

Ethnography & Technology Probes

E-Social Science Workshop; Nottingham November 2004

Ethnography, sensitive settings & user needs

- The ‘turn to the social in design’ ...BUT.. how do you do it?
- Methods for identifying user needs in sensitive settings are not well developed
- Obdurate problems that make direct observation intrusive, disruptive and inappropriate

Research questions

- Questions about the organization and coordination of space - ‘everyday rhythms’
- Specific issues to do with the availability and use of existing technologies and their affordances.
- Major challenge for designers:
“... to pay heed to the stable and compelling routines .. subtle, complex, and ill-articulated, if they are articulated at all” Edwards & Grinter
- The problem of fascist design...Designers instinctively design for able bodied users.. “

Situated displays

“.. there are also many unique characteristics of situated displays that present us with particular design considerations and challenges. There are also many unique affordances of these display technologies that can have an important impact in the way that they shape both individual and social behaviour.”

[O’Hara et al., 2003]

Evaluation approach

Cultural vs informational probes

Gaver et al., 1999; Cheverst et al., 2003

Technology probes

“.. a particular type of probe that combine the social science goal of collecting information about the use and the users of technology in a real-world setting, the engineering goal of field-testing the technology, and the design goal of inspiring users and designers to think of new kinds of technologies to support their needs and desires”. (Hutchinson et al. 2003)

Technology probes

Purpose

To evaluate technology in situ i.e. to collect information about use and users in real world setting.

Features

Embedded, invisible, non-intrusive functionality enabling the monitoring of ongoing use of technology by users.

Embodied (have physical form), prototypical (form resembles a design), situational (in a setting), peripheral (on the edge of activity, translucent), analytic (of activity)

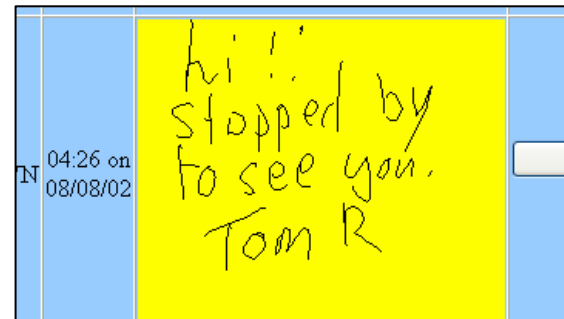
Hermes - Overview

- Provides asynchronous messaging services
- Situated public displays
- Provide many methods of remote interaction
- Observe use in the long term
- Log all interaction for analysis

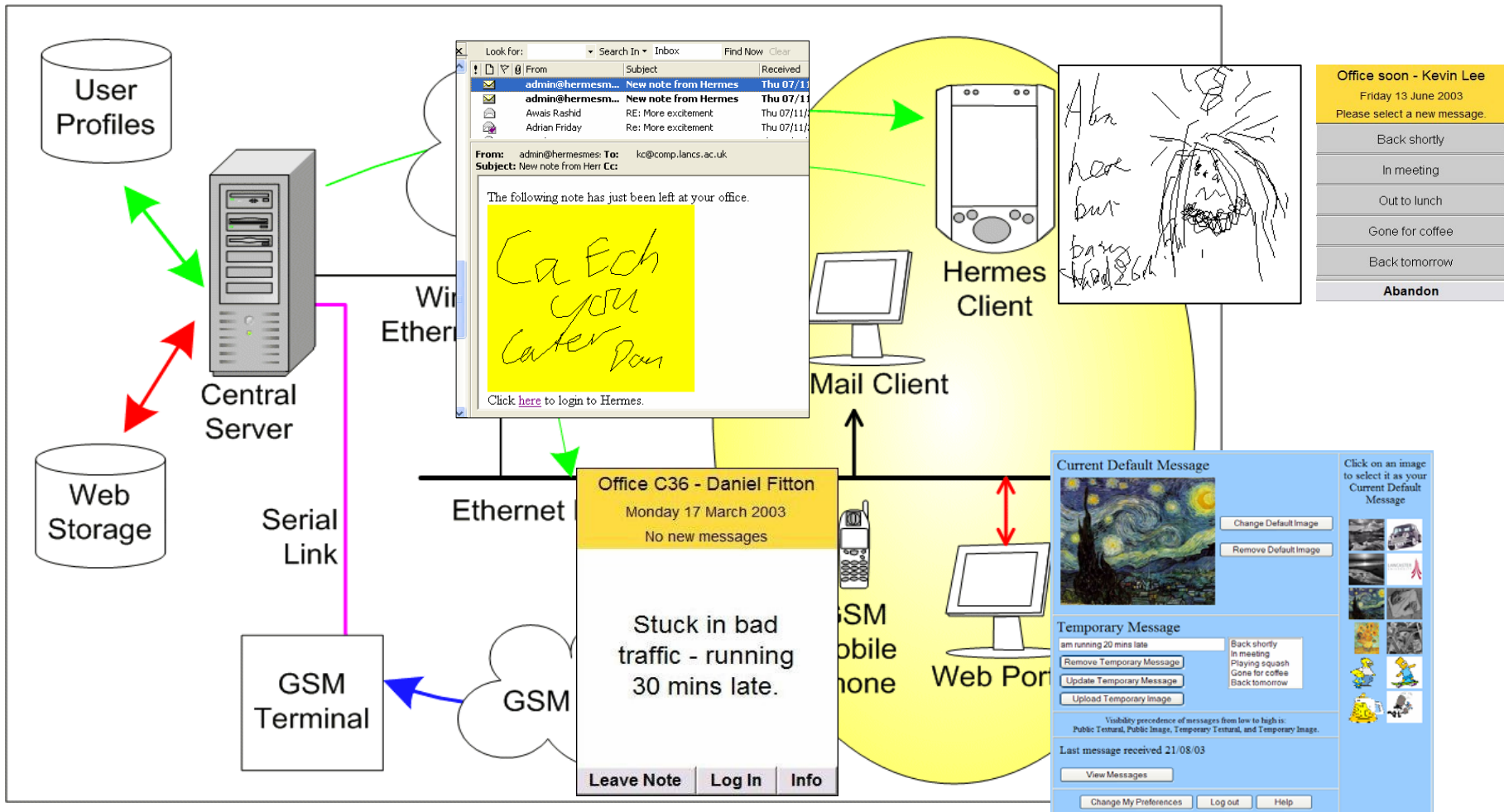


Hermes - Functionality

- Digital Post-it™ notes for ‘semi-private’ places
 - Scribble a note
- Share context
 - Through messages
- Remote Interaction
 - Set messages from wherever...
- Performs small number of tasks well
 - Dependable
 - Very simple and intuitive user interface



Hermes - Architecture & Interaction

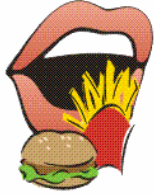


Hermes - Analysing Logs

- All interactions with Hermes are logged
- Recently performed analysis of 300 messages to investigate context sharing
- Requires many parsing and formatting phases
 - Involved manual tagging of entries!

```
User fittond logged in
dyn196.dhcp.lancs.ac.uk/148.88.241.150
14:22 07/05/02
actionPerformed - source: java.awt.Button[button6,117,0,117x23,label=Log Out]
dyn196.dhcp.lancs.ac.uk/148.88.241.150
14:22 07/05/02
User fittond logged out
dyn196.dhcp.lancs.ac.uk/148.88.241.150
14:22 07/05/02
actionPerformed - source: java.awt.Button[button7,0,0,117x23,label=Note]
dyn196.dhcp.lancs.ac.uk/148.88.241.150
14:22 07/05/02
actionPerformed - source: java.awt.Button[button8,0,0,78x23,label=Back]
dyn196.dhcp.lancs.ac.uk/148.88.241.150
14:22 07/05/02
actionPerformed - source: java.awt.Button[button7,0,0,117x23,label=Note]
dyn196.dhcp.lancs.ac.uk/148.88.241.150
14:22 07/05/02
actionPerformed - source: java.awt.Button[button9,156,0,78x23,label=Send]
dyn196.dhcp.lancs.ac.uk/148.88.241.150
14:22 07/05/02
Anonymous note sent to 764066420633315216067
dyn196.dhcp.lancs.ac.uk/148.88.241.150
14:22 07/05/02
```



```
=====
User Name: John Smith
Time: 13:52
Date: 07/11/02
Message Type: TEMPORARY IMAGE

OUT TO LUNCH!
Context: ACTIVITY
=====
User Name: Jane Doe
Time: 16:54
Date: 07/11/02
Message Type: TEMPORARY TEXTURAL
Message: Out to lunch - back at 2.
Context: TEMPORAL ACTIVITY
=====
User Name: Jo Bloggs
Time: 18:23
Date: 07/11/02
Message Type: TEMPORARY TEXTURAL
Message: Gone to the gym
Context: ACTIVITY
=====
```

Use of Hermes

- Simple to analyse some use e.g. SMS messages:
 - *“Am running 20 mins late”*
 - *“On bus - in shortly”*
 - *“In big q at post office ... Will be a bit late”*
- More difficult to analyse other use e.g. investigate context sharing over 1000's of log entries
 - 250 out of 300 analysed (83%) of messages set shared some aspect of context

SPAM - Requirements

- Residential hostels for former psychiatric patients
- Requirements obtained through:
 - Ethnographic study
 - Information probes
 - Workshops with staff
 - Introduced technology & idea of situated messaging using Hermes.

	<i>Site 1</i>	<i>Off site</i>
<i>Site 2</i>	Phone..... SPAM	SPAM
<i>Off site</i>	SPAM	Mobile phone

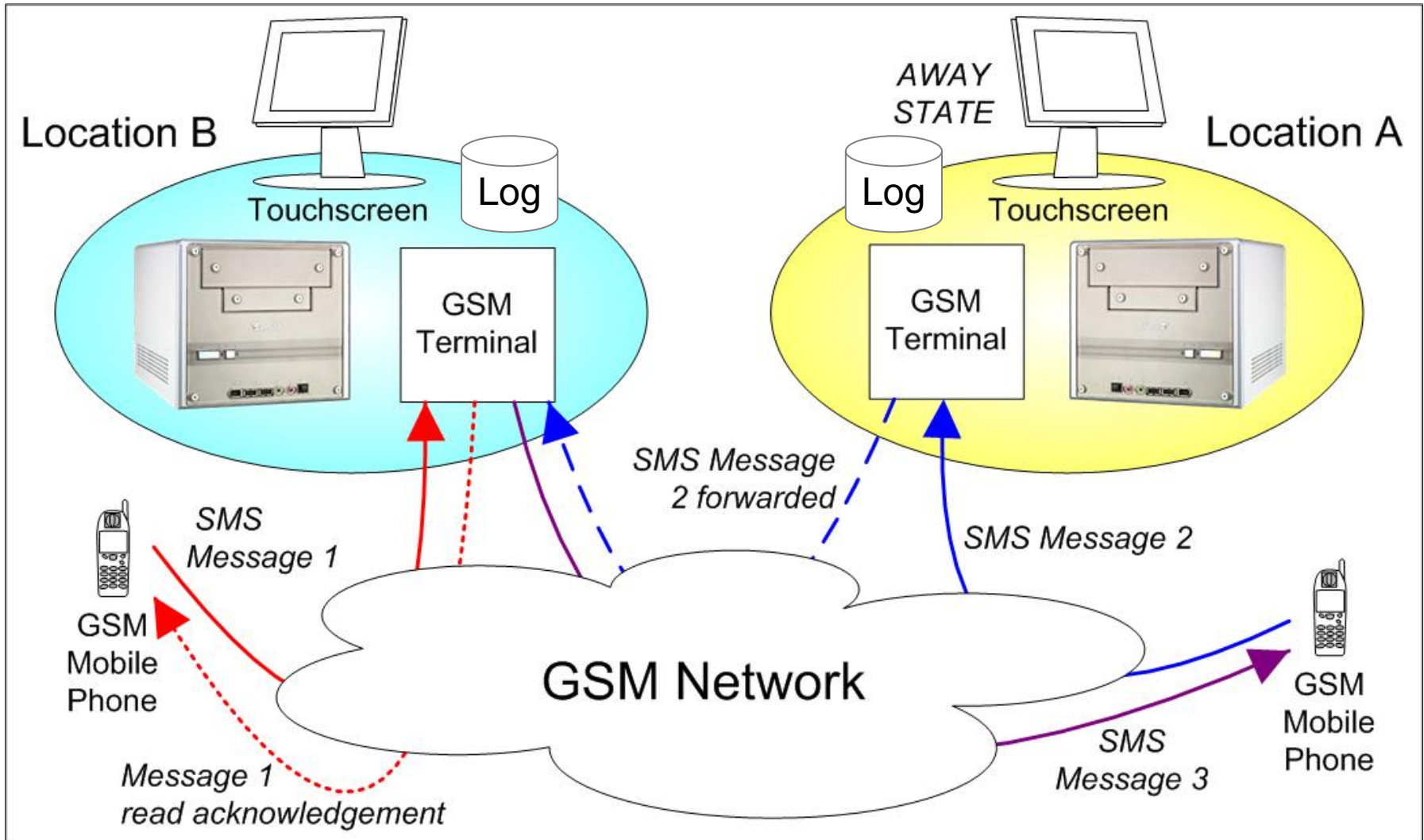
- Additional channel of communication
 - “... *the phone is constantly engaged..*”
- **SMS Public Asynchronous Messaging**
- Support cooperation between staff



SPAM Setting and technology



SPAM – Overview.....



SPAM – Analysing Logs

- All messages sent and received logged
- Recently attempted analysis of dialogues
 - Involved extraction and formatting phases

```
ok_pos
Waiting for lock on JGateServer
Got lock on JGateServer, about to send: ps would you like any pizza for tea to
21-11-11-11-1
21:01:11-11-1
ok_pos
set text mode - OK
21:01:11-11-1
ok_pos
set IE notification - OK
About to send: ps would you like any pizza for tea to: 07766345014
Got it now: AT+CMGS="0776634
11-11-11-11-1
Got it now: AT+CMGS="07766345014"
11-11-11-11-1
Got it now: AT+CMGS="07766345014"
>
11-11-11-11-1
msg_prompt_pos
Got it now: ps would
```

```
"MSG MSG24"
sender: +447788433624
date: 02/10/25
time: 17:05:04
message: ps would you like any pizza for tea
21-11-11-11-1
21-11-11-11-1
21-11-11-11-1
21-11-11-11-1
21-11-11-11-1
21-11-11-11-1
21-11-11-11-1
21-11-11-11-1
21-11-11-11-1
21-11-11-11-1
21:01:11-11-1
ok_pos
Delete successful
Message (ps would you like any pizza for tea From: +447788433624 Time: 17:05:
Update message: ps would you like any pizza for tea From: +447788433624 Time
Send message
21-11-11-11-1
21:01:11-11-1
```

```
--
sender: +447788433624 (Durrnan Hill)
date: 02/10/24
time: 20:13:10
message: a lot of banging going on up here too
--
ACK sent at 20:13 on 24/11/02 to: +447788433624 (Durrnan Hill)
--
Attempting to Send: Mike, email for you to view tonight from brian. to: 07788433624
(Durrnan Hill)
--
Attempting to Send: PENNY, please check email from me about fire precaution during
industrial action. Brian to: 07788433624 (Durrnan Hill)
--
ACK received at 13:24:03 on 02/10/25
--
sender: +447788433624 (Durrnan Hill)
date: 02/10/25
time: 17:01:02
message: Bear david hope you are ok can you put in the diary for someone to read the
electricity meter for 128 and a mail the reading to me at duranhill. thanks
--
sender: +447788433624 (Durrnan Hill)
date: 02/10/25
time: 17:03:04
message: ps would you like any pizza for tea
--
ACK sent at 17:05 on 25/11/02 to: +447788433624 (Durrnan Hill)
--
Attempting to Send: No,thankyou. to: +447788433624 (Durrnan Hill)
--
```

Themes from analysis 1

Awareness

“Has fax, email got through? Has X left yet?”

Coordination between sites

“I keep ringing and nobody answers? Can you ring me please”; “Pizza & and chips ready come on in 😊”

Coordination between staff

“Please ring car wont start”; “Alison can you ask terri to ring me when she comes in about the swop”

Tracking schedules

“What shift is steve doing tomorrow and where”; “Alison on visits and has mobile. Brian out with hh and has own mobile”

Themes from analysis 2

Queries

“Which keys should we hand over?”; “Can I possibly get a lift into town”

Adoption

“Hold up with s m money will be delayed back a s a p Barbara”

Sharing of context

“Snow problem please ring Barbara”

‘Outeraction’

“Please phone house when you are able”

Lightweight interaction

“mu 2 bol 2 cheeky”

Issues with technology probes

Technical

Parsing the data (logs) problematic

Ongoing use

Dependability, trust and innovation of technology

Analysis

Contextualising the ongoing interaction

Reflections on technology probes

Strengths

- Supplementary resource for other data e.g. interviews and observations
- A hook into the temporality of (inter)action i.e. the actor's unfolding (inter)actions
- Insights offered into the articulation of 'work' e.g. the use of resources

Problems and opportunities

- More sophisticated analysis tools required
- Action and interaction highly indexical

Concluding remarks

- Raised unexpected technical challenges maintaining logging functions.
 - Interesting trade offs
 - Awareness of logging etc
- Many phases of extraction/formatting required on logs
 - ‘Ad-hoc’ approach used
 - Other approaches? Database?
- Quantitative vs qualitative

Fragmentary Glimpses and User Requirements

- Supplementing ethnography in sensitive settings
 - - providing access
 - - beginning a ‘conversation’
 - - from ‘provocation’ to ‘reassurance’
- Documents of Life..

“I can tell you something but you have to be careful what you make of it” (Sacks)

- The problem of trivia... what is the data? - commonsense understandings about the setting.
- ‘So what’ - grounding design in the mundane world - avoiding stupid mistakes
- Having modest expectations.....& rethinking assumptions..
- *“They may seem whimsical, but it would be a mistake to dismiss them on that ground: for unless we start to respect the full range of values that make us human, the technologies we build are likely to be dull and uninteresting at best, and de-humanising at worst.”* Gaver 2001.

Web Sites

- Equator - 'Digital Care' -
<http://www.equator.ac.uk>
- DIRC - 'Dependable Ubiquitous Computing
In The Home' - <http://www.dirc.org.uk>
- SMART Thinking -
<http://www.gdewsbury.ukideas.com/>