Your Next Mobile Phone!
Once upon a time....
Accelerometer
GPS
Magnetic field sensor (compass)
Gyroscope
Proximity sensor
Light sensor

Bluetooth
Wifi
NFC
CPU thermometer
Microphone
Camera
Touch screen
[Fahrni et al., 2011]

[Sommer et al., 2012]
The future of mobile phones?
It’s the software...
Participatory Sensing = Web 2.0 → Mobile
Monday
Monday
Monday
GPS logging

Web 2.0

Data processing

Thermal maps

[Sommer, von Känel, W, 2011]
Tuesday
London
Your City Tour
don't buy!
Koukoumidis et al., 2011
Do you want to connect to the Automatic DJ?

Yes  No

Evening
[Jukefox by Kuhn, W, Welten, 2010]
Accelerometer

Automatic DJ

dancing = 🎉
sitting = 😞

[Kuhn, Troester, W, Wirz, 2011]
Sensor Networks
Participatory Sensing = Sensor Networks 2.0
Are there privacy issues?
TomTom user data sold to Dutch police, used to determine ideal locations for speed traps

By Tim Stevens posted Apr 27th 2011 1:53PM
Q: What about privacy?
A: If you use a mobile phone…
Q: What about privacy?
A: Mobile phone providers…”

[Answer by Santiago Garcia, Program Manager eTicketing SBB, Interview with Matin Dimanche, June 2011]
What can we do about it?
Allow this application to access:

- **Your location**
  coarse (network-based) location, fine (GPS) location

- **Network communication**
  full Internet access

- **Your personal information**
  add or modify calendar events and send email to guests, read calendar events, read contact data
privacy
Search Facebook updates:  

👩 Bekka Segraves I have a new cell phone number. As of August 24th this number will be deactivated. My new # is 1-989-590-3662
1 minute ago

👩 Terri Arbogast My new number is 4173279134
51 minutes ago
PLEASE ROB ME

Listing all those empty homes out there

Also follow our twitter feed @pleaserobme
@kmlake left home and checked in 18 minutes ago:
I'm at San Francisco International Airport (SFO) (SFO, Millbrae) w/ 24 others. http://4sq.com/MTivk

@sjn2010 left home and checked in 20 minutes ago:
I'm at Glen Park Station (2816 Diamond St, btw Bosworth & Chenery, San Francisco). http://4sq.com/5T8U3i

@BigToys left home and checked in 23 minutes ago:
I'm at Badlands (4121 18th St, near Castro, San Francisco) w/ 2 others. http://4sq.com/13g8WM

@BigToys left home and checked in 26 minutes ago:
I'm at Toad Hall (4146 18th St, at Castro, San Francisco). http://4sq.com/AxWZa

@reedobrien left home and checked in 28 minutes ago:
How To Steal $57,000 From Your Neighbors Using Facebook (Like
Google Streetview Germany 2010: 240,000 appeals
Microsoft Streetside Germany 2011: 60,000 appeals
Thank You!

Questions or Comments?

Slides by
Michael Kuhn
Roger Wattenhofer
Samuel Welten

Distributed Computing, ETH Zurich, www.disco.ethz.ch
“If you have something that you don’t want anyone to know, maybe you shouldn’t be doing it in the first place.”  - **Eric Schmidt, Former CEO of Google**

“You already have zero privacy. Get over it.”  
- Scott G. McNealy CEO of Sun Microsystems Inc

“Privacy means people know what they're signing up for, in plain English and repeatedly.... let them know precisely what you're going to do with their data.”  
- Steve Jobs, Former CEO of Apple

“They ‘trust me’ – Dumb fucks.”  
- Mark Zuckerberg CEO of Facebook

“I think instead we should have laws that protect the privacy of data, for example, from government requests and other kinds of requests.”  
- Larry Page, Google Co-Founder