

User Interface Design – End report

July 1, 2003

The logo for 'UID' is rendered in a large, bold, blue font with a slight 3D effect and a drop shadow.

User Interface Design 2003



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A travel five years from now...

Manuel has to travel a significant part of the day. The train can be very busy especially when it is rush hour. People during these times are not able to bide their time with things like study or work. What can you do in such a situation?

Manuel takes his mobile phone and ponders on the possibility to call a friend. However, then he remembers that she is not available today for a call. However, he already has his phone in his hand, so he decides to look for some interesting music on his phone. He thinks, "Well, I want to listen to Lou Reed..." He browses through the play list of the phone, but the number he wants to hear is not stored on his phone. But now he's thinking... "Maybe somebody on the train has it..." So he starts his peer-to-peer web browser...

Quite recently, there has been a massive campaign by the telephone companies to exchange your phone for the newer ones at no extra cost (apart for the new services that you pay for). It has been the talk of the town: the funny things you can do with it, you can develop your own programs, portable websites and so on.

One thing your p2p browser can do is search locally within the transmission range of your phone for other phones that act as a web server and search/directory servers.

Manuel types in "Lou Reed" and hey! Someone on the train calling himself "Hokusai" has a number stored on his/her phone. Manuel looks further on the mobile website belonging to "Hokusai" and discovers that there is a life version of the same number around the time the number was written by Lou Reed. Even the whole concert is there... "Cool!" Manuel selects the numbers for download and from the titles of the numbers Manuel infers that that the person "Hokusai" also provides a digital radio channel that can be subscribe to with a free lease of one hour. After that you have to exchange money or some service. The radio channel is automatically added to his digital radio in the phone. Manuel starts to listen to the radio. The radio channel first starts to first play Manuel's selection, while at the same time they are stored on his phone, after that it switches to the program being recorded by "Hokusai"...

Still, Manuel wants to do something else while listening...

Actually, Manuel is looking for another job, so why not search for it? Manuel is too tired to think about what job he wants, but what the heck, lets 'look around'. Manuel starts his peer-to-peer search engine with the keyword 'jobs'. Because it is not clear if you are looking for a job, or just want to pry on the jobs people around a lot of hits are returned.

In Manuel's culture the people are quite open about the jobs they have. Their phones have a so called 'face-book' application, which provides an easy way to tell who you are, what you do, provide a picture, give someone a lease to locate you within the transmission range of the mobile, show your hobbies and sell your things if you have something to sell. Of course you are able to disseminate this information according to your e-individuality setting. Manuel, for instance did set his setting of his picture to only family, and his job-resume is 'public mobile', so everybody in his neighbourhood can inquire on his skills.

Manuel finds that someone is looking for a technician for an advertising agency. Manuel wonders what it entails and retrieves the company profile. Because this portable website idea is just recently introduced, this advertising agency startup needs people that install professional mobile range add-servers. These add-servers advertise products, news, map information and so on in public places like trains, busses, hospitals, dentists, health clubs and so on. They want quite socially apt persons that can assess the environment of a public place, install a mobile add server and fill the machine with appropriate adds that are more or less related to the place you see fit. A human computer interaction course is included in order to give you a better start. If your ads are above average then the benefits are very good.

The person has his locator service online with a location lease of five minutes if you decide to contact him. Manuel decides to grab the opportunity because he wants another job. It's very interesting; it gives you room for your own creativity to place the adds and even create them. Manuel takes the lease and his mobile phone transforms to a homing device, like in the famous bond movies. Manuel begins to 'home in on the signal'. The person has also set a photo on your homing device because the lease Manuel took also changed the access level on his photo. Manuel can now recognize him (it's a he) and that he's about ten meters in front of him. Manuel walks forward and recognizes his face. The person is already notified by the fact that Manuel took his lease and is not surprised that Manuel chats him up. "Hi, I just noticed that you are looking for... etc."

The coupe he is sitting in is first class and empty. Manuel and the company representative decide to engage in a job interview. However, during the interview the man says that he's off with the next station. He proposes to exchange business cards and continue the interview. Manuel agrees happily and they both 'FIR' each other's contact data. Manuel "FIR's" because it is a more private way to exchange data: it exchanges data through a focused and directed light beam, so others cannot receive it. Manuel and the company representative agree to meet each other again next day at 12.00. A locator lease is provided in the business card of the employer for the next day until 16.00 hours... The prospective employer leaves... Manuel goes back to his seat.



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1. Introduction

This report describes the design specification of a new mobile device that aids the user in a variety of tasks. The design methodology used is the Dutch Design Method.

The second chapter summaries a list of problems that the current users encountered using their mobile phones, which are categorised into three groups: physical problems, interface problems and functionality problems.

In the third chapter the design team proposes a list of tasks for the envisioned device. These tasks are based on the previous report, the summary of current problems, and the research done to investigate already existing solution for these problems.

Five sketches of a mobile device are given in the fourth chapter. These sketches are proposals made by the design team for the client as how the envisioned device may look like. From these sketches, one was picked and used as prototype for the UVM phase.

The fifth chapter treats the UVM design, this chapter summaries a list of applications that are designed during this phase. Due to lack of resources, the design team chose to work on tasks, which are innovative for the future and/or an improvement of the current situation. Consequently, evaluation of this material, to discover design flaws, recommendations and possible improvements, is limited to the work that is done by the UVM team.

The final recommendations to the design are presented in the UVM status report, chapter 3 and 4. It gives hints and indication of how the device should be further development, based on the result of the evaluation.

The design, as presented here, is in practice still a work in progress with the first round of evaluation done. The results of the evaluation as such are not yet processed in the designs. One of the goals of this document is to show that the design group masters skills that are needed to design according to the Dutch design methodology. Our weblog on <http://62.59.37.97:8080/UID> is also an important source: it contains all the work (e.g. theoretical presentations) done by each participant in the past months.

2. Task model 1 – Problems identified by prospective users

The main purpose of the task analysis is to offer the necessary information to work with in the design process. As there is a lot of information presented and some of it overlaps, it is important to present the main identified problems, from the users' point of view. A summary of all the problems important for the design process is given here:

- *Physical problems:*
 1. Overloaded server
 2. Problems speaking (natural cause)
 3. Talking on the phone while doing something else (skiing, biking)
 4. Using the phone in “problematic” environments (on the toilet, in a noisy environment)
 5. No signal, connection problems (e.g. in the lift, in the basement)
 6. Losing the phone
 7. The lines are busy after 8 o'clock
 8. Failure/ disturbance of display and keyboard, alimentation problems
 9. Fragile to shocks
 10. Size problems (too big)
 11. Sensible to stealing
 12. Radiations
 13. Low duration of battery
 14. Rechargability
 15. The phone is too heavy
 16. Not water resistant
- *Interface problems:*
 1. Accidental calls
 2. Failure/ disturbance of display and keyboard



3. Lose clock settings, when disconnecting the battery
 4. Typing problem
 5. Text is too small
 6. Font problems
 7. Problems with vibration alarms
 8. Everybody have the same ring tone as I have.
 9. Cannot understand the text or voicemail, it is not my native language (e.g. Dutch or English)
 10. Cannot detect incoming messages
 11. I don't like the sounds it makes and the display (it should have more light, it should be wider, and coloured – light green or blue)
 12. Illogical menu structure, can easily get lost in the structure
- *Functionality problems:*
 1. Use alarm without the phone on
 2. Do not know how to use some functions (e.g. set alarm)
 3. Memory is not enough to store all my SMS
 4. Forgot to switch sound off during no noise environment (e.g. theater / library)
 5. Too many payment-functions
 6. Text messages from the provider
 7. No snooze possibility for the alarm clock
 8. Be impossible to track down
 9. Make pictures
 10. Location (GPS)
 11. The possibility to see the person I speak to (video-phoning)
 12. Underwater resistance
 13. Containing several functionalities (e.g. remote control, book, notepad (see PDA), Route-planner)
 14. Adaptation of its sound and volume to the environment
 15. Logo personalization, SMS with my own graphics
 16. Movies, listen to MP3, video fragments receiving, sending and making
 17. Colour screen
 18. I want my phone only to be there when I need it
 19. Functionality of my mobile on fixed phone (e.g. phonebook and dialling)
 20. Size of key change for the phone
 21. Hands-free communication without a headset or accessories
 22. Call identification using sound
 23. Speech to text and vice versa for SMS and for agenda
 24. Payment functions (e.g. CHIP or PIN)
 25. (Digital) identification papers
 26. "Context awareness", explain to the phone how people can contact me
 27. Satellite communication (UTMS)
 28. Fewer options, however more improved
 29. Possibility to use several SIM cards at same time
 30. More memory, or possibility to expand the memory

3. Task model 2 – The envisioned task world

After discussions in the design group, the research done for our physical proposed design, the problems from the previous chapter and scenarios for the envisioned world (*Status report Task Model II*, chapter 6) the design group proposes the following tasks for the envisioned world:

1. Make/send/receive text messages
2. Make/send/receive pictures/video (TV)
3. Talk via text (chat)
4. Make phone call
5. Send/ receive smells
6. Play games
7. Locate somebody/places
8. Provide personal information
9. Access phone via fingerprint/voice print recognition
10. Watch video



11. Listen to radio/ MP3
12. Projection of information (on a surface) – 2D + 3D
13. Check/adjust time
14. Schedule something
15. Browse the Internet
16. Communicate with other devices – upload, download, service
17. Change profile (control/environment)
18. Check status of people in phonebook (availability)
19. Change device settings
20. Manage phone book
21. Searching information in the interface/device
22. Get help when using the device
23. Access and change personal information/private information – create own icons
24. Install software
25. Notifying other persons/devices

A discussion with our client concluded that the proposed tasks can be developed for our device.

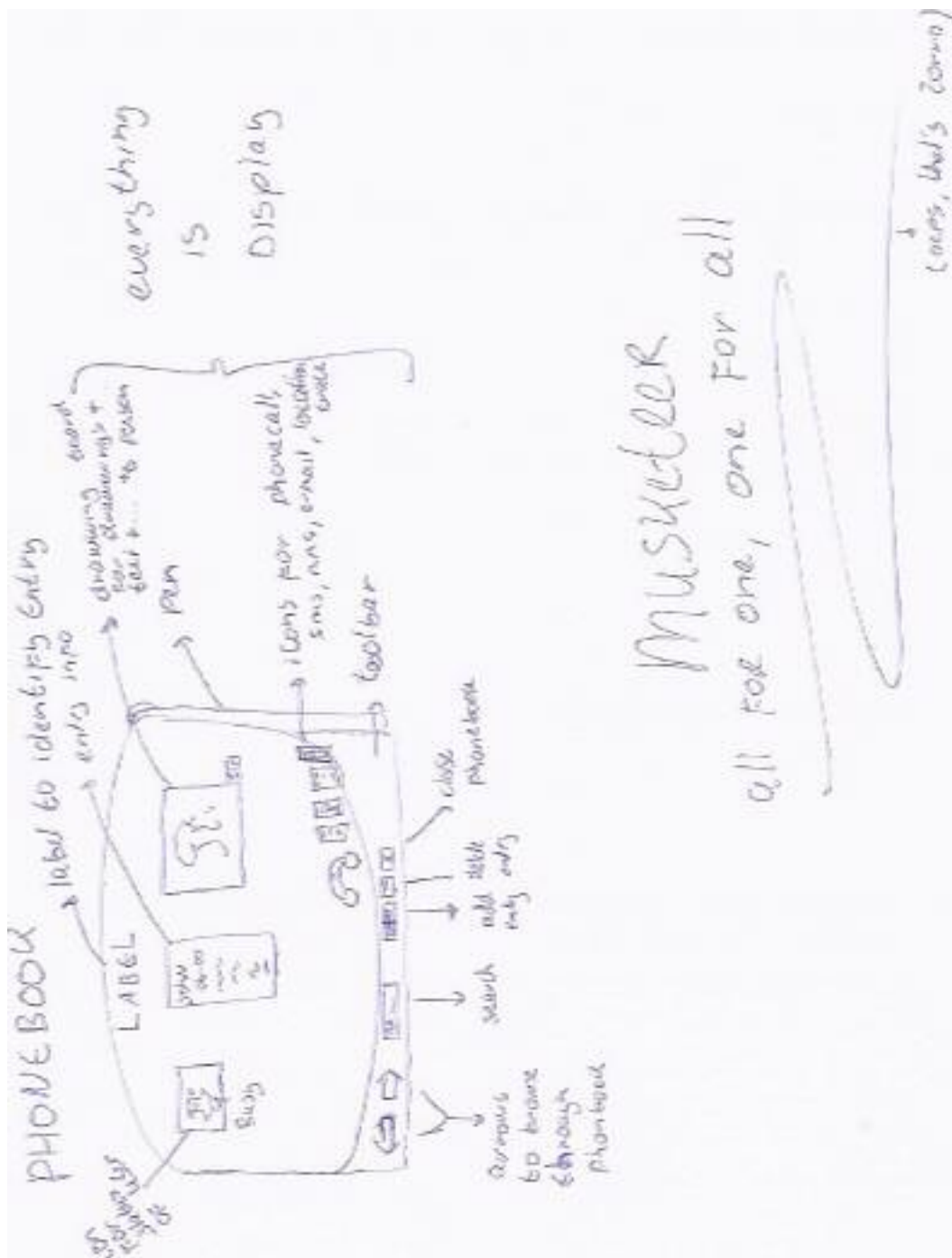


4. The system – Sketches

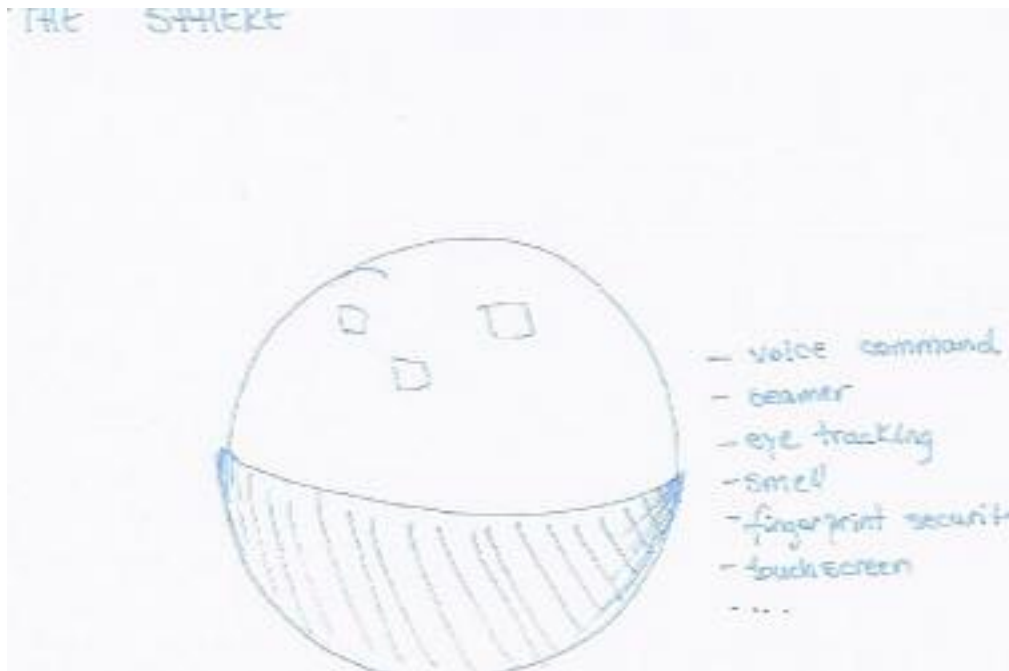
This chapter shows sketches of the envisioned device. For each proposal the design team has named his pros and cons, and based on these pros and cons the final prototype is chosen.

4.1 Musketeer

- *Pros*
 - The phonebook is like all designs presented here in its total a display/biometric sensor and touch screen. It fits easily in your hand and can be placed on a flat service.
 - It is usable for left and right-handed people
- *Cons*
 - The size of the phonebook is quite big and does not allow for ease of portability.

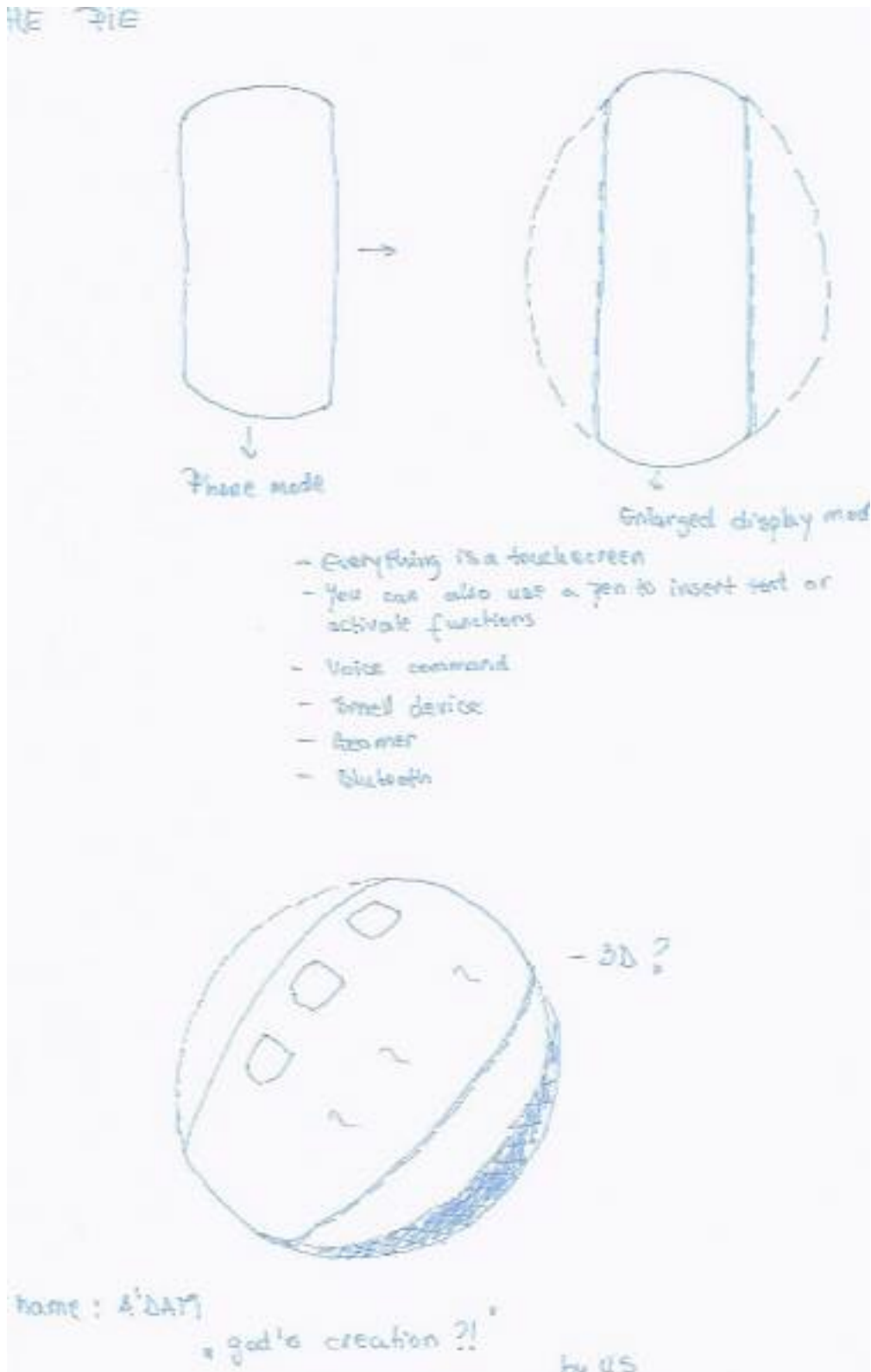


4.2 The sphere



- *Pros*
 - It can be easily be handheld; it is an ergonomically nice model for the hand.
 - There are techniques available to correct for the distortion of the sphere to project information on the sphere.
 - All the technical things can easily fitted into the volume of the sphere.
 - A sphere is a physically strong object; if it falls it will not break that easily.
 - It is usable for left and right-handed people.
- *Cons*
 - -You cannot store it in a bag or pocket (it bulges) easily and the size is prohibitive because it needs to fit the hand palm and have enough 'display room'.
 - -The round shape is not a very stable form to rest on a flat surface.
 - -Only one hand can manipulate the device, the other hand has to be used to grip the device.

4.3 The pie



- *Pros*
 - The pie can be made smaller to a so-called phone mode, this way it is easy to carry around and store in a bag or in your hand.
 - It the 'folded' mode has the advantage that it looks like a regular phone and behaves like such.



- The design is usable for left and right-handed people.

- *Cons*

- Because the display folds out of the handgrip this is technically a quite difficult thing to engineer sturdy for hand use. Furthermore, the surface has to be completely flat with no distortions. This is not easy to do from an engineering perspective.

You can rest it on a flat surface but additional construction has to be done in order to let it stand up for e.g. viewing a film. These additional requirements make the design too weak for hand use.

4.4 The handgrip



Speakers and microphone are at the back of the device.
 There are no physical buttons.
 All the buttons are formed as a touch screen.

- *Pros*

- It can be easily stored in a pocket or bag.
- Ergonomically it fits nicely in the hand.

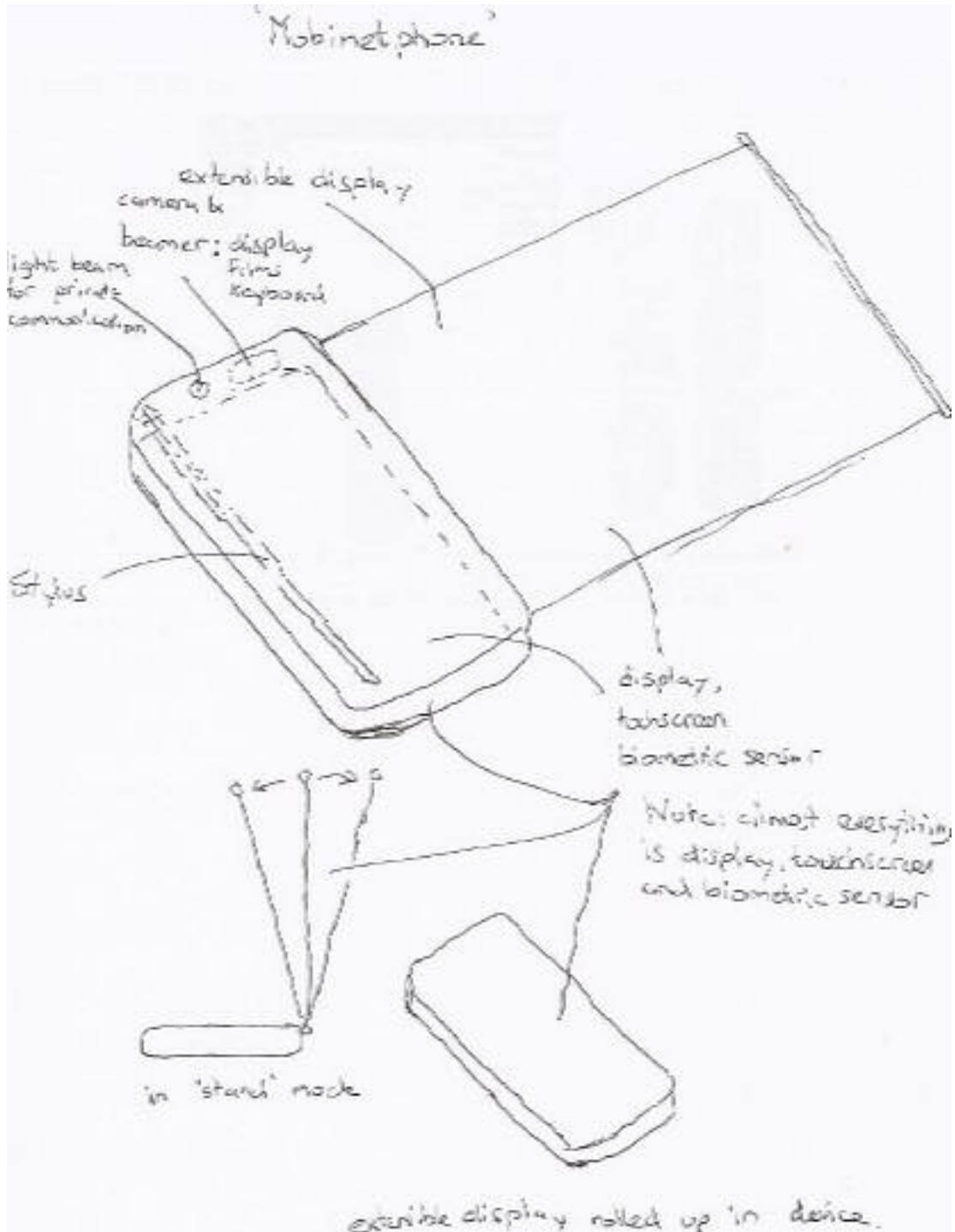
- *Cons*

- Because the display folds out of the handgrip this is technically a quite difficult thing to engineer sturdy for hand use.
- You cannot rest this device stable on a flat surface.
- Only one hand can manipulate the grip, the other hand has to be used to grip the device.
- There is no room to store all of the features that are requested. E.g. space for the beamer is quite difficult to find.



- The handgrip can only be designed for the common denomination of right and left handed people. Specialized right and left hands designs could be made but would entail a more complicated production process.

4.5 Nonno¹ – “...a wiser future...”



- *Pros*
 - The device has shapes that can be easily handheld. In extended mode it can be reshaped to stand on a flat surface. It can be easily stored in a pocket or bag when not extended.

¹ Nonno is Italian for 'grandfather'



- It provides a stable device on a surface to ‘beam’ images, project a keyboard and get input from the environment.
 - It can be held in several ways in the hand: e.g. crosswise for viewing films according to the ‘new’ display formats of TV’s and longitudinal e.g. for playing games e.g. like a Nintendo gaming interface.
 - It is useable for left and right-handed people.
- *Cons*
- It is a slightly less ergonomic for the hand in comparison to the other devices.
 - The construction of the extensible screen will require some effort to make it sturdy enough. The extensible display most likely can display only on one side.

Because “Nonno” has physically the most flexible form for the hand and can be flexibly positioned on a surface in the environment the design team recommends the last proposal. Also from an engineering perspective there is a large tradition of creating ‘square’ designs. From that perspective, this design is somewhat conventional. However because of the fact that the whole surface is a display / biometric sensor and touch screen it allows for software interfaces that can be adapted to application of use. Of course more natural ‘rounded’ interfaces can then be developed.

5. User Virtual Machine – Applications

The phase of User Virtual Machine (UVM) describes the final product in detail, so that it can be implemented, however due to lack of time, as is mentioned in the introduction, the design team only worked out a limited set of applications (which are programs that contains related tasks). Using the list of tasks from Task model II, the design team developed applications for the final prototype, which are described below.

5.1 Open-the-box specification

The user have to be introduced to the controls of Nonno. Nonno can be controlled using speech, tapping with a stylus or finger as well as with the buttons on the touchscreen. When Nonno is powered on, a screen will be presented to thank the user for purchasing this innovative product. Furthermore, the user will be told that they can start a short introduction by tapping the next button. If they don’t need an introduction, it is possible to tap the skip-intro button. When the next button is tapped, the user will be introduced to the main control buttons of Nonno in a screen like this:

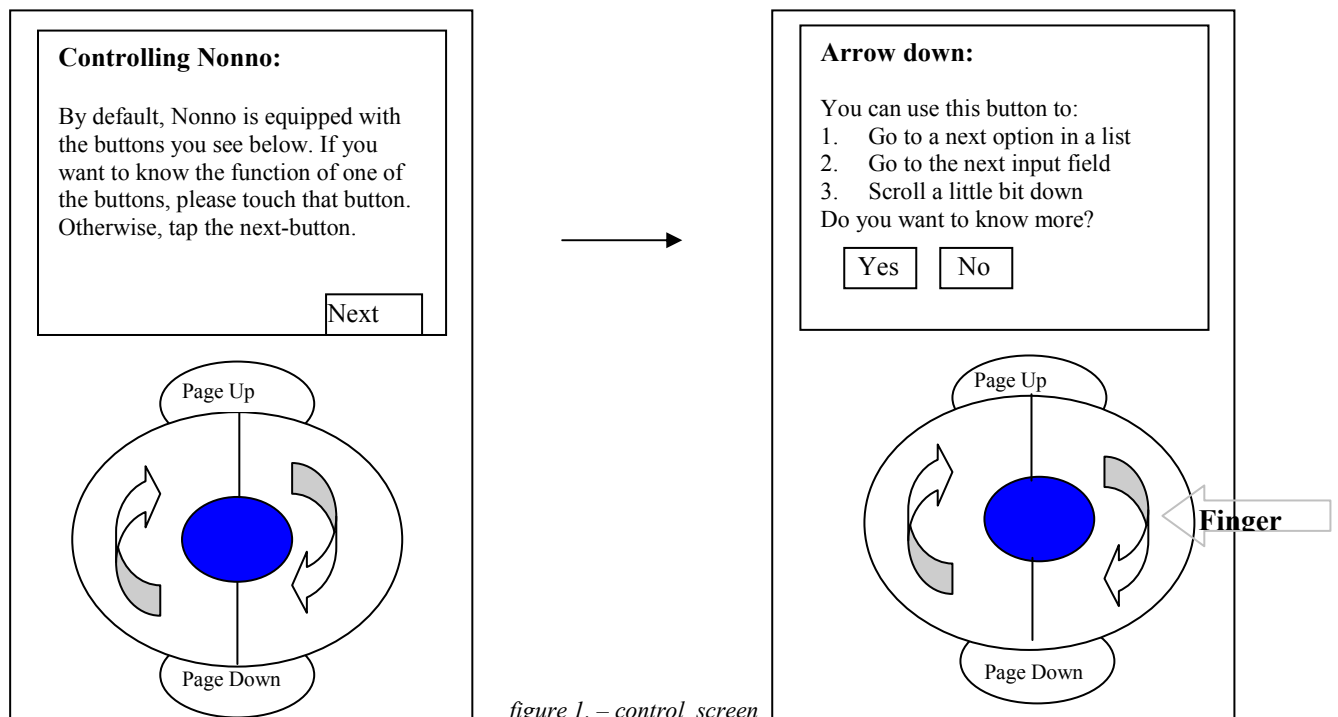


figure 1. – control screen



After the user is introduced to the main control of Nonno, a first-use menu (icons) is presented with the following options:

- SOS
- Immediately start using Nonno
- Application configuration wizard
- Device configuration wizard
- Import personal data (like contact list)
- Frequently asked questions

First use menu

After the short introduction, the user sees the first-use menu described above.

When the user is working on the configuration of Nonno, it is possible to tap a question mark at any time. When tapped, a help file of the current application is launched.

SOS

Alert the emergency services see also description of the SOS application (section XX)

Immediately start using Nonno

The possibility exists that the user of Nonno already has some experience with the device. In that case, it is not necessary to go through all the wizards and help files.

Application configuration wizard

During this wizard, all the basic settings for the main applications of Nonno are be configured. Note that this does not imply that the device is fully configured after this wizard, such a wizard would be too complicated and it would take to much time to complete. Instead, after this wizard is finished, it is possible to work with Nonno in a convenient way. During this wizard, the following information can be entered:

- personal information (name, address, website etc)
- identification information (password, fingerprint, security keys)
- internet/communication access provider settings
- email accounts
- whether you want to publish information on U2Me. If so, it is possible to enter a url where this information may be downloaded from or enter the information directly.

Device configuration wizard

Besides the applications, Nonno, as a device, also has to be configured. When the user selects the device configuration option from the first-use menu a wizard is started which takes care of the following aspects:

- Main look of the device.
- General sound / alarm options.
- Turn off/on location functionality..
- Turn off/on beamer and vidphone hardware functionality.
- Turn off/on e-money functionality.
- Turn off/on biometric personalisation.
- Update hardware.

Import personal data

The fourth option of the first-use menu concerns importing personal data. This is already a very useful functionality of current mobile devices. A big advantage of Nonno is that it can automatically discover devices in the neighbourhood (like a PC or PDA) containing data that can be imported. Off course, this requires that the other devices are equipped with wireless communication possibilities like WiFi, laser, infrared or Bluetooth.

Nonno presents a list of discovered devices after which the user is able to select one of the devices. Nonno then sends a request for data synchronization to this device. When this request is accepted, the data is imported.

Nonno is able to import the following types of data:

- contact list

- email messages
- bookmarks
- files

Frequently asked questions

Nonno is an innovative device with a number of new features. These features are not offered in any mobile device before and the possibility exists that users have a questions when using Nonno for the first time. In the FAQ-section, a lot of questions and answers are collected. A few examples of questions and answers concerning the Me2U application:

- *What exactly is U2Me and Me2U?*
- *So I publish information, but what about my privacy?*
- *What is the mobinet?*
- *Why is the range of the mobinet limited?*

5.2 Toplevel Nonno specification

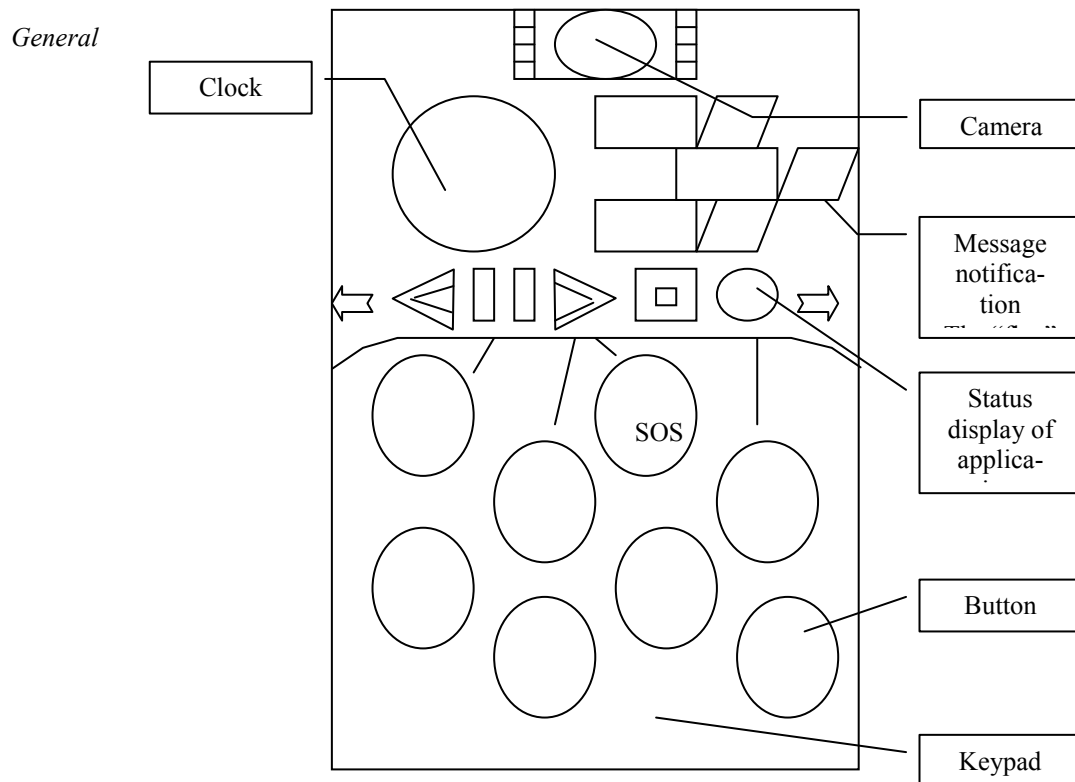


figure 2. – Top level Nonno

description

Concept: The button bar with the record, play/forward, and pause is used as indicator of several tasks that are run by several application that are installed by the user.

The application “connecting”, m2U, U2M, multimedia, locator, vid-phone all use these indicators. Connecting Lines are drawn in our interface to show the relations of these buttons. This is needed because the device can run several applications at once, and thus the user needs an indication of this. In for several application the semantics of possible combinations are explained (see UVM design for further details: Connection, Me2U, U2Me, Multimedia, Locator, Vidphone

The symbols that are used can be also used by gesture of the shape. This gesture is a combination of pressing an application button and the “action gesture”.



The status window 'names and symbol' tags are used to indicate what happened while the users did not interact with the device. Indicators exist for the following messages:

- e-mail
- voice-mail
- someone knocked
- someone took a lease from you (a sound is also is played when it is taken)
- a dial back request

5.3 SOS specification

The emergency button in the toplevel Nonno is used to contact emergency services. Furthermore an option is available to use sound and visual effects to warn people in your neighbourhood. These (very hard) sounds consist of the SOS morse code and a 'regular' alarmsound. Also an alert is send on the mobinet that gives everybody in your mobinet an locator lease to your physical location and a message that you need help.

5.4 U2Me specification

The U2Me application is an application that allow the user to browse his mobinet for information that is published by people available in the mobinet. The application has two modes on the mobile,

- mobile only, the reason for this is that others might not have the same design of the phone , so it has to be reformatted, should be supporting legacy phones.
- Second mode is on the unfolded screen. It has more screen space to present personal information.

Browse the mobinet

- *Browse sites of the people in your neighbourhood*
 The main purpose of Me2U is providing a service which makes it possible to look at personal information of the people in your neighbourhood. Possible topics are:
 - Personal profile (name, age etc.)
 - Photo (or alias picture)
 - News
 - Location (lease, only available when permission is given)
 - Etc.

The users of the application can define which items are the most interesting for them.

Of course, the data provider can define which information is available for everyone and which is not. Especially privacy related information like the location will not automatically be available for everyone. For such information it will be possible to give someone a lease for a certain amount of time, this we be discussed in more detail later on.

When the user finds some interesting information or files it is possible to save this on his or her device for later use. Please note that this is only legal in the case of copyright-free information. For example, it would be illegal to exchange music of software for which you should normally pay. Off course, the user can return to the neighbourhood overview at any time to look at other possible interesting persons.

- *Search for keywords in the mobinet*
 Another way of looking for information on the mobinet is searching for specific keywords. The complete mobinet is searched for this keyword and the results are displayed to the user who is able to select one of the results. It is also possible to define in which of the categories the keyword must be present (for example, in the hobbies or in the music category)..
 The search functionality is only able to search in the information which the user is allowed to see. So again, the data provider is completely in charge.
- *Neighbourhood notifier*
 Certain peoples sites maybe of interest to you, the mobile is capable of showing notifications that the information that is book marked by the user is available again.

5.5 Me2U specification



The Me2U application is used to publish information about the user on the mobinet and as such is the pendant of the U2Me application. Ideas behind it are:

The user can carry his own dynamic information publisher with him. This information should be easily changeable to adapt to the circumstances the user is in. (See for e.g. the introductory scenario of TM2)

Furthermore it is hoped that Me2U can be used to express modes of social interaction in a more detailed way. To sketch the idea in extremis: the user is in a dancing and want company of a certain type. The user can publish this information mobinet and users in the mobinet can now *know* and possibly match or at least interact more easily.

The mobinet is purposely small in scale, to support more specific dynamics of the Me2U application: the context is so small that the meaning of its environment can much more easily be determined by the device. Another benefit is that resources in the wired and wireless net are less used.

The Me2U application consist of several ‘helper’ applications:

- Enter / edit personal information
- Configure permissions

5.6 Mobinet Locator specification

The mobinet locator application caters for three important functions:

- *Locate somebody/places (in the range of the Mobinet)*
- *Provide personal information*

This functionality can be used as a helper application to set your preferences on a lease. It provides other people data with the lease.

- *Schedule something*

This functionality can be used as a helper application of the agenda and allows people that the user has meetings with to get a lease on the users location.

The last two functionalities is combined into one helper application:

- *Giving a location-lease*

Since many people have objections when everybody is able to see where they are, this is not permitted by default. A user is only allowed to lookup the location of somebody else when he or she has been given a location lease. This lease tells that a specific person is allowed to request the location of the person who gave the lease for a defined amount of time. A lease is given by filling in a form.

5.7 Phonebook specification

General description

The phonebook is the central ‘hub’ for communication, be it the main application or as a helper application for other applications. Currently most people do not know if the other person is available when they call him. They get connected to the person’s voicemail when they cannot reach them. They may send a SMS or an e-mail. To save these two steps, the device determines the possible ways of communication with this person and from this list a decision (automated or not) can be made on the mode of communication.

Another reason to use a phonebook, is to make sure that they have a central repository of information about the user they wish to communicate with.

If the user wishes to communicate with person stored in the phonebook, then he may use the summary of phonebook to look for the other user or the search function. This option is in toplevel Nonno available by clicking on the ‘call’ button.

After finding this user, he wishes to communicate with; the device retrieves the modes (e.g. e-messages and/or call) that he can use to communicate with this other user, which are stored in the phonebook of the user that he wishes to communicate with. From this list the user selects the communication mode that fits him the most.

In case with a user not known in the phonebook, the user can enter the identifying ID of that user (e.g. phonenumber) and from that phonebook the list of possible modes are retrieved and from there the rest is the same as above is described.

Phonebook functions

- Add entity
- Add person



- Add group to the phonebook
- Remove entity from the phonebook
- Edit person
- Summary of the phonebook
- Change availability
- Settings and other functionalities
- Location ability
- Exchange of phonebook information

All information is set to off per default. When the user sets the information, then and only then the information is available. The settings of a group of a person have priority above the person settings in the phonebook.

6. Conclusion

The UVM design and the Evaluation team both have to stop. The course has ended. A lot of work has been done by everyone. Nine students have studied and worked for several months to design a mobile device that could be used five years from now.

At least $9 \times 126 \text{ hours} = 1134 \text{ hours}$ is spent. About 140 work days of designing, evaluating, doing research, and being creative. The design team was however not able to deliver a complete design specification. So many applications for this design came up. A choice had to be made given time constraints. This design can be described as being in stage two: for most of the applications the first round of design and the first round of evaluation is done. This report shows the result of that in the following table:

Application	Open the box	Top level Nonno	SOS	U2Me	Me2 U	Mobinet Locator	E-message	Multimedia	Help	Games	Agenda	Call	Configurator	Generic Device	Phonebook
Design stage 1															
<i>Design spec</i>	X	X	X	X	X	X			X						X
<i>Storyboard</i>		X		X			X					X			
<i>NUAN</i>				X			X					X			
<i>Prototype</i>		X		X		X									
Evaluation Stage 1.		X		X		X	X					X			X

In the opinion of the design group to complete this work, the following has to be done:

- A redesign of the design specifications incorporating the work of the evaluation team.
- A second round of evaluation.
- And finally changing the design specification based on the results of the second round of evaluation.

In time probably another 100 hundred days of work is needed to finish the design.

One of the goals, as is mentioned in the introduction, is to show that the design group masters skills that are needed to design according to the Dutch design methodology. Our weblog on <http://62.59.37.97:8080/UID> contains all the work (e.g. theoretical presentations) done by each participant also a critical client in the past months. The design team hopes that it succeeded in achieving this goal.

Several innovative concepts have been developed. To name a few:

- An extensible screen that overcomes current restraints of small size mobiles.
- The concept of the mobinet, to search for, and publish, information in dynamic constrained contexts.
- The concept of leases on time, space and location, that allows a person to be more expressive in its wishes for social interaction. And several more.

The design group hopes that it is shown that a determined rag tag group of university students from different countries, and disciplines such as AI, informatics and psychology, still can do some innovative work.

The design team worked with pleasure, and wishes that it could finish this design completely. The group thanks Gerrit van der Veer, who next to being our teacher, was the client who wanted an innovative design. Our fruitful discussions with him helped us to focus on our goals.

We also thank Christina Chisalita who also was our consultant. She gave us literature, advice and her time to enable us to finish this course. Finally the design team wishes to thank the countless people who helped us by



filling in questionnaires, working on scenarios, brainstorming, helping us in evaluating the design and testing the prototype. They after all epitomise User Centred Design according to the Dutch Design Method.

The design team of UID 2003

7. Design team – organisation during design stages

Design group TM 1

<i>Niels Bond</i>	- History of mobile phones, Interviews / Questionnaire, Ethnography
<i>Ioana Codoban</i>	- Methodology, Ethnography Analysis, Interviews / Questionnaire and Ethnography
<i>Iulia Istrate</i>	- Integrating TM1 report, Interviews / Questionnaire, Ethnography and Management of Task Modelling
<i>Marcel Kentgens</i>	- Euterpe Model, Interviews / Questionnaire and Ethnography
<i>Onno Kubbe</i>	- Interview with the client, Interviews / Questionnaire, Ethnography, Scenarios and Management
<i>Jochem Prins</i>	- Analysis on current technology for mobile phones and Ethnography
<i>Paolo Turrini</i>	- Euterpe Model, Interviews / Questionnaire, Ethnography
<i>Gertjan Wijnalda</i>	- Review of TM1 report and some early management
<i>Wai Yang Yap</i>	- Interview Analysis, Analysis on current technology for mobile phones, Interviews / Questionnaire and Ethnography

Design group TM2

<i>Niels Bond</i>	- Scenarios, sketches for the new system, ergonomics of hand-held devices documentation and editing of status rapport TM2
<i>Ioana Codoban</i>	- Scenarios, analysis of scenarios, results from interviews/ questionnaire and handheld devices documentation
<i>Iulia Istrate</i>	- Scenarios, analysis of scenarios, handheld devices documentation, sketches for the new system, integration of final TM2 report and management of task modelling
<i>Marcel Kentgens</i>	- Scenarios, Euterpe TM2, new technology documentation and sketches for the new system
<i>Onno Kubbe</i>	- Scenarios, new technology documentation, sketches for the new system, management, editing of report TM2 and meetings with client.
<i>Jochem Prins</i>	- Scenarios and new technology documentation
<i>Paolo Turrini</i>	- Scenarios, Euterpe TM2 and solution for problems found in TM1
<i>Gertjan Wijnalda</i>	- Solution for problems found in TM1 and mock-up of final system
<i>Wai Yang Yap</i>	- Solution for problems found in TM1 and sketches for the new system

Design group UVM

<i>Niels Bond</i>	- Application design, Storyboards and Prototyping
<i>Ioana Codoban</i>	- Evaluation of UVM design
<i>Iulia Istrate</i>	- Evaluation of UVM design
<i>Marcel Kentgens</i>	- Evaluation of UVM design
<i>Onno Kubbe</i>	- Application design, Storyboards, N-UAN models, CCT models, Prototyping, UVM-report, Final design document and overall management
<i>Jochem Prins</i>	- Application design, Storyboards and N-UAN models
<i>Paolo Turrini</i>	- Evaluation of UVM design and evaluation management
<i>Gertjan Wijnalda</i>	- Storyboards and N-UAN models
<i>Wai Yang Yap</i>	- Application design, Storyboards, N-UAN models, CCT models, Integration of final detailed design document and UVM management.