Wearable Computing
- an overview -

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Converging trends

Communications

Sensing

Analytics
Mobile phones as wearables
Smart watches as wearables
Fitness trackers as wearables
Not all smart wearables are useful!
But all wearables will become smart in long term
A few examples…
A few more examples...
Watches vs smart watches vs wearables
Smart watches

• Three current alternatives to wrist based wearable devices
  – Second screen
  – Sensors
  – Communication hub
Other wearables on the face...

How Google GLASS works

Why can you see a sharp image?

Infographic by M. Missfeldt
www.brille-kaufen.org

- Battery
- CPU (incl. GPS)
- Camera (video/photo)
- Speakers (phone)
- Micro (phone)
- Prism (visual overlay)
Other variants of smart glasses
Sony’s smart glasses
Microsoft Hololens
Other wearables for environment sensing
Other wearables for environment sensing
Other wearables for user sensing
There is more than meets the eyes…

- There is far more in wearable computing than the device alone
Wearable data analysis

% of UP wearers awake

- SAN FRANCISCO, OAKLAND, SANTA ROSA
- SACRAMENTO, SAN JOSE
- NAPA, SONOMA, VALLEJO, BERKELEY

BIG DATA ANALYTICS
A new information age!

- IoT could turn the world into data …

Kevin Ashton
“First to coin IoT”
(A lot of) Data from users and their environments is needed to create compelling products and services based on wearable and IoT technologies.
Devices and sensors are Queens!

- (Easily available)
  Wearable devices and sensors are needed to generate the data:
  - Affordable components and sensors to be purchased by interested individuals
  - Reliable
  - Easy to configure and calibrate
  - User friendly
Software is the President!

- (Efficient) Software to control wearables and sensors
  - Open source
  - Extensible
  - Reliable
  - Easy to install on a wide variety of platforms
Data management is a must!

- (Distributed) server architecture for data synchronization, storage and access:
  - Cloud based
  - Reliable
  - Scalable
  - Respectful of Privacy and Ethical issues
Interoperability is essential!

• (Open) Standard solutions
  – Standard components
  – Standard data syntax
  – Standard Interface
  – Compliance/Certification
Compelling use cases are important!

- Concrete use cases
  - Dietary assessment
  - Life log
  - ...
International consortium is needed!

- A seed consortium from US, Japan and Switzerland in place and has initiated reflections on Multimedia Dietary Assessment as a potential killer app
What does it all mean to us?

- Watches and wrists are not the only battle fields in wearables
  - It may have started with wrist and face, but it won’t stop there!
  - The entire body (and its immediate environment) is the play ground!
- Lessons to be learned from fashion/clothing industry
  - Design and fashion matter
- The device alone does not mean much without compelling applications
  - Wellbeing/Health
  - ...
Thanks for your attention