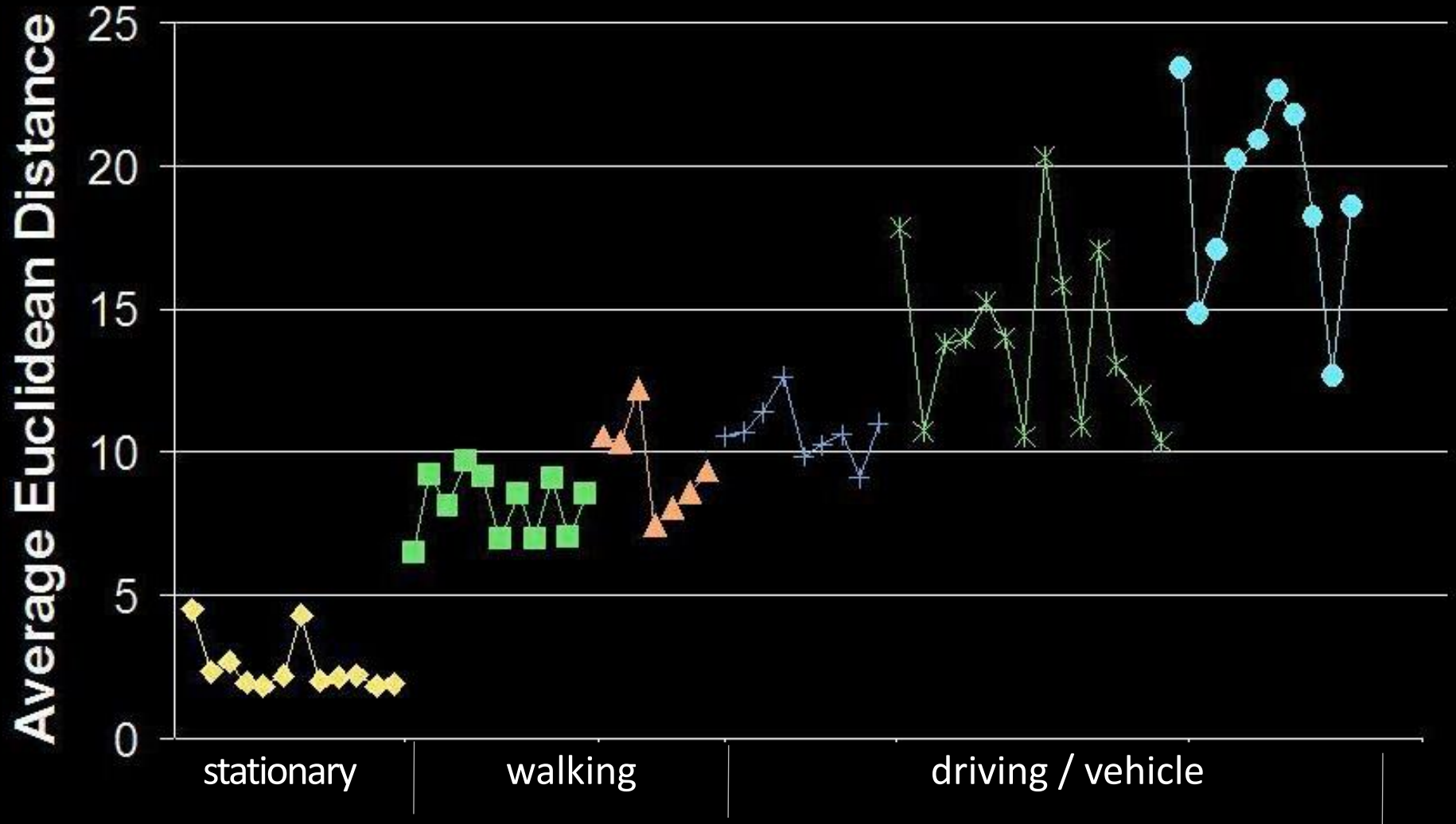
Three sources of transportation data:

1. a Mobile Sensing Platform (MSP)
2. the phone's own GSM cell signals
3. the participants themselves.

wearable sensing (msp)



gsm sensing



Timothy Sohn, et. al. Mobility Detection Using Everyday GSM Traces *UbiComp 2006*. Irvine, California, September 2006

sensing **vehicle travel**



Carpool

vs



Drive Alone



we asked

Manual Survey

Manual Survey

It looks like your last trip was made 'walking.' It was recorded automatically and lasted for approximately 11.5 mins ending at 03/31/08 6:56:34 PM. If you've traveled since then, please press OK to fill out a survey.

OK | Menu

SurveyPanel: 1

What type of trip did you take?

1. ☐ I did not take a trip
2. ☐ I drove in a car alone
3. ☐ I carpooled
4. ☐ I took a bus
5. ☐ I took a train/trolley
6. ☐ I walked
7. ☐ I biked
8. ☐ I ran

BACK | NEXT

Current
Activity

Evolving
Image

Values
Icon Bar







3-week study

	Location	Condition	Days	Occupation
P1	Pittsburgh	Tree	27	Sales Clerk
*P2	Pittsburgh	Tree	N/A	Attorney
P3	Pittsburgh	Tree	21	Law Enforcement
P4	Pittsburgh	Tree	9	Student
P5	Pittsburgh	Polar Bear	20	Technical/Engineering
P6	Pittsburgh	Polar Bear	12	Student
P7	Pittsburgh	Polar Bear	16	Student
P8	Seattle	Polar Bear	6	Student
P9	Seattle	Tree	42	Office Admin
P10	Seattle	Tree	19	Consultant
P11	Seattle	Tree	25	Program Manager
P13	Seattle	Polar Bear	37	Programmer
P14	Seattle	Polar Bear	30	Consultant
P15	Seattle	Polar Bear	6	Student



current ubigreen phone images

march 2008 field study

HOME :: April 2, 2008 22:40 PM PDT

RESEARCH PARTICIPANTS



[ubigreen9](#)

Updated: Thu, 27 Mar 2008 07:00:09 GMT



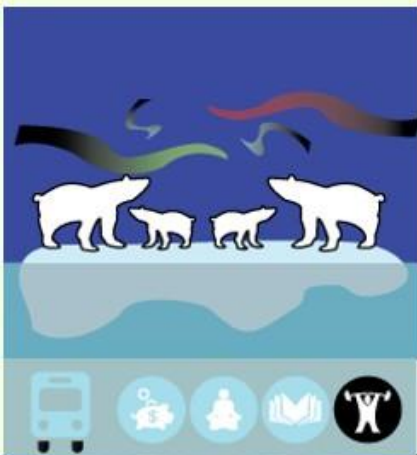
[ubigreen10](#)

Updated: Thu, 27 Mar 2008 15:21:28 GMT



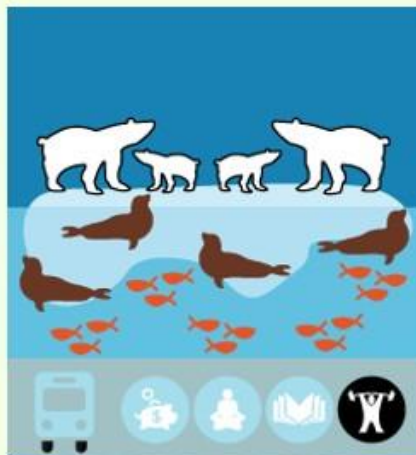
[ubigreen11](#)

Updated: Thu, 27 Mar 2008 19:10:10 GMT



[ubigreen13](#)

Updated: Thu, 27 Mar 2008 16:04:33 GMT



[ubigreen14](#)

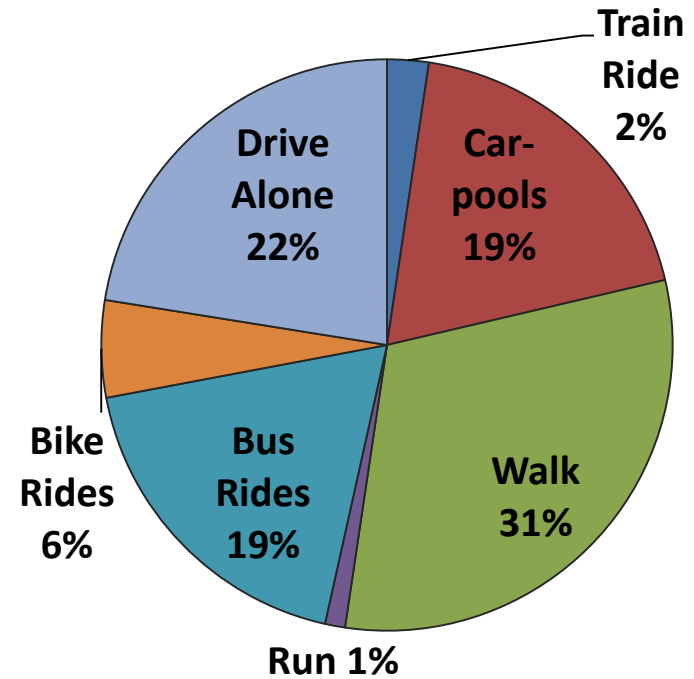
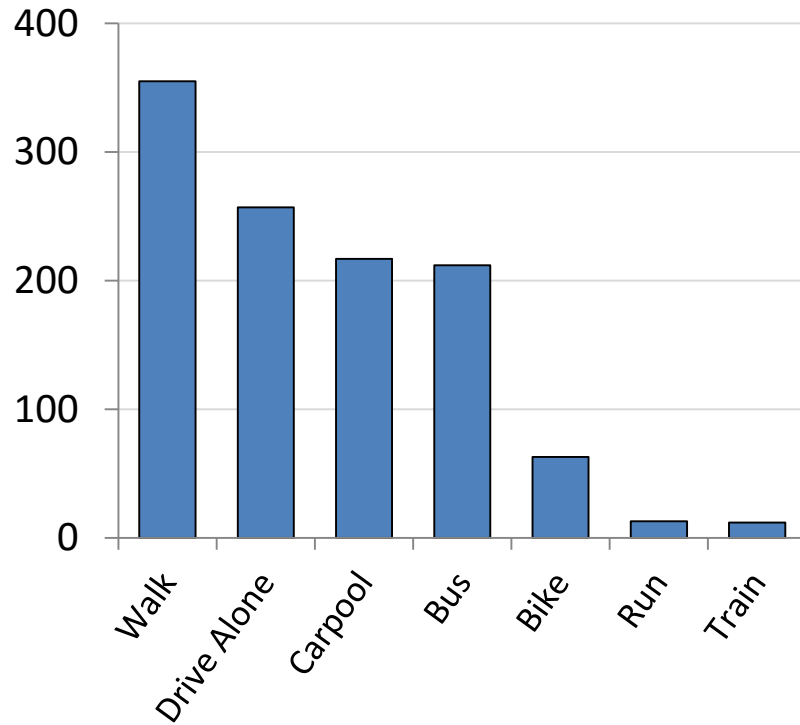
Updated: Thu, 27 Mar 2008 15:38:04 GMT

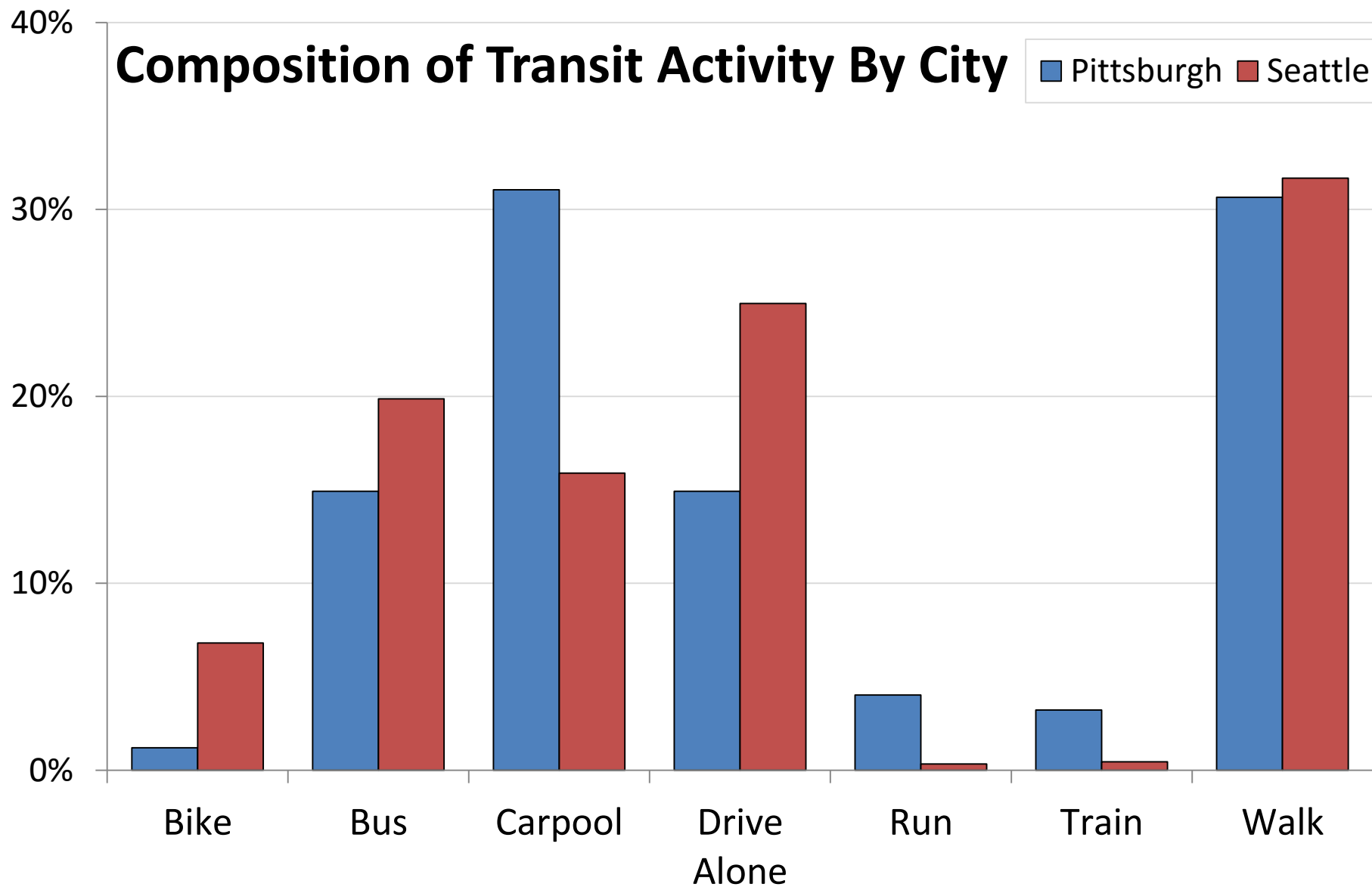


[ubigreen15](#)

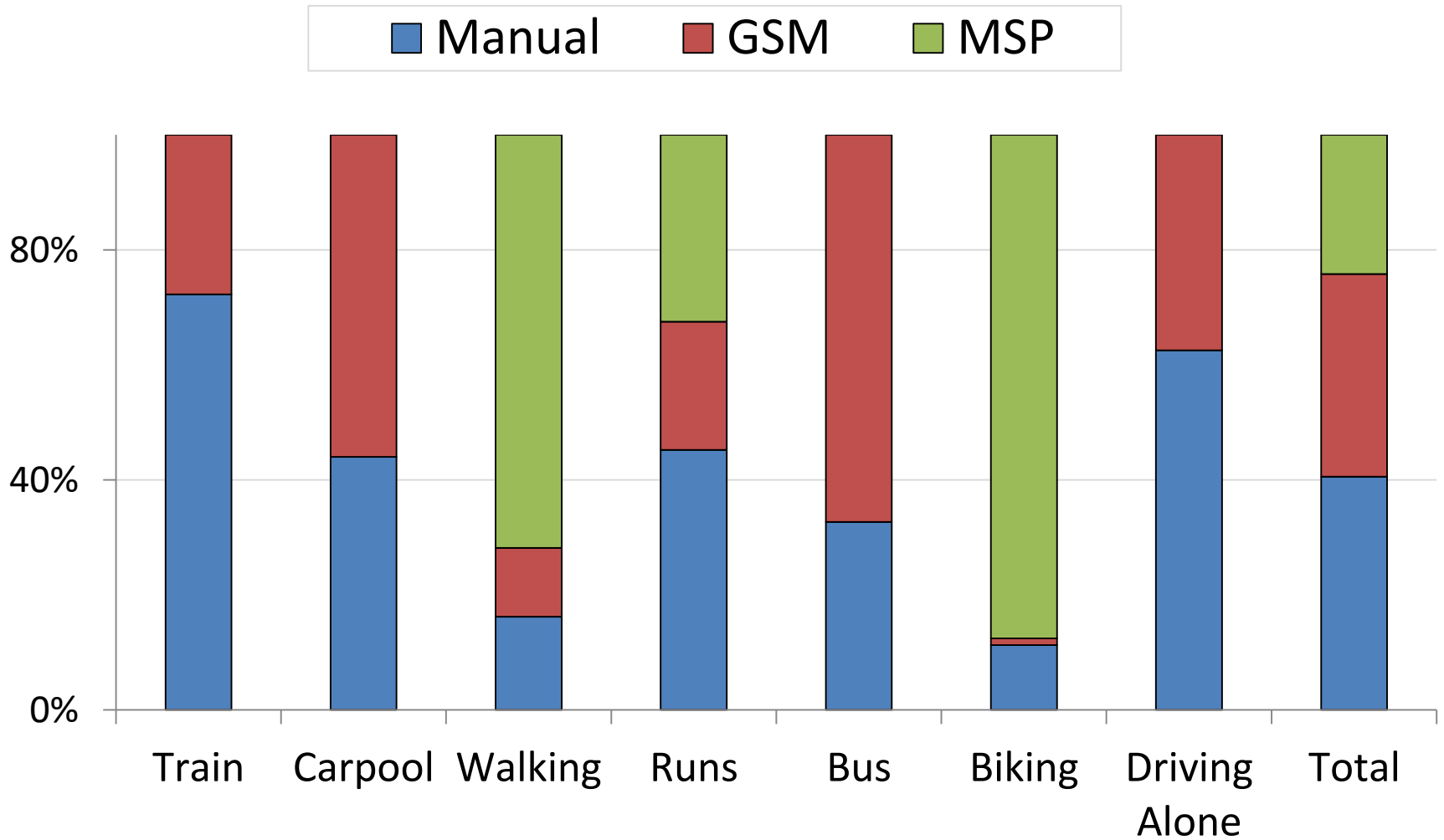
Updated: Thu, 27 Mar 2008 19:01:13 GMT

observed transit





source of data



visual design



I liked the tree because it was, to my mind, a pretty progress bar. There was enough of a clear distance between each state that I could tell the difference at a glance

- Participant 11

“I want to have different stories every week ... to maintain curiosity in the app” (P8) and that we, or others, could “generate their themes online and share them.” (P11)

I would like more information about carbon emission savings.

- Participant 15

real-life game



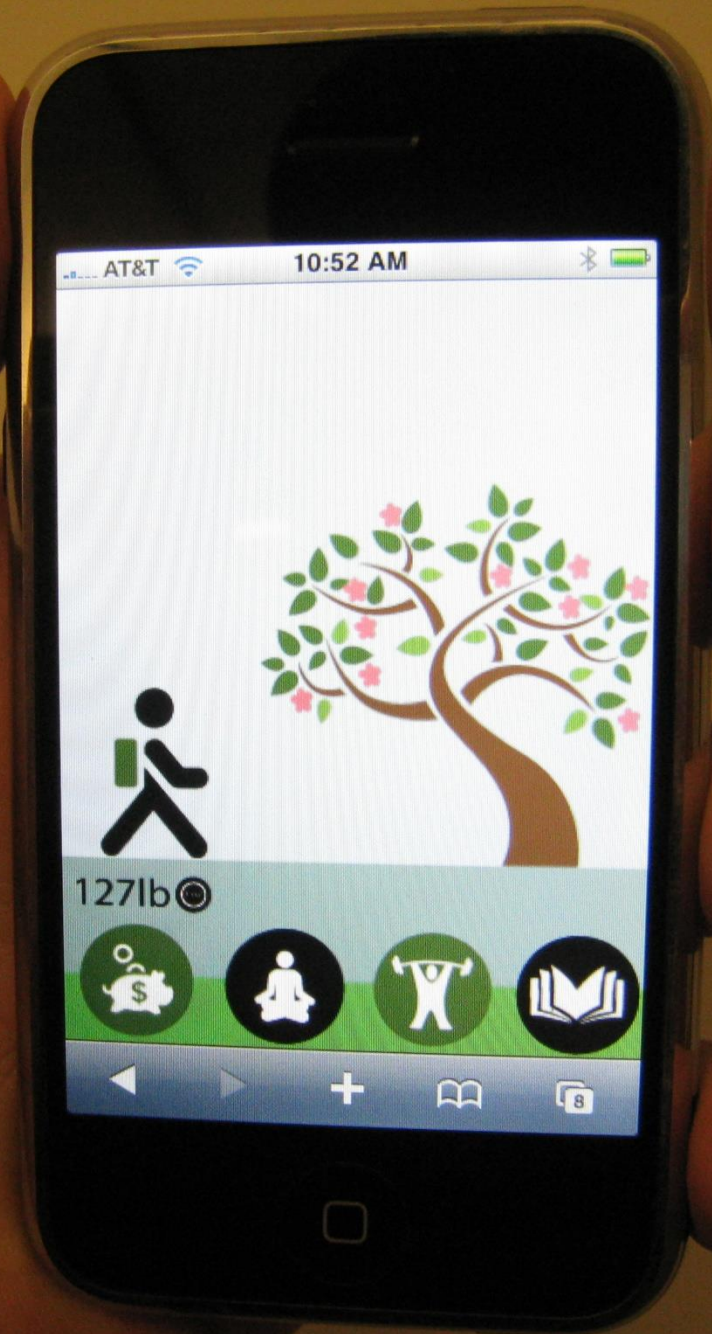
One participant complained that when a trip hadn't been automatically recorded, "I felt like I was being cheated out of my 'points'" **(P15)**

Future designs could incorporate a more overt gaming model.

- "more points" for zero-carbon trips
- reward user for reducing # of trips
- Incorporate carbon tracking

anticipation / social

- Anticipation and Curiosity
 - I liked that we didn't know what it was going to do. Like when your phone turned from leaves into flowers and then apples. **(P15)**
- Social Sharing of Transportation Activity
 - “Some people at work knew about the polar bear and every day they asked me about it. ‘Did you get a seal today?’” **(P14)**



ecorio



After installation, Ecorio runs in the background on your phone, keeping track of when you're moving in a car or a bus and tallies up the trips that you take each day.

When you first start Ecorio, you will see a summary of your activity and the current trip that Ecorio is tracking.

How many generations in all of human history have had the opportunity to rise to a challenge that is worthy of our best efforts. A challenge that can pull from us more than we think we can do.

-Al Gore

TED Conference, March 2008



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