



SOCIAL MEDIA AND BEHAVIOUR

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CHALLENGE - CASE STUDIES



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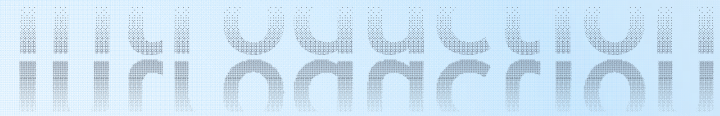


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***Technology-Enabled Feedback**

- * - Displaying timely, relevant feedback giving contextual information for current task, activity or monitoring**

***Social Norms**

- * - Utilising peer-pressure and social competitiveness to bring about behaviour change**

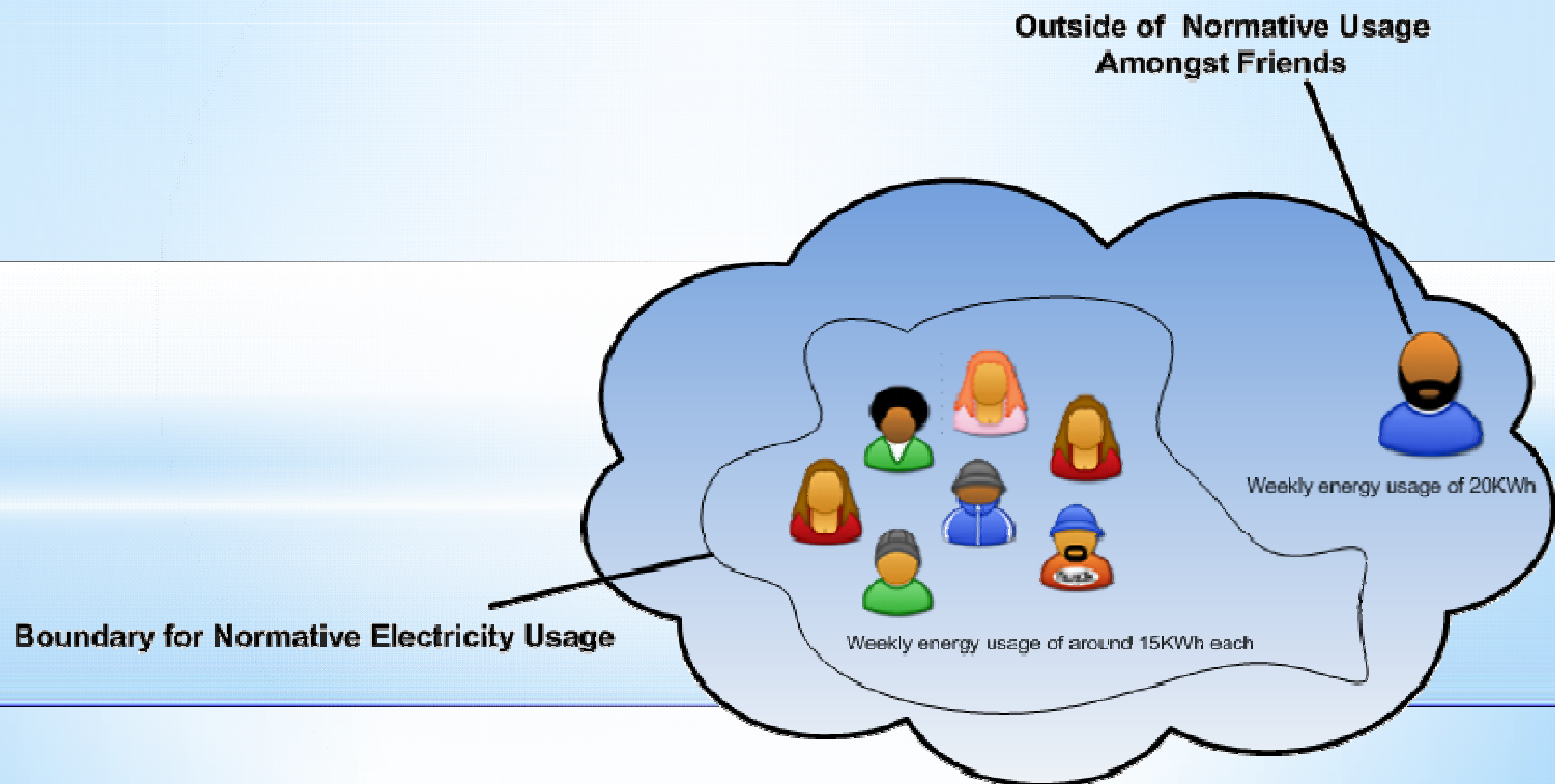
*** By combining the above concepts we can target individual behaviours to change from physical fitness to sustainable practices, using online social networks (OSN's)**



- *Case Study 1 - Wattsup, domestic energy
- *Case Study 2 - Power Ballads, domestic energy
- *Case Study 3 - Step Matron, physical activity
- *Summary of completed work
- *Current research - Electro-Magnates, organisational energy



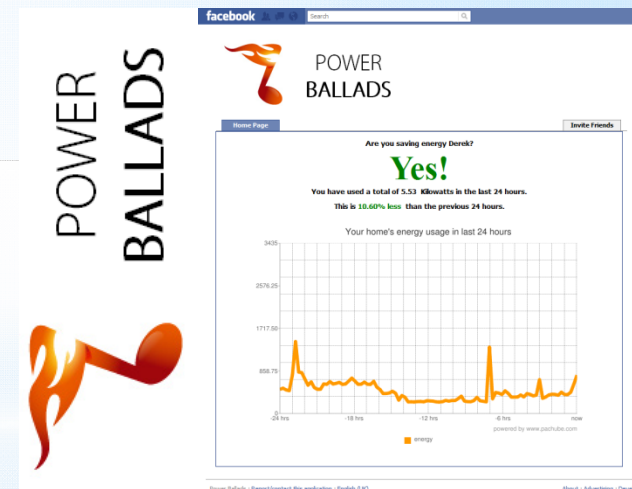
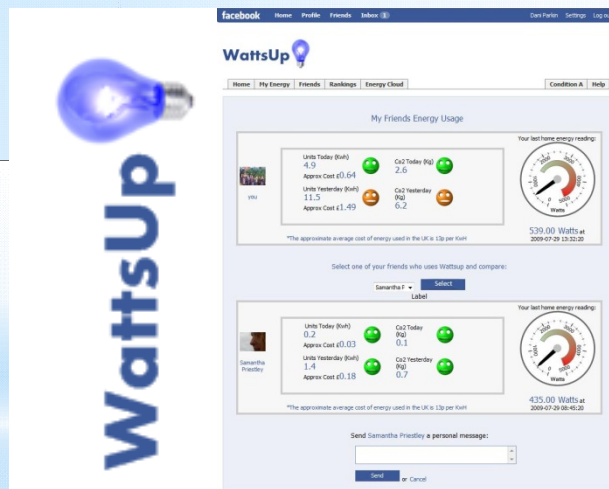
*Social norm example using energy consumption





Case Studies - Eliezi & Usdave

- *Two unique domestic energy studies delivering socially-mediated live energy feedback inside a Facebook application





- * UK domestic energy accounts for approx 30% of total energy expenditure in 2008
- * 30% Increase since the 1970's
- * 19% Increase since 1990
- * Only 1.9% of domestic energy consumed is from renewable resources
- * UK goal of 34% carbon reduction by 2020
- * Climate change
- * Sources: DECC Statistics 2008, IPCC 2007



WattsUp - Energy Monitor

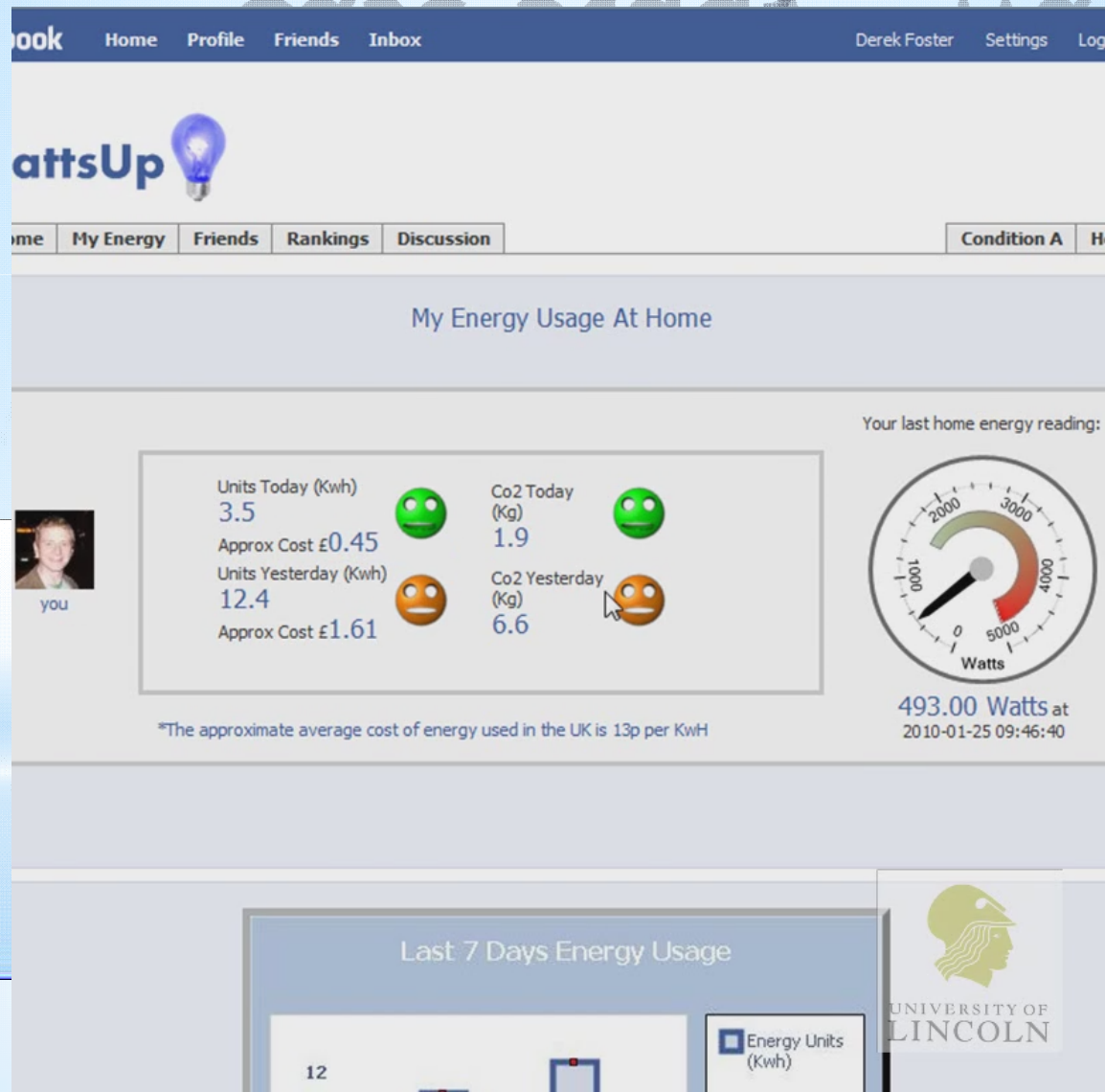


- Basic presentation of energy data
- Limited interaction
- Closed systems with no social data sharing
- Limited online applications
- Bound to proprietary software



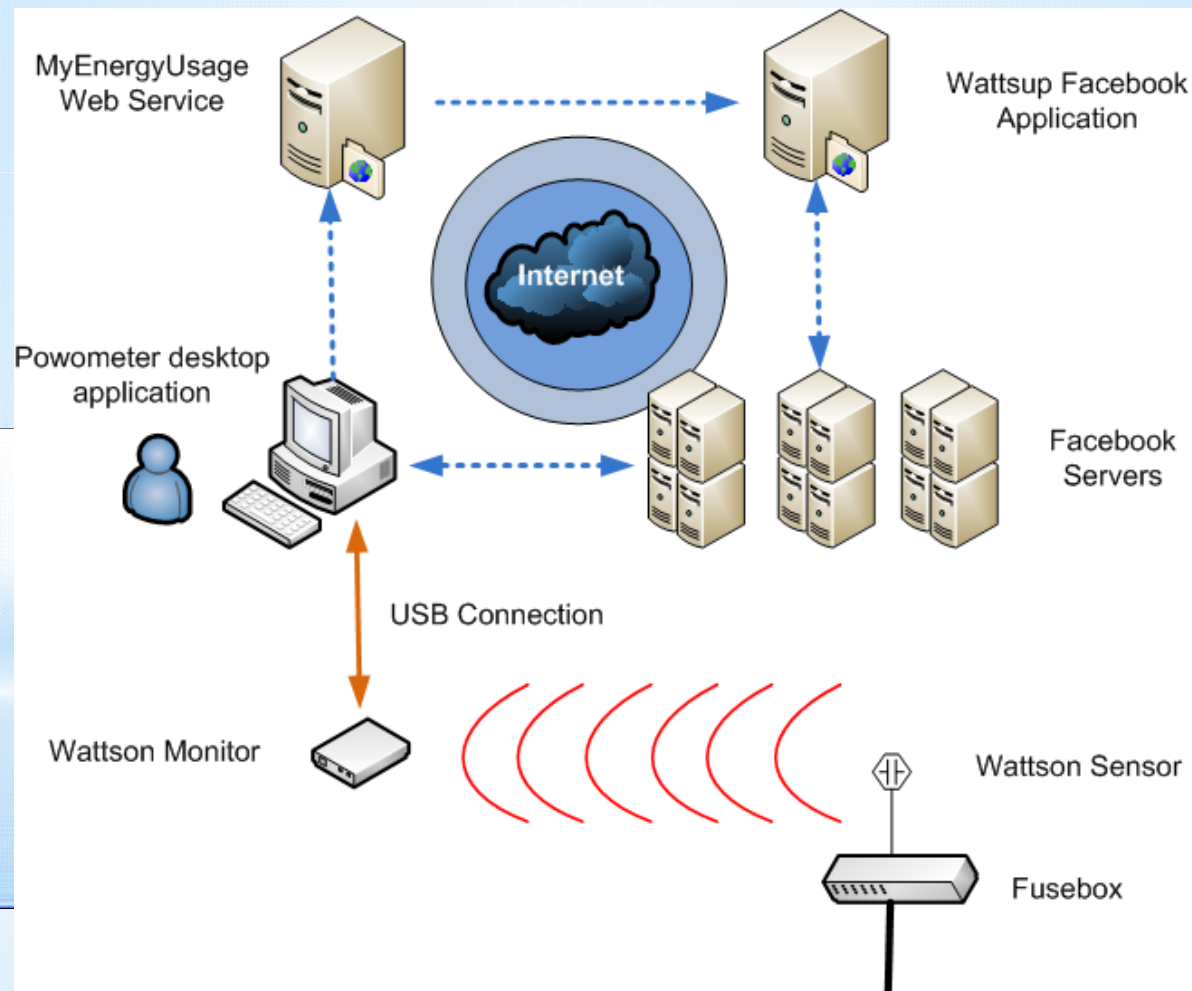


- * Recruited 8 households
- * 18 day 'within subjects' study to measure energy usage in two conditions
- * **Social condition:** participants could view their own and comment upon others' energy usage
- * **Non social condition:** participants could view only their own energy usage
- * **Research question:**
- * *Can the use of social media motivate reductions in energy usage?*





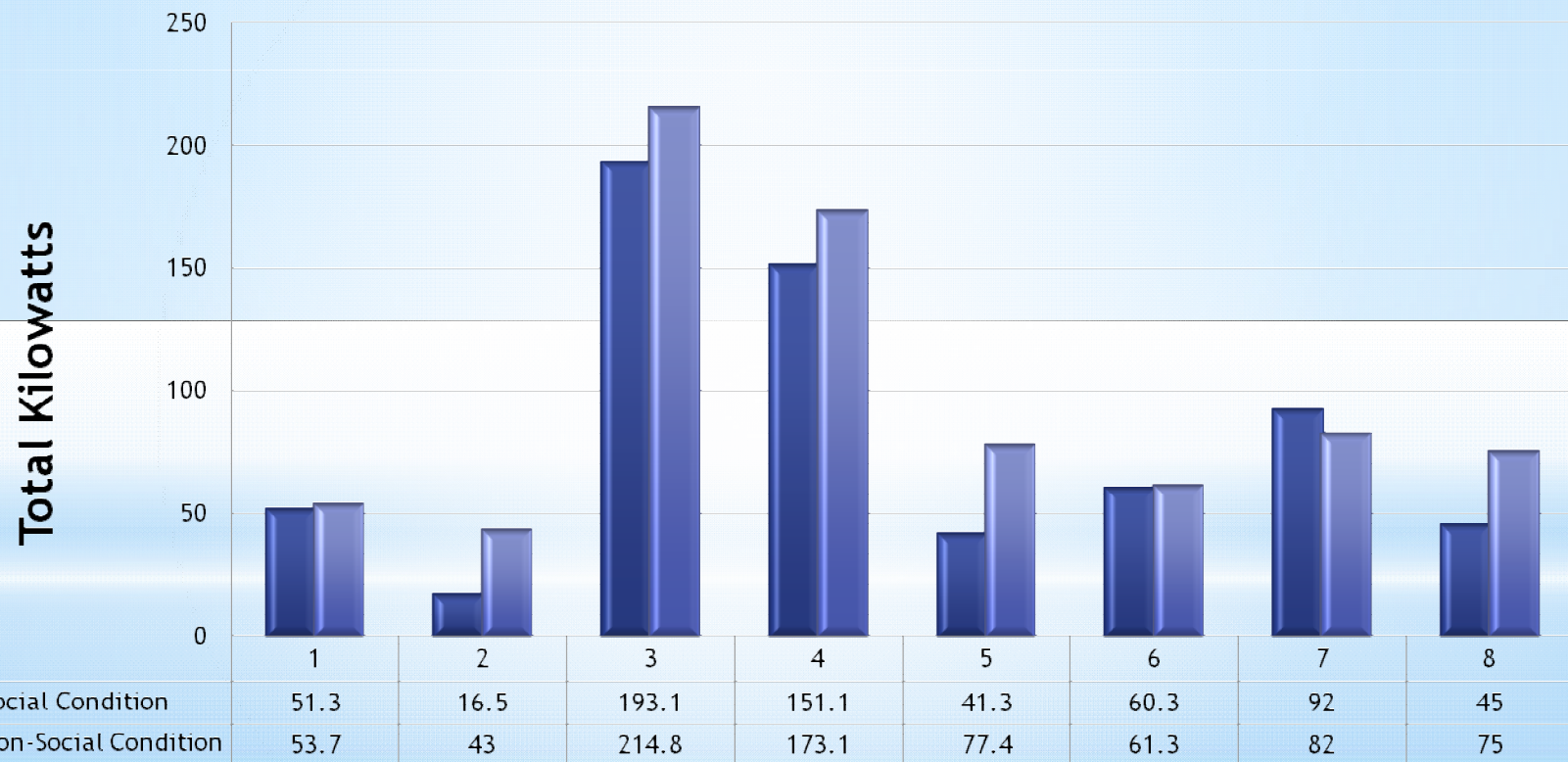
Wattson - Energy Monitoring System





Case Study - Wallis

Participant Energy Consumed





*Results

- *7 out of 8 households reduced their energy consumption when in the social condition
- *130KwH of energy saved - equivalent to Co2 emissions of driving a small car for 399 Km
- *If sustained for 6 months would result in reductions of 2600KwH



- * Existing **persuasive technologies** aim to motivate behaviour change primarily through presenting **positive feedback** when the desired behaviour is observed.
- * Literature in the field specifically recommends that we only **reward** good behaviour via **positive feedback** and that users disengage when **aversive feedback** is presented.
- * 8 Households recruited for 4 week study
- * **Research Question:**
- * *Could **aversive feedback** linked to **home energy monitor data** and **online social media** successfully engage users?*



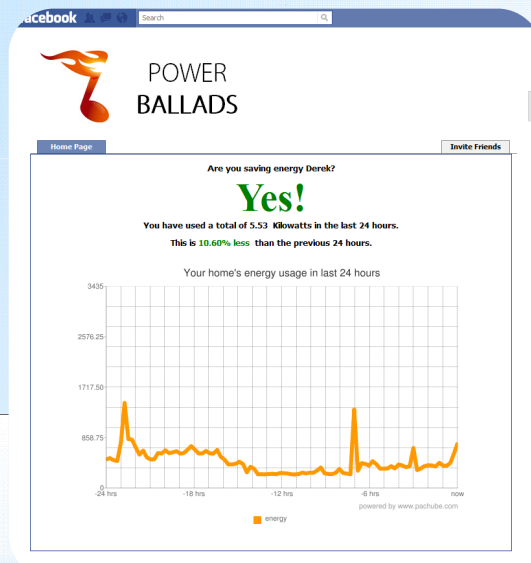
POWER
BALLADS



- * **Aversive feedback** is used to playfully **punish** a user if they are consuming **more energy** over the last 24 hours to the previous 24 hours.
- * A **Facebook newsfeed post** is published to the users wall where it is viewable by their friends.
- * The aversive content contains a message that the user is consuming more energy and listening to **undesirable music**. This can **embarrass or shame** a user in a **playful** manner.



Case Study - Lower Ballads



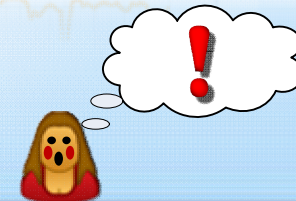
News Feed Top news · Most recent

What's on your mind?

Juliet

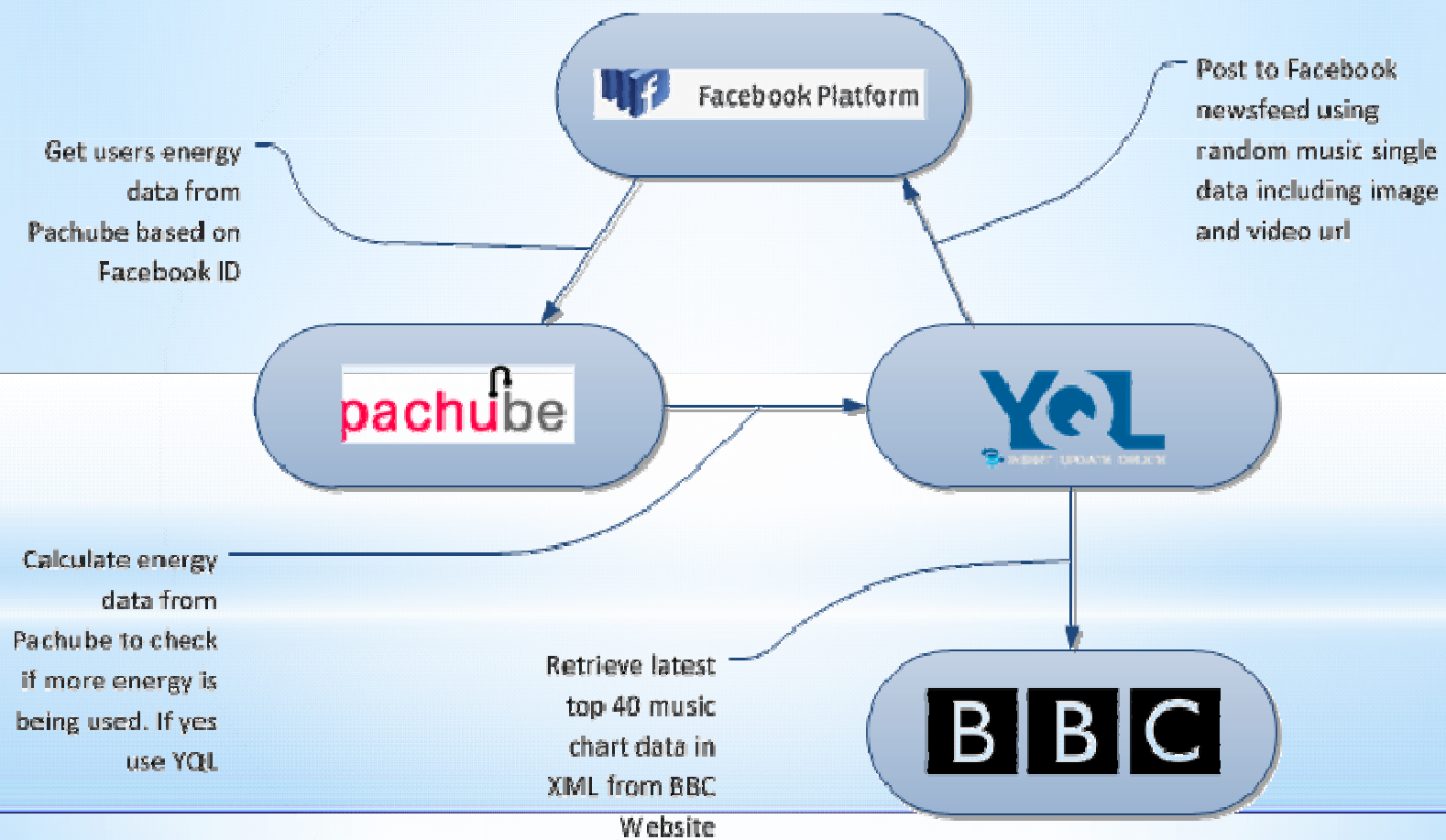
I am listening to: 'Shine A Light (feat. Taio Cruz) - McFly'
Great song to listen to when everything is switched on in the house!
My home is using a lot of energy today: 459 Watts average!
What do you think of this? Let Juliet know below!

7 hours ago via Power Ballads · Like · Comment





CASE STUDY - LOWEL BALLAUS





*Results

- * Findings indicate aversive stimuli may be useful in delivering engaging energy feedback.
- * 50 aversive newsfeed posts published.
- * 57 user-generated comments posted.
- * 30% of all visits to the application resulted in a punishment with the remaining 70% of visits bringing about an energy saving notification.



CASE STUDIES - LIVES



Step
Matron

NHS
Lincolnshire





- * Modern lifestyles are becoming increasingly sedentary - only 11.6% of UK adults are classed as physically active.
- * Physical exercise has been shown to improve health conditions such as heart disease and depression.
- * Figures suggest that UK workers spend up to 60% of their waking hours at work.
- * There is scope to utilise some of this non-social time to encourage more physical activity.
- * Sources: Department of Health 2008, ONS 2009, Peersman *et al* 1998



- * Recruited 10 registered nurses from same ward
- * 21 day 'within subjects' study to measure physical activity in two conditions
- * Given pedometer to record step activity during work hours
- * **Social condition:** participants could view their own and comment upon others' physical activity
- * **Non social condition:** participants could view only their own physical activity
- * **Research question:**
 - * *Can the use of social media motivate an increase in physical activity?*





Step
Matron



Case Study - StepMatron

facebook Home Profile Friends Inbox 1 Dani Parkin Settings Log out



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Home Rankings Questionnaire Help

Hello Dani


Welcome to Step Matron, an informative and fun way to keep track of the number of steps you take each day! At the LISC centre we are looking at ways to improve organisational health in novel ways. Step Matron is a pilot study investigating the possibility of improving health whilst at work.

[Please click here to add permissions](#)

Remember - be honest with yourself when entering your step count each day, we can validate your step counts against the pedometer's memory at the end of the study. If anyone cheats then they will be named and shamed!


Step Sender
Enter todays step count:

Your Total Steps Taken:
118395 steps or approx **31** miles


Personal Step Statistics

Steps today: **None Submitted Today**
Last 7 Days

Date	Day	Step Count
Oct 22 2009 7:03PM	Thursday	11751
Oct 21 2009 8:15PM	Wednesday	9782



Stepmatron user steps input interface



6 **9878** **42865** [Click For Step Details](#)



1 **10** **10** [Click For Step Details](#)


Most Steps Taken in a Day


19850
Simon Eggie Ennals


Total Global Steps Taken: **927676** or approx **247** Miles

latron Ranking Comments

 ☐ Post comment to my Facebook Profile



Simon Eggie Ennals 22 October
hay, im number one.
[Message](#)



Dani Parkin 05 October
aaahhh shame! wouldve bin loads x
[Delete](#)

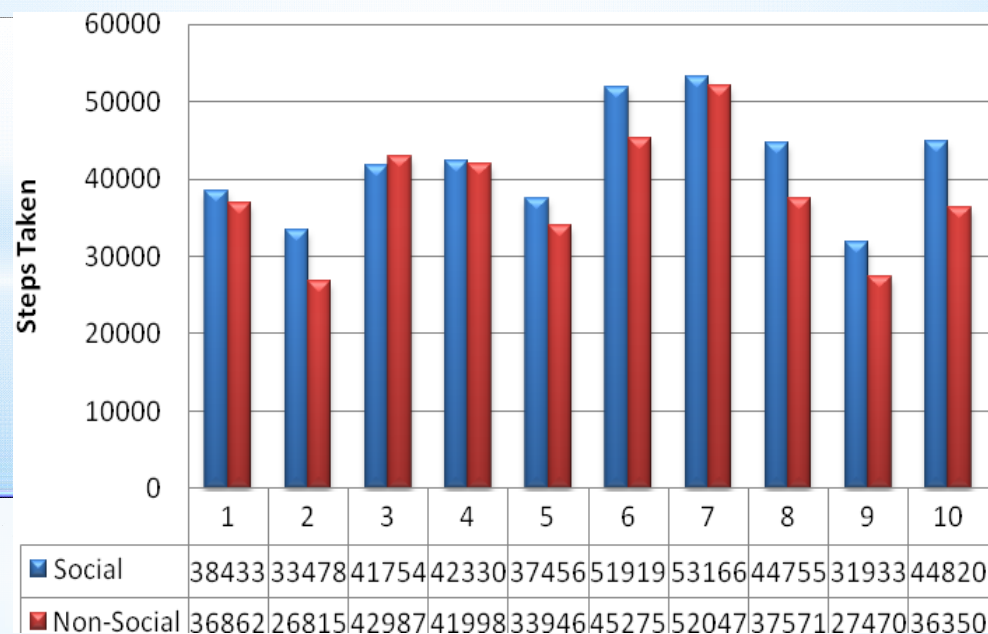
Comments board for rankings interface

University of Lincoln



Results

- * 9/10 participants walked more steps in the social condition than in the non-social condition, with mean step ratings of 42004.4 and 38132.1 for social and non-social conditions respectively.
- * Wilcoxon test significance ($Z = -2.5$, $N = 10$, $p = 0.013$).





Case Studies - Summary

* Using Social Media:

* **WATTSUP** - *successfully reduced domestic energy usage*

* **POWER BALLADS** - *suggested aversive feedback does not necessarily lead to disengagement with energy feedback*

* **STEPMATRON** - *successfully increased physical activity*

* More longitudinal studies required!



CASE STUDIES - LABELS

* HCI domain papers from LiSC:

* Wattsup:

* <http://eprints.lincoln.ac.uk/3155/>

* Power Ballads:

<http://eprints.lincoln.ac.uk/4104/>

* Stepmatron:

<http://eprints.lincoln.ac.uk/2928/>



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Electricity-Maximales
Electricity-Wastage?

* Sustainable HCI

- * - Motivating pro-environmental behaviour through technology-enabled feedback and interaction
- * Project will design, implement, and evaluate a suite of social software applications - including game elements - to encourage positive changes in energy consumption behaviour in HE and local authority work-places environments.
- * Personal desktop applications (social widgets) and situated displays will be used to deliver energy feedback to individuals, groups and communities.



ELECTROMAXIMALES ELECTRO-WARES?

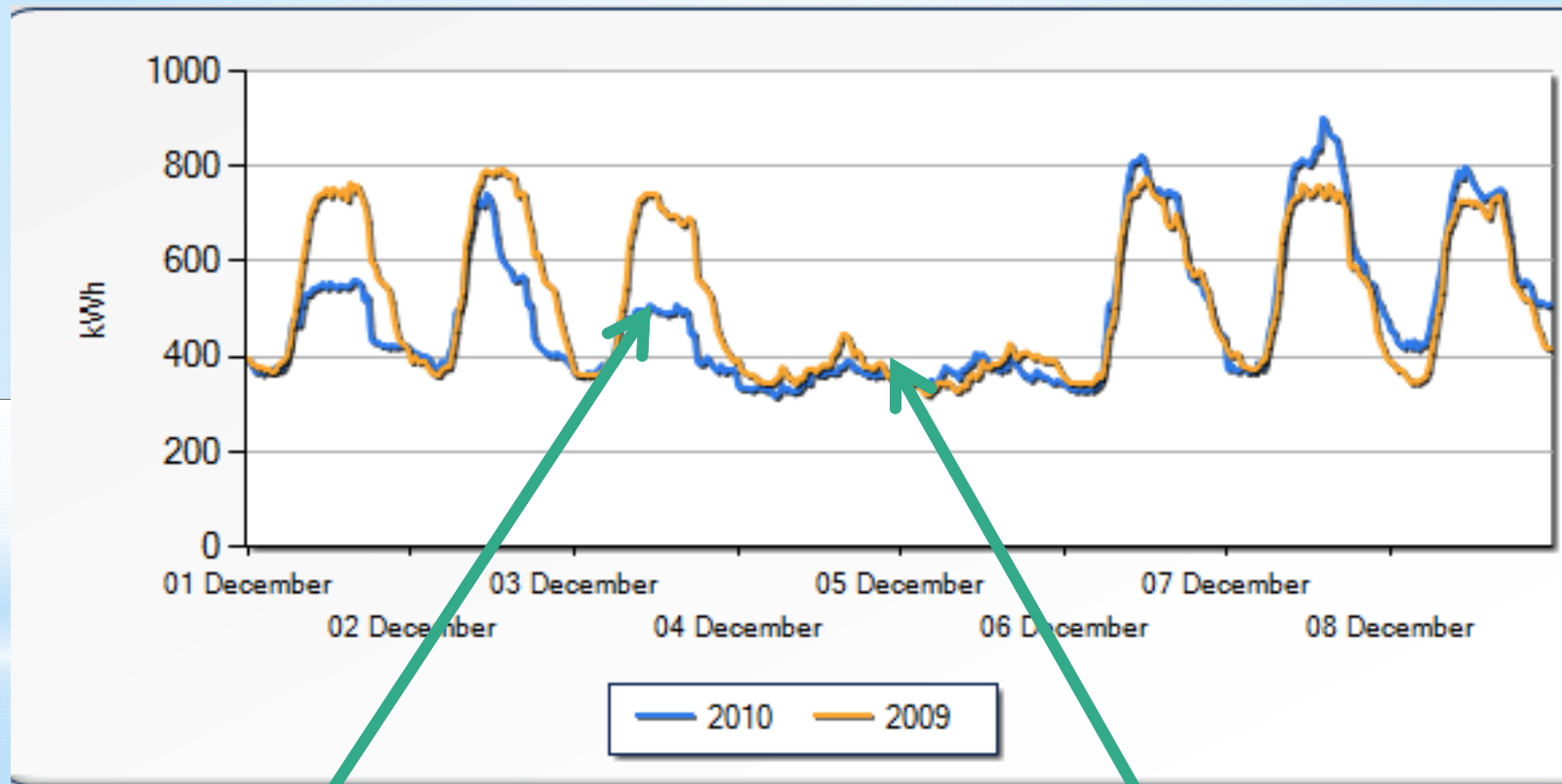


- Complicated presentation of energy data
- Limited interaction
- Closed systems with no social data sharing
- Limited online applications
- Bound to proprietary software, usually technical



LEARNING FROM THE PAST

(University of Lincoln)



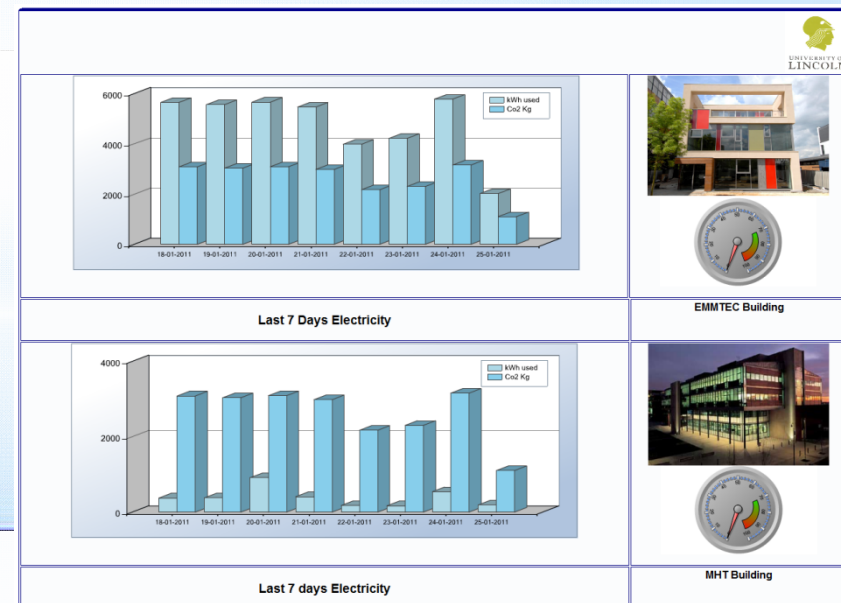
Closed for snow in 2010

The weekend



ELECTRICITY-Related ELECTRICITY-Related?

- * What we WONT do!
- * Technical energy graphs and figures
- * Present raw sensor data with Co2 tonnage
- * These are easy to implement but not meaningful to average user

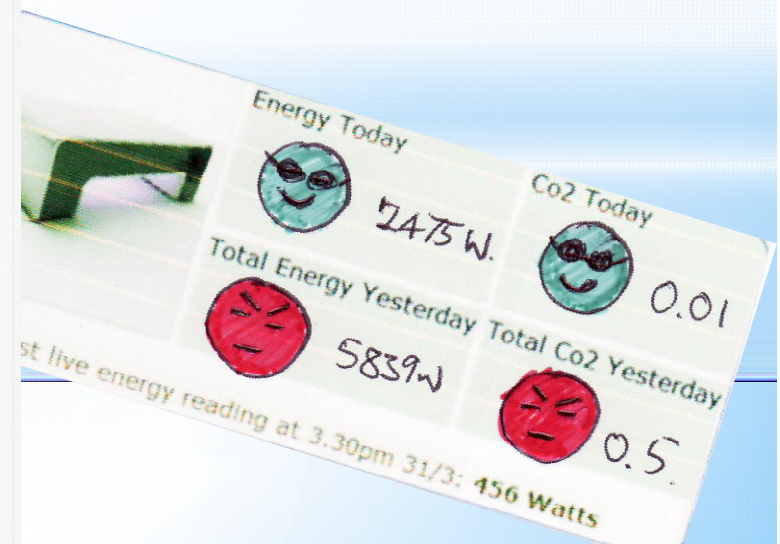
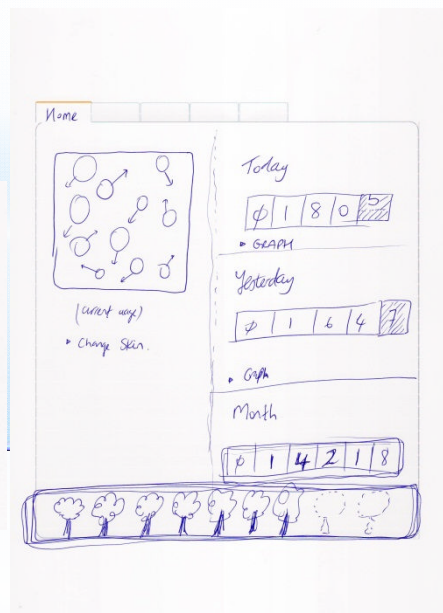




Electricity-Maximales?
Electricity-Wastiwares?

What we WILL do!

- * Using HCI research methodologies we will ensure adherence to a user-centred design process.
- * Participatory design workshops will be carried out involving users in energy interface design.





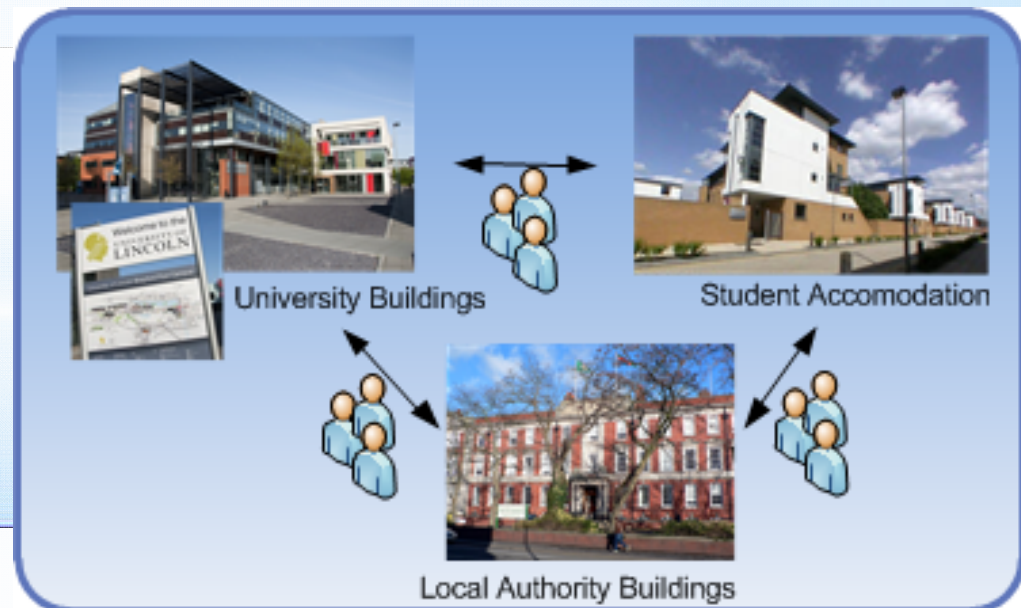
Electro-Maximales Electro-Warriors?

* Online social applications will be deployed between HE and local authority workplace environments in the Lincolnshire to foster collaborative engagement

* Campus buildings

* Student Housing

* Local Authority buildings





Are we saving energy?



Are we saving energy?

Yes!

Lincoln University used
18.39% less electricity over
the last 7 days compared to
the previous year.

created by Derek Foster at the Lincoln Social Computing Research Centre using live energy data



Are we saving energy?

	This Year kWh	Last Year kWh	
1. EMMTEC	1112.5	4531.6	-297.83% ↓
2. LPAC	996	2250	-125.90% ↓
3. MHT	13605	27953	-105.46% ↓
4. The Engine Shed	10919	15617	-43.03% ↓
5. Village Hall	473	676	-42.92% ↓
6. Main Admin	19451	27224	-39.59% ↓
7. Services	342	359	-4.97% ↓
8. Canoe Club	143	144	-0.70% ↓
9. GCW Library	17467	16587	5.04% ↑
10. Bridge House	4938	4171	15.53% ↑
11. Science Centre	12782	10531	17.61% ↑
12. Spark House	4533	3082	32.01% ↑
13. Sports Centre	9774	5923	39.40% ↑

Lincoln University
campus electricity usage
over the last 7 days
compared to the previous
year.

created by Derek Foster at the Lincoln Social Computing Research Centre using live energy data

Prototypes are online consuming live energy data



Electricity and Water

- * A back-end system was built that collects consumption data (Energy and Water) for use in our applications from our on-site monitoring technologies.
- * We have also opened the data to the 'cloud' using open standards that freely allow other services and web applications to consume the data using the free Pachube 'internet of things' service.

* <http://www.pachube.com/feeds/24356>





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Electronics Warfare

*Nudging at work:

<http://eprints.lincoln.ac.uk/4103>



Library

*Questions?

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