**Name of the file:** Group01\_trimmed

**I:** You have this application on the tablet and I saw that you took quite some pictures, so maybe you can just explain your user experience, how it was taking the pictures, what you like, what you dislike?

**B1:** With the application?

**I:** Yeah. Just with the tablet application.

**B1:** Okay.

**I:** Maybe you want to start?

**B1:** Okay. It’s really good to using this stuff, but I think it’s just the idea of having the option to add something [inaudible] or something, but you told me or you told us before that whenever you want to add something, you can just tell your [inaudible] so I can-- This is also not quite a problem. Otherwise, I think it’s fairly enough, not that-- It was user friendly.

**I:** Okay. Are there any stickers in particular you were missing?

**B1:** I think we may just mange to describe what’s in my mind, or the [inaudible] those kinds of stuff.

**I:** What about you?

**B1:** First I've got to be honest, I didn’t focus a lot on this during the last two week, but for the application I think it’s wow, wow. Yeah, the stickers are useful. That’s all I think.

**I:** Did you use the application too?

**B1:** Should I answer you in English or German.

**I:** You can answer in German or English; probably it’s easier in English for the transcription. Is it fine for you?

**B1:** Yeah it’s fine. I roughly used maybe three stickers of them. Just like the pin sticker, with the small nail, and the speaking bubble, I don’t know how you call it, and then the text field on top of it. What I was missing was maybe a sticker where you could add the text inside the pin or whatever window. I just used those icons because the others appear too technical for me. When I'm thinking of my daily surroundings, I need something which is more close to my daily life, not a technical window, like for example, Windows 98 style; I need something good to look at, nice looking.

**I:** Were there any specific issues like using the app in general like style of the stickers?

**B1:** No, no issues at all.

**I:** Anything you really liked about it?

**B1:** Yeah. Just taking pictures and adding something on top of it. Maybe some transparency, so you could have a speaking bubble which is transparent. You can see what’s behind it.

**B1:** This points also [inaudible] the option to change the color of the font, or always have to do the text always have something.

**I:** Yeah. It was too dark like it would, I saw the same.

**B1:** Maybe you could just change the-- For example, the length or the width of the text field. If you have the small sticker and wanted to add text field on top of it, you needed to make it super small so the text fit’s on the sticker, so it would be cool to have a view option to not just change the size in the horizontal direction, but also in the vertical direction.

**I:** That’s good. For just look back over the last two weeks I think that was roughly two weeks ago, in general your most useful AR application, or the most useful scenario you would like to use AR Argument Reality. Maybe you want to start?

**B2:** No, no [inaudible] because I'm trying to think. Actually the reason why I didn’t get to use it per se apart from just being busy working in and out was, I could not just see what I could-- Apart from maybe seeing a pot and taking a picture of it and trying to put text on it on like, "Okay. It will be ready in how many minutes?" That time when we were discussing, but I could not really figure out how I can use it for my daily tasks that easily. But let me think about it, and then we can start from there first.

**I:** What is your most favorite example for Argument Reality in your daily life for you?

**B1:** I think it’s really useful for the AR technique because the problem would be that, if you want to use AR you need to clear [inaudible] For me to pick up example is like, Okay. When I cook always I need a recipe, so I bring my phone with me, and I see the phone and then I cook. If I can use the AR technique, I can cook as well as I see the recipe near the pot I guess.

**I:** So what is the benefit compared to using your phone?

**B1:** I always put my phone here and I go back to see, maybe pick my phone up from the table and see it and then I-- Because it’s complicated.

**I:** This moving back and forth?

**B1:** Yeah. Coming up.

**I:** How would you feel using Argument Reality while cooking?

**B1:** I didn’t use that, so I didn’t...

**I:** You just [inaudible] of course. [laughs]

**B1:** It’s just [inaudible] I isn’t know. I said that problem is that you need to wear glasses right. It’s complicated, but it’s helpful I think for a man who doesn’t know how to cook, that’s why exactly.

**B1:** For me I think there are lots of information that could be displayed on AR but I think one issue could be that you don’t need all the information at once. You could have had information about what’s in your fridge, about the recipe, maybe cooking timer when boiling eggs or something, but you don’t need everything at the same time like a functionality to pop something up, and to close another information. That’s the main issue I see, how to implement that because all the information popped up at the same time and there’s no use for me because it’s too much.

**I:** Okay. So the trouble of information overload?

**B1:** Yeah.

**I:** How would you deal with it? How would you tell the system, or how would you decide which information is useful for you? How would you intact?

**B1:** Just like the mouse icon, for example, when you have a picture and they’re looking old video games, and the mouse icon changes its appearance when you have a link on the picture for example like the thore because you can interact with the thore, maybe you could blink at some item and then something pops up if there’s information that are [inaudible] around the item.

**I:** Is it just like having interactive items in your vicinity and you just locate it and--?

**B1:** Maybe you can see that there is some information behind like in the background about this item or about whatever, and then you just blink on this one.

**I:** [inaudible]

**B2:** I have a question. An example is, for me the problem that I've had the most coming to Germany the first time is, the expiry of food items. The expiry dates. Food items here expire very first and usually if you’re not really keen about the dates and all that, so definitely the way you mentioned because I thought of that also. When you have the item blinking in the back, and then maybe you click on it, and get more information, can the system automatically prioritize if this-- Okay. An example is, you have a box of milk, you have some cheese, but the box of milk, the expiry date is before the cheese, is there a way the system can automatically--?

**I:** Yeah. Like sensing everything? We are not talking about sensing, or if we can build it, we want to talk about the idea at the moment. So you have this idea, illuminating somehow the expire date to highlight it.

**B2:** Yeah. So that you can know which one to access first before.

**I:** Yeah. Would it be useful for you-- How would it be like the, "Hey, you open the fridge." How would be the separation then?

**B2:** What’s the question again?

**I:** How is the situation, you open the fridge, now you have this information there. How would you feel? How would you interact? What is the difference without the technology?

**B2:** Because I'm the type of person who I buy when I go for shopping, grocery shopping, I buy a lot of things. I time I can forget to use this and that and that, but if I have something that-- If I have this thing with me, and I access a reminder like, "Hey. You’re supposed to use this before this other one." That can be very useful for me. Did I answer your question?

**I:** Yeah. Okay. Thanks. What would your most favorite the AR experience with?

**B1:** I think just first want to support the idea of indicators that whenever you come next to it that maybe telling you refill description, what you can do if you click-- Like the fifth phone here, yesterday I just proposed also, he taken a picture of this logo of the [inaudible] It’s telling you whenever there is an event or something of fire or something, how should you react? Or what should you when these fire is extinguished.

**I:** Extensive.

**B1:** It’s just full of icons or logos as an indicator for something that you can do whenever you want to do something. Also the recipe, if there is something here, some logo or something, some indicator here that whenever you select this, you have the option to enter this mode for example, or something. In order not just to have everything at the same time. You just of course want to focus on something that’s always without having the distraction of these things at the same time.

**I:** Talking about this, basically you have build in manuals at certain occasions.

**B1:** Yeah. Also you just find that it’s just made up of two pictures I suppose...

**I:** Yeah. I think you just like you start talking about the picture, I think you mean this one I guess.

**B1:** Yeah. Instructions in the case a fire pops up on [inaudible] How for example to be on interactive tutorial or something, how should you start using this. Also following these kinds of stuff with an instruction. Maybe where to evacuate from the building or something, all these kinds of stuff.

**I:** This is just showing up in case of an emergency?

**B1:** Yeah. Maybe for something. The main goal behind this item or logo maybe is just for telling you how to evacuate, or just deal with-- Aside from this or you just--

**I:** So let’s talk about the picture. I'm not sure if this just the first picture.

**B1:** Yeah. It was just the first picture after you.

**I:** Okay. Who took these pictures here? Was you? Maybe you can explain the situation and why you think AR is useful in this moment?

**B1:** It’s just be like a checklist for any recipe you have in mind or something that keeps track of what’s left, and what should you do next or something in more details. I think it was just as Don said that--

**I:** What would the benefit be compared to a phone with it to do with like a list?

**B1:** When one is cooking of course he may be having troubles while holding the mobile phone. Maybe his hands are not that-- Also, just using something that his hands are not that clean, or that to always check the screen of the mobile or something. He is cutting something, he is doing something. Just having something that’s fixed in your head without using your hands, this maybe be a great advantage. This is--

**I:** Okay. Was it also you?

**B1:** This is before I-- I forgot that I have some...

**I:** Don’t worry.

**B1:** Yeah. I forgot that I have the...

**B2:** [inaudible]

**I:** We didn’t look for high quality pictures, just more about the idea.

**B1:** We actually though together, it was just that those picture I think just after you left that day, we were just discussing so much ideas. I think those three were at the same time after you left.

**I:** What is the idea of this?

**B1:** You are coming in a new place or something; you don’t know anyone here, and apart from living with you. Just maybe this is telling you who is living in every room or something. Where is he from? Maybe telling you for how long he will be staying, but I don’t know. So it’s just significant.

**I:** What would be the benefit for you having this information?

**B1:** Aside from the last information, when I came here, I took some time in order to...

**B2:** Know who this room with.

**B1:** Yeah. He is here because they’re not always present the first week I came. At first I thought there no one in here; it just took about one week or something in order to figure all of the rooms are already filled with people. I think this could be just also maybe helping you whether this room at least there’s someone living in it, or not living.

**I:** [inaudible]

**B1:** I think this is the idea of--

**I:** This is also your picture? Who took this one, was it you? And was also you? Okay.

**B2:** It shows which shelves belong to who?

**B1:** Yeah. Maybe it’s just...

**I:** It’s labeling stuff.

**B2:** Yeah.

**B1:** Because we struggled sometime just figuring out whose items are missing, and those kinds of stuff.

**I:** What about this one?

**B1:** I just not thinking about if AR was just combined with some [inaudible] under systems that will just at random, or something can tell you, or command you, do something different.

**I:** Okay. How would [inaudible] look like. Basically, you can just put some information in your vicinity, or how would this work?

**B1:** There is something that is tracking how much time have you been doing some activity or something, and then it’s just-- In order to just for the sake of changing, or recommending something maybe from or just different from what you are doing.

**I:** How are the information maybe at this place? This one like a bubble here?

**B1:** of course not. Just how do the information in general in my [inaudible] is it just using QR codes, and stick to QR codes in several areas, right?

**I:** We are not limited to the stickers here, right? It’s just in general, how would you imagine I'm sitting there, I'm just doing thesis writing for a long long time, and how would you be getting probably notified? This is the idea, right? Is it?

**B1:** Yeah. That something just recommends you use, but is it a problem if maybe it’s attached to the most common thing you use. For me it’s the laptop for something. If maybe-- I don’t know. It won’t be that good idea. I was just thinking of that moment of just recommend their system, but I didn’t just focus on how...

**B1:** Something occurs to me that it can’t shows up to the position of this thesis later, and if you don’t stop that it won’t disappear.

[laughter]

**B1:** So it forces you to stop.

**I:** How do you mean this?

**B1:** Will show up at the position of the thesis paper, and if you don’t stop.

**I:** It’s like blending out your thesis [inaudible] Okay. You should just stop writing, or you’re just blending out the...

**B1:** Okay. I'm just having another one right now.

**I:** Kind of make it invisible?

**B1:** Do you want to let AR control your life? I think for me it wouldn’t be a benefit if AR starts controlling me. It should still be me who is controlling AR every moment. I would never like to have the feeling that I am dressed here because AR needs someone to play with.

**B1:** Maybe helpful for someone who is not good at self control? He likes to pick up better games, but he want limit that time.

**B1:** You could always change your glasses.

[laughter]

**B1:** It’s like [inaudible]

**B2:** But so far are the ideas helpful?

**B1:** Definitely.

**B2:** What are some of the ideas that you had prior to this?

**I:** It’s not about my ideas. [laughs] We have here another picture like imagine Netflix, is it also your picture I guess?

**B1:** [inaudible]

**I:** What was the situation you came up with this idea.

**B1:** This I think Netflix, or this thing in movie maybe not the best idea while just wearing those glasses, but I was thinking of something, there is something like spotify or something that’s mainly for-- You would think that whenever you look-- Maybe not also for music, it’s just any kind of media that maybe also your gallery, you mobile gallery. It’s just presenting different photos in maybe-- Or you can just also like this one, you can select playlist you want to play. I think it is just as easy as there is always music player, or something that you can always easily interact with maybe on something, or on the wall, or something that...

**I:** Where would this information be placed? Would it be useful for you as well?

**B1:** Maybe not for watching movies because it’s still not the same quality like maybe looking at the screen. but maybe for sportify, why not? If you have a fixed place at the wall where the sportify is attached to, just look at it, and by some gesture or by blink of your eyes, switch to the next song, it would be great because it’s information you don’t like. For example, cooking of your recipe at your pot, or just nearby and you don’t have to have sportify in the same screen, just look at the side and there you have your sportify displayed.

**I:** What would be the benefit of it compared to having it on you mobile screen or on your tablet?

**B1:** Because when you are doing something, you don’t take your phone out of your pocket, you don’t have to switch devices because for example, you are cutting something or you are eating. You have your fork, your spoon, your knife in your hand, and you don’t want to lay it somewhere else to get out your phone. Just check or maybe have a gesture or something.

**I:** It’s basically this hands free.

**B1:** I think whenever those kinds of things that we usually do, if they’re coming in on more the other way that [inaudible] that’s just displayed on something different, rather than just being on the [inaudible] phone, you will just have all the interaction with the [inaudible] phone, it will be more beneficial n this case that everything like your music, everything you will just divide it into some kind of audios that are displayed in different places or something.

**I:** Okay. We have here one more situation that I want to discuss with you.

**B2:** It is raining outside, put on a jacket.

**I:** It is raining outside, put on a jacket. What is the situation when it came up?

**B1:** Just, whenever someone is picking what to wear before he goes out or something, maybe there’s the handset or maybe having some infor about the weather outside, so it’s just recommending you what’s the best for you to [inaudible]

**I:** How is it displayed? Next to your code or?

**B1:** Maybe if it’s organized in a way that the handset itself knows where-- Maybe represent what every section in the shelf or something represents, it will be I think it could be that way also, but maybe there is some indicator over every row or something or the shelf that what’s inside. This is for the T-shirts, this is for the jackets, this is for everything that you can just have, every section. It can just flash or something on the jackets side section that whenever it’s raining, just like a pop up, "How putting on a jacket or something."

**I:** Would this be beneficial for you? Do you have trouble choosing the right...

**B1:** I have so much troubles with this because I have experienced rain a lot with just a T-shirt. I did not just check the weather. The last I think month I checked the weather too much in order not just to experience this [inaudible] because sometimes you choose those light things. I didn’t check the weather, and these days I was really [inaudible]

**I:** Basically, you just opened your clothing and then you get a light or a virtual light blinking, indicating, "Take this one with you."

**B1:** Yeah. Take, its light-- I think Facebook also newsfeed is just telling you every day, "Stay dry. It’s raining today." And it’s too good. These kinds of stuff, it always just following the weather of the day.

**I:** Why would you prefer it directly when you’re picking up your stuff, how to in your paper feed?

**B1:** Maybe I'm not on Facebook, I didn’t log in on Facebook that day, I just woke up and I'll have to just go to the university or something, I didn’t check Facebook or something. I think whenever anything is in its normal place, it will be...

**B1:** Can I add something?

**I:** Definitely.

**B1:** I was just thinking about the situation and my thought was that if there is no visual-- There are lots of information which are not beneficially displayed visually. You don’t see the benefit of some information being displayed on a screen because-- Is Alexa for example, AR I don’t know, but for example, the information about just whether if it’s going to rain or not would prefer to be given to me by for example, a voice. I don’t want to walk through my flat and read text messages all the time, sometimes I just want to do something, and then for me all your information would be much more beneficial of there is no picture which has additional information to me. For example, if I want to check the weather forecast, and I want not just have the voice telling me it’s going to rain, for example, when you have the raining rather on some weather apps, that’s benefit for me to have it on the screen or as AR, but if I just want to have the information about is it going to rain or not? I don’t need a text message telling me, "Oh, it’s going to rain." I prefer to have it by voice.

**I:** If you imagine in general is a variable to your glasses for example, would you wear it? Argument reality is you could somehow wear it on your body, would you wear? Would you use this technology?

**B1:** I'm not a fast adaptor, so I don’t know. Maybe not at the beginning.

**B1:** I think this part of research is it maybe just for the lens, or just for future?

**I:** In general, just imagine it’s not the whole lens, we have this huge powerful glasses but I think if you mention glass like this, and giving you all these information just like putting information on walls, in floating mid air, would you wear it? Would you use it?

**B2:** Definitely.

**B1:** I think the...

**B1:** Only if it doesn’t annoy me.

**B1:** All the time.

**I:** Not all the time? Okay.

**B1:** Yeah, because it definitely still won’t bother me because all the information comes with it.

**B2:** Well, I would definitely wear it all the time because I know I'm someone who needs to be reminded or maybe-- I'd have so many things to do, and do this and that, but then as long as the information is organized in such a way that-- That’s why I was talking about, is there a way that it can be prioritized? Not all the information comes to you all at once because too much information also is a little bit too annoying, but if there’s a way that it can be systematically organized, and one information at a time, which is prioritized in such a way this the most important at this particular point. This is something I'll definitely always wear it.

**I:** Okay. How should it look like for you?

**B2:** Like the physical? What do you mean?

**I:** Yeah. You didn’t see [inaudible]

**B2:** No. Something really simple, sleek, stylish, but something which is not so obvious to other people, you only see it yourself. We’re talking about the physical aspect of it.

**I:** The main basically invisible to others?

**B2:** Yeah. No one has to know what you have on you, it could even be lenses, and maybe like glasses, but just at the end of the day it should be as user friendly as possible, not too much information. Then the information that comes is prioritized in, if I want to know that this milk is going to expire in one weeks time, and this cheese needs-- Bring the information about the milk before the cheese. For me yeah, I think it’s important.

**I:** What about you guys, how should this device look like for you? Would you wear it all day long, for [inaudible]

**B1:** For me in both it’s easy to see. It can be combined with the normal glasses, with the AR because I need to wear glasses every day, and then I just need to press the button and then to implement the AR, that's all. That can be done or I will because I need to wear my glasses every day, so I just need to combine the AR with my glasses, it would be fun. Just as normal glasses.

**I:** Because I mean talking about the glasses being invisible. Do you think it’s appropriate wearing this technology while other people are around?

**B1:** I think this was the problem with the glass or something. Whenever it’s just capturing this-- Maybe capturing or recording some photos or videos without anyone knowing there is something, so it has to be visible I think for the others to be cautious, or something, but-- What do you think [inaudible]

**B2:** For me I think it depends with the use of this glass. If you’re not literally harming someone else, this is supposed to just help you go about your daily tasks, if it’s just about you. No one else has to know, so I don’t see as harm to someone else. You mentioned about the jacket, I remembered about there was an issue I was having when I'm going to the gym. Either I forget to carry my towel, or whatever, whatever, I would need something to remind me, "Carry your--" So I had to write a note and stick it on the wall, and have a checklist, "Before I leave go to the gym, I need to have a towel." All that, all that. I don’t see this as a way of, how would it harm other people, so no one else needs to know.

**B1:** I think it depends yes on the limitations of the application that you can do with this device anyway. If it’s something that will not be having so much information about the others, or something, I think it would be good, if it’s limited.

**B2:**: You were saying?

**B1:** Yeah. Your question was, if we think if it’s appropriate...

**I:** It’s appropriate wearing it while other people are not in general.

**B1:** I cannot answer just with yes, and also not with no because...

**I:** What are your thoughts?

**B1:** It’s inappropriate because you get information displayed about the people. You can get information displayed about the people, no one knows whether you let the device display maybe the last 10 Facebook posts, or your last 10 photos you uploaded on Instagram, or last 10 Snapchat post, these are information which can be displayed. They don’t have to be displayed, but when being in a group, you'll never know what the others have displayed about yourself because when you are now-- I don’t know, okay. You know what I've told you, or maybe you as friend on Facebook, but you don’t remind everything I did, or posted, or whatever. When you have this device, you can let the device display information that are much more advance than just on Facebook. The whole thing which have been discussed when [inaudible] leaked the NSA files, what limit’s aware of such a device to information that are openly available, that can also be some other information of some app which have big data access to whatever servers, I don’t know.

**I:** How would you feel?

**B1:** I don’t know because I've never seen someone wearing this and have never experienced wearing such a device. I think it can be considered inappropriate, but on the other hand it can be appropriate, but...

**I:** Like talking.

**B1:B1:** I don’t know why it should be considered appropriate when being a group, I don’t know because it’s the same when we're talking and I'm on WhatsApp, and talking to you writing on WhatsApp at the same time, I don’t think that’s appropriate when being in a group, why should it be appropriate wearing this device when being in a group.

**I:** You think you shouldn’t wear it when you are in a group? Talking about groups, do you-- Also, a question to all of you, do you think everybody should have access to this kind of technology?

**B1:** When the technology is available, I think everybody should have access to it, not just some elite-- Sorry I'm just...

**I:** So you wouldn’t limit it in any way?

**B1:** You mean like financial limitations or something that’s maybe so?

**I:** Yeah. Especially, maybe so expensive that it’s unavailable for not the elite.

**B1:** This would be expensive for the sake of this reason, or just for the sake of the technology you used?

**I:** Just imagine like...

**B2:** I don’t see a reason why it should be limited to a certain group of people. That’s why the technology is there, every concept that I've seen so far, it’s made available to everyone. It depends now on the user and is that person able to use it? Is that person able to comprehend what it’s about and make it useful for them. I don’t see why it should be limited to a certain group of people, though also I still insist on what the purpose is. When we are talking about maybe using it in a group, is this supposed to be something that’s supposed to give information about someone? Gives you a profile about someone? For me, that I would say no, but as I said before, if it’s for just daily tasks to help you normally just run your daily routines, that’s fine, as long as it’s not giving you information about someone else.

**I:** How would you limit this? How would you enforce m using this device not having like now I fit next to you giving me this information? How would you feel if I would do this?

**B2:** Definitely angry.

**I:** You would be angry, or?

**B1:** You mean, if someone is using this to get some information about myself? Definitely I'll not trust that person, I would want to be as far as possible away from them. I think it can be from the developers themselves, they can limit this kind of things, it’s not the users selves, right?

**I:** Yes.

**B2:** I think the developers should be responsible for knowing the limit of the user. Once the technology is out there to the public, they should know the limit, how the public can use it because I don’t think it should depend on the user on how far they can take it. Does that make sense?

**I:** Yes. Kind of.

**B1:** Yes. Definitely.

**I:** Is there anything else which pops to your mind which we haven’t covered?

**B1:** Maybe when do you expect something like this to be starting to have some-- To be popular, or to come out to the market soon?

**I:** Maybe it’s difficult to guess what’s going on. We have the first developer versions were able as I showed the hollow lens, and then you saw it’s not full for daily life, you can’t wear it more than an hour comfortably. We are facing issues like battery life, field of view, tracking weight, size. But as we have seen with phones, the shrinking size, and then the display has increased, and we managed to get high density displays over-- Now the iphone is getting 10 years old, so now we have the first prototypes of AR glasses, and the industry is pushing. I guess like 10 to 15 years, we will definitely see AR.

**B1:** What I told you about, I don’t need all the information visible, these days I'm also looking into screens a lot, so I don’t use my phone when coming from university to the dorm because I don’t want to read anymore. After log working day, I prefer something like an audio device and not like at home because I'm looking at things all the time and I don’t want to look at screen every moment in my free time. I think my eyes they need some rest, so I prefer maybe something-- At home I wear something like Alexa, I prefer maybe a AR device, where I have to work visually and not just do something and have it as a nice add on or gimmick.