


touching technology

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I work in Lancaster
and live in Cumbria
The Lake District




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... but

although I live in England
and I speak English
I am not English
I am **Welsh**
rydw i'n Cymraeg

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... and have sabbatical year so

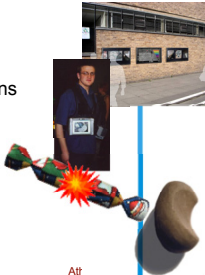
mostly in Tیره
... when not elsewhere




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today I am not talking about ...

- intelligent internet interfaces
fuzzy personal ontologies and
structure from folksonomies
- situated displays, eCampus,
small device – large display interactions
- visualisation and DB interfaces
- fun and games, virtual crackers,
artistic performance, slow time
- modelling dreams and regret!!



AB

... or even lots of lights



<http://www.hcibook.com/alan/projects/firefly/>

cognition connects with computation

when bodies touch technology

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the physical world

material artefacts and design

the body physiology

space and spatial arrangement

digital artefacts virtual physicality

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different ways to touch

ubiquitous comp. — tech. entering the world
 tangible UI — embodying computation
 ... plus mobile ... — when location matters

virtual reality — emulating the world
 AR / MR — blending physical and digital worlds
 physiological comp. — the body is the interface
 product design — physical devices with digital effect

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three rules to be broken

- directness of effort
- locality of effect
- visibility of state

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continuity in time and space

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physicality and the body

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bodily limitations – skin and bone

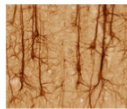
- ergonomics and health
 - keyboards and trackpads
 - car switches
- as a design resource
 - simultaneous switches in nuclear bunker
 - sweets on the high shelf



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bodily limitations – grey matter

- fleeting thoughts – electrical
 - Millers 7+/-2
- long-term memory – physical connections
 - some sums ...
- mood and medium term memory – chemical
 - coping with multiple chat windows



<http://en.wikipedia.org/wiki/File:Smis2neuroun.jpg>

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action in the world

- Gibson and affordances
- distributed cognition
- the embodied mind

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physicality and design

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levels of fidelity in design

from paper prototype to working mock-up

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study the old to design the new

work with Masitah Ghazali & DEPTH project

- look at ordinary consumer devices
 - washing machine, light switch, personal stereo
- why?
 - we are used to using them ourselves
 - they have been 'tested' by the marketplace
 - they embody the experience of designers

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half empty?

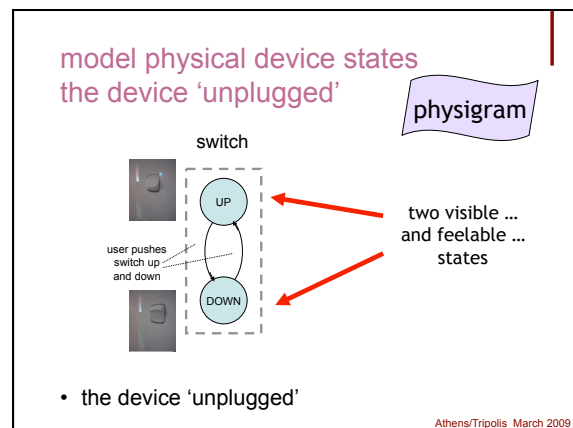
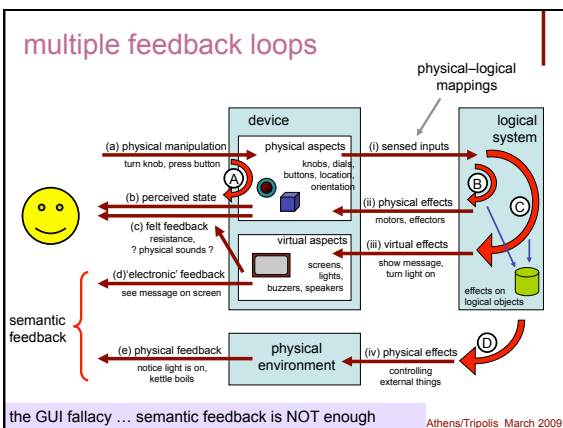
- not the first ...
 - Norman – DOET/POET
 - Thimbleby – FSM for video, microwave
- often used as HCI strawman
 - emphasise for design flaws
- we are looking for the good lessons
 - how mundane devices exploit physicality

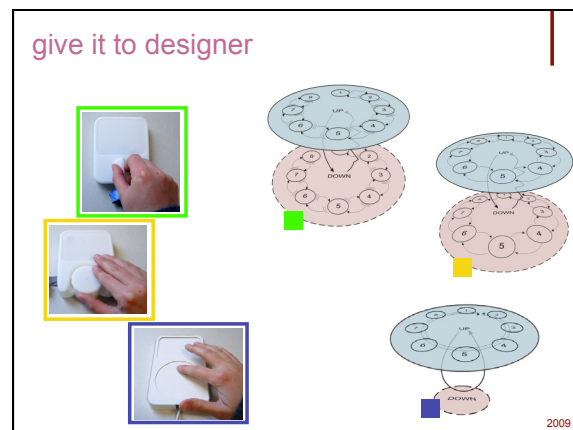
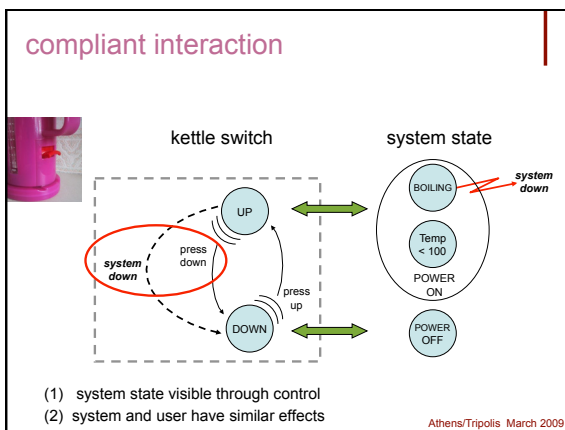
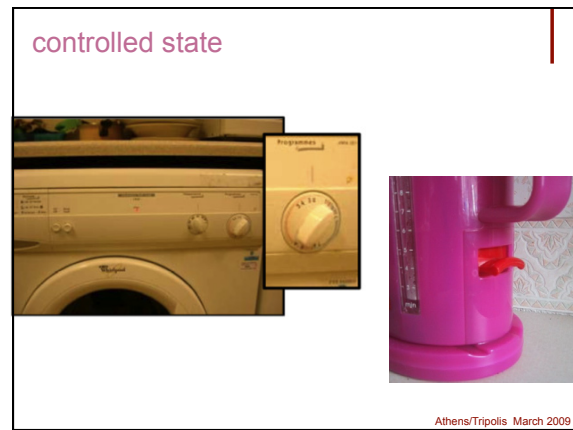
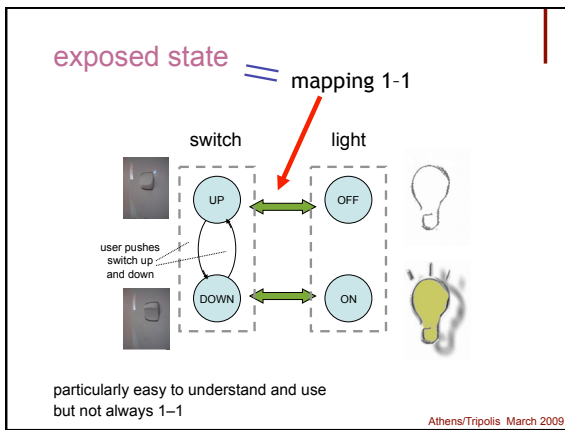
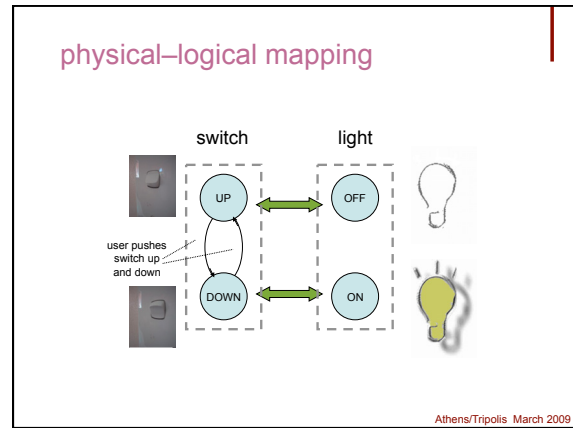
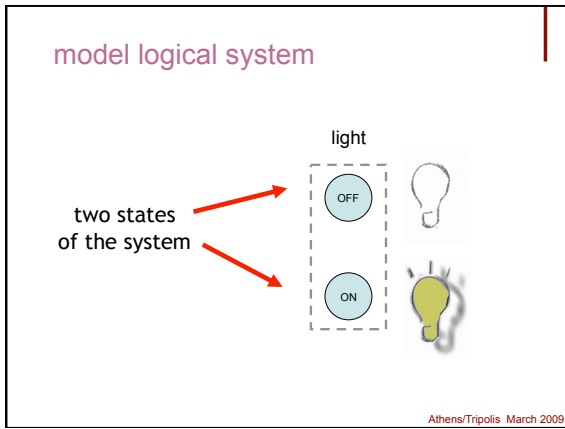
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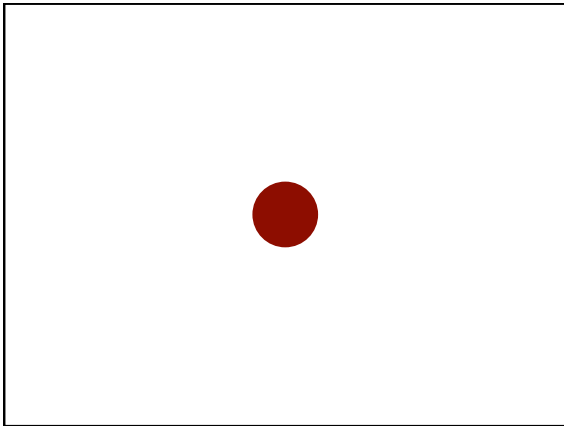
models of AR & tangibility

- Ullmer and Ishii – MCRpd
 - architectural interaction model
- Benford et al. – sensible/sensable/desirable
 - exploring design space
- Koleva et al. – TUI framework
 - 'coherence' between the physical and digital

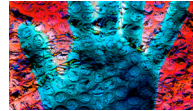
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- 'real' world and 'virtual world' interactions are *all physical*
... but some are more physical than others
- understanding physicality is fascinating
... and helps us to design better
- watch for the book ... TouchIT



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