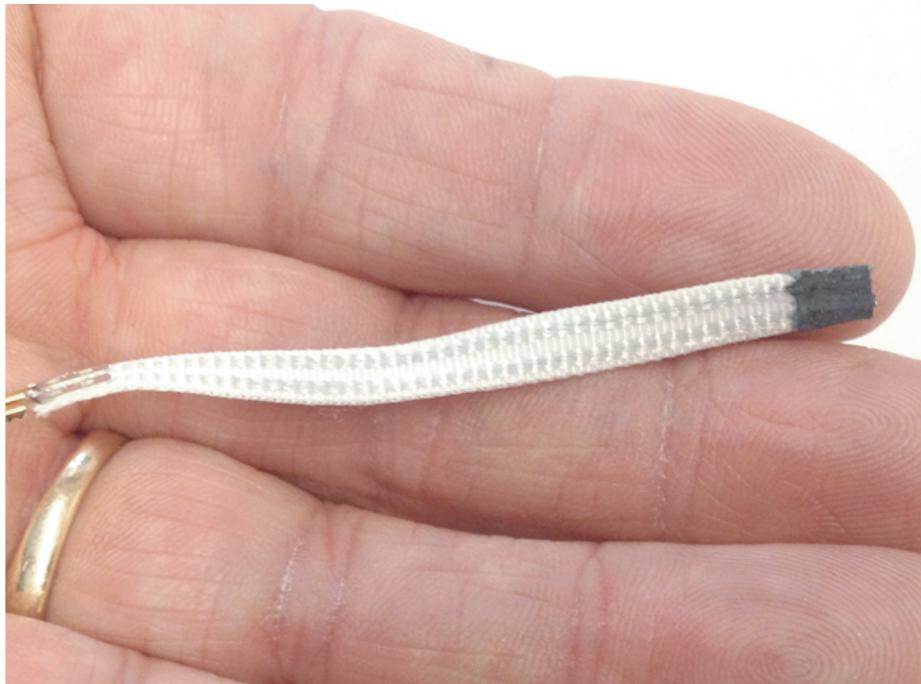


***Self-knowledge* through textile-based sensing?**



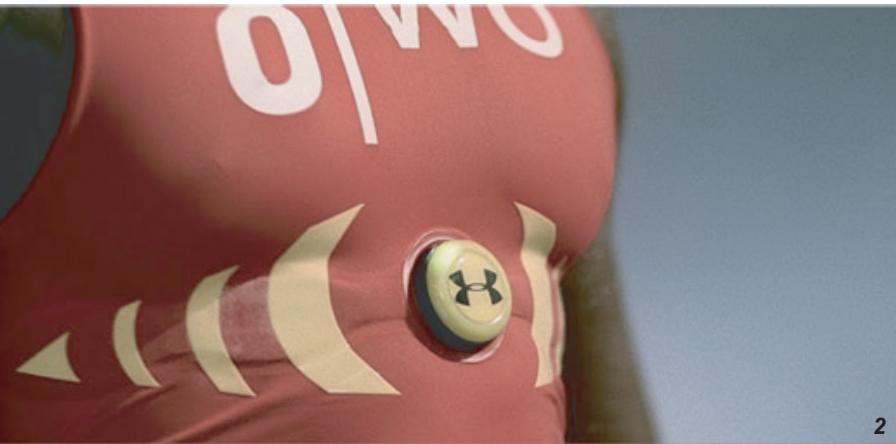
Quantified Self London Show & Tell #17
18th June 2013

Anne Prahlf

Sensor-enabled textiles



1



2



4



3

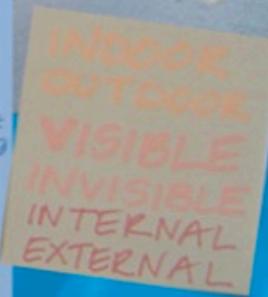
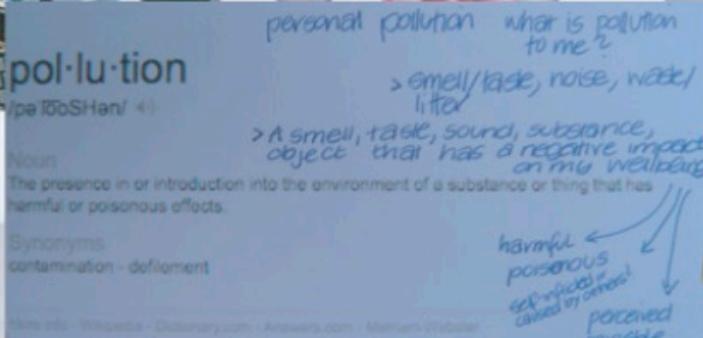
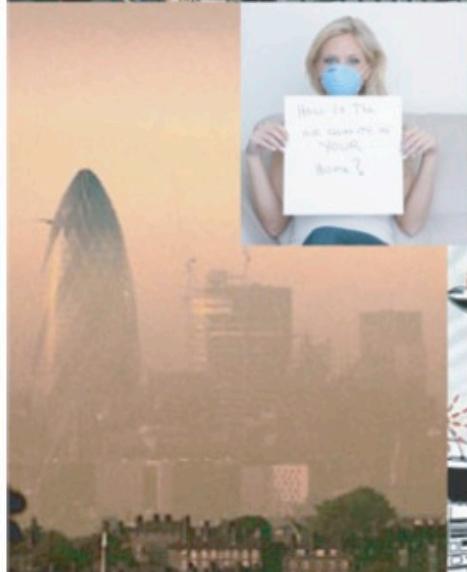
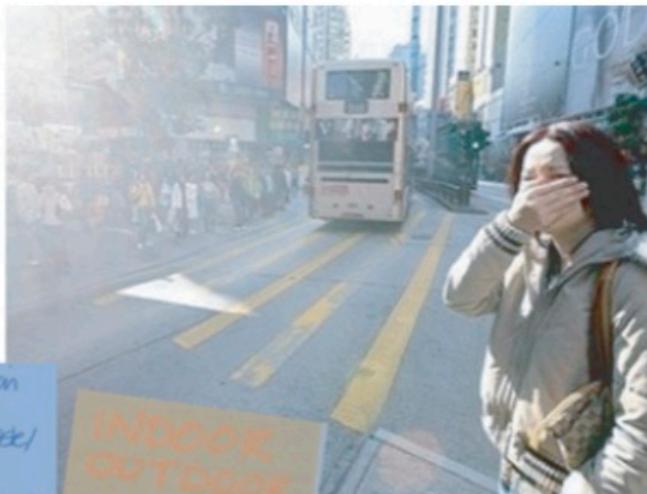
-
- 1 **Diffus** CO₂ pollution monitoring textile
 - 2 **Under Armour** E39 electronic sensor shirt
 - 3 **Joseph Wang** Electrochemical transfer tattoo
 - 4 **UC San Diego** Printed biomarker sensing

Sense what?



-
- 1 **Sabretooth** (Marvel) possesses a highly sensitive sense of smell to recognise and track targets by scent
 - 2 **Peter de Cupere** Olfactory Art

Sense why?



Urban pollution

Electromagnetic radiation

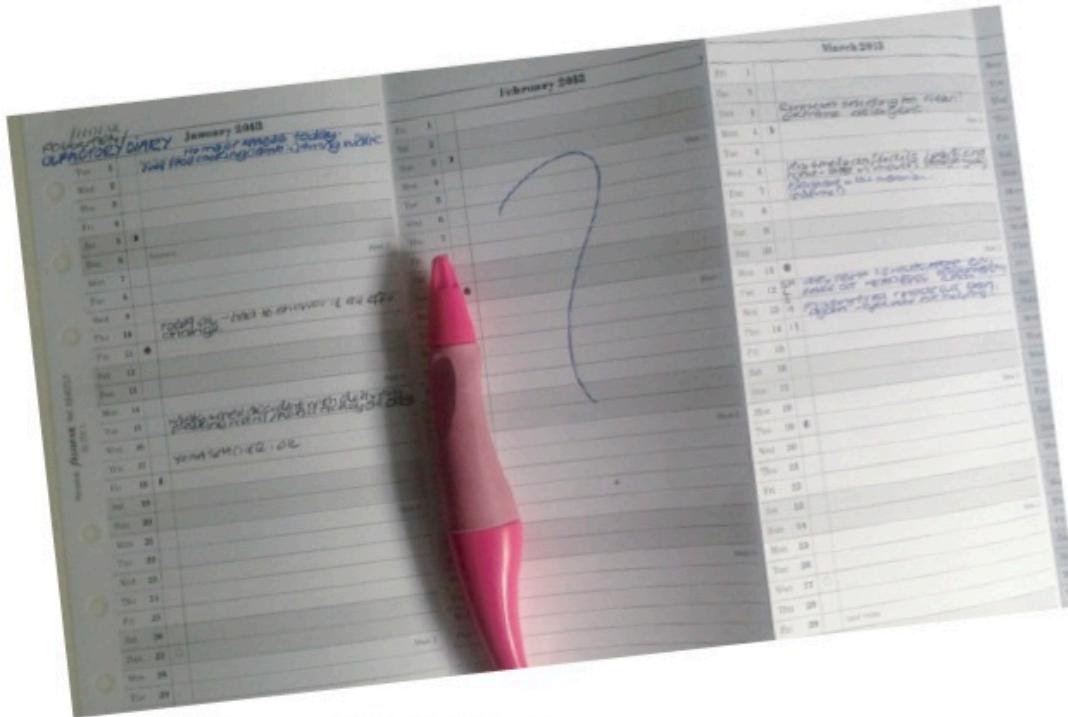
Toxic technology

Toxic clothing

Indoor pollution

Toxic chemicals

e-smog



analogue: 1/1/13-24/2/13

analogue: 1/1/13-24/2/13

12/11/13 mobile phone - fried head?
I stupidly spent 2 hours on the mobile for a conference call.
And only last week I looked at figures of how mobile phone radiation affects the brain looking at scary images of the effect.

Would there be a way to measure it, to send / display an alert when you should come off the phone?

This could be a patch or cap you put on to check the impacts and start changing behaviour!!

In addition, could there be a shield to protect you? I shield you? They already exist I think but could they also warn you?

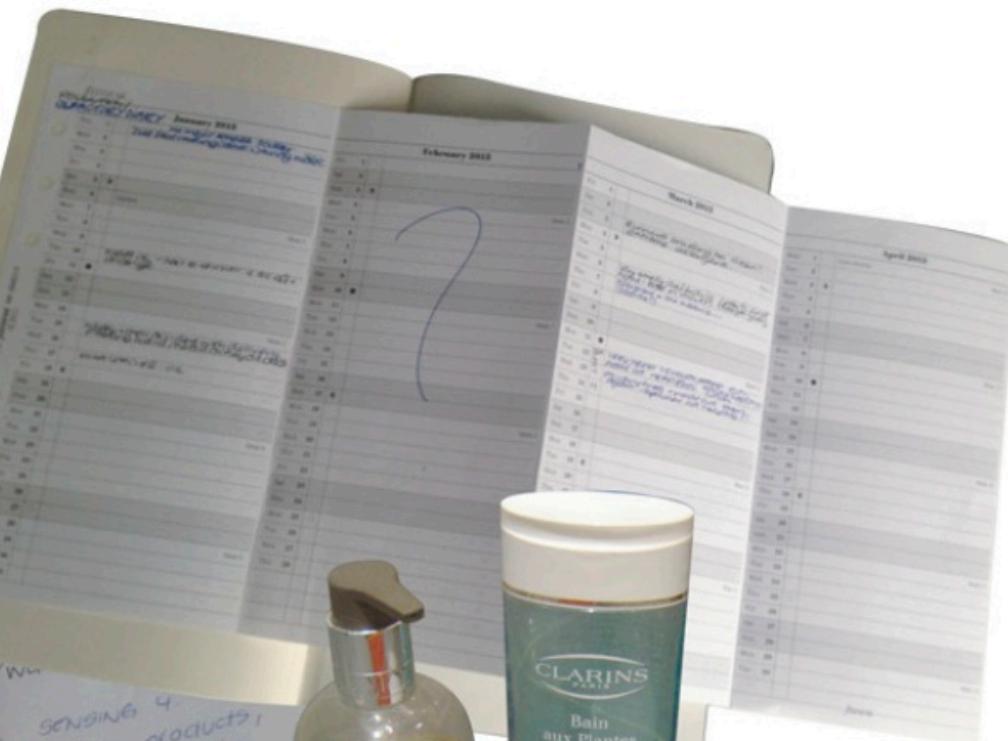
Perfume
personal
prod

I only
live
My p
of p
p

some
none wu

= SENSING 4
in relation to products!
to combine

anyways
i.e. write down products
ingredients - then measure
monitor reactions?



analogue: 1/1/13-24/2/13

- Personal care/ hygiene products

- Mobile phone & laptop use

12/1/13 mobile phone -fried hair?
I stupidly spent 2 hours on the mobile for a conference call.
And only last week I looked at figures of how mobile phone radiation affects the brain looking at scary images of the effect.
Would there be a way to measure it, to send (digging) an alert when you should come off the phone?
This could be a patch or cap you put on to check the impacts and start changing behaviour?
In addition, could there be a tent to protect you? / shield you?
They already exist I think but could they also warn you?

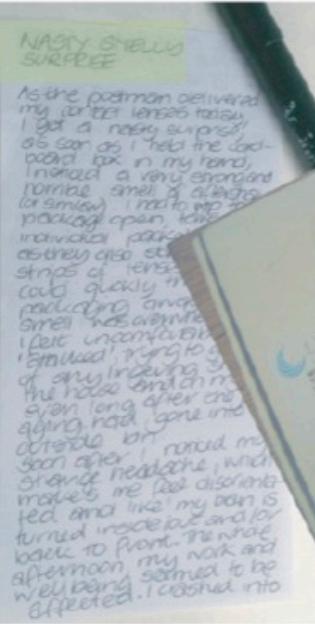
Perfume/hairspray/deodorant personal beauty products pollution

I only have control over what I use or don't.
My friends are already scared of wearing perfume in my presence.

Bath oil - YUCK!!
Am I feeling sick because my husband has run a bath?
I wasn't feeling sick before the smelly was poured in the water!!

— SENSING 4

reaction to products,
to combine
any...
i.e. write down products/ ingredients - then measure + monitor reactions?



Monday morning pollution?

Indoor

Could I be allergic to mornings or more precisely Monday mornings? [As I was in my childhood with a smoky sweaterlit to match]
Open closer inspection, ie some self-questioning! & turn back, it is always a Monday morning and also affects my husband after 3 weeks of smoky Mondays I look at some factors that could be the cause. Scruffy afternoons are usually dedicated to 'n' which follows a hoover and doing a load of laundry, which washes up to be burnt. Following the

- Indoor air quality/ pollution

analogue: 1/1/13-24/2/13

1/1/13 mobile phone - what was I doing? I probably spent 2 hours on the mobile for a conference call. Analysing our waste. However a range of health issues phone, radiation, impact of the effects.

- 'Dirty data'
- Invisible data?
- Subjectivity and perception
- Quantification of health effects

Perfume, perfume/deodorant, perfume/odorant, pollution

only have control over what

Monday morning confusion

= frustrating,
difficult to keep up
& boring



SELECT A COLOR



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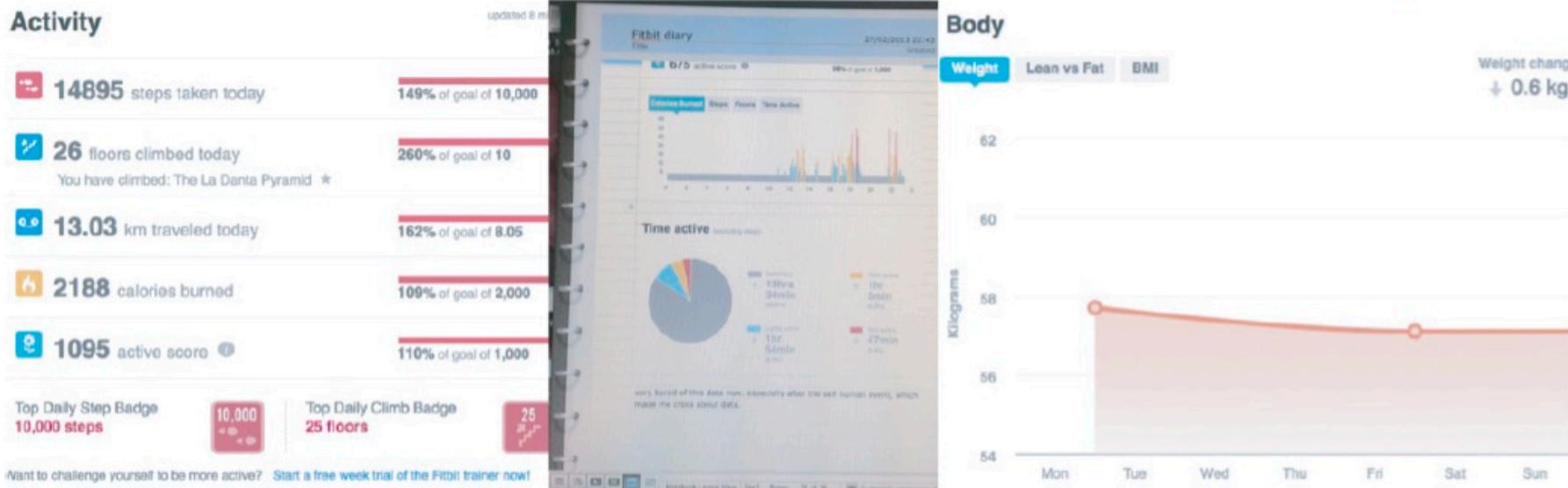
COLOR: BURGUNDY

ADD TO CART

digital: 25/2/13-10/3/13

digital: 25/2/13-10/3/13

Data generation



- Data parameters
- Data sync
- Data management
- Data 'burden'?

Wearability



- Lack of choice/ *customisation* opportunities
- Device location *on body*
- *Device position* on garment/ accessory
- *Remembering* to wear device

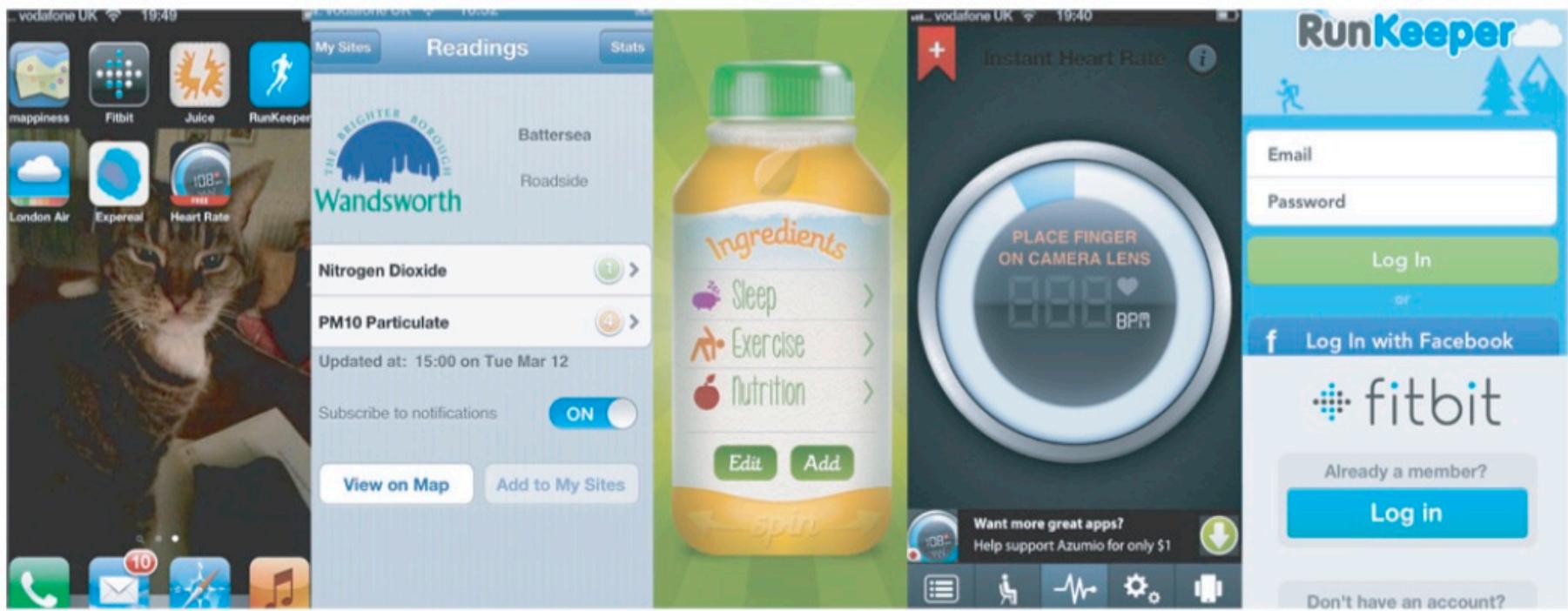


double digital

11/3/13-20/3/13

double digital: 11/3/13-20/3/13

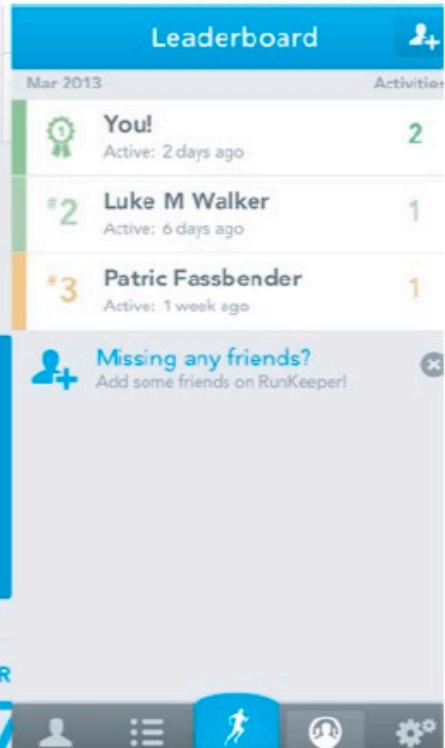
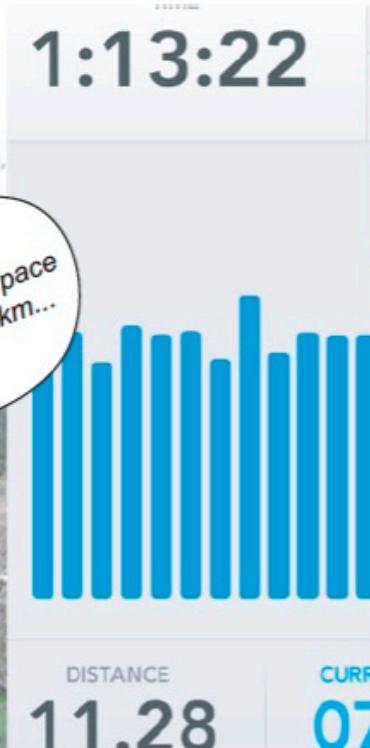
Data generation



- Surrounding variables
- Devices & apps

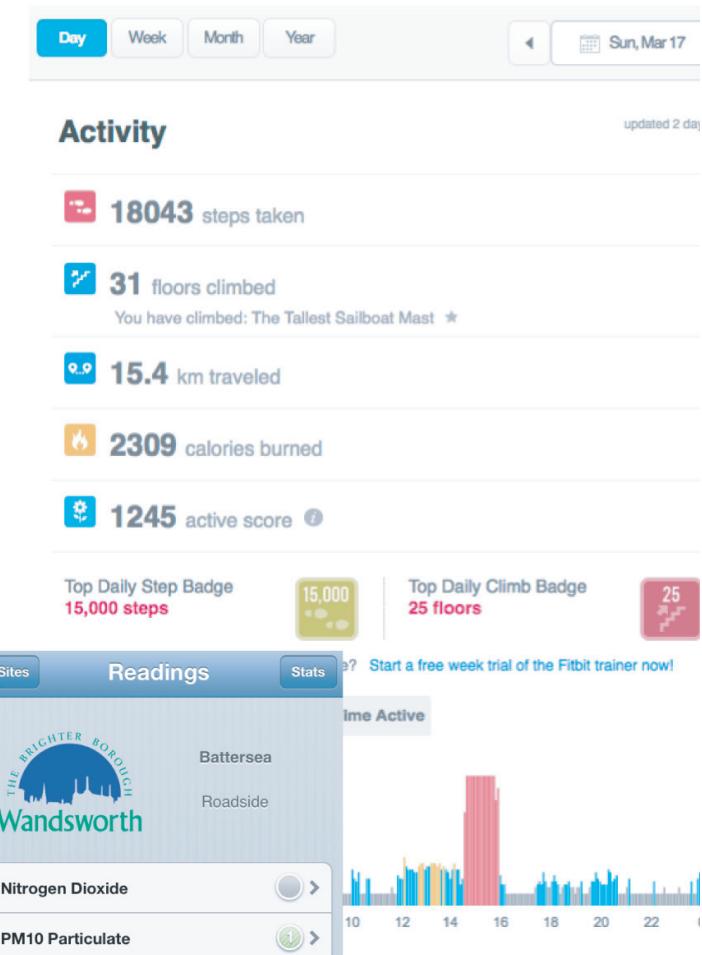
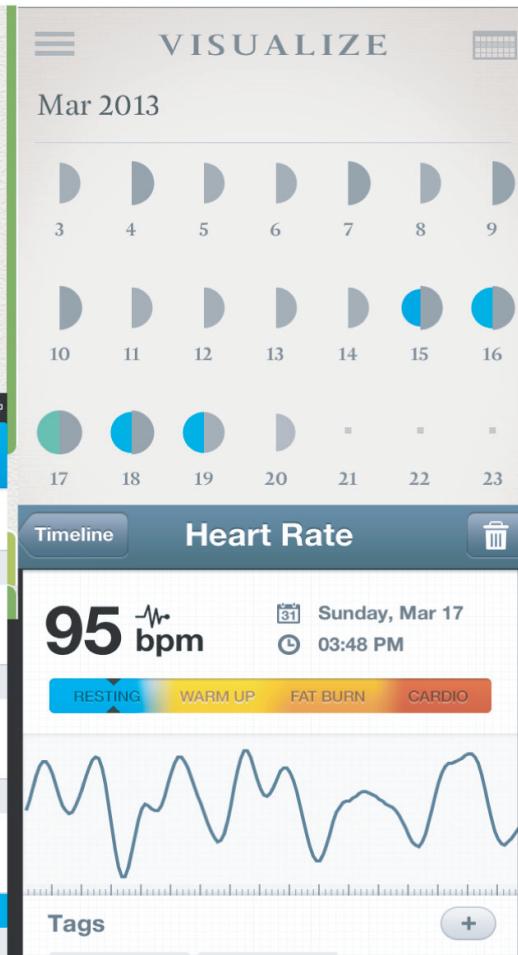
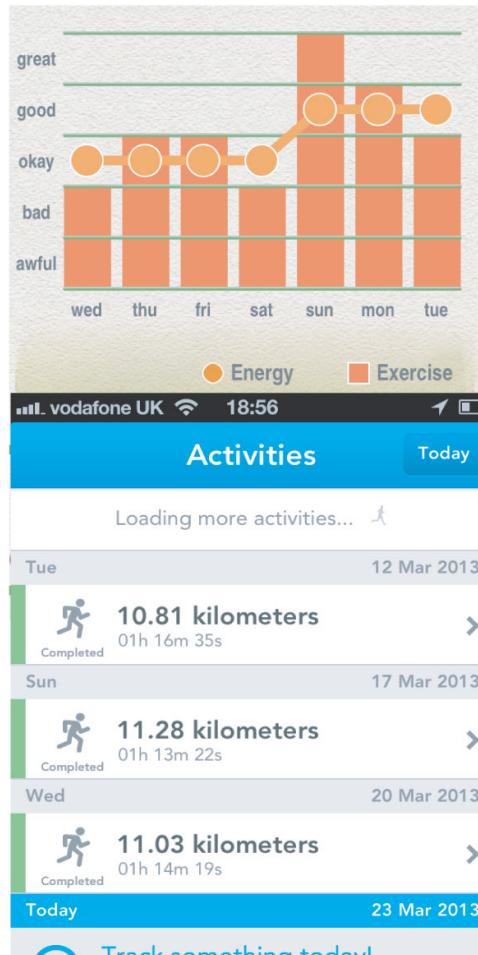
-
- 1 **My apps** self quantification
 - 2 **London Air** pollution monitor app
 - 3 **Juice** energy tracker app
 - 4 **Azumio** heart rate app
 - 5 **Runkeeper** app/ website
 - 6 **fitbit** app/ website

double digital: 11/3/13-20/3/13



- Device *juggling*
- ‘Live’ data *distraction*
- Data *slave*
- Data *relevance?*

double digital: 11/3/13-20/3/13



All my apps agreed: Sunday the 17th of March was a *pretty good day...*

- 1 **Juice** energy tracker app
- 2 **Experial** mood tracker app
- 3 **Fitbit** my dashboard on fitbit.com
- 4 **London Air** pollution monitor app
- 5 **Azumio** heart teate app
- 6 **Runkeeper** fitness app

double digital: 11/3/13-20/3/13

Wearability



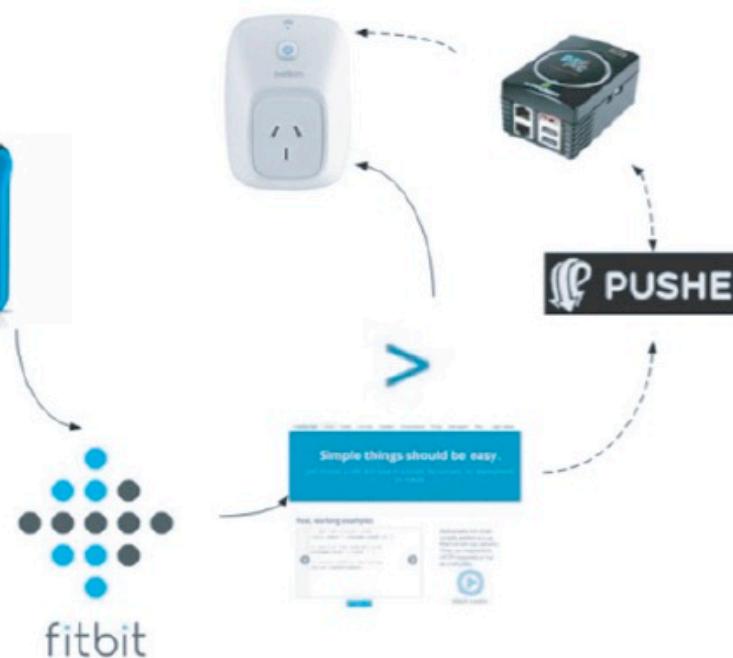
- Wearable device carriers
- Device visibility
- Weather conditions

What did I learn....and what does it mean for my research?



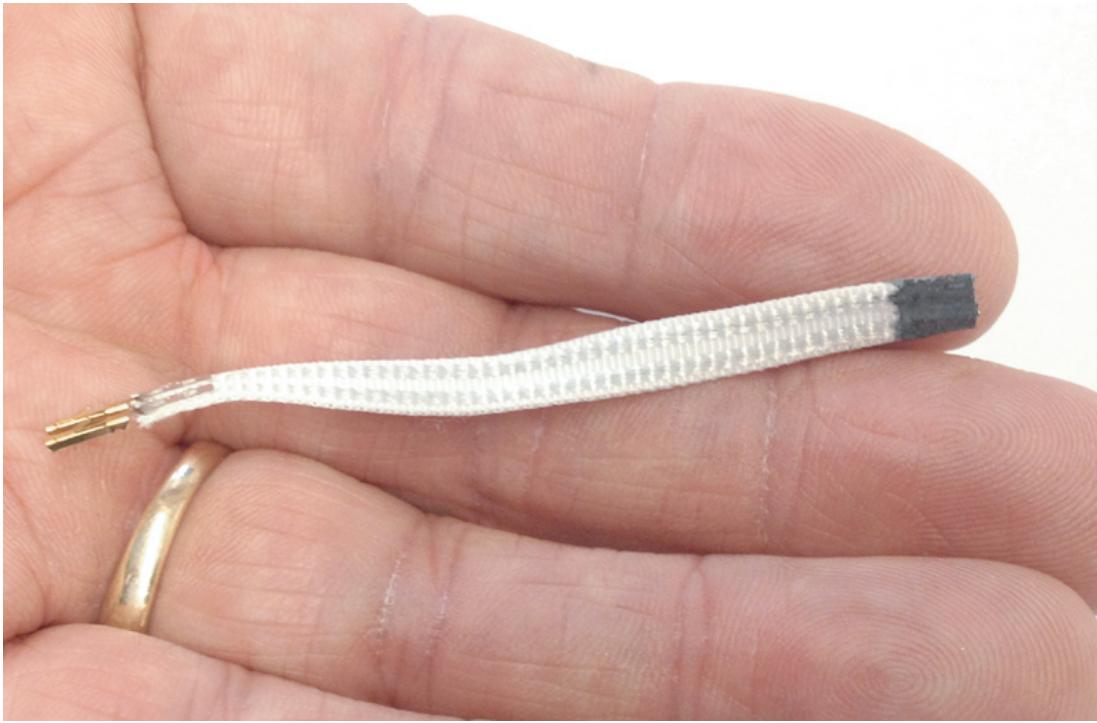
Device wearability

Data generation & management



Hack my fitbit?

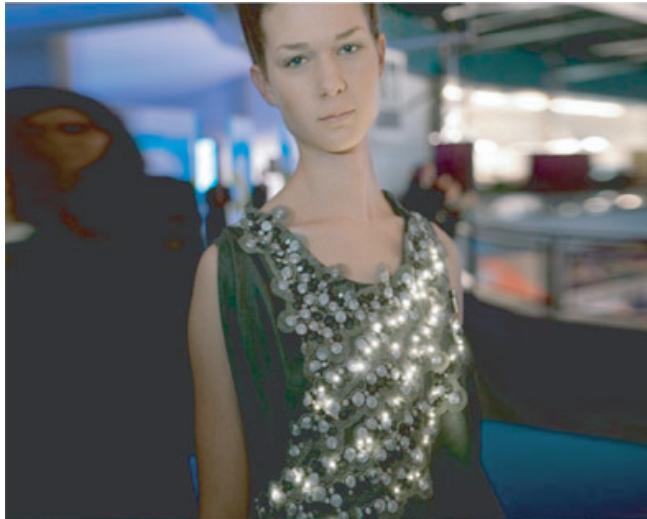
-
- 1 **Sniffing fitbit**
 - 2 **Charalampos** Hacking the fitbit for extra motivation
<http://blog.buildinginternetofthings.com>
 - 3 **Josh Larios** Making he fitbit more wearable
www.flickr.com



1 Peratech QTC enabled ‘electronic nose’: detection and monitoring of volatile organic compounds (VOCs)

“

*Is self-quantification **all about the data** or could we explore
alternative opportunities fo self-knowledge for **wellbeing**
through utilising **textile-based sensing?**”*



-
- 1 **Diffus** LED enabled alert pattern
 - 2 **Marjan Kooroshnia** pattern/ colour change alert
 - 3 **Rain Palette** colour change alert
 - 4 **Warning Signs** light/pattern pollution visualisation

***Self-knowledge* through textile-based sensing?**



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<http://www.meetup.com/LondonQS/members>