

Recording Inner Life

Developing a physical input system for emotions

Submitted by

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4. Practical research

The theoretical part of my research was described in the two previous chapters. This chapter documents small trials and scenarios I developed during the design process. They should not be understood as scientific studies, the number of participants is too little for that. But they are still valuable to my design process to get insights in what my device needs to be like.



Figure 4.1 - 1 Juli

4.1 What is important in keeping a diary?

To find out what aspects of diary keeping are important to people I interviewed three volunteers about their diary keeping habits. All three are designers with different specialisation but none is interface designer and they did not know anything about me or this project so it was really only about their habits.

Juli (30) graduated product designer. She notes her daily activities into a calendar for four years. She uses a calendar of approximately A6 size that is divided into one week per double page. This allows very limited space per day, a circumstance she uses to force herself to focus.

She developed a very strong routine for her diary keeping: First she always used the same calendars that were given to her by a bank as giveaway. She even made a wrapper to protect them while carrying them around in her bag. This formal environment is very important to her. One year she stopped keeping her diary for some weeks because she did not get that bank calendar although she even asked in different branches. Finally she took another small blank book and made it appear similar to the calendar. The second and third factors that are part of that very strong routine are time and place to write. When she still studied (one year ago) she had a train ride of about half an hour almost every day. Along that way she kept her diary. After graduating, she told me, she really missed that time she had for herself.

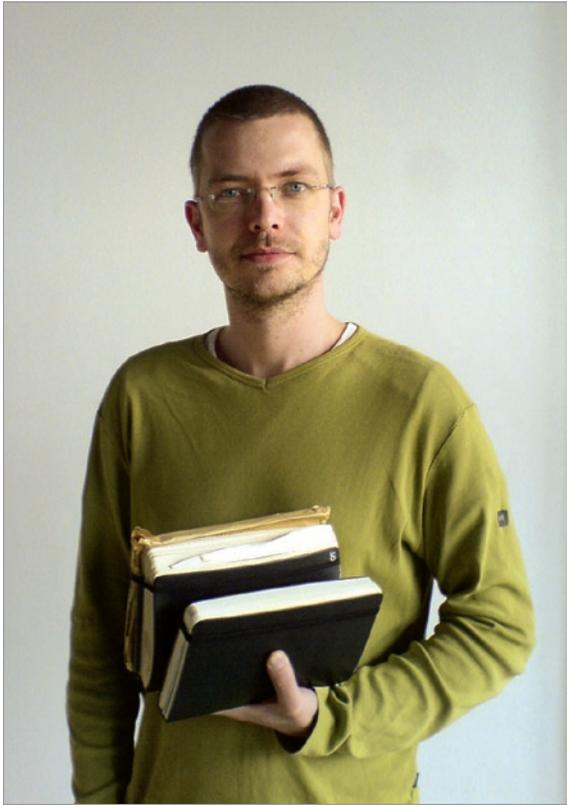


Figure 4.1 -2 Jack

Jack (32), communications designer and photographer. He keeps his diary since he married five years ago. He keeps it very visual: Takes a lot of pictures (increased since he owns a mobile phone with a camera), prints them and glues them inside as well as other paperwork like cinema tickets. It is very satisfying for him to see how his diary gets bigger during the year cause of all the memorabilia he puts inside. Slightly exaggerated the thickness of his diary represents how much he experienced in that year.

For him the diary has also a social aspect as he uses it to exchange about daily life with his wife. From time to time he puts the book in the living room for her to read it but usually he carries it around with him.

He has no special time reserved to write during the day, he does it while he has little breaks for instance when he has to wait for something. What became a fixed date to occupy himself with the diary is the time between Christmas and New Years. During these days he has a look at it and his collection of pictures and adds missing ones to the book.

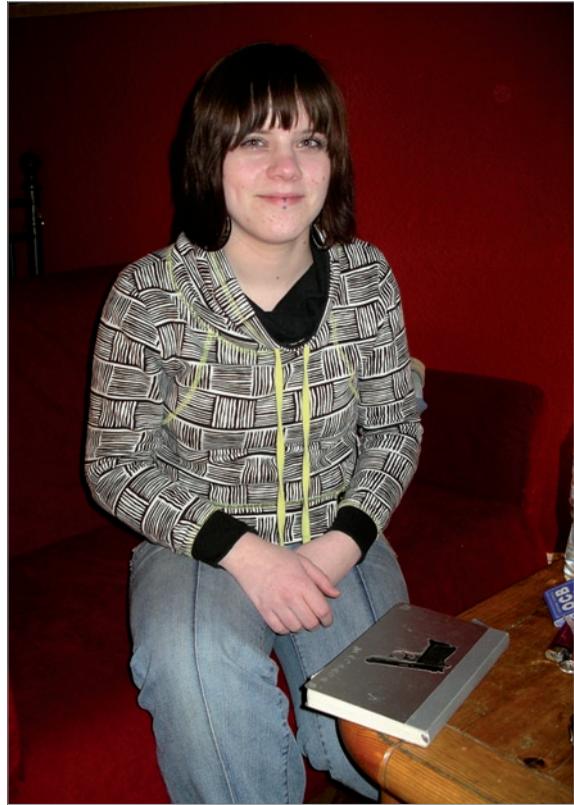


Figure 4.1 -3 Carolyn

Carolyn (21), first semester communications design student. She keeps a diary since the age of eight. She writes quite intensive and she does not only note down what happened during the day but all kinds of thoughts that come to her mind. For instance she writes poems as well and uses the same books for them. She carries her current book around with her as well.

Her books and also the boxes she keeps them in all look different. Asked for the selection criteria she said "I just have to like them." She also customizes them with drawings, stickers and similar items. Once when she was a teenager she read all her diaries she kept so far. She enjoyed that and plans to do that again in the future.

The outcome of these interviews for my process was the affirmation that keeping a diary becomes very much part of daily life. Strong routines even rituals are developed. These routines differ from person to person and concern different aspects of the whole process like time, place and method. Moreover, all three of them enjoy their memory collecting and to hold the collection very much.

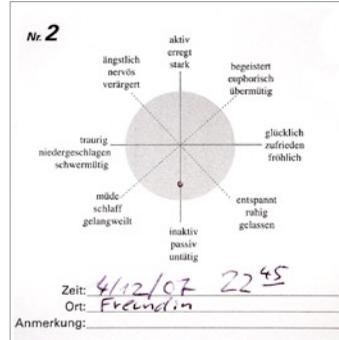
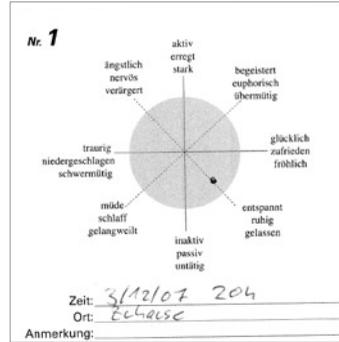
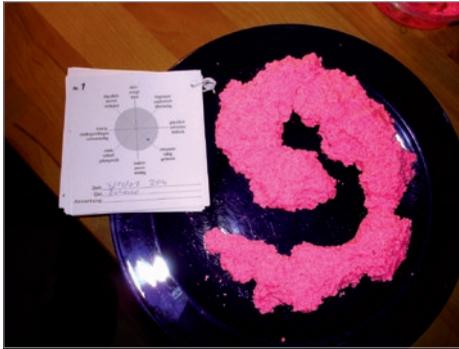


Figure 4.2-1 First two sets of the first participant

4.2 Express your feelings

At the very beginning of my thesis I asked two people to record their feelings once a day over a week using a non-verbal form. Both volunteers got three things:

- A physical object (different for both of them)
- A set of prepared sheets with a scale to explicit mark their emotion (see Figure 4.2-4 for an English version)
- An envelope they should open if they feel, they cannot express their emotions with the physical object properly. This envelope contained a pair of plastic eyes to be added to their object. It was assumed that adding eyes to any shape helps to make it appear more human and thereby ease the expression of .

Afterwards the participant filled out a short questionnaire about how he experienced and used the daily “emotion-record”.

The first person was a fellow design student, male, 28 years old with background in computer sciences and graphic design. He got a modern modelling clay called “Floam” in his chosen colour. He carried the Floam-pack around with him and used it mainly in relaxed situations. He admitted that he once showed off with “his emotion recording” in front of his friends.

Very interesting to me was that finding a shape was no stress for him and he did not need to open the envelope. His shapes are mostly abstract despite the fourth which shows a dumbbell that stands for his very active and excited state.

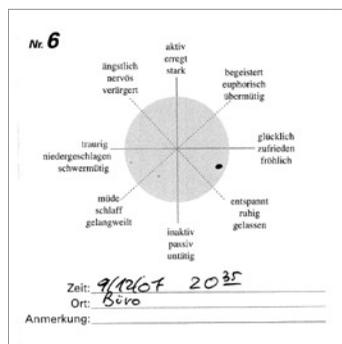
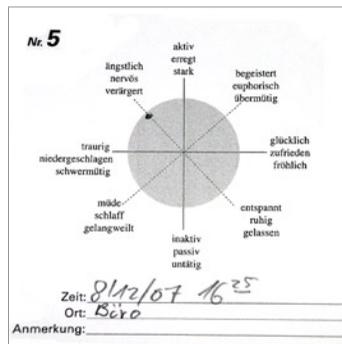
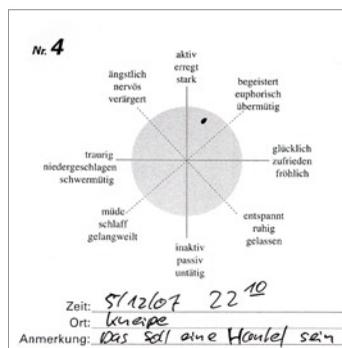
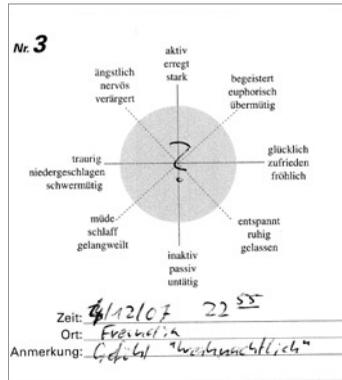


Figure 4.2-2 The remaining four sets of the first participant

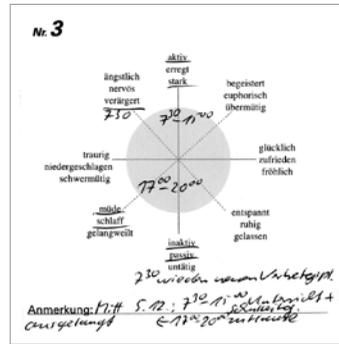
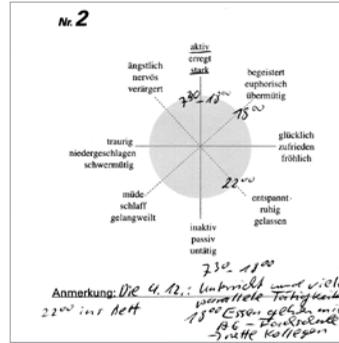
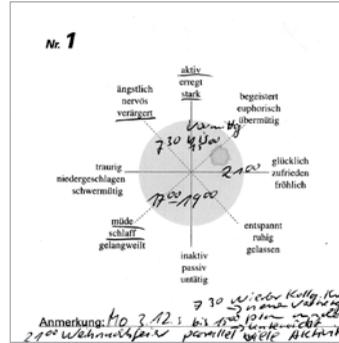


Figure 4.2-3 The first three sets of the second participant



Figure 4.2-4 English version of the rating circle

The second participant was a woman, 51 years, arts teacher. She could choose between two probes both made by myself out of terry cloth filled with very fine sand respectively rice. The different filling gave them a different stiffness. She took the less stiff version.

She commented that the probe did not allow enough variations but she did not need to open the envelope either. Like the first participant, she also liked having her “reflective time” once a day. She tried to find shapes to express her average feelings over the day. These seven pictures already show that she developed an own language: “Happy” and ”Relaxed” is horizontal, “Active” is upright, “annoyed” is tilted.

Of course the result of these experiments was not any kind of “shape catalogue for emotion representation”. I did not expect that from the beginning but found something very similar later (see 3.4 The sensual evaluation instrument).

More important was to see if people would like the non-verbal recording and the ritual of having a break to focus on themselves. Both were valued positive by the participants in the questionnaire. Also the participants said they had no problem in finding a shape which was actually a bit surprising but can probably be explained by their background in arts and design. A further important insight was the following: The range of opportunities I provide with my design influences the development of an own non-verbal language by the user. The less opportunities the more unambiguous the shapes become. On the other hand the user can only express very general emotions without much differentiation. If, in contrast, the options are too free the expressions vary very much and are less likely readable by the user himself after a certain time. Additionally, the user has to have certain sculptural skills to achieve his emotional expression piece. A circumstance I want to avoid.

4.3 How well can you remember and how do you visualize?

I was interested in how people remember not only the events they experienced throughout a year but how they felt during that year. And additionally: how they would visualize their emotions in a given setting. I decided to do this try out at New Years Eve because the very end of a year is a good time to ask people for a résumé. I prepared an empty calendar grid with a cell for every day and a pack of coloured pencils.

In the beginning of a small private New Years Eve party I asked the people around me to remember their last year. The age of the six participants was between 25 and 34 years, all friends with each other, all with an academic background. Four of them were still studying, two were already graduated. The academic fields varied from natural sciences and economics to sociology. There was no time limit; the whole session took about 20 minutes. The atmosphere was relaxed, the participants in a known, comfortable environment. I picked the three most different outcomes and described them briefly:

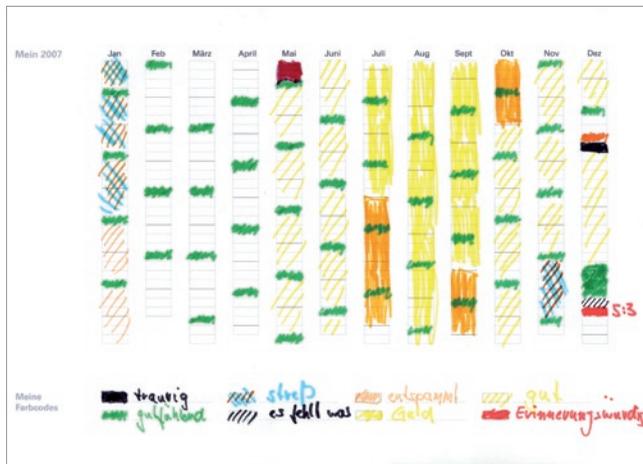


Figure 4.3-1

Figure 4.3-1 was done by a male student of physics, 25. Very neatly, also the documentation of the colour-coding. You may recognize that every week the same day is marked green (standing for “feeling good”). This is the fixed “pub day” where the persons meets friends and has a relaxed evening. This looks quite detailed at first glance but of course it contains generalisation. For instance it is unlikely that every of the “pub days” was a “good” day.

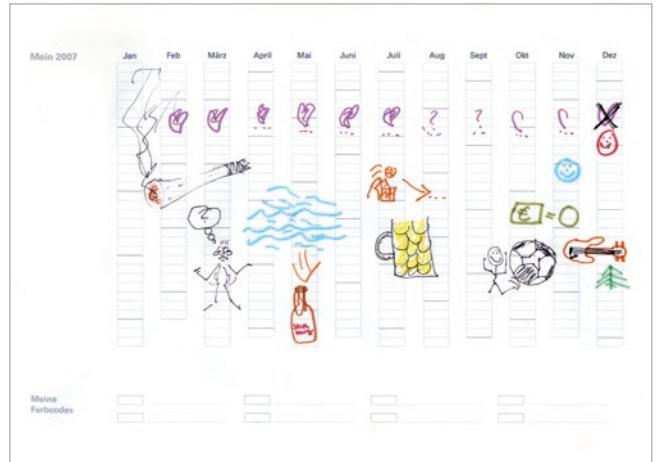


Figure 4.3-2

Figure 4.3-2 was done by a male student of sociology, 26. This participant worked much more with drawings that illustrate different aspects and important events during his year. From the point of information visualisation I would like to point out the way the heart, standing for “love”, gets deformed to a question mark which expresses that it became more and more improbable. The heart and two smileys are the only things on the calendar that directly refer to emotions. The other objects stand for experiences he had whose emotional effects are decipherable for friends only.

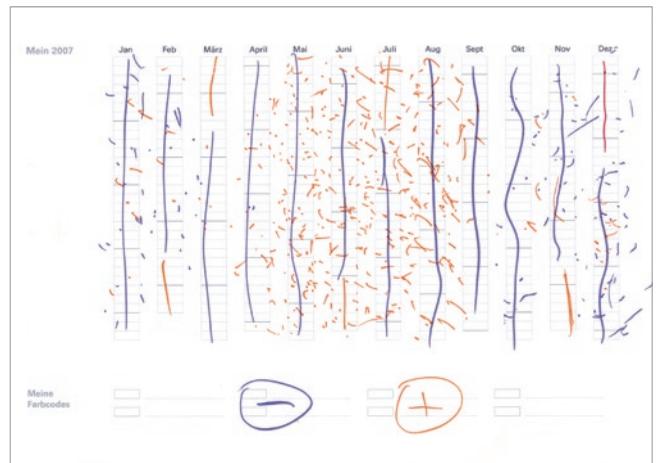


Figure 4.3-3

Figure 4.3-3 was done by a male student of civil engineering, 33. He focused more on his general mood. He also considers the aspect that we often have mixed feelings with a “basic”

feeling (the lines) and different other feelings occurring occasionally (the dots around the lines). Although his visualization looks the vaguest he claimed in a talk afterwards to be able to remember how he felt for almost every year of his life.

The memory for the overall feeling seems to be quite good but details are missing. They can probably only be captured with daily recording.

The most relevant outcome of this try out for my process is how individual the calendars became. Although the given tools were the same for all of them they were used extremely different. Of course, pen and paper allow a lot of freedom what supports creativity on one hand but makes it hard to save their outcome in a computational system on the other. For my work I aim for a compromise between a high degree of freedom to express oneself while generating computer readable data.

4.4 Scenario sketches – What could happen if emotions are recorded?

My process also included the development of scenarios about a world where emotion recording is a common thing to do. This section introduces some of them.

4.4.1 Who is good for your mood?

A fellow student of mine, Johannes Landstorfer, developed the software system “Buddyguard” (Landstorfer, 2008) that analyzes different aspects of the contacts to the people around us. He figured out several symptomatic aspects (e.g. time, duration, medium) that allow a conclusion on the kind of relationship two persons have (e.g. friends, co-workers). The system gives you a visual representation of the position your contacts have in your life. It can be used to reshape your social system by reminding you to stay in touch with persons marked as important, too.

This scenario could be an extension to his project and enhance the reflective aspect of my project: Before and after each contact with another person the system measures or requires the input of the current mood.

Over time, the user can see if there are patterns in his mood development linked to social contact to certain people. And thereby indeed see who is good for his mood!

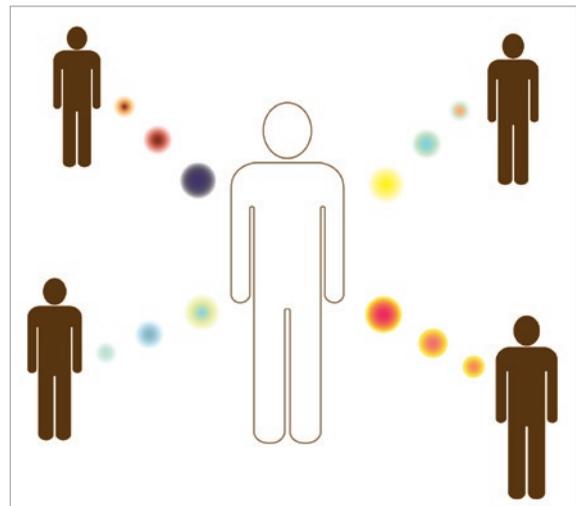


Figure 4.4.1 - 1

4.4.2 Show your mood directly

What would happen if everybody shows his emotions very explicit and open for example with a gadget on his clothes? Of course a friend who knows our context can decode the feelings by the subtle signals everybody sends.

But how would it influence our behaviour if everybody wears a kind of scale, to be seen openly by everyone? As we can only conjecture about this at the moment I want to pose some questions only:

What are your feelings when having to meet a person sitting behind door A or B (see Figure 4.4.2-1)? How would you treat such a person? Would you maybe write an e-mail instead of talking? Or would you better like a short chat in person instead of writing e-mails? Would you feel responsible towards that person? (I tried to answer at least some of the questions with my tryout 4.4.2 Show your mood .)

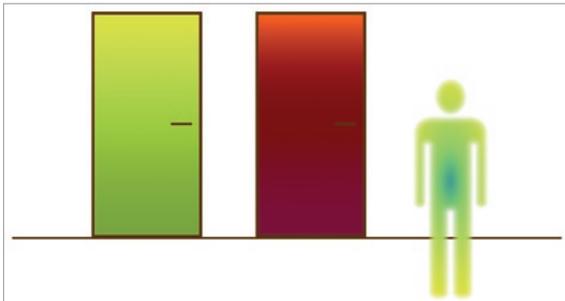


Figure 4.4.2-1

On the other hand, how would you behave yourself? Would you try to cheat the measurement/input systems? If so, would you try to appear happier or sadder? More relaxed or more stressed? Which feelings are socially accepted? Would we learn techniques to modify our bio signals? (see Figure 4.4.2-2) Or techniques to really relax?

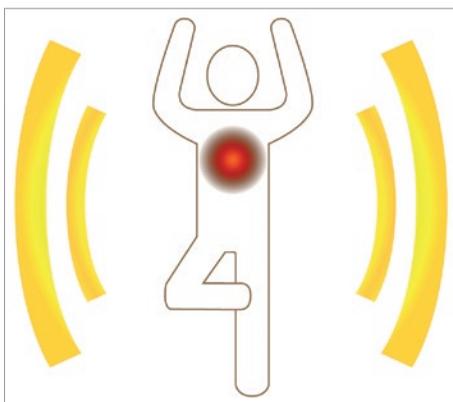


Figure 4.4.2-2

4.4.3 Corporate Mood

What would happen if employers had direct insight into their employees' mood? If they even had to show their mood just on the front of their shirts (see Figure 4.4.3-1)?

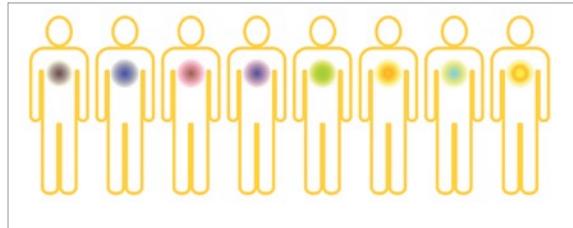


Figure 4.4.3-1

A short sketch: "Some of these employees do not match the 'corporate mood' of our fast food restaurant, they are not happy enough! Only the happy ones are allowed to have contact to the customer. The other ones have to prepare burgers and fries." (see Figure 4.4.3-2)?

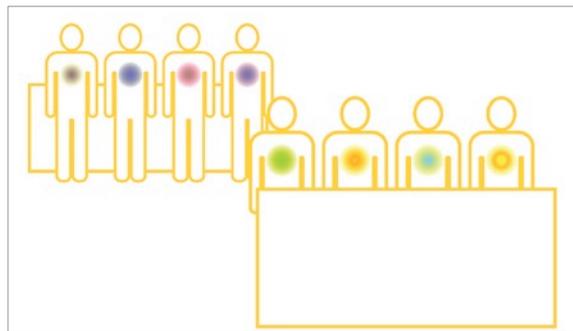


Figure 4.4.3-2

Is that discriminating? Or a relief for the employee because he does not need to force himself to smile in front of customers?

A week after I thought about this scenario the following patent application from Microsoft was in the news:

"Microsoft submitted a patent application in the US for a 'unique monitoring system' that could link workers to their computers. Wireless sensors could read "heart rate, galvanic skin response, EMG, brain signals, respiration rate, body temperature, movement facial movements, facial expressions and blood pressure", the application states.

The system could also 'automatically detect frustration or stress in the user' and 'offer and provide assistance accordingly'. Physical changes to an employee would be matched to an individual psychological profile based on a worker's weight, age and health. If the system picked up an increase in heart rate or facial expressions suggestive of stress or frustration, it would tell management that he needed help."

(Mostrous, et al., 2008)

Question is: What is the purpose for such a technology?
Support or selection?

A low level “mood-tracking” system that is in use already is the “smile scan” at the Japanese train company Keihin Electric Express Railway. Before starting to work, the train guards have to check their smile every morning. A face recognition system analyses their mimics and gives hints to achieve a better smile. The smile get judged on a scale and to motivate the employee he gets a printout of the “best” smile to carry it around with him the whole day. (Rötzer, 2009). Although feeling curious at least for Western Europe employees, this system is far more harmless than the patent of Microsoft sounds. Firstly, it only measures the mimic. Secondly, and even more important: The measurement only takes place at one point in time per day and this is at least partly defined by the employee himself. So he is still in control about the process at least

4.4.4 New methods of judging a person

As described above, emotion recording raises a lot of privacy and data security questions. But it raises more ethic questions: What if emotion statistics become part of society’s judgement over a person? Who has access to such information? Should they be used to convict a murderer? A detailed discussion would be out of the scope of this thesis but how to store such sensitive data is an important issue I took into consideration as well (see 5.5.1 Data security and saving).

4.4.5 Ambient home

Ambient home scenarios and even complete demonstration flats and houses exist since several years (the “T-Com-House” for instance (Deutsche Telekom AG, 2005)). Next to security aspects and house automation the developers often promote the adaptive atmosphere settings. Preprogrammed light and music settings are available instantly via a remote control system. Emotion recording could be an addition to these systems in two ways: First could be to enable the system to capture the mood of his owner and set the lights etc accordingly. Although this scenario sounds very pleasing in first sight I am very critical towards it. One reason is the lack of recognition accuracy for mimics that are more complicated than a big smile. The second is that mimics not necessarily correspond with the experienced emotions.

The second addition to an ambient home system could be a more advanced input system. A simplified version of an emotion input system could be used to address preprogrammed setting more specific than by choosing between six colours as it is done in the T-Com-House. Even dynamically generated settings are thinkable.



Figure 4.5-2 Jana, her buttons display “Ich bin missverstand-en” (“I am misunderstood”).

Jana (25), graphic designer: She wore the buttons for a period of three weeks while staying for a visit at her brothers’ place in Vienna. She is the only one who wore the buttons in total public.

In the beginning she got short comments from salesmen like “Oh, this are beautiful buttons” or even a direct question “And why are you not funny today?” while wearing “Yesterday I was very funny”. Very soon she started to feel naked and embarrassed and therefore used the buttons a bit more cryptically. For instance “ I do not feel old” which caused a woman and a boy to stare at the buttons ignoring her face. “I am misunderstood” was read out loud by a girl to her friends while passing by. Acquaintances gave short



Figure 4.5-3 Her buttons display “Ich bin glücklich” (“I am happy”).

comments from time to time. She commented additionally: Emotions sometimes change too quickly to follow up with the buttons. Also if her basic mood stays the same she usually does not think “I am lonely” every second. The buttons act like a constant mirror of feelings and she asked herself how much influence was caused by this. She assumes that her counterparts were just overstrained by the direct messages and wonders what they actually shall do? She committed she was not brave enough to show very negative emotions



Figure 4.5-4 Christian, his buttons saying “I am excited”



Figure 4.5-6 Sören, buttons saying: “einsam, unsicher, aufgeregt” (“lonesome, unsure, excited”)

Christian (33), studied civil engineer. He wore the buttons in his office at a social support agency and at friends places. Thus, his environment was semi public.

He got mainly curious and interested eyes but also some that showed “stupid lack of understanding” (Christian). Despite this he got only very little direct responses. A short conversation was initiated only two times with colleagues. Far more interesting for him was this “additional communication channel” while being in a small group of friends. Instead of making a face or similar he changed his buttons to comment on situations.



Figure 4.5-5 Christian, “tired”, “misunderstood”

Sören (28), **Kim** (27) and **Niels** (28), graphic designers and computer scientist

They are three friends that share a flat and work together in their own graphic design agency. They wore the buttons for one week while being jointly at work. Although they were together already before entering the office they made themselves a short routine to choose the matching buttons before starting to work. Similar to what Christian experienced they had some comical situations but additionally two sincere talks triggered by the emotion message. They did not feel uncomfortable at all which is understandable since they wore the buttons in a private environment.



Figure 4.5-7 Niels, buttons saying: “excited, !”



Figure 4.5-8 Kim, buttons saying: “müde, sein, doof” (“tired, be, dull”)

I myself confronted the persons I have as contacts in my instant messenger application Skype with my emotional states through publishing them as status. I used the software ten hours a day on average and updated my status depending on the changes of my emotional states. That was about five times a day on average. The whole trial run for three weeks. Similar to the button users I got very little feedback although my contacts include not only acquaintances but close friends and family as well. I got only one direct reaction via Skype and three comments/questions in real life.

To discuss in detail why the buttons raised so little reactions needs a more detailed documentation and the help of sociologists and psychologists. For my process I can conclude that I will stop investigating in this direction. My participants felt uncomfortable the more public they went and the reactions were too little to equal that out. However, I expected more reactions because the publication of emotional states itself became common at least for teenagers in Web 2.0 applications like MySpace (MySpace, Inc.) and Lifejournal (LiveJournal, Inc.).

4.6 Conclusion

These trials, scenarios and interviews explored some of the borders of my topic and thereby gave useful insights for my design process. They helped me to understand important aspects and requirements of the approached method and means of emotion requirements:

- Regular reflection is enjoyed and becomes part of daily life.
- Looking back on the collected “data” is joyful and the possibility to do so encourages people to continue. An insight that is especially precious as a computer based system allows more options like different visualizations than an analogue medium collection.
- The provided means of expression have to allow enough varieties but must not afford special skills like sculpting or even composing music.
- Do not underrate the creativity of the users handling also means of expression that look quite simple.
- The device itself should be a very private one as well as the data has to be protected from unauthorized access.

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8. List of figures

Not mentioned figures were produced by the author.

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Source: Directions in Psychological Science, Volume 8, Number 1, February 1999, “The Structure of Current Affect: Controversies and Emerging Consensus by Lisa Feldman Barrett and James A. Russell”

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Source: Schmidt-Atzert, Lothar. 1996. Lehrbuch der Emotionspsychologie. Stuttgart : Kohlhammer GmbH

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Source: Screenshot from <http://mrl.nyu.edu/~perlin/experiments/polly/track.html>

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Source: <http://emoto.sics.se/>

Figure 3.4 - 1 The sensual evaluation instrument (SEI)

Source: Isbister, K., et al. 2007. The sensual evaluation instrument: Developing a trans-cultural self-report measure of affect. International Journal of Human-Computer Studies. 2007, Vol. 65, 4.

Figure 3.5 - 1 The alarm clock.

Source: Stephan Wensveen

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