Sense in the City
.... and other health data platforms

Ben Kröse

CREATE-IT
APPLIED RESEARCH
Hogeschool van Amsterdam
Largest institute for higher professional education in the Netherlands

Schools
Digital media and creative industries
Economics and Management
Education
Health Professions
Social Work and Law
Sports and Nutrition
Technology

46444 students
School of Digital media and creative industries

7201 students

Dean: G. Meijer

Programs

- ICT
- Media Design
- Media & Communication
- Fashion
CREATE-IT Research centre

7 interdisciplinary research groups

- Crossmedia (Harry van Vliet)
- Digital Life (Ben Kröse)
- E-Discovery (Hans Henseler)
- Fashion Research (Hein Daanen)
- Civic media & Play (Ben Schouten)
- Netwerkcultuur (Geert Lovink)
Digital Life Lab

Digital technology for healthy living

Sensors, data analysis, design methods for interaction, modeling and coaching

Partners: UvA, AMC, Vumc, TNO, AMSTA, Cordaan, Vivium, Eagle Vision, van Dorp Zorg&Welzijn, Uneto-VNI, Digifit...
Research line 1

Lifestyle monitoring

• Measuring of activities
• 23 apartments of elderly equipped with sensors
• For more than a year
• 11705 days of sensor data
• Annotation from occupational therapist
• Ground truth on health state
Huge amounts of data

• Machine learning
• Visualization
• Correlation with health measures from professionals

Saskia Robben, Ahmed Nait Aicha
From monitoring to coaching

- ICT support after hip surgery
- Ambient sensors and wearable step counter for activity registration
- Coaching by human therapists
- Randomized trial with 80 users and 80 non-users
Portable system

Figure 2: The hardware and software architecture of the system used for the Hipperbox.
Research line 2
Participation and self-management

• ICT to empower citizens in health reports

• ICT to aid informal caregivers
Project ‘FIT’
ICT and creative industry to support people with dementia to live independently. Find a ‘fit’ between needs and market.
Project “Kijk een gezonde wijk”
Bewoners kunnen via een mobiele telefoon aangeven wat er niet gezond is in hun wijk.
Research line 3: Prevention and Healthy Lifestyle

- iBeacons for motivational messages in het Oosterpark ‘Bambea’
- Smart smartphone app ‘Sensei’ for sports coaching
BAMBEA
Bewegen in Amsterdam met Beacons
Joey van der Bie
Can we motivate people to exercise using apps and beacons?
Bambea project

- Beacons are used to generate personalized messages
- Messages are localized (related to location of beacon)
- Infrastructure can be used to tailor apps
- Easy accessible
- Increased interaction with the neighbourhood
Start running in the Oosterpark with beacons.

Run
- Run your preferred running route

Walk
- Walk if running is not your thing

Exercise
- Exercise using iBeacons placed in the park
Monitor intervention using app and beacons

- speed
- duration
- distance
- location

If, when and where exercise
Living Lab Oosterpark
Status of the platform

• 14 beacons mounted on lamp posts
• App that provides the framework for creating messages

• Bambea 2: Beacons also communicate to LoRa network
• This enables changing beacon properties remotely
Extension with Lora
SENSE IN THE CITY

for active and healthy living

Het gebruik van (sensor) technologie in de stad voor een actieve levensstijl en gezond bewegen

MET BIJDRAGEN VAN
Yvonne Rogers
University College London
Paul Veugen
Human
Nelleke Penninx
Gemeente Amsterdam
Nicky Hekster
IBM

MAANDAG
18 APRIL 2016
12.30-18.00 UUR

Piet Heinkade 179
Amsterdam
Pakhuis de Zwijger

Informatie en aanmelden op
WWW.DESIGNANDTHECITY.EU/SENSE-IN-THE-CITY
Lessons learned

‘Sensing in the wild’ costs huge efforts

• Advanced sensing systems are far from robust
  – Batteries
  – Internet connections
  – Unpredictable users

• Participants of a study fall out
  – Illness or worse
  – Lack of motivation

• Need approval of ethical committees
  – Privacy of data
  – Consent of participants

• Data ownership

Sensing for coaching often has real time constraint and should be considered in the context of the intervention