The Heat at Studenterhuset

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Synopsis

This report describes an ongoing development process of a system for a digital ecology. The product is constructed by the use of methods taught in various courses during the education. The focal point of this report is the desktop part of the digital ecology which consist of desktop, mobile and in-situ systems. It is tested throughout multiple iterations and reflected upon before concluding what we have learned during the semester.

Signed:

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PREFACE

This report covers the construction of a website. The purpose of which is to give the user an idea of the ambience at Studenterhuset in Aalborg. The assignment is based upon the system *themood.at,* made by other students in a master thesis project. The system is a part of a digital ecology consisting of a desktop, mobile and in-situ part. This report contains the written documentation of our work with this system.

Several ideas on how to represent the ambience were considered before the final design was chosen. The system contains a webcam feed, music feed, noise feed, chat feature and a feature that dynamically changes aspects of the website.

The report will mainly include tools from the course "Advanced Topics in Human-Computer Interaction" (aHCI) and other courses that the group previously have been taught.

We would like to thank Jeni Paay (Assistant Professor – Department of Computer Science), Jesper Kjeldskov (Associate Professor – Department of Computer Science) and Dimitris Raptis (PH.D. Student and Scientific Assistant – Department of Computer Science) for counseling throughout this semester which includes both the courses given and the project itself.

The timeline for the development is from September 2nd to December 20th 2011.

The webpage can be accessed online at http://www.theheat.at, preferably using a PC.

READING GUIDANCE

Following the introduction, this rapport contains a case description that explains the starting point of our work on this rapport. The method chapter explains the methods that we have used in our work and the chapters "from idea to concept", "first iteration" and "second iteration" contains the details about the intermediate results that have led to the end system described in the "system description" chapter, which contains a detailed description of the system as it was at the end of the project, and can be referred to if the reader wants the system explained or if it is unavailable.

In this report "The Mood", "Mood" and "*themood.at*" refers to the previous system. The word "ambience" is used to describe the atmosphere of Studenterhuset. When talking about the groups of students, "the group" or "desktop group" always refers to the authors of this project while the "mobile group" and "in-situ group" refers to the other groups of 5th semester informatics students.

The words "system" and "website" are used interchangeably to refer to our implementation.

The word "Team" will be used to describe cooperation between the groups.

Footnotes are used throughout the report, to explain certain words and concepts.

The report will use the Harvard-method as the source reference throughout the report.

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1 INTRODUCTION

You are at a party and people are having a good time. The party is at its peak and you and your friends decide to go to your favorite bar to continue the party. You pay for the taxi and go to the bar and disappointingly you realize that the bar is almost empty, there are no activities and the atmosphere is not what you expected.

You just ran into an old friend and you decide to have a cup of coffee together and talk about the good old days. When you finally get to the café you realize that the café is crowded and you barely can hear each other.

We may all have had similar experiences at one time or another. We all know the episode that we go to a place with a specific expectation of the ambience just to realize that it did not live up to this. If we just had the opportunity to know how the ambience beforehand, it would be easier to decide whether to go or not and the chances of being disappointed would be lessened.

This project is about rebuilding an existing it-system "The Mood" that gives the users the opportunity to get an idea of the ambience at Studenterhuset (a café/bar dedicated to students in Aalborg). The purpose is to use emerging technologies to redesign the current system between tree groups to build a digital ecology system that works on and specifically designed for PC, mobile and in-situ (at Studenterhuset) for different use situations. The focus of this report is the desktop part of the system which is aimed at the users at home.

2 CASE DESCRIPTION

In this project we have been given the task of building a system that re-imagines an existing system for Studenterhuset in Aalborg. The following section describes Studenterhuset, the existing system and the given assignment.

2.1 STUDENTERHUSET

Figure 1 - Pictures of Studenterhuset

Studenterhuset (meaning: Studenterhuset) is located in the center of Aalborg and is a combination of café and bar. It is run by volunteers, who handle the daily administrative tasks. Studenterhuset is open for everyone, but it is mainly frequented by students at Aalborg University and other local places of education. (Studenterhuset)

Their vision is to be the natural gathering point for students in Aalborg where you can meet new people or bring your friends. Studenterhuset aims to be a part of the city's identity in both culture and education. It is a place that creates dynamic frames for different kinds of events. They want to create quality experiences with their service, music and products. It is a place where they are open to new ideas so it supports what the guests want. (Studenterhuset Wiki)

There are a variety of activities at Studenterhuset. Free wireless internet connectivity makes it possible for students to go to Studenterhuset and study in the daytime while enjoying the atmosphere and surroundings different from their everyday life - or you can go there to have a relaxing beer with your friends. Every Wednesday evening it is International Night at Studenterhuset. This night is dedicated to the many international students who come to Aalborg to study for a semester. On other nights Studenterhuset is used as a party place as an alternative to other bars and clubs found elsewhere in the city. Studenterhuset also has a concert room in which larger music events, lectures and more are held.

The varying activities and atmosphere makes Studenterhuset an interesting case. People go to Studenterhuset for different purposes. Some people want to relax and concentrate on work while others just want to have a good time. Since there is a good chance for the ambience to change during the day, Studenterhuset is an obvious venue as a base for developing a system that represents the ambience.

2.2 THE EXISTING SYSTEM

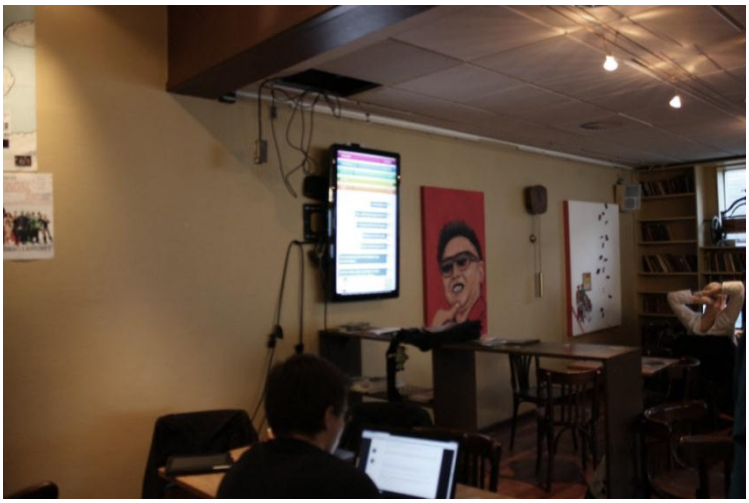

Figure 2 - Picture of the in-situ screen

Figure 3 - The Mood Application

The existing system at Studenterhuset is called ”The Mood at Studenterhuset”. As the name states, the system shows the ambience at Studenterhuset represented by five parameters, each of which are represented as horizontal bars with sliders.

The sliders change position on the bar according to the actual ambience at Studenterhuset and are set by the bartender in charge. The five parameters can be seen on figure 3 and they give an idea of the ambience and activity at Studenterhuset. Furthermore a shout box is placed underneath the sliders which give the opportunity for both people at Studenterhuset and people at home or on the run to communicate with each other. This makes it possible to ask about the activity at Studenterhuset or for people to shout out some short messages that may give an indication of the ambience.

This system is made to be accessed from desktops, laptops and mobile devices. Also the system is presented on a TV-screen placed inside Studenterhuset. This way the system is promoted and introduced to new guests of Studenterhuset.

2.3 THE ASSIGNMENT

The assignment is to build a digital ecology consisting of three different systems that take advantage of emerging technologies. A digital ecology is defined as: A system of systems, designed as a whole rather than as individual systems. (Kjeldskov)

Figure 4 - The Digital Ecology

The ecology that we have to develop is split up into three parts; the desktop, the mobile and in-situ. As the diagram shows, there are three parts and an arrow spanning over the three parts. This arrow symbolizes that they all must work together in some way. Users must be involved in tests of the ecology but ideas for the system are generated by the groups.

This report is about the desktop part of the digital ecology. However, the other parts may be mentioned throughout the report.

3 METHOD

3.1 BODYSTORMING

Bodystorming is a technique used to explore ideas in the situation, instead of just brainstorming ideas at the project table. The brainstorming is physically taken to the context of the subject which is the focus of the exercise.

The advantage of bodystorming in this project will be the opportunity to really get to know the environment which the subject is related to. This means that the group will get a better understanding of the place (Studenterhuset) and the people visiting it. Being in the situation and maybe acting out some scenarios may help getting ideas that would not appear at the project desk. Also compared to traditional design brainstorming, bodystorming may require less amount of time, as there is no need to pre-study the environment. Furthermore the accuracy of understanding the environment and its problem domain can be improved by being in the situation. (Oulasvirta, Kurvinen, & Kankainen, 2003)

3.2 SKETCHING

Sketching is a technique known from architecture and it is relatively new in the world of interface design. It is a relatively simple technique to put an idea down on paper, compared to traditional descriptions. The sketching technique is used in the design phase to improve the understanding of ideas from the brainstorming process. As sketching can be done with very few resources and in short time, it will not slow down the brainstorming process – only improve it. Putting an idea down on paper in shape of a sketch, makes it possible for other participants in the brainstorm to modify or add suggestions to the idea. It is important to remember that sketches are not prototypes. They should be used as a tool that opens the mind for new ideas and inputs. (Buxton, 2007)

3.3 MOCK-UPS

Creating a mock-up means building an artifact that represents the product in development. This artifact does not necessarily have to work in the traditional sense, it may consist of only some sheets of paper and a cardboard box, or it can be more advanced and use computer screens, webcams and such to improve the quality.

Its purpose is to communicate how to interact with it, and how to put it in context and improving the understanding of the subject. Instead of just showing some sketches or written descriptions of a subject, giving them the opportunity to feel the interaction and functionality through a mock-up makes people more interested in the subject and therefore the outcome is better. The fact that the mock-up is physical, gives the opportunity to both users and development team to easily modify it. Building a mock-up also costs less, the resources spent is only a fraction of building a working prototype. (Ehn & Kyng, 1991)

3.4 TESTING METHODS

3.4.1 SEMI-STRUCTURED INTERVIEW

As the name indicates, a semi-structured interview is done on basis of a set of pre-defined questions. The formulation and asking method of the questions however is not defined, which means that the interviewer can have a more conversation-like interview with the interviewee.

This method was used to have a casual conversation with the interviewee while going through the questions that would help the design team understand the users' experience with the system. It was important to make it casual as the interviews were held at Studenterhuset and the interviewees were not prepared for the interviews.

3.4.2 QUESTIONNAIRE

As an addition to interviews, a questionnaire was also created. This was to get some input from the actual users of the website, whereas the interviews were done on users who just had their introduction to the website. The questionnaire was made with clear and understandable questions for the users to answer. This was important, as the user do not have anyone to help them, when sitting at the computer. For the same reason the questions were very specific, so there would be no confusion.

4 PROCESS DESCRIPTION

Throughout this project the group has been working with two other groups (mobile and in-situ). Meetings were planned and held in the initializing phase of the project, to find the best overall concept for the three groups. Agreeing on an overall concept helped all groups develop a system that in unison would form an ecology. Multiple meetings were also held during the semester to ensure the integrity of the ecology. These meetings were held with all the students and between the groups.

Furthermore, teams across the existing three groups were created to improve the ecology of the whole project, as the new sub-teams would consist of members of every existing group. The reason for this was to make sure that a feature was not created twice for the ecology. This should also help hone the groups' co-operation skills.

During the semester the groups also chose a person to have a special responsibility. This means that one person was the headmaster of the database so that it was only him who made changes when needed. When using a joint database it is important that the rules for the setup are the same for everyone, otherwise errors can appear in the system.

The group also gave each other different tasks internally which should help the developing process. Before asking the other groups about an idea, it was first discussed with group members. The reason was not to involve the other groups before an idea has been fully discussed. Each day the group had a status meeting to get an overview of how things were going and to plan and solve any immediate issues.

Later in the process the communication between groups was less formal, as group members would just walk across the hall and talk to the other groups. This way the groups were up to date on each other's projects, and it was also easy to get quick feedback from them when new ideas came up.

The project has been developed iteratively. This means that the group began creating a system using previously mentioned methods. The system was implemented and then tested to get feedback on the features and followed by a new iteration.

5 FROM IDEA TO CONCEPT

In this chapter of the report, we will describe the process from the very first ideas until the final concept which was later implemented. It is divided into two subsections, internal process and external process. In the internal process, everything that was done in the group room, or done with people from the group will be described here. When something was done across the groups or in different sessions with for example the supervisors, this will be described in the external process section.

5.1 INTERNAL PROCESS

5.1.1 ECOLOGY BRAINSTORM

On the first day of the semester the group sat down at a table and talked about some initial ideas. These ideas were brief and superficial, but none the less, they started the creative process. Later a proper brainstorming session was set, and the group members all met and discussed both concept ideas for a new system, but also the current system. As with any brainstorming session no ideas were categorized as being irrelevant and everyone could bring anything to the table, even odd ideas, as this could help as inspiration for new and better ideas. The following section will describe some of the most interesting and influential ideas from the brainstorm.

5.1.1.1 INITIAL IMPRESSIONS AND IDEAS

The group discussed at great length what the current system at Studenterhuset contributed with, and what the purpose of the system was. Basically the system would help a user get a sense of the general feel and ambience of the place, without actually being in the physical location. The assignment was to improve the current system or at least try to do so, many suggestions were brought up on how this could be done and many of them have one thing in common which is to bring Studenterhuset home to the users.

One thing the group especially talked a lot about in the start of the project, was whether or not the system should only communicate the ambience, but perhaps also contribute to it. For example by making user created events at Studenterhuset where people could sign up for events and create events on a calendar. As seen on Facebook events, the users would also have the possibility to write a comment on the specific event.

Competitions were also discussed because it seemed like a fun idea which could attract more users. It also could be interesting to make a platform where people could show off their talents or interests. When signing on to an event, other users can get an idea of what the general ambience is going to be on the day of the event, by the nature of the user event. The bartenders would also be able to make a prediction of how the future ambience would be depending on experiences of past events. During the creation of these events it would be possible to reserve some seats to make sure that there is enough space for everybody.

5.1.1.2 BRIDGING THE GAP

Perhaps we could try to connect people from the actual location with people sitting at home by their computer, for example by using small online games. Different tables could have a small computer screen where it would be possible to play against people at home. The possibility of challenging specific people at a table through the website was also considered. Another suggestion was to use the screen to make a personal invitation to the table which could be shown throughout the different screens of the system as a new way to meet people. This could also have some chat integrated so it was possible to get responses on the invites.

Besides having computers at the tables, the group also discussed the idea of having a photo booth placed at Studenterhuset where the user could take a picture and upload it to the website with a caption. The users at home could then get a sense of the ambience from this combination. This opens the opportunity to share fun moments with friends that may or may have not been there at the time. It was also discussed that instead of having a photo booth at Studenterhuset, the users should be able to use their phones to take these pictures.

5.1.1.3 INFLUENCE THE AMBIENCE

It was suggested that the users at home could create the ambience at Studenterhuset by creating artwork that would be shown on the walls. It could also be done by changing the colors or theme of artifacts at Studenterhuset. An interesting idea was to use the in-situ screen so it changes depending on what drinks are being served; a fireplace when it is relaxing and people are drinking hot chocolate or coffee and a party screen when beers are being served. Another way to influence the ambience would be to have a virtual tag wall for comments, pictures and artwork. The tag wall could include post-it notes with things to remember like a special event.

The shout feature found on the existing system was faulty and it was discussed how this could be improved, because the idea of facilitating communication between the users was something everyone thought was a great idea. Ideas on how to improve this was for example, to make a bigger community using a forum. It was also discussed that the user should be able to log on with his or her Facebook account, instead of having to make yet another account on yet another website.

5.1.1.4 CONVEY THE AMBIENCE

Another way to show the actual ambience was by presenting the information to the user in a different way. The music at the location could play a huge role in getting a sense of how the ambience would be. This could be incorporated by streaming music home to the user, or perhaps by showing playlists. People could also vote on different songs which support the idea of creating the ambience. Another possibility was to have a webcam feed from Studenterhuset. Then the user would not have to interpret that much information, but just be able to see how many people there actually are at the place.

Yet another way to give an impression of the ambience is to give ratings. The group had the idea that guests at Studenterhuset could rate the ambience using their phone. The ratings could either be based on

numbers or smileys. The group liked the idea of smiley ratings more than a number based rating, because they express more than numbers. It also takes away the responsibility from the bartenders because it is the guest who submits the data.

Virtual room is an idea of showing Studenterhuset from a bird's eye view where it is possible to see a visual representation of the number of people. The idea was to make a website where the user can click on different elements like the bar which can show today's specials and prices. The user could also choose to communicate with a table and hear the music at Studenterhuset. Another way to design the site would be to see it from a normal perspective of the bar from Studenterhuset with previously mentioned features.

5.1.1.5 MISCELLANEOUS IDEAS

The group has also talked about making a system that notifies the user when something is happening. It could be through different systems like SMS, RSS, e-mail etc. The messages the user gets could be events, messages from the bartenders or an activity rating from Studenterhuset.

Studenterradioen (The Student Radio) shares locality with Studenterhuset which made the group think it would be interesting if the two collaborated. The radio host could influence the ambience by doing various activities like competitions, making people want to go there.

To promote the place even more, an idea of using a lightshow outside which could make people more interested in what happens inside.

Lastly it was discovered through a bodystorm that the system should be much more automatic. Why and how this would be done will be discussed in the next section.

On the following page the reader will be represented with a mind map of the above ideas (see figure 5).

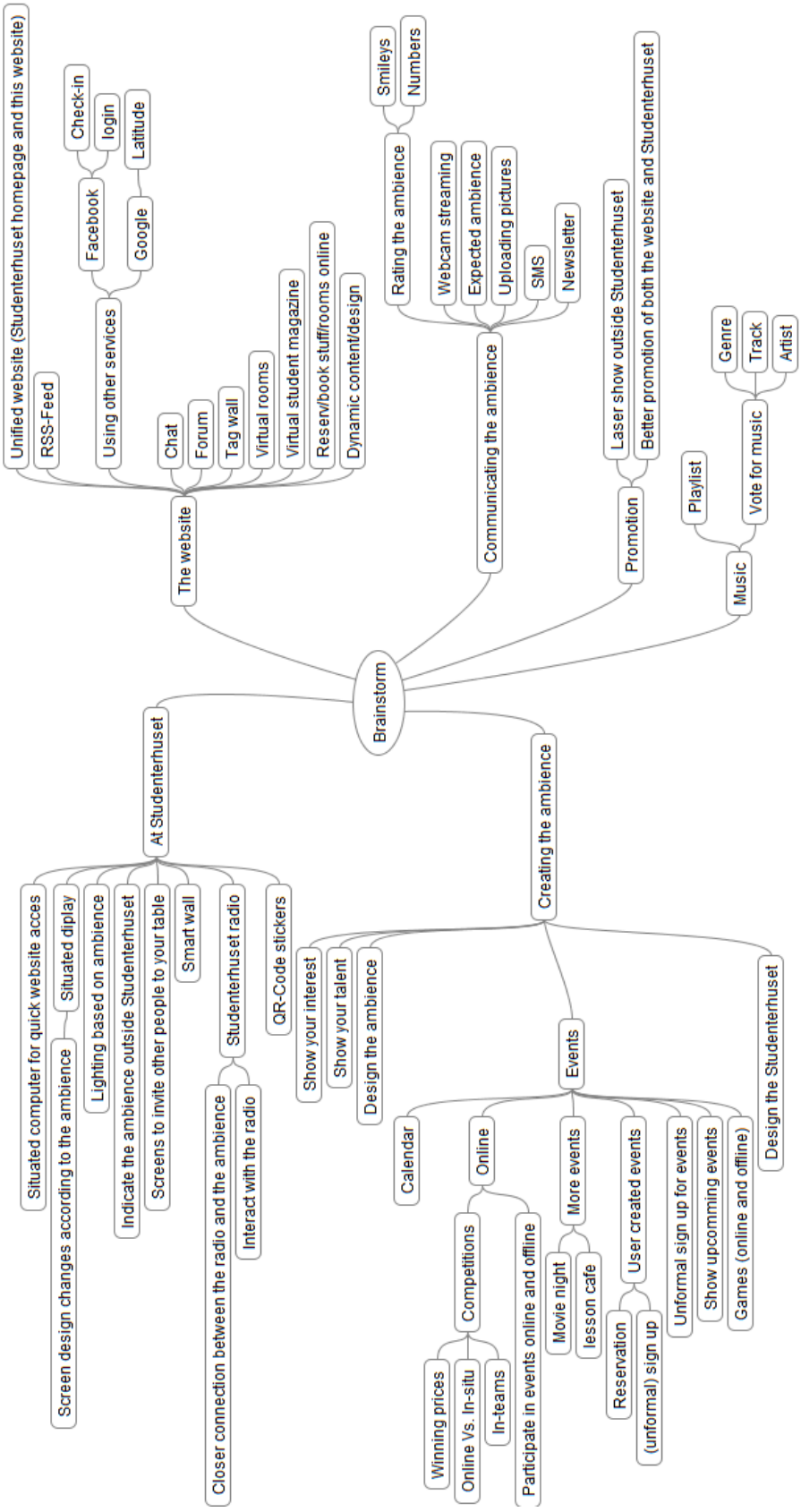

Figure 5 - Mind map

5.1.2 BODYSTORMING

To help get more ideas for the concept and system, the group decided to do a bodystorming session at Studenterhuset. Another reason for doing the bodystorm was to see how the current system was used by the guests of Studenterhuset. With this information we would be able to reflect upon it and perhaps come up with new ideas that could improve the concept.

5.1.2.1 IN-SITU

When the group arrived at the Studenterhuset, the screen was turned off, which gave the initial impression that the current system might not be used as much as initially anticipated. We interacted with the system and observed that the people at Studenterhuset did not pay attention to the screen. When asked, some of the guests did not know that it was possible to send a message from their phone to the system. Generally the lack of interest might be because of the placement of the screen, which was not viewable when standing in certain places at Studenterhuset. Besides the position of the screen, other reasons it might neglected is that the text was very small and hard to read. Space for the text could have been made bigger by removing the bars showing the ambience at the place. The group concluded that the bars seemed completely useless. Why would the people at Studenterhuset need to see what the ambience is like?

5.1.2.2 AUTOMATION

In the two hours the session lasted, the screen was rarely updated. The group agreed that the system had to be much more automatic which in return would remove the necessity of having a bartender setting the ambience on the website. A task that could be difficult for the bartender because of the lack of time he or she would have because of the many costumers that have to be served on a busy night.

If automation was not an option, the process should be simplified by adding macro buttons instead of having to adjust bars. With macro buttons the bartenders can preprogram messages they know they are going to use if there is an event or a lot of activity. The bartender can then by the push of a button send a message that everyone can read. Another suggestion to make the system more automatic was to make an infrared system that could count the people at the entrance, showing the number of people currently at Studenterhuset. A similar effect could be achieved with the Facebook Check-in system[1].

5.1.2.3 AMBIENCE

It was observed that the lighting was important in how the ambience was perceived and this was something which could be represented in the system somehow. The volume of the music was also important. With few people, the music volume was low but as more people arrived the volume increased which led to a change in the ambience. Both factors were found important and should be integrated in the system.

[1] http://www.facebook.com/about/location

5.1.3 SKETCHING AND SCENARIOS

Shortly after the body storming session, the group had an external meeting with the other groups and the supervisors, where half a day was spent sketching and coming up with ideas in order to close in on the right idea. The input at the session was largely based on previous internal body and brainstorming. After the sketching session, the group sat down internally again and reflected on what was gained and how the system and concept should evolve from this.

The group liked the idea of having a more automatic system instead of having to rely on the bartender to set the ambience, which in some cases would happen rarely. With automation the system would represent the ambience at Studenterhuset much more correctly. Besides this, the group liked the idea of moving the feeling of being at Studenterhuset home to the user who cannot be there or who is thinking of going down there. Multiple features was discussed that could help move Studenterhuset home to the user. These features were as following:

- **Webcam**: The idea of having a webcam at Studenterhuset would help make the system more automatic as the user could directly see the level of activity. At this point the details of this webcam were not discussed, but it was decided that it should be done in a way so people would not feel like their privacy was invaded.
- **Noise:** Moving the noise home would be done by setting up a microphone at Studenterhuset. This way the user of the system would get sound to accompany the webcam feed, which would add to the big picture of the ambience.
- **Music:** It should be possible for the user to listen to the music playing at Studenterhuset. This would also compliment both the noise and webcam feed and in return, make an even clearer picture of the ambience.
- **Communication:** Lastly it was discussed that the users should be able to communicate with each other somehow, for example through a shout box, and with the help of Facebook or/and Twitter.
- **Calendar:** To have a calendar where users could create events that would take place at Studenterhuset.

After all these ideas and features were discussed, and a meeting between the groups was arranged where it was discovered that every group was working on the same basic idea.

Based on these more concrete ideas, the group started working on rough sketches and made up a scenario, which the group thought would describe the use of the system very well. The scenario and sketches will now follow.

5.1.3.1 SCENARIOS

The scenarios are based on how the group thought users will use the system. The group thought of two scenarios. The first scenario (in plain text) describes a group of users using the system as a background supplement to their party. The second scenario describes a single user who is bored at home and uses the system to get a picture of the ambience at Studenterhuset and based on this decides whether or not to go.

Scenario 1:

A group of users sits at home, perhaps on a Friday night at a private party. They want something to happen, so they log on to the system on the computer. They get a general sense of how the ambience is and let the system play in the background so they feel like being a part of the crowd. After some time they decide to log off and go there.

Scenario 2:

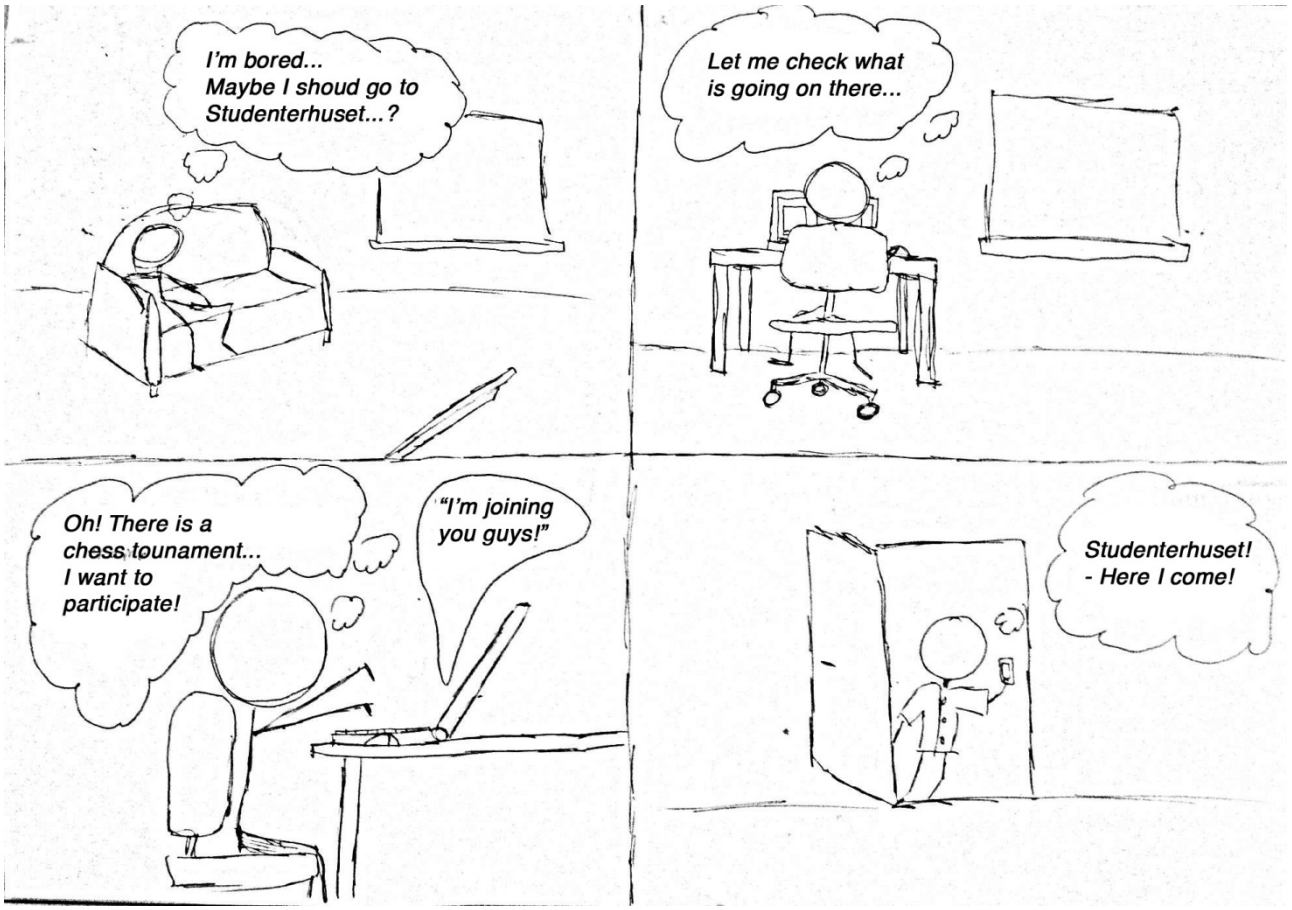

Figure 6 - Scenario 2

5.1.3.2 SKETCHES

The sketches were all based on the earlier listed features plus some new features, which was thought of by the person drawing the sketch. Only the best of the sketches will be presented here.

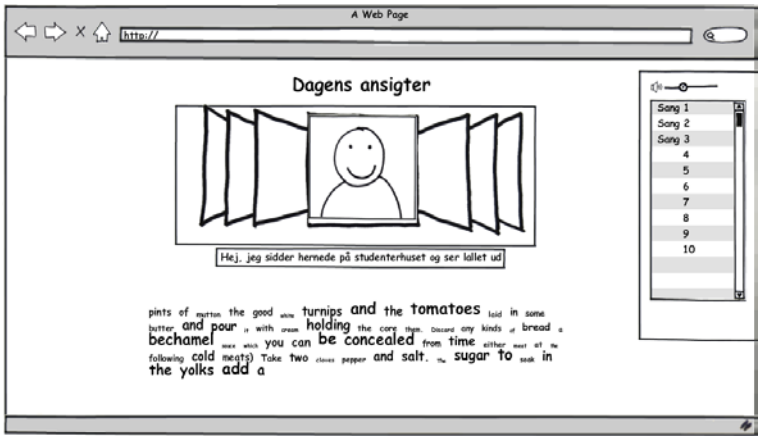

Figure 7 - Sketch 1

Sketch 1:

The first sketch had most of the wanted features discussed earlier plus a couple of new ideas. In this sketch the communication between the users would be by shouts that would appear as tags in the button of the page. The faces that appear in the top part of the sketch would be photos taken from Studenterhuset from a photo booth along with a little message from the person on the photo. The users of the website would then be able to flip through these photos. On the right side of the page is a music player, where the user can see what songs are playing.

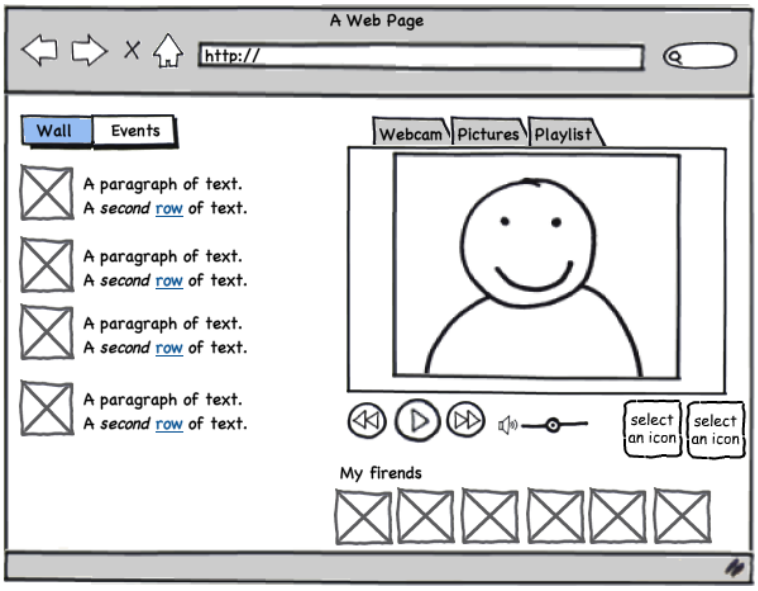

Figure 8 - Sketch 2

Sketch 2:

The second sketch is also constructed with many of the earlier discussed features. First of it has a wall for messages by other users and it has events that are created by other users, where the part on the left changes depending on whether or not the user clicks on “Wall” or “Events”. The part on the right serves many purposes. The user can pick from three different tabs in the top. Which are the webcam feed, user uploaded pictures and music playlist. On the right side the user can also control the music and is able to get a list of friends using the website.

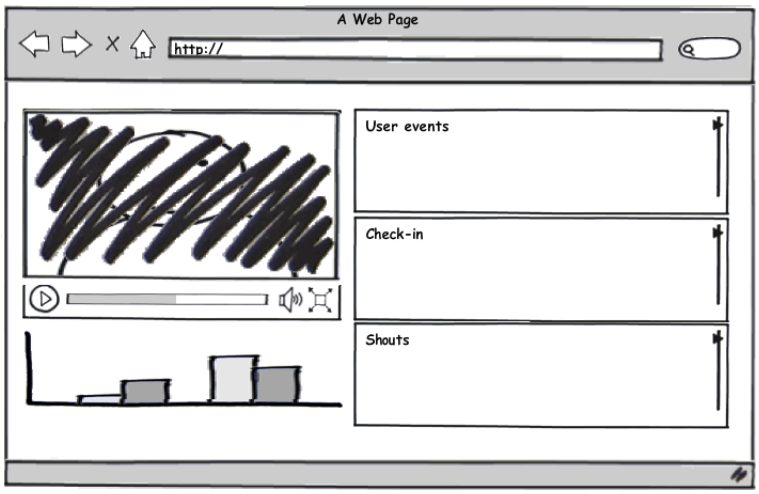

Figure 9 - Sketch 3

Sketch 3:

The following design shows the events, check-ins and shouts made by users, each one of them in their own box with the possibility to scroll down in the boxes individually. On the left side of the screen the user can see the webcam feed with a special filter obscuring the identity of the people. Right underneath it there is a music player. A different feature to this website is the bar at the bottom left corner of the website. This bar shows different forms of activity like drinks sold or gender ratio.

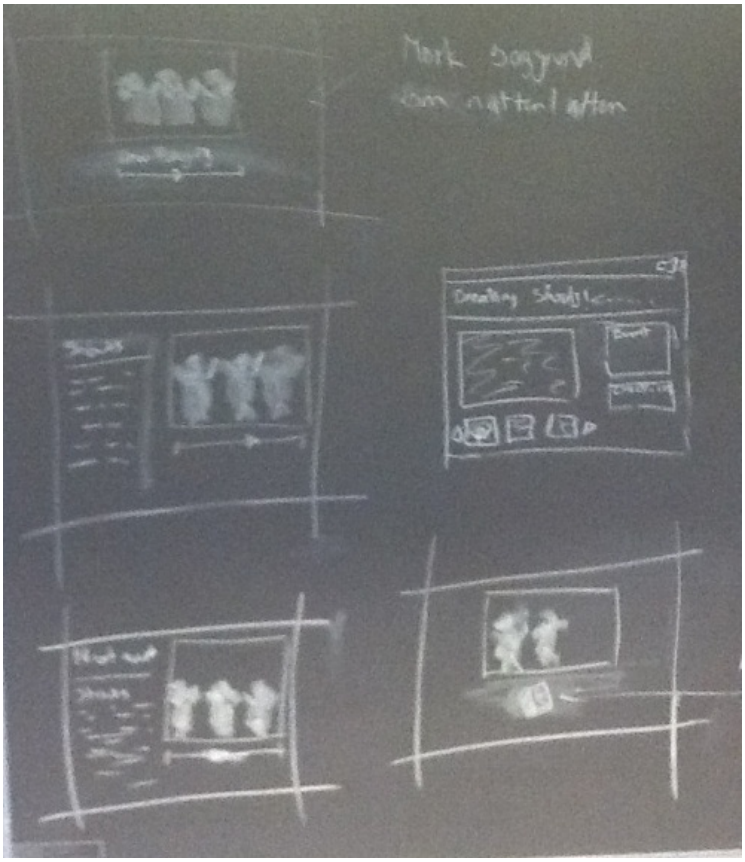

Figure 10 - Sketch 4

Sketch 4:

Sketch 4 is a collection of multiple sketches but they all share many of the same characteristics. First of all they have the webcam feed as an essential part of the overall design. Besides the webcam there is a chat feed on the side and under the webcam feed there is a music player. But overall the designs are very minimal-istic and don't offer a lot of features to the user. These sketches played a big role in the design of the forthcoming mock-up.

5.1.4 MOCK-UP

As an external part of the process, the group had to make a mock-up to show the supervisors at Studenterhuset. Based on the very rough sketches and general discussions the following mockup was made:

Figure 11 - First mock-up

It showed all the wanted features on the website; webcam, music, noise feeds. At this point, the calendar was not added, but it was described at the session. In this mock-up the Facebook feature was initially a Live Stream[2], but because of limitations of Facebook such as the order of messages, it was replaced with a Comment Box[3].

[2] http://developers.facebook.com/docs/reference/plugins/live-stream/
[3] https://developers.facebook.com/docs/reference/plugins/comments/

5.1.5 FINAL SKETCH

The final sketch was influenced by the feedback from the mock-up session at Studenterhuset. The sketch was as following:

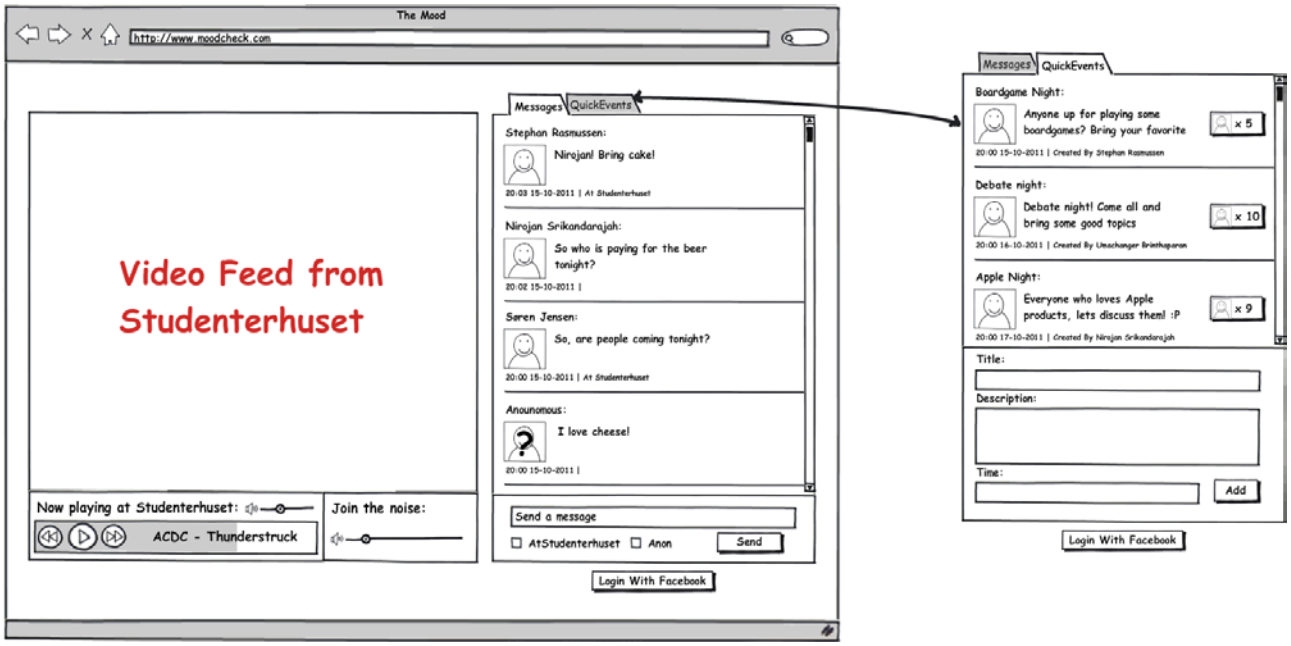

Figure 12 - System Sketch

It had all the wanted features as described earlier, but the calendar and chat features were more detailed. It was decided to abandon the Facebook Comment Box, and create a custom messaging solution that made use of Login with Facebook[4]. Because of feedback from the mock-up session it was now possible to log on anonymously and write messages. When writing messages it was possible to indicate that the message was written and sent from Studenterhuset. The calendar feature was made with Like [5]buttons, instead of RSVP. This was done because the group thought that a person should not feel obligated to show up, but the group wanted to make it possible to show interest in an event.

With this complete sketch, a meeting with the mobile group was arranged where sketch, ecology and over-all concept was discussed.

[4] http://developers.facebook.com/docs/reference/plugins/login/
[5] http://developers.facebook.com/docs/reference/plugins/like/

5.1.6 FIRST DESIGN

After the meeting with the mobile group (read section 5.2.3), the first initial design of the website was made which looked as following:

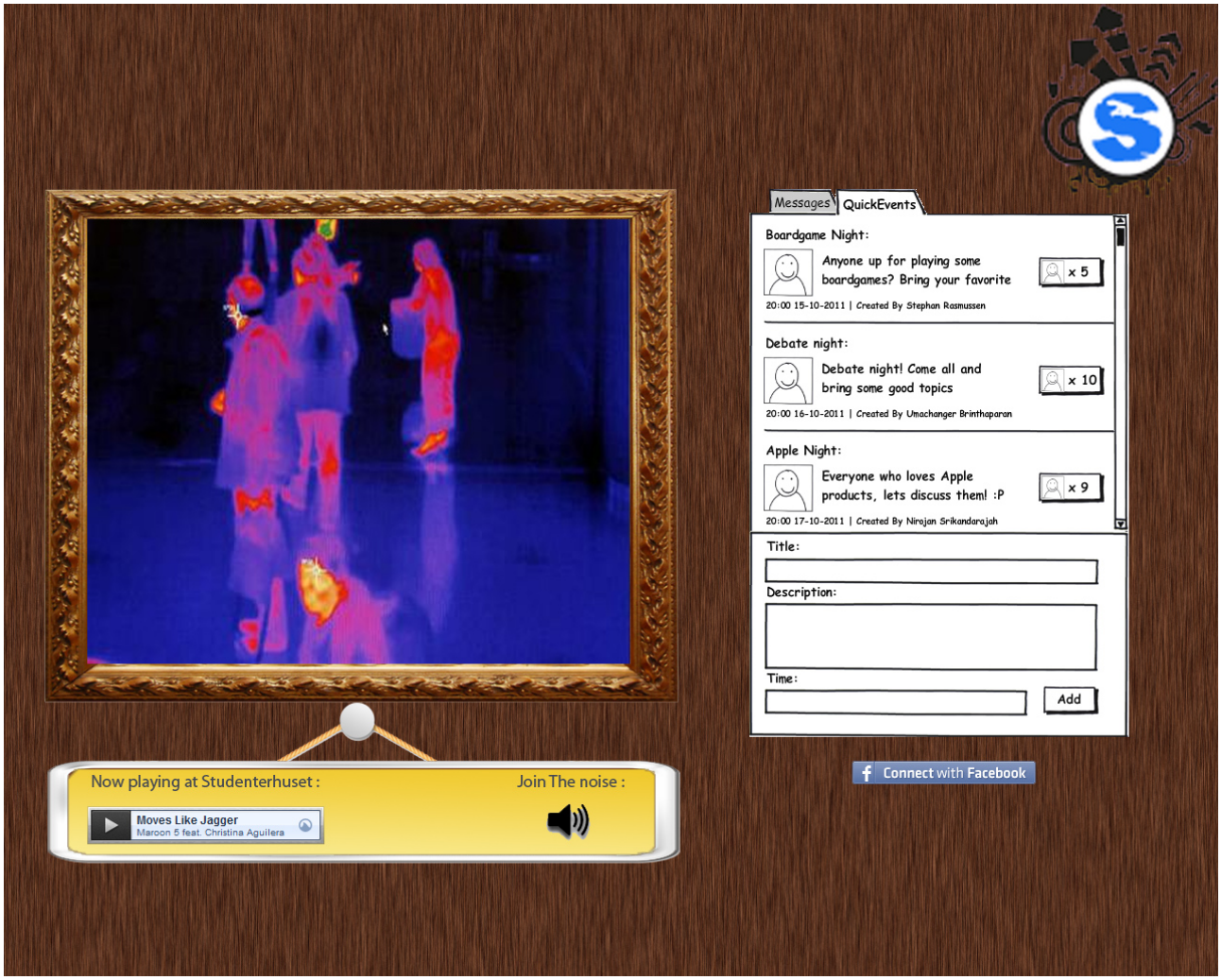

Figure 13 - Early Design

The design was very crude, but it shows all the wanted features with no immediate changes to them. The design itself had taken some shape and was made to give an impression of a wall at the Studenterhuset with the features of the system hanging on it. The design was inspired by Studenterhuset where the walls are covered in posters and picture. This design would add to the overall transition between the virtual and physical space, which was something the group was trying to achieve. When the design was made, previous feedback, observations and experiences was taken into consideration.

The calendar feature where users could make their own events was really never adopted by the other groups. Because of this it was decided to remove this part of the system, as it would not fit into the ecology as the desktop version would be the only part of the ecology offering this feature. The group also thought

that it did not really fit into the current concept, as it felt more like leftovers from a previous idea and as a result this darling was killed.

5.2 EXTERNAL PROCESS

As briefly described earlier, the external process is everything the group has done with other groups or with the supervisors, from the start of the project until the final concept was completed.

5.2.1 SKETCHING SEMINAR

The sketching seminar took place in a class room, and half a day was spent drawing sketches and coming up with different ideas and concepts. Most of the inspiration, the group members contributed with, was from earlier brainstorming and bodystorming sessions within the group itself.

The seminar was split up into three different sessions. Throughout the entire seminar all the groups were split up and new temporary groups were formed. The general concept(s) were discussed and acquired new perspectives. In the first session, time was spent discussing the ecology. The following sketch of the ecology (figure 14) was the one the group found most interesting. It shows the ecology and how the systems would work together and in which context they would be used. The group found it important that the transition between the devices and places was seamless to ensure a good user experience.

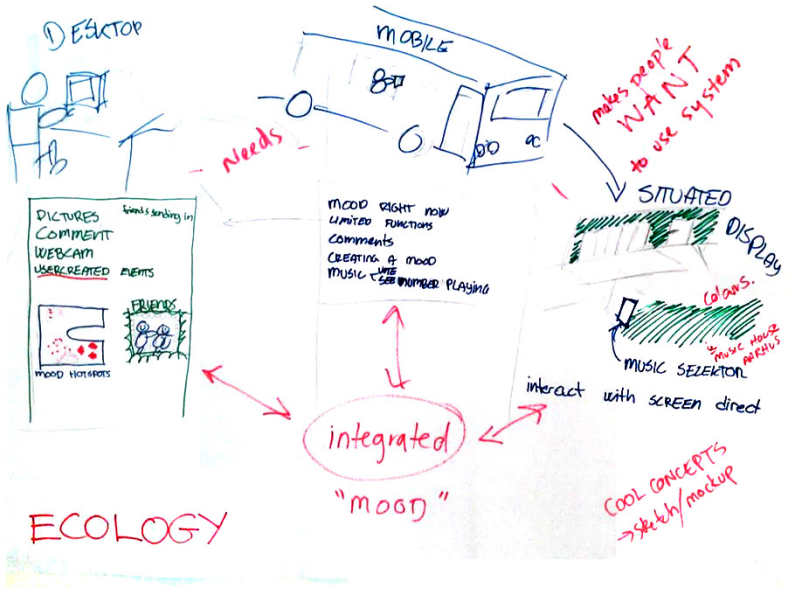

Figure 14 - Ecology Sketch

In the second session everyone was drawing specific components for the individual systems. The components that the group found fascinating or interesting for the desktop were the in-situ thermal camera where users from home could see the number of people at Studenterhuset without compromising anyone's privacy. Secondly the group liked the idea of trying to blend the virtual and physical space so that the transition seemed even more seamlessly. A virtual Studenterhuset could be an interactive room, where the user could click on different things, such as a speaker, to hear what was playing at the given moment. It is

important to get all the information needed to get a good impression of the ambience but at the same time keeping it simple with only the information that is relevant for the user.

The inputs from the second session were all based on sketches drawn by members from this group and other groups at the seminar. Out of all these sketches, the best one, decided by voting, was the sketch with the idea of blending the virtual and physical space. Based on this feedback, the group continued working on this idea later on.

In the last part of the day, the groups were restored and a storyboard of how the user would use a specific part of the system was made. The desktop group storyboard was quite similar to the scenario in the section of internal process (section 5.1).

After the seminar, the group went back to work on the concept internally, using what they had just learned from the seminar. After some internal work, another meeting was set, which took place at Studenterhuset

5.2.2 STUDENTERHUSET MEETING

Before the meeting at Studenterhuset, the group sat down and worked on polishing the concept and worked on a mock-up which was shown to the supervisors at Studenterhuset. All the groups were there, and in turn talked to the supervisors and amongst themselves. Besides showing the mock-up to the supervisors, it was also shown to the other groups to get some more inspiration and feedback (see figure 11).

The feedback from the meeting was very valuable, and later used in shaping the concept and system. One of the main focal points and what needed to be worked on was the chat feature, where it was not possible to be anonymous. This was possible in the “The Mood” system, but our mock-up required a Facebook account. The positive aspect of an anonymous feature, would be that people without a Facebook account could still write messages and people who wanted to say something a bit daring, could still do so without consequences. However, with anonymous messages, the risk of inappropriate messages increases. If they could be combined so the user could choose what they were most comfortable with themselves.

The calendar part was not included in the mock-up at this time, but when explained to the supervisors, positive feedback on the idea was received. They suggested a combination of this and the chat feature.

After the session it was decided to keep the webcam feed and the ability to listen to the music and the noise from the place, which both the other groups and the supervisors thought were good ideas.

After the session the group went back to the group room again, and started working on a more complete sketch.

5.2.3 MOBILE MEETING

After the meeting at Studenterhuset, a meeting between the desktop group and the mobile group was arranged. The group had made a sketch which a future design would be based on. This sketch was discussed at the meeting, along with the ecology between the two systems and other ideas. The meeting lasted about 2 hours, and this is some of the feedback the group received.

First off, it was confirmed that both groups were working on similar ideas so the integrity of the ecology was still intact. Both systems were imagined with a chat feature so it was possible to have messages written on the mobile website appear on the desktop website and vice versa. Messages could also appear in-situ in some way so people at Studenterhuset could take part in the online activity.

It was also discussed later on whether or not there should be a separation between the user and bartender, so that users could see if a bartender had written a message. This idea was also abandoned later on in the process as the bartender was completely removed from the system because it became much more automated.

It was also discussed whether or not the website of Studenterhuset should have a relationship to our envisioned website. Should the two be tied together, either at a promotional or at a functional level? This line of thinking was abandoned as being irrelevant in our current situation, but it would be a good idea for future work on the system.

Based on the sketch from this meeting, an initial design was made by one of the group members, a design that in its basic form would end up being the final of the system.

5.3 THE CONCEPT

All the experience gained from the external and internal processes played their part in creating the overall and final concept. The concept is based on many of the parts already mentioned, but here is a recap of what made it to the final cut:

The concept and system was built upon four basic features, which are as following:

- **Chat:** On the website a chat feature would allow the user to leave messages either anonymously or with a Facebook account name and picture. Messages would contain a picture of the poster, if the message is posted with the Facebook account information. Otherwise a default, generic image would be shown. Messages should also indicate if it was posted at Studenterhuset, and a message written in one part of the ecology should be displayed in the others parts.
- **Webcam feed:** A webcam feed on the website should stream directly from Studenterhuset with a filter that imitates a thermal camera so visitors at Studenterhuset would have their privacy protected.
- **Music feed:** A music feed would allow the user to listen to the music playing at Studenterhuset at the given moment.
- **Noise feed:** A noise feed on the website would allow the user to listen to the ambient sound from Studenterhuset, which would support the user in interpreting the webcam feed, and increase the feel of presence.

All the above features and with a design that makes it look like as if it was a part of Studenterhuset would ensure a seamless transition between the virtual and physical space.

6 FIRST ITERATION

The goal of this iteration was to test the website and then change it according to the findings from the user test. In this section the system will be described, and the test procedure and the findings from the test.

6.1 SYSTEM DESCRIPTION AT FIRST ITERATION

Before the test the website contained four distinct elements: webcam, music, and noise and a chat feature.

The webcam feed

This feed uses an ordinary webcam coupled with a custom made filter that aims to imitate the visual style of a heat sensing camera, which along with the wide angled lens on the camera produces a distinct looking feed that somewhat obscures the identity of the people on the feed.

Music feed

Utilizing the streaming service at *www.grooveshark.com*, this feed streams the music playing at Studenterhuset to the users of the website, once they choose to turn it on.

Noise feed

Using a pre-recorded sample from Studenterhuset, this feed continuously streams a recording of the ambient noise of Studenterhuset. This feed starts automatically but can be turned off.

Chat feature

With the chat feature, users of www.theheat.at can communicate with each other in a format that is similar to that of the internet service Twitter. The messages have a maximum length of 140 characters, and the feature allows anonymous messages or messages posted with the users real name and Facebook profile picture. To retrieve the Facebook information, the website has a “Log in with Facebook” button. If logged in, the name field is automatically filled with the user’s real name and locked and the profile picture of the user is shown to the left of the name field. The name will link to the appropriate Facebook profile.

If a user chooses not to log on, the name field displays the name anonymous, but the name field is unlocked to allow a custom pseudonym. A generic, unchangeable, user picture is shown to the left of the name field. A user who is logged on can still choose to post anonymously by checking the topmost checkbox to the right.

Finally, a user can check the bottom checkbox to indicate that the message is posted from Studenterhuset, a feature specifically made for users who visit the theheat.at from their laptop at Studenterhuset.

The website design

The design is inspired by the interior décor of Studenterhuset, which has a prominent wall with various posters primarily of bands who have, or will be playing at Studenterhuset. The theme of the design is simply: a party at Studenterhuset, at night.

One functional aspect of the website design is the addition of the QR code [6]in the bottom right corner of the website, which links to the mobile version of the website for quick mobile access.

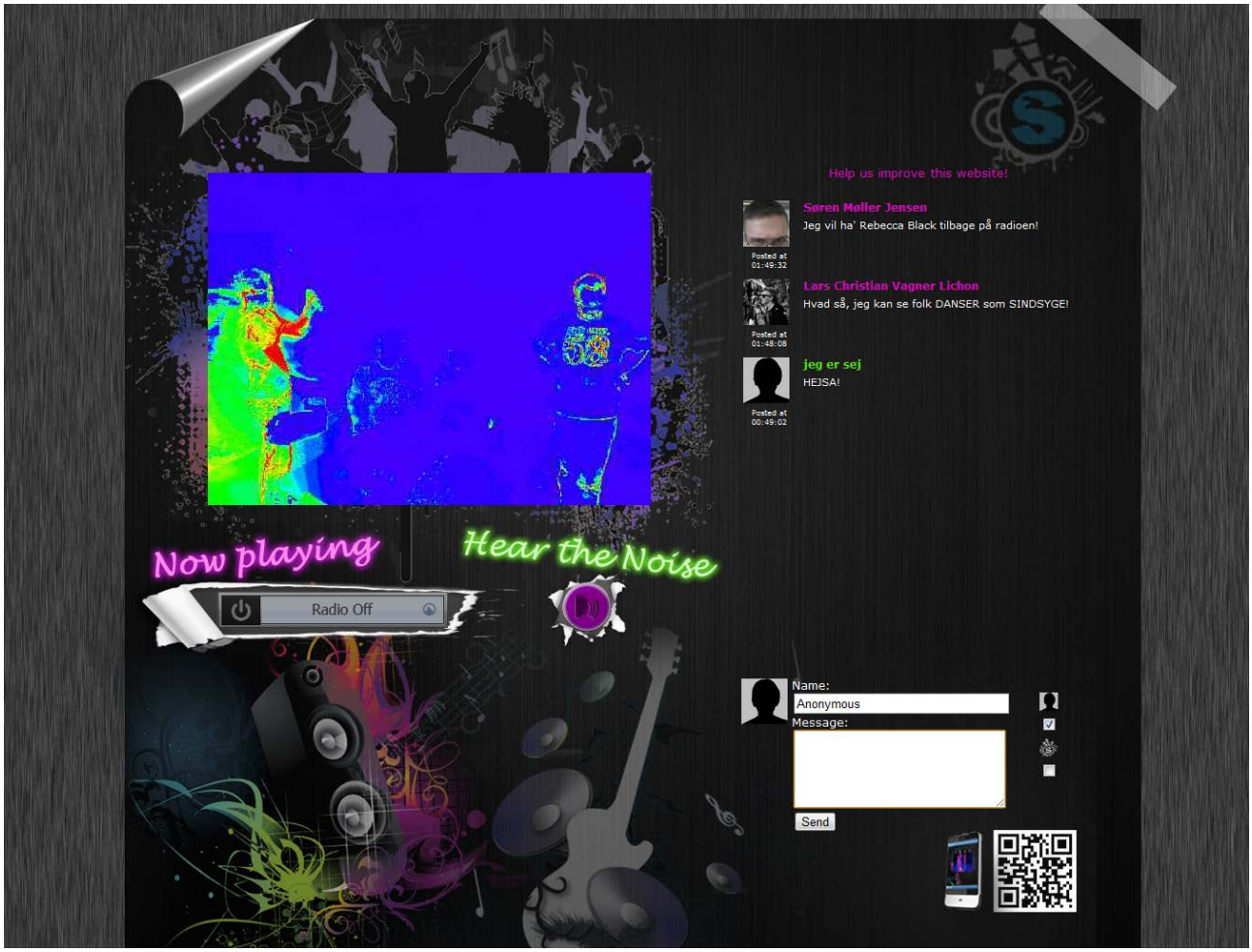

Figure 15 - Screenshot of the system

6.2 TEST

For the first test, the group went down to Studenterhuset in order to get feedback from the people who visit Studenterhuset as they seemed like the best possible candidates. The group conducted the test on November 16th 2011 and spent around four hours there, between 12:00 and 16:00. At this time it was fairly packed with people sitting with their laptops. We decided to undertake it as this time, due to the fact that in the evening, people may be consuming alcohol and therefore negatively affecting the test results because they would likely suffer from the effects of alcohol intoxication.

The purpose of the test was to get the users' firsthand impression of the system and their opinion of the concept.

[6] http://en.wikipedia.org/wiki/QR_code

During the test, the group approached guests at Studenterhuset and asked if they could spare a few minutes of their time. Each of these interviews lasted about 5 to 10 minutes. Everyone who was asked agreed to be a part of the test and was ensured total anonymity. This can bring some comfort to the participants and in some cases make them more open and honest, which is what we are interested in. The participants were mostly people sitting alone but small and large groups of people were also approached, and in some cases the large groups were the one who came with the most and best feedback as they could talk amongst each other. When someone in the group of participants commented on something, someone else in the group would add to that or come up with something else based on what the other person said.

Around three people from the group took part in each interview; one was collecting data, the second was asking questions and the last presented the website. When a participant agreed to take part in the test one person would introduce the participant to the project and what the project was about. The participant would be asked if he/she knew about the "The Mood". Following this, the system would be introduced on a laptop and everything on the website would be explained to the participant, after this, questions would be asked and a conversation about the system would commence. The questions asked would relate to different features on the website such as what the participant(s) thought about the feeds. The participant(s) would also be asked what they thought about the concept of the system and the visual layout of the website.

Initial questions were made for this interview as guidelines for what we wanted to know from the participants:

Figure 16 - Interviewing a participant

6.2.1 INTERVIEW QUESTIONS

- How do you use Studenterhuset?
- What do you think of the concept in general?
- What do you think of the visual expression?
- How well do you think the ambience is communicated to the users back home?
- What is your impression of the chat feature?
- Do you think that the "At Studenterhuset" icon adds good value?
- What do you think of the Facebook implementation?
- Do you think that the "Hear the noise" adds good value?
- What is your impression of the webcam feed?
- What do you think of the music feed from Studenterhuset?
- Do you think something is missing in general?

The emphasis of the questions asked was primarily on the different features and the users' general impression of the concept and website. To supplement the questions, the group asked whether they knew "The Mood" and how much they use Studenterhuset. Because the users where there already they could see how well the system represents the ambience. Furthermore they could also give insight into whether or not they would use it. If the participant opened up for the opportunity to ask follow-up questions or other related questions the opportunity was seized.

This session gave a lot of feedback which the group took with them and tried to see if there were any patterns and if something should be changed in the system.

6.3 FINDINGS

Throughout the first test session we got some rich results from the users. In general they thought it was a very good concept. Most of the participants did not know of "The Mood" even though some of them were frequent visitors of Studenterhuset. Those who knew the current system liked that the website was livelier and thought it was better at representing the ambience.

One of the volunteers in the bar mentioned that the automation of the website was an improvement of the current system because its ambience representation was not updated frequently. His impression of "The Mood" was that at first it was interesting, but as time went on it was used more rarely by the bartenders.

The webcam feed was found very enriching because it showed the activity more precisely. The participants thought it was a good idea that it used a thermo like filter. They did not feel they would be monitored with this solution. This shows that the users need their privacy and want to be anonymous. One mentioned that he preferred the filter to a normal feed.

Most of the participants liked the idea of listening to the music that was currently playing at Studenterhuset which helped them get an idea of the ambience. Although a few mentioned that they would rather listen to their own music.

The noise feed was considered very useful and one participant mentioned that this was the most important feature in this system. He mentioned an example where a lot of people were at Studenterhuset, yet it would not necessarily be noisy. This indicates that the noise is a useful supplement to the webcam feed as it helps improve the representation of the ambience.

The chat feature was also considered a good idea. The participants liked that you could choose either to be anonymous or use your Facebook account. However, there were some concerns about spamming and inappropriate messages from anonymous users. To some it was important that they could post an anonymous message while others thought it was important to see the author of this. Those without a Facebook account like that they would not be excluded from the system. The participant did also approve of the separation of their Facebook account and the messages written in the system. However, it was pointed out that it would be a good idea if there was a Facebook reminder when the activity of the chat feature was high. A few participants mentioned that it would be a good idea to get more social networks implemented such as Twitter, LinkedIn etc. One participant thought that the chat would be the most time consuming feature but only if the user knew someone who also was a user of it.

As a supplement to the chat feature, some participants mentioned the idea of having a calendar where users could make their own events. This feature could also be shown on Facebook where people could sign up and comment on.

The participants liked that the design looked like a poster hanging on the wall at Studenterhuset. Few did mention that the design was not representative of Studenterhuset because it looked like it was only a place to party and not a place where you could also get a cup of coffee. It was suggested that the website could be more dynamic by showing different designs according to the ambience.

The participants also expressed a common sentiment that they would use this system more as a quick tool to see what is happening rather than using it for an extended period of time. However, some did mention that they could find themself using the website as a warm up in a party situation before going to Studenterhuset. One mentioned that he would also use the system to see if there was space to work with his laptop.

Some participants did not know whether or not they would use the system but they thought others might.

6.4 DERIVED FROM FINDINGS

From Studenterhuset we gained a lot of feedback, and in this section this feedback will be reflected upon, in regards to what should be changed in the system, what cannot or should not be changed and what aspects of the system that need extra attention. This section is directly derived from the previous section about findings from the first evaluation.

Regarding the chat feature some of the participants thought that the anonymous feature was redundant, whilst just as many thought it was a good feature. Based on this it was decided to keep the anonymous feature, as it did not really alienate the people who did not like it, but leaving it out would mean that everyone who did not use Facebook would be alienated. It was also mentioned that logging in with multiple accounts (Twitter, Google Plus, LinkedIn etc.)could be a good idea, but it was decided not to do this be-

cause of the complications regarding programing and because Facebook is the most popular social networking site and therefore we will reach the most users (MetroXpress, 2010).

Some of the participants even mentioned the idea of a calendar with events and that the users should be able to create their own events. This idea was being worked and talked about early in the process of creating the concept but later it was abandoned as it did not fit in. The feature was discussed once more based on this feedback and again it was decided that it should not be implemented. If a similar idea resurfaced again, we should re-evaluate this decision.

The general design of the website was something some of the participants were not fond of. They thought it was too dark and it looked too much like there was a party at Studenterhuset all the time. They thought it should have different designs based on the ambience throughout the day. Based on this it was decided to make the site more dynamic and make it change the design based on either the time of the day or other factors such as the noise level at the physical location.

Based on these conclusions from the tests, the system would take shape accordingly.

7 SECOND ITERATION

During this iteration another test was conducted along with an online questionnaire - whether or not the website would change from the findings in this iteration, would depend on time constraints.

7.1 SYSTEM DESCRIPTION AT SECOND ITERATION

Before the test phase of the second iteration the website still contained the four distinct elements as seen in the first iteration. Furthermore the system offered a new feature which will be described in this section along with the changes to the original features.

Webcam feed

No changes.

Music feed

No changes.

Noise feed

No changes.

Chat feature

Unlike the other functions the chat has been modified so that the user does not have to push a button on the website to send a message. Now it is possible to just press “Enter” when you want to send a message, which gives the user a faster interaction with the system.

Furthermore the “At Studenterhuset” radio button has been removed to make the system more automatic. This means that the site will only show the icon when you are on the Wi-Fi network at Studenterhuset. This also means that the anonymous radio button has been removed so that the user now has to click on the profile picture to choose whether or not to be anonymous.

Besides the functionality changes of the chat, it has also gotten a new design, so that it matches the rest of the design better. Chat messages have been given a transparent box to separate them to ensure that the text is more readable to the user. The “Posted at:” text has been removed because the information was unnecessary. The user can easily understand that the timestamp under the profile picture is the time the message has been sent.

The Design

A new design has been added to the website. All elements of this design are placed at the exact same positions as in the first design to make certain that users understand it is the same website, only with different visuals. Read further in the next section.

Dynamic features

In the period of the second iteration the system has also been given two new features. The first was to make the page more dynamic so it represents the ambience of Studenterhuset even better. This means the site now uses of two designs; a club and coffee theme. The website will automatically change theme according to the time of day. The webcam feed on the club theme has also been given a new frame like the coffee theme so it blends in with the rest of the design.

The second new feature is the dynamic logo which changes depending on the amount of users on the page. When few users are online the fire is out, but when more people use the website, the logo lights on fire which fits the name “theheat.at” perfectly.

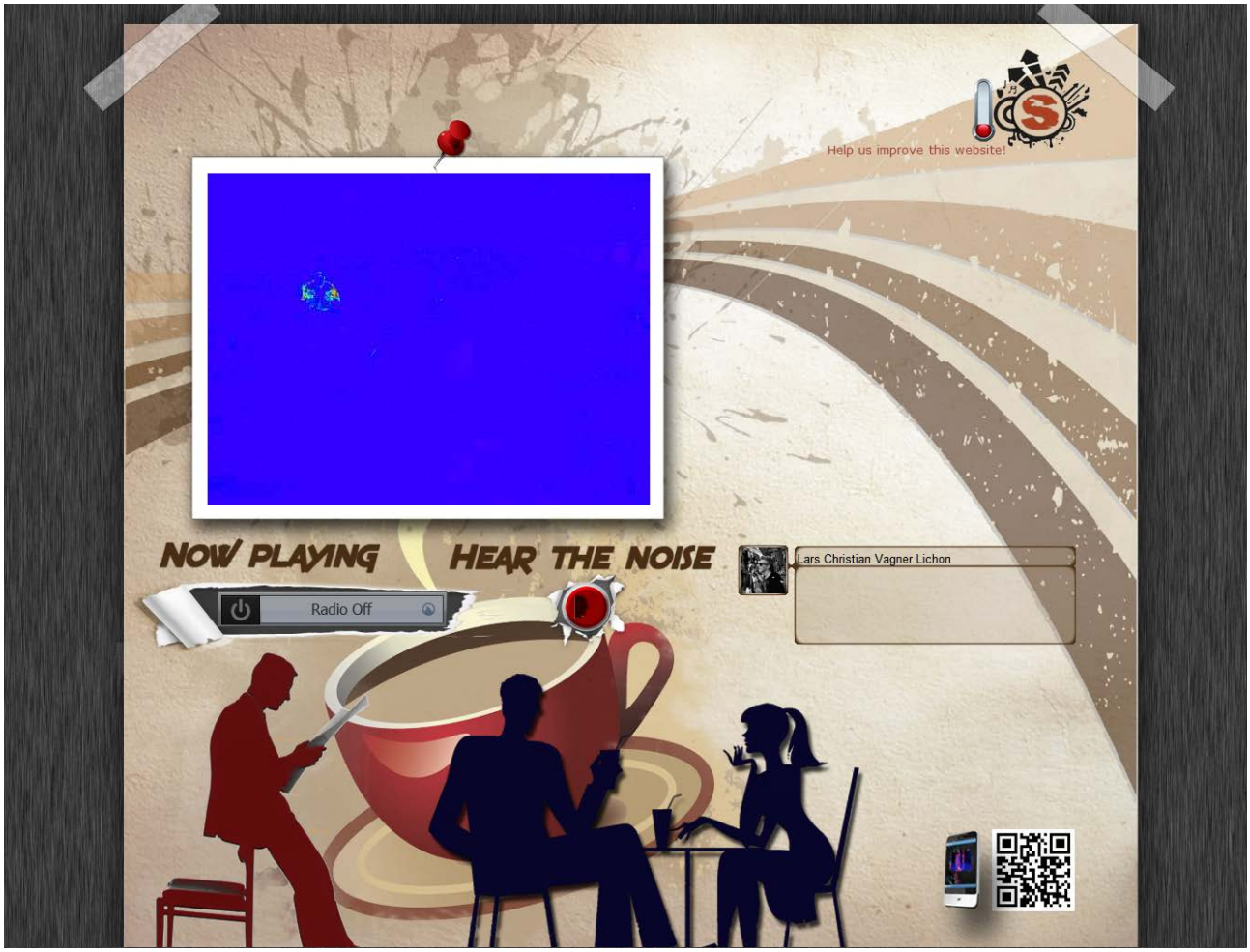

Figure 17 - Coffee theme

7.2 TEST

The second test of the system was done at the Humanistic Faculty at Aalborg University. This time the group did not target users of Studenterhuset because we wanted feedback from a larger group of users. The session took place on the November 29th 2011 and lasted about two hours with seven anonymous participants. Some were sitting in groups while others were sitting alone. Each participant got a short introduction to the system and the purpose of it, but this time we did not mention "The Mood" to avoid confusion with "The Heat".

The main focus was to find out if they would use the system, and was they thought of the various features of it.

The webcam feed was not turned on during the test because the web camera was not installed yet. A static picture was inserted into the website that would help the participants get an impression of what the feature would look like.

7.3 FINDINGS

All of the participants knew about Studenterhuset, but not all had been there. The test showed that the participants would ask their friends rather than using this website. Studenterhuset was not a place where they would go alone. They were more interested in going in groups to events like concerts which was also their main reason for going to Studenterhuset in the first place. We asked if user created events would encourage them to visit the website, but only few thought it would convince them, depending on what kind of user events it would be possible to create.

Some participants mentioned that they would like to be able to see if their friends were at Studenterhuset which indicates that Facebook check-in could be a good choice to implement in the next iteration.

Regarding the chat feature some mentioned that they would not use it to meet new people as they would prefer to meet new people in person. The chat feature would only be fun to them if someone they knew used it too. Messages from strangers were not interesting to them but statements regarding events or other happenings from the bartenders could be useful.

The Facebook part of the system was also discussed and the participants thought it was a good idea, mentioning that even further integration with Facebook features could improve the user experience. One example of further integration would be to use the official Studenterhuset Facebook group for notifications. Regarding the Facebook login feature, a user pointed out that Studenterhuset is trustworthy and therefore had no problem allowing the website to access their Facebook account.

In general the participants thought the webcam, music and noise feed was a good indicator of the ambience - no one thought that the surveillance was a problem because they are used to being monitored everywhere. One participant asked the group why the music player was called a radio because it may not be the correct word to use and it may get mixed up with Studenterradioen.

The participants also liked the use of the two different designs to represent the ambience on the website; however one did mention that the various features were more distinct on the club theme. Both designs were pointed out to be simple and easy to use.

To most, the logo was seen as static rather than dynamic and even with assistance few were able to interpret it correctly. One participant suggested the logo to be positioned closer to the chat feature or in some way integrated with it.

The system uses some mouse-over texts which were commented on by one of the participants. She mentioned that this was not used anymore and it was not user friendly to show important information this way.

In general the test showed that the participants did not think that they would use this system. They would rather just go there with some friends or check for events on the normal website. One participant that had never been at Studenterhuset, mentioned that it was a handy tool that could maybe get him to go there.

7.4 QUESTIONNAIRE

The interview sessions was supplemented by an online questionnaire that was given to friends and people at the university to help understand what the users liked on the website and their opinion of the concept. The questionnaire contained seven quick questions and a comment field for additional feedback. Each of the seven questions has four options that the user can choose between. These questions will be covered in section 7.5.

7.4.1 PROMOTION

To promote the website and increase the odds of getting results from the questionnaire, it was decided to make two posters inspired by the two themes of the website, to make a good connection between the posters and the system, making people recognize it. We also wanted to show off both themes because they illustrated both sides of Studenterhuset. Pictures of these can be seen on figure 18 and 19.

Figure 18 - Coffee theme poster

Figure 19 - Club theme poster

It was the intention of the promotion to be eye catching; making students interested in the system. The main feature, the webcam feed, was used to illustrate the concept and because it is something new and exciting.

As seen on the posters, there is not a lot of text because the group wanted the users to find out by themselves what it is and how to use it. Another reason is that a poster should get the user's attention in seconds. This cannot be done if the user has to read a long text which can cause the user to lose interest. The posters still communicate the message with the phrase "To go or not to go" and they also include a link to the desktop website and a QR-code to the mobile website.

The posters were set up at multiple places frequented by potential users. This includes Studenterhuset itself and different places at the university such as The Institute of Humanities, Computer Science and Social Studies and at the first year students. It was prioritized to set up the posters at places where most students would be likely to see it, like cafeterias and at entrances.

7.5 FINDINGS FROM QUESTIONNAIRE

The tables below show the results from the questionnaire which seven people answered in a period of a week. Each question has a number that indicates how many chose this option. It is important to notice that in this period where the questionnaire was online, the webcam feed was not always turned on.

How often do you visit Studenterhuset on average?			
Very rarely or never	Once a month	Once a week	Several times a week
5	1	1	0

Did the website (theheat.at) give you an impression of the general mood at Studenterhuset?			
I like it, and I get a perfect picture of the mood at Studenterhuset.	It was ok, I am able to get a general sense of the mood at Studenterhuset.	It was ok, but I did not really get a proper sense of how the mood at Studenterhuset was.	I cannot draw any lines between the website and the actual mood at Studenterhuset.
2	4	1	1

Did you like to see the heat webcam feed from Studenterhuset?			
I like it.	It was ok, but I stopped paying attention to it.	It was not that good and do not think I would ever use it.	What is the heat webcam feed?
4	2	1	0

Did you like to chat to other users of theheat.at?			
I like it.	It was ok, but I will not use it much.	I would never use it.	How do I talk to other users?
2	3	1	1

Did you like to listen to the music stream from Studenterhuset?			
I like it.	It was ok, but I prefer my own music.	I only want to listen to my own music.	What music?
1	4	0	2

Did you like to listen to the ambient noise from Studenterhuset?			
I like it.	It was ok, but I turned it off.	It was annoying and I turned it off quickly.	What ambient noise?
2	3	2	0

Do you understand what the heat logo means?			
Yes, I understand it completely.	I have an idea of what it means.	No, I do not get it at all.	What heat logo?
1	4	1	1

The results indicate that most of the participants got a general sense of the ambience. It is important to notice that most of the users that answered these questions visit the place rarely or have never even been there.

When it comes to the different features on the website, the test gives an impression of what they liked. In general they liked the webcam feed because it helped them get an idea of the ambience and this matches the results from the interviews.

Like the interviews indicated, the questionnaire also shows that the users do not think that they will end up using the chat feature much or not at all. The reason may be that the users do not know what to chat about or only want to communicate with people they know already. The chat is then seen as the least interesting feature.

The music feed is also a feature that most will end up turning off so they can listen to their own music. As seen on the table no one checked the answer where they would never listen to the music playing, indicating that it helps getting a feel of the ambience but it is not the core feature. A few did also check the last answer “what music?” likely because the feature was set to off as default.

The noise feed gets turned off after some time which indicates that it will be used only briefly. This supports the results from the interviews where only few thought it was something they would listen to for a longer period of time.

When it comes to the logo, most of the participants had an idea of what it meant which also support the result from the earlier test. This indicates that there still are some uncertainties about the feature but we cannot be sure what the users think exactly, based solely on the questionnaire results. If we compare the results to the interviews it shows that the user has an idea that it shows the activity from Studenterhuset but it can easily also mean that they think it is the activity on the website as it was intended.

7.6 DERIVED FROM FINDINGS

As seen in both iterations the noise feed was considered useful by the participants. This means that the feature should be looked into further. This includes experimenting with different locations of the microphone so that you cannot hear what people say and that the music does not overpower the noise.

The sessions also indicate that there is some confusion about the logo on the website, most saw it as a normal logo and not as a feature. Those who saw it differently thought it was an activity meter for Studenterhuset and not the website. If the feature was a visual part of the chat feature, this confusion may be avoided. Another solution is to make an indicator or help feature that explains the various elements of the website – the current use of mouse-over text is ineffective. A slightly radical solution could be a help button that opens up a new page where all the important aspects of the website are explained.

In general the users from both iterations thought it was a good idea to implement Facebook features, but they also wanted more integration between the two websites. It was pointed out in several cases that the people should be motivated to visiting the website, and this could be done by using the Facebook group that already exists. If anything happened on the website, the Facebook group could notify its members of it. The website could use the "Like" feature, as a promotional tool. To support the participants' desire to know the location of their friends, the "Check-in" feature of Facebook could be implemented, so that they can see if anyone they know is at Studenterhuset.

The feedback on the chat feature has throughout the project shown that is not the popular feature on the website. The users have problems seeing what to chat about with people they do not know already. Another thing was that random messages are only fun for those involved. This indicates that the chat feature may have to be removed from the website or completely redesigned so it fits the users' needs more. A solution could be to invite people through Facebook, when the activity level of the website is high, or just rely outright on Facebook. It could also be interesting to work with the user events that previously have been discussed so that people can make events and get comments from others both through "Likes" and text. It has also been discussed to have statements from the bartenders which may give a better picture of what is happening if the webcam and noise is not enough. The bartender are also seen as trustworthy which may make their messages be more relevant to the user.

Another feature that may be looked into is the music player where it was pointed out that the word "Radio" may not be the right description. The questionnaire showed that some did not notice the feature because it was not set to play automatically when the website loads. The users may think it is not working because of the grayed out display. A solution could be to show that a song is playing but that the speakers are turned off.

Due to time considerations we were not able to integrate these different changes into the system. In the reflection chapter we reflect on future directions of the website.

8 SYSTEM DESCRIPTION

In this chapter of the report the final system will be presented. First a detailed walkthrough of the entire system, both regarding features and design. This will be followed by a short presentation of the technologies used in the implementation.

8.1 WALKTHROUGH

In this section of the report a detailed guide and walkthrough of the system will be available to the reader. Here all the features of the system will be described in depth, both to make sure every feature is understood correctly by the reader, but also in case of the system being offline.

The general design of the website is a poster hanging on a wall. This design was chosen, because the group thought that the design of the website should reflect the physical design of Studenterhuset. One of the main physical features of Studenterhuset is that the walls are filled posters and paintings. So based on this feature, the following design was made for the website. The design also adds to the idea of blending the virtual and physical space.

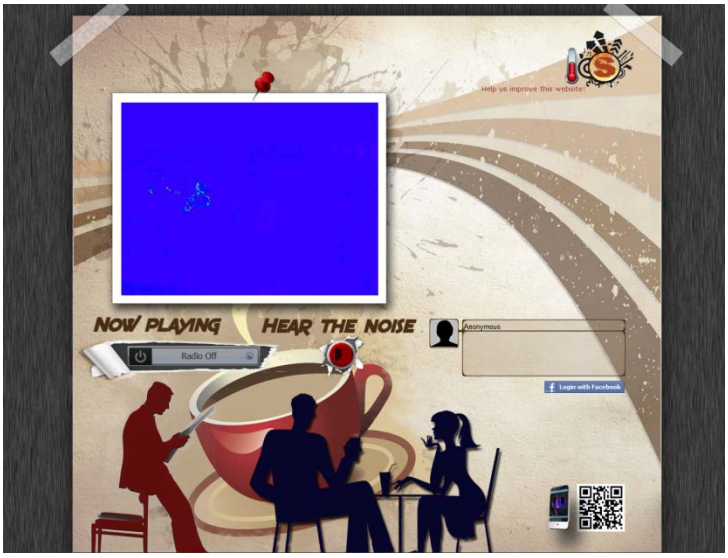

Figure 20 - Screenshot of coffe theme

The coffee theme design was made later on in an attempt to make the website more dynamic and the club theme design was the first design made. The two designs are both used on the website and are viewable to the user depending on the time of day and if further work was spent developing; the amount of activity would change the appearance of the website. The uppermost design represents Studenterhuset during the day and when the ambience is quieter. On the poster people are drinking coffee and the general theme of the poster is a coffee theme. The other design represents Studenterhuset when there is a party going on, which mostly happens in the evening. On the poster there are guitars, speakers and people in the background dancing.

Figure 21 - Screenshot of club theme

The intention of the two posters is that besides all the features on the website, the general design of the website should also inform the user of the ambience at Studenterhuset. This is then done by changing the visual appearance accordingly.

The name "The Heat" was cleverly thought up, by a member from another group. The name fits well to the system as it describes the thermal imagery used by the webcam on the website.

8.1.1 THE FEATURES

In this section, all of the features of the website will be presented and described. In this case, the black poster design will be used, but the same description may as well describe features on the other design.

On the following screenshot of the website, numbers and red squares will be guidance to what specific feature is being described, and it is therefore advised to look at this screenshot to get a better understanding of the description.

Figure 22 – The website with guidance

1. Webcam feed

The webcam feed plays a huge role in the overall appearance and functionality on the website. The webcam is placed at Studenterhuset, in a good spot that overlooks most of Studenterhuset. The feed shows these red, yellow, green and mainly blue colors. The colors represent the movement in the picture. If something is not blue, it means that it is moving, which in most cases people are walking around at Studenterhuset. The webcam feed plays an important role in the overall system, as it shows the user the activity level at Studenterhuset, and in return the user can paint a picture of the ambience of it. The user cannot interact with this field, as it is viewing purposes only. The thermal image from the webcam feed also makes sure that the people at Studenterhuset still have their privacy protected.

2. Music feed

Like the webcam feed, the music feed also plays a big part in painting the picture of the ambience, as there are different genres of music, which all defines different types of ambiences. By default the music feed is offline, because that when people go to the website it would be stressing if he or she was met with a lot of sounds, pictures and music, which potentially could scare the users away. When the music is off, it is grayed out with the clear text “Radio Off”, when the user then clicks on this text the radio will turn on, and play whatever music is playing at Studenterhuset. The user can also hover over the universal power button, and the button will light up. This will indicate to the user that he or she can interact with it. When the user then wants to turn off the music, he or she simply clicks on the power button again and the music stops. The text above the music player also helps describe what this feature is, as it says “now playing”.

3. Noise feed

The noise feed plays the noise of Studenterhuset so the users can listen to the noise level at the physical location. By default the noise is on, when the user visits to the website, because it is an important supplement to the webcam feed. The button is a little face icon with sound waves that disappear when it is turned off. This icon also helps the user understand that this is the noise from Studenterhuset, by the people there. The text “Hear The Noise” also helps separate the music from the noise, so there is a clear understanding as to what purpose they serve.

4. Chat

The chat feature is yet another major part of the website. Through this feature, users can communicate with each other quickly and anonymously or with their Facebook profile information. In the upper parts of the field, the user can read messages sent by other users, with the newest message on top. The messages consist of five elements; a time stamp that shows when the message is sent, a picture of the person who sent it, if logged on with a Facebook account, the message itself and lastly an icon that shows if the message was sent from Studenterhuset. When logged in with a Facebook account, the name will change color, indicating this, also linking to the appropriate Facebook profile. Furthermore when logged in with Facebook, the “Log in with Facebook” button will disappear as there will be no need for that anymore

If not logged in with Facebook, the name field will contain “Anonymous” which will be changeable to a desired pseudonym.

The profile picture can either be the one taken from Facebook, or the common anonymous picture. To switch, the user simply presses the profile picture which will then toggle between being anonymous and not. When the user writes a message, a number will show how many characters are left. When ready to send, a push on the enter button will do so. The user will also be able to receive message seamlessly without having to refresh the website.

5. The heat logo

Besides being just a logo for the website, this logo serves another purpose. The logo helps describe to the user as to how many people are actually on the website. This is done in three ways; firstly, the logo gets more flames behind it as more people are online, secondly the thermometer on the left side rises, and thirdly a text describing the heat appears whenever the user hover the mouse over the logo. This feature might help to draw users in, as they do not want to spend time on a website no one else uses.

6. QR-code

The last feature of the website is a QR-Code. The intention is to redirect the user to the mobile website, quickly and seamlessly. The QR-code could be used whenever the user is about to leave home, and want to keep tracking the ambience on his or hers smartphone. The user then simply scans the code and gets directed to the mobile version of the website. Next to the QR-code there is a small picture of a smartphone. This was placed to easily communicate to the user that this QR-code is intended for smartphones.

8.2 TECHNOLOGIES

This section will be covering the technologies used to make this system work. As this system is presented as a website, the used technologies are software based.

8.2.1 PHP – HYPERTEXT PREPROCESSOR

PHP is a scripting language used on websites to make them dynamic, unlike websites only consisting of hard-coded HTML. The use of PHP scripts makes it possible to give the website “life”, meaning that inputs or variables can influence the content of the site.

In this system PHP was mainly used with the music player and to communicate with a database. The database is used to store all messages posted in the chat system. Via PHP, the song data from Studenterhuset was fetched and uploaded to the website.

8.2.2 DATABASE

The database is built on MySQL, a database management system. It’s a commonly used system which is easy to use. The use of a database is required for this project system, as the messages written in the chat are stored in this. Storing messages in a database makes it possible to effectively retrieve them in the desired order.

8.2.3 JAVASCRIPT

JavaScript is a commonly used scripting language used on many platforms. JavaScript can be used for many purposes.

In this system JavaScript is used to make the site more dynamic. JavaScript makes possible to change the look of the whole website according to time. This means that the website will change theme according to the time of day. Also the Studenterhuset logo will have a dynamic thermometer which' temperature will change according to the number of users currently active on the website.

8.2.3.1 AJAX – ASYNCHRONOUS JAVASCRIPT AND XML

AJAX is a technology used in web development to create asynchronous web applications. This means that the web applications can send and retrieve data from a server, in the background. This way there is no need to refresh the browser to update the content of it. Instead, using AJAX it is possible to push content to the browser. It is used to asynchronously retrieve messages and the user activity level for the heat logo.

8.2.4 FLASH

The music player and noise button is powered by Flash. Flash is a multimedia platform used on many devices. It can be used to play multimedia files, create videos and animations, navigation on websites among many application possibilities.

The music player is a pre-build widget from Grooveshark [7] which is built on Flash. Using Flash, the widget can stream music and show the title and artist of the playing song. The noise from Studenterhuset is played through the noise feed. The use of Flash on this feed gives the possibility to later make the button stream noises according to the ambience currently at Studenterhuset.

[7] http://www.grooveshark.com/about

9 REFLECTIONS

9.1 TEAMWORK

While we have experience with working together in groups of around six individuals, this project presented us with a new challenge regarding teamwork, i.e. cooperation between several groups. Ensuring smooth operation when only dealing with a few individuals who know each other well can be challenging enough, so we were excited to see how well we would fare when we had to work together both internally in our own group, and with the other groups on a larger task, like building an ecology of systems for Studenterhuset.

On the first day where we were given the task of building a website for Studenterhuset ecology, we immediately went ahead and did some initial brainstorming, followed up later by bodystorming and other idea generating efforts. Internally, the teamwork was going well from start. Likewise the external teamwork between the groups started off well, with various workshops that served both as sources of inspiration to our group and as a way to increase understanding of what the other groups were working with, and promote the necessary, multi-group, team spirit. The external teamwork slowly began to suffer however, as the structure imposed by our team of supervisors was lessened and the groups themselves took over the responsibility of management. The groups arranged a meeting with the purpose of discussing how to proceed with the project, and one result of this meeting was that we created subgroups that had specific tasks that related to the project of more than one group, like the implementation of the music player, which was a task that was undertaken by people from the mobile and desktop groups. In this way we avoided unnecessary duplication of work, and it is an example of good teamwork between the groups, in that the mobile and desktop websites both feature the same music player that plays music from Studenterhuset, which was implemented early and without duplication of work within the groups.

In this same meeting, it also quickly became apparent that we had differing ideas on where exactly our primary effort should be focused. Some argued that now would be a good time to solve technical difficulties regarding, for instance, the webcam feed, while others argued that we should continue to explore new ideas and possibilities and that any technical issues could either be dealt with later or just solved through "wizard of oz"[8] techniques.

In essence some wanted to begin with the implementation, while others wanted more time to explore. This was perceived as a problem because we felt that we had to be synchronized in regards to what phase of the project we were in, and because it was still an unresolved question how closely the groups should work together. Should this essentially be one project split into three parts, or three projects that related heavily to each other? This problem was never solved directly, but two groups began with implementing their current ideas, while the third group continued exploring and the idea of joint meetings where all groups participated was abandoned, and implicitly the idea of one joint project was dead.
In place of the structured meetings, the desktop and mobile groups began having ad hoc meetings where information about ideas and progress flowed freely, and some technical issues where solved in cooperation.

[8] Manual instead of automatic input into the system, or pretend implementation.

The question is if the attempt at creating structured teamwork, independent of our supervisors, failed because it was unnecessary in this part of the project work, or if it failed for other reasons? One key difference between the supervised meetings and the group meetings was that there was no authority figure present to solve disputes, and thus reaching agreements became an exercise in achieving consensus, which posed a big challenge in a group of 15 people. We all had differing ideas on the what, when, and how regarding the project and with no real tools to solve disputes the effort to create structured teamwork was unsuccessful. Of course, it could also be argued that we had no need for the structure, as it was not an official project requirement and looking back we did manage to build systems that, to some degree, work as a part of a bigger ecology, and therefore we did work together at a sufficient level.

Another thing to consider is that we were encouraged to be creative and really explore new possibilities for the re-imaging of the previous system. One group in particular was very imaginative, which is positive in the spirit of the exercise, but their ideas were so dissimilar to ours that it was hard for both sides to see what we could collaborate directly on, and hence collaboration with this inventive group was limited. The desktop and mobile groups did work together, two groups with similar ideas and then systems, which confirms this line of thinking.

In conclusion we did manage to work together as a team, but as time went on we encountered difficulties due to our lack of abilities do deal with disagreements and differing views on aspects of how to work with this project. The consequence of this lack of structure is likely a more disjoint system where one group in particular produced a result that is not truly part of the overall system ecology.

9.2 MORE ON TEAMWORK

During the early stages of this project, it was agreed that we would create temporary teams consisting of members from each of the three groups that would work on various shared technical issues, most notably the specialized filter for the webcam, but also the Facebook integration and the music player. This division of labor had its advantages like increased sharing of knowledge and technical knowhow between the groups. It also facilitated improved communication between the groups in that when we discussed the shared issues it was also easier to bring up othser issues or just talk about the progress of the individual groups and other related things.

The division also caused some problems, however. The webcam filter was a critical element of both our group and the mobile group's project, but its development was primarily in the hands of the mobile group later on in the semester. It turned out to be more difficult than anticipated to implement and install it and this put us in a situation where we were waiting for it to be completed, because we wanted it to be fully functioning at our user tests, but unable to do much about it ourselves.

This dependency caused our testing to be delayed, and ultimately affected the outcome of our efforts, which is problematic. As we grew tired of waiting, we eventually solved this issue by doing tests with a semi functioning webcam, which required users to draw on their imagination. This worked, but it left us unsatisfied. Overall the problem was that we were not proactive in dealing with this issue, and we could have expended more effort in helping getting the webcam up and running, or created a more satisfying fake webcam feed, but we did not because it felt like the webcam was on the mobile group territory.

9.3 ON THE DIGITAL ECOLOGY

The ecology requirement was always on our minds throughout the idea phase of this project. All ideas were tested on their own merits, and on how they would fit into the overall ecology. In our group the question "how does this fit into the ecology?" was frequently asked, and based our joint sessions with the other groups they also considered this question to be essential.

Having three groups build systems that all are part of a bigger overall ecology is a good teamwork exercise, and it cause some interesting teamwork issues between the groups. One issue was that on one hand we were encouraged to be creative with our ideas for the re-imagining of the original themood.at system, and the other hand we also had to ensure that we were not too creative as it would potentially break the ecology aspect as we understood it. If one system was too outlandish, would it be seen as a part of a bigger system, or as a standalone system? This put some constraints on the groups, and along with the following issue caused a fairly major conflict between the groups.

We discovered that it was necessary for the groups to be synchronized regarding how far along we were with our individual systems. One episode in particular explains this: In the desktop group we began working on the design of the website; at a time where the in situ group in particular was not ready begin work on this area of their system. This caused a conflict as they felt that they would lose influence on the design aspect of the ecology, and hence their own system, if we went ahead and designed our system and presented it to everyone else at one of our joint sessions.

We were at a point in our project where it was natural to start working on the design, as other parts of our system were more or less implemented. The aim of our system is to convey the ambience of Studenterhuset and we considered the visuals a key aspect in this, so we began experimenting with the design without consideration for the ecology.

This episode may be part of the reason why the ecology can seem somewhat disjoint, in that the desktop and mobile systems are well integrated, while in situ is more like a separate system. The lesson learned from this is that if ecology is important, synchronization of the various groups is crucial. Conversely, we may simply have collectively over interpreted this ecology requirement, and as long as we all made systems that had few things in common the requirement would be satisfied.

9.4 PRETEND OR IMPLEMENT

One issue that we have struggled with throughout this project was to what degree we should implement features. While we wanted to test early, we also felt that we could receive better quality feedback from our user testing sessions if we had a functioning system, where components were as close to fully implemented as possible. Because of this, we began testing later than we could have otherwise, and it also caused us to have periods of downtime, where little work was done on the project. An extreme example of this is the webcam feed, which was a feature that from initial idea to full implementation and setup of camera in situ took around two thirds of the semester to complete. It was considered an essential part of the system, and we were reluctant to simply ask users to imagine how the feed would look like, or to use some semi-accurate representation of it. We held back testing for a while, but as the implementation dragged out we

had to commence testing. Had we simply used an approximation, we could have explored more, and tested a wider selection of ideas, and we may have ended up with a better or at least different end product.

Maybe the insistence on the technology aspect was a mistake, but during testing we did experience that users had difficulties with providing feedback about more abstract features or ideas, and that they were better able to provide feedback about the features that they could see or interact with. Hence, the problem as we see it is that as developers we have to choose between quantity or quality when it comes to user feedback on projects that rely on continuous feedback during the development process.

9.5 ON THE SCENARIO PROBLEM

The system we have built is based on a specific scenario where a person or a group of people go to the website to see what the ambience is at Studenterhuset. However, we have learned from our user sessions that this scenario may be unrealistic for many of the users of Studenterhuset, during the interviews many of the Danish participants expressed interest in the idea, but few thought it was something they would use themselves. Our assessment is that Danes who go to Studenterhuset either go because there is a specific event, like a concert, that they want to participate in, or because they are going with friends to socialize. Any planning of a trip to Studenterhuset happens outside the realm of our system, and it happens regardless of the state of our system. Our system could be viewed as a way to facilitate social interaction, but from the interviews it would appear that this is not wanted by, at least, some of the Danish users of Studenterhuset.

The response from the international students is a little more encouraging, as they thought it useful to be able to get an impression of the ambience at Studenterhuset, and thought that the messaging system was a useful feature too. A system that helps facilitate social interaction may be very appealing to students from other countries, as they likely have a fewer local social connections.

9.6 GETTING USER FEEDBACK

In this project we have opted to gather user feedback using two different methods, by questionnaire on the website and by interviewing students, both at Studenterhuset and on campus. Looking back this may not be the most effective way to get input on our vision and the various features that we implemented.

The interviews were semi-structured, where we tried to have a casual conversation about the purpose of the website, and the interviewees' impression of the various elements on it. We found the interviewees by approaching people at Studenterhuset or on campus, and asked if they time for a short conversation about a project we were doing.

While we did get some feedback from these interviews, we feel that we could have handled this task better. One issue with the interviews was that we had a difficult time getting in depth answers from the interviewees. When asked about a feature they would often say that the feature was interesting, but it was not something they would use themselves. One interpretation is that this expression of interest was mostly out of politeness, because people may feel uncomfortable being overly critical of an idea or object that is presented to them by strangers. Another interpretation is that it can be difficult for people outside of the

computer sciences, to provide useful commentary on a website on the spot, and we may have gotten a better result if we had given the interviewees more time to look through the website and form an opinion on their own, before doing the interview.

Another technique we opted to use was a questionnaire, which was featured on the website with an animated link to a separate Google hosted website with questions about the users' opinions of the seven distinguishable elements on the website. There are several issues with this approach: Our first problem was how to get visitors to the website in the first place, and this was solved by putting up posters, designed to look like the website, at Studenterhuset and around campus. This was quick to do, as it required little effort on our part, but its effectiveness in generating visitors is questionable. We also could have used the email listings and send mails to other students, asking for them to fill out the questionnaire, but at the time we did not consider this option. The second and well known obstacle is getting people to answer questionnaires, and while we talked about offering prizes, we ultimately decided against it. In our own experience questionnaires are at best annoying to deal with, and this has admittedly affected how we have worked with this aspect of the project negatively. The results gathered were lackluster, and the lesson learned here is to commit to a task or do not do it all.

A better alternative to gathering user feedback might have been to arrange a social get-together, where we would try to see the use of the website in a setting similar to the one we had envisioned in the scenario from the idea generating phase. Or we could have advertised for people who use Studenterhuset regularly, and asked them visit the website at some time during the day or night, and then do a follow up later with questions about their opinion of the website, if it had stirred a desire to visit Studenterhuset and more.

9.7 CHALLENGES WITH UNDERSTANDING EMERGING TECHNOLOGY

One of our visions for the system is about dynamically changing website that unlike traditional websites provide content without requiring reloads by the user. It is exemplified in our system by the design of the website that changes depending on the time of day, and the logo which changes depending on how many users that are online at any given time.

On the hypothetical finished version of the website several graphical elements would appear or disappear based on a number of inputs from Studenterhuset, and thus the website could look radically different on repeated visits by a user. This is a different approach to website design, and one that the interviews hint at might not be easily understood by users, where the purpose of the online activity meter was largely unnoticed.

To generalize the input from the interviews, it is unusual for graphical elements to change on a website, hence a user would not necessarily know why, or even know that this is an event that they should be interpreting. This is a challenge for developers of emerging technology; how do we help users understand technology that differs from what they are used to, and should we let the possibility that the emerging technology might not be understood constrain us?

In this project exploration of emerging technologies was important, but still we found it difficult to escape the user centered mindset that we have been exposed to so far in our education, and implement features that really push the boundaries of technology and current practice (within our own limits of capability).

9.8 DIFFICULTIES WITH EMERGING TECHNOLOGIES

Ideally, music should be streamed directly from Studenterhuset, but due to various reasons this was not possible. We came up with a work around solution where we used iTunes with a special plug-in at Studenterhuset and a widget from the internet music streaming service *www.grooveshark.com* to stream music. While this solution was genius, it was foiled by one minor little detail - It could not be implemented because we did not have the admin password for the computer that plays music at Studenterhuset, and no one in Studenterhuset organization knew the password, or knew who did know the password. With no password, it was not possible to install the plug-in that we needed, and hence the music player only plays one song. Granted, this did not really have any effect on the testing that we did, but it did provide us with some valuable lessons: Details do matter, and they can have an unexpected influence on a project. Implement features fully, or make sure all aspects of an implementation work.

9.9 SHARED TOOLS ISSUES

The mobile and desktop websites share a web server and database. There were many advantages to this, but it also caused some issues regarding tracking down the cause of problems. An example of this is the chat system of both the desktop and mobile website that relies on the database to store messages. At one point messages stored in the database with the Danish characters (Æ, Ø, Å) would display properly in one system, but not in the other and vice versa. Mobile messages would show up blank on the desktop website, and initially we could not figure out why, but after a while the nature of the errors became apparent and the problem was solved. We were not prepared for the possibility that bugs could be introduced to our system from outside our group, so we spent more time than needed searching for the cause internally. But as it turns out, the problem was due to miscommunication between the two groups. In a larger project solving issues of this nature would require a great deal of coordination, with strict rules for areas of responsibility, but fortunately in our case if problems were encountered that did not seem to stem from our code, it was easy to simply ask next door if they had changed anything lately that related to the issue.

9.10 RETHINKING THE VISION

As written earlier, it would appear that we have built a system that mainly appeals to one group of users of Studenterhuset. This is unsatisfactory and while we are unable to start over and attempt to build a system that is suitable for a wider audience, we can explore what we could have done, knowing what we know now.

The website currently supports two different activities: The first being that with the webcam, noise and music players, we communicate the ambience of Studenterhuset. This is an activity where the user is interpreting elements on the website, but is not actively engaged. The ability to chat with other users of the website is an activity that requires active participation and this activity differs from the first because the users, by their messages, influence the ambience of our virtual representation of Studenterhuset.

To help users better understand the purpose of the website, and to improve the user experience, it might be prudent to only support one type of use of the website.

A website that focuses on communicating the ambience of Studenterhuset could simply contain the elements of the current website, without the chat functionality. But initially we also explored different ways of displaying the ambience, like the idea that was inspired by the PC game called The Sims, which features a rich 3D isometric world that simulates normal everyday life. Our idea was to build a representation of Studenterhuset in the visual style of The Sims[9], and place various icons that would provide clues about the ambience. For instance, a speaker icon could be animated to bounce or grow in size as the noise level increased, or display what song was currently being played. The system could display small digital representations of the users at Studenterhuset, who would either sit at tables or be on the dance floor depending on either automatic sensor input, or manual input like the previous system. A third option would be to build on the poster idea, but instead of the three feeds the ambience would be communicated by the use of various icons on the website, e.g. silhouettes of people to indicate crowdedness, a disco ball to indicate party ambience, a coffee cup to indicate café ambience and so forth. All of these variations support the use of the website that many of the interviewees preferred, a quick look at the website to ascertain the ambience, and it would have been interesting to compare the reaction to them, and to the representation of the ambience that we implemented.

While we have experienced no indication that the activity that allows users to influence the ambience of either a virtual representation or the physical Studenterhuset is appealing to users, it would be interesting for us to explore this possibility more. One idea that we played with during the idea phase was to provide a photo booth, where people at Studenterhuset could take pictures of themselves which would be displayed on the website with a caption, and therefore allow the people of Studenterhuset to tell a story of who was there and what was going on.

Another idea that we explored was user events, an idea that came up in one our brain storms and also during our initial interviews, where we would implement something similar to a calendar where users could create an event that other users could sign up to, e.g. a trivial pursuit tournament at 14:00 on Thursday. Early on we also briefly discussed an idea where the users of Studenterhuset would have direct influence on the design of the physical Studenterhuset, through the virtual. By enabling users to create and vote for themes that would be displayed either on projectors at Studenterhuset or as exchangeable posters and other artifacts users would collectively be able to say: “This week is all green!”

Ideas like these would have been promising subjects for further exploration, and it may be that this is direction we should have taken initially, as it may have ensured that more people would visit the website regularly. Of course, the popularity of a solution is not necessarily a good criteria for success of a university project, but it is difficult to not to take this into consideration when assessing the merits of an idea.

[9] http://en.wikipedia.org/wiki/The_Sims

10 CONCLUSION

In this project we have been given the task of building a system that re-imagines "The Mood", a system for Studenterhuset in Aalborg. The development of this system was an exciting journey that taught us lessons about teamwork, building ecologies and the problems of working with emerging technologies.

THE SYSTEM

The system that we have built aims to convey the ambience of Studenterhuset, and it is one part of a digital ecology that consists of desktop, mobile and in situ systems. The desktop system that this report is about is implemented as a website which is located at www.theheat.at.

The website has five key elements: A webcam, noise and music feed, a chat feature and finally a dynamic design.

When looking back at the final system the conclusion is that it ended up being designed for a narrow target audience; the international students who were very interested in the system. Danish students were not that interested in the system, and we suspect that this difference of opinion is because international students have a greater need for tools that facilitate social interaction.

In a hypothetical future iteration, the scenarios that we constructed in the beginning would have to be redone, followed by new idea generating sessions, so a system could be designed that would target a broader audience. In the reflection chapter we discuss several ideas that have the potential to do this, but the conclusion of these thoughts is that we would have to do proper tests before we can decide which of these areas are worth exploring.

THE ECOLOGY

Part of the assignment for this semester was to build a digital ecology, and the ecology we ended up with consists of a desktop and mobile system that are well integrated, with a common design and features such as the shared webcam feed and chat. Unfortunately, one of the in-situ systems was not as well integrated, due to some teamwork related issues that were interesting from an educational point of view. We learned that it is important to keep communicating with the other partners, when working on ecologies and that it helps to structure teamwork situations by having frequent meetings. It is also useful to have an impartial arbiter to solve disputes.

TEAMWORK

Throughout the semester the group has experienced how it is to work in a bigger team across groups, and we know have experience with how to work with others when developing a digital ecology. The group has experienced situations with bad communication with others and how important it to keep communicating. We now know what it means to depend on each other when it comes to getting something done in time, and how to self-organize to ensure a healthy ecology.

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