AWESOME shoes

*All-including, **W**ireless, **E**co-friendly, **S**ustainable, **O**utside-oriented, **M**obile, **E**nergy-harnessing Shoes.*

Motivation

- Steady increase of lifestyle-illnesses in society
- Promote health and the great outdoors
- Defeat the stationary image of technology by bringing it (and the user) outside
- Mobile technology- Generate more clean, sustainable energy

Objective

- To figure out how we can harness the energy generated by mobility, and find meaningful ways of utilizing it

- Find a way for people and technology to thrive outdoors, and promote a healthy and sustainable lifestyle

- Try to find a way to make our concept feasible, and easily usable

The problem space

Healthcare, Energy harnessing and Mobile technologies.

- User group - Informatics Student
  - Start divergent
  - Converge to the student in the second phase
  - Keep Universal Design concept in mind.
- Relevant case from Germany health care (Schmidt, 2008)

Existing technology

PZT Unimorph

Metal Backplate

Insole

PVDF Stave

Sole
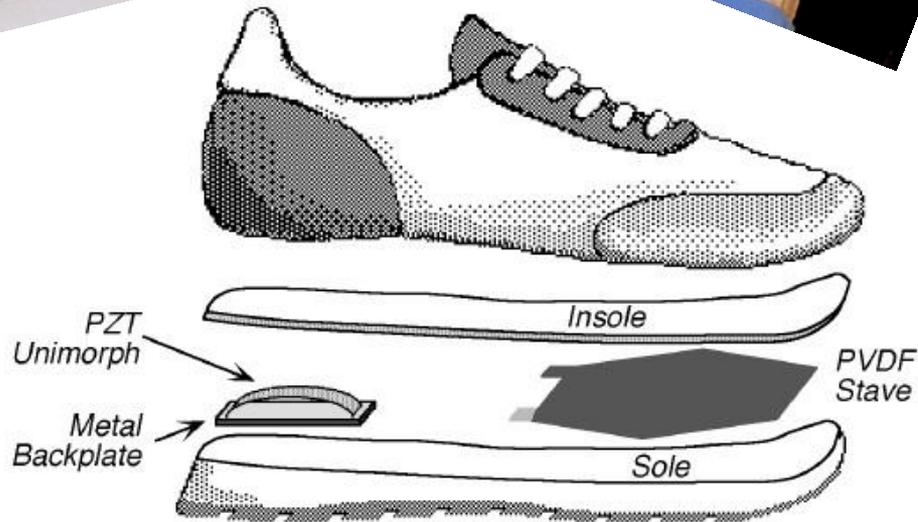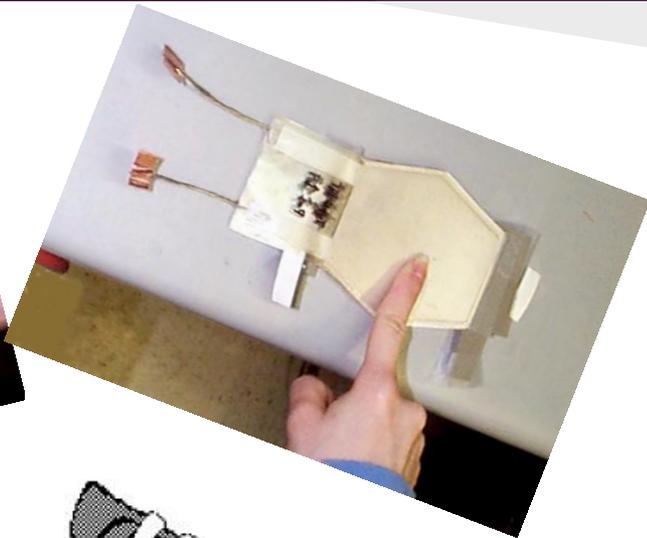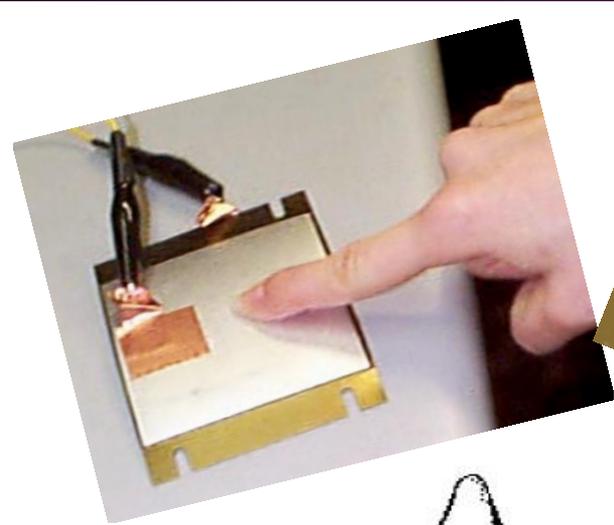
Relevant mobility concepts

Expand mobility concepts

- *spatial* (location/objects/symbols/space)
    - relates to our data & wearable aspect
- *temporal* (time / efficiency)
    - Notifications
- contextual (interactions based on circumstances)
    - personal training plan / notifications while on the move

Memory stone

- data / design / security / PalCom

Ubiquitous & wearable computing

- ubiquitous aspect / wearable aspect

Relevant mobility concepts#2

- Ecologies of Artifacts
  - Layer in an ecology
  - Ecological Factor
- Embedded Interaction
  - Invisible dilemma
  - Context dependence
- Context-Aware communication
  - Context-Aware Mailing List

UCD / UD

- User centered design
  - Target group : Students.
  - Narrow it down
- Universal design
  - Curb cuts example
  - Accessory instead of a customized shoe

Process

- Observation
  - passive observation
  - focus on activities and wearables
- Future workshop
  - critique of limitations with current technology
  - how to create/transfer/use the energy
- Focus group
  - defining use of data
  - need of notifications
 - incentives of interests

Process#2

Three interview sessions

- Political analyst
  - Change behaviour
  - Don't discriminate
  - Could be used to prove upholding conditions for treatments.

- Insurance agent
  - Extra documentation
  - Security is important

- Interview with target group
  - Mixed feedback.
  - We found lots of people have health problems.

Outcomes(Outside scenario)

Wearable computing

•Workouts data is generated and stored by
 shoe sensor.

•Energy is generated and harnessed
 during the walking.

•Charge the gadgets wirelessly

•Or provide power to transmit workouts live data to gadget
 (inspired by Nike and Adidas technology)
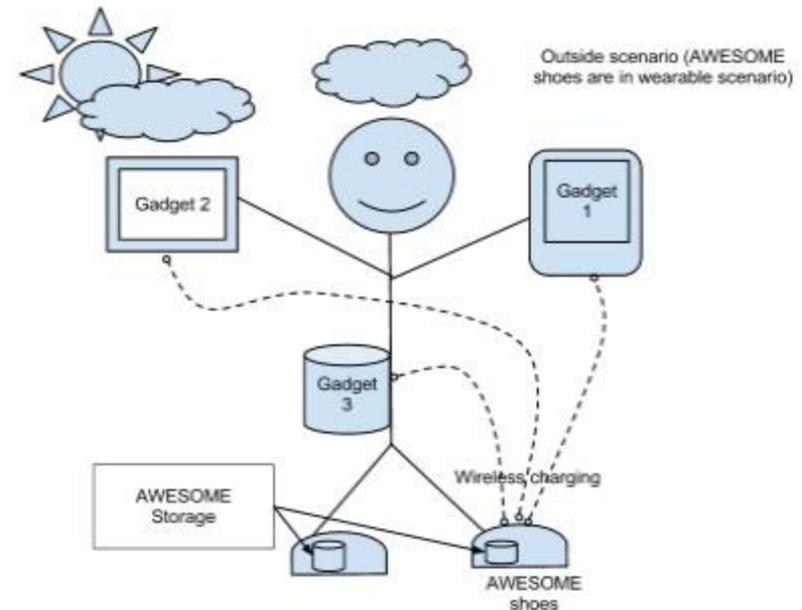
Outcome (Home scenario)

Ubiquitous computing

• sensors at home will detect the
  wearable users and interact with it.

•Workouts data and energy harnessed
 from walking will be transmitted

•Users can read statistic data of workout
 by multiple displays and then share them
 on social networks

•Users can sell the energy to the grid if it is possible

•Users will get notification when they are too lazy to
  do exercise.

Home scenario (AWESOME shoes are in ubiquitous scenario)
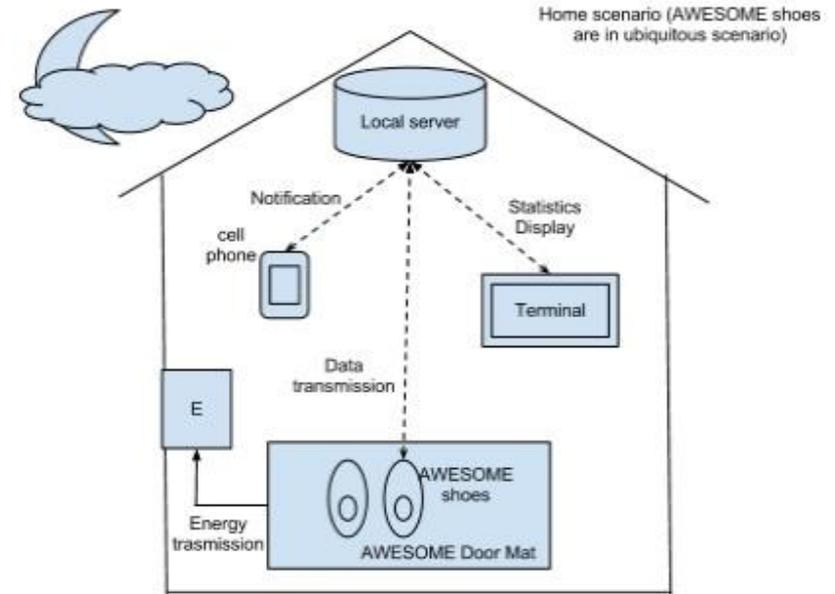
What we have learned

Freedom yields creative results (and positive vibes in the classroom)

Motivation is more powerful (has a more positive connotation) than incentives

Ethics are always important to consider (and sometimes easy to forget)

You can perfectly fine combine ubiquitous and wearable computing with great results, without lessening the security of the data, or the user.

Analyzing input from multiple sources helps when trying to account for palpability, safety, flexibility and transparency in our "would-be" product.

For us, the best way was to go from divergence to convergence - although our ultimate goal is "mega-divergence".

What we have learned#2

The biggest obstacles for this kind of technology is miscommunication (or none at all) between multiple systems, be they wearable or ubiquitous

Use and interaction, as well as technology itself is never one-sided. It is multi-faceted, and usually have multiple benefits and drawbacks to different kinds of users/actors/stakeholders.

We have to try our hardest as designers to account for most of the major interests of our users and stakeholders (UCD-approach)