Connector

Team

Nick Adman - Coordination
Jennifer Apacible - Usability
Launa Blaine - Design
Nick Reiter - Documentation

Problem and Solution Overview

Teenagers in hospitals, even when not in strict isolation, lack the volume of social interaction that is vital to developing a sense of self and learning to get along with others. This can lead to severe loneliness since many children only have contact with family and staff. Our solution is a hospital-centered, socially-oriented game platform. Focused around fostering communication, this would encourage teens to interact in various mini-games, team building activities, and chat, hopefully leading to more in person communication. Various game actions would tie in with real life, including allowing teens to upload pictures and express themselves. Through socialization, these teens could upgrade their character avatar or in-game cosmetic items, enhancing the experience. Finally, hospital administrator could oversee the environment and add to the app by posting hospital events and activities for the teens to see.

Users and Contextual Inquiry Participants

Our project deals with a societally sensitive group of primary stakeholders, minors. we were unfortunately unable to directly interview them in hospitals due to the legal complexities involved. Instead, we turned to previous primary stakeholders, as well as secondary stakeholders. Because of these restrictions, we were only able to interview these stakeholders rather than conduct a full contextual inquiry. As volunteers and workers at Seattle Childrens, two of our interviewees fell into the category of secondary stakeholders since they work closely with children. While they would not directly use the application, they would still interact with it, including potentially taking on some administrative roles. Our third interviewee, who experienced long-term care as a teenager, had a unique perspective on his experience.

1.) Rachel*
Rachel is a clinical manager at Seattle Children's Hospital, in Seattle, Washington. She currently helps to manage and direct the Childlife Specialist Program. As an employee of Seattle Children's for 24 years, she has worked closely with sick and hospitalized children for an extensive period of time. More recently moving towards a managerial role, she now helps direct Childlife Specialists, volunteers who help children socialize in the hospital. Their goal is to support children by playing with them, talking to them, and encouraging them to interact with each other. As Rachel only had a few spare moments to chat with us, we conducted the interview over the phone, during her shift at Childrens. Because time was limited, we kept questions very general, and allowed her to direct the conversation to the topics she felt most important and relevant. She presented us with a caretaker's perspective on children's social

interactions.

2) John*
At the age of 17, John was involved in a motorcycle accident which left him as a paraplegic. To recover from his injuries as best as possible and to learn to cope with the loss of motion in his legs, John spent three months at the Shepherd Center in Atlanta, Georgia, which focuses on the recovery of those with spinal injuries. There, he recovered alongside a group of teenagers and young adults who had been in similar accidents. By recounting his recovery journey as well as the push by hospital staff to connect the teenagers in his recovery group, he gave us valuable insight into the challenges of being social while in the hospital for an extended period of time.

3) Jeff*
Jeff is a 19-year-old pre-med student at the University of Washington who has volunteered at Seattle Children's Hospital for six months. He interacts mostly with children ages 0 to 18, often bringing toys and games to their rooms to play with them. However, due to the hospital's volunteer policy, he is not able to see the same patient more than once in order to ensure that no child receives special treatment. Because we got in contact with this interviewee last-minute, we were not able to conduct the interview at Seattle Children's Hospital, so we talked with Jeff at a café on the UW campus.

*Real names have been switched to protect the identity of our interviewees. If you have legitimate need to see the names, contact any of the group members to explain your case.

Design Implications

Fact:	Most of our primary stakeholders, teenagers aged 13 to 18, are considered minors under federal law. 18 year olds are considered legal adults.
Implication:	We must design our application to comply with federal and state laws regarding privacy of minors, especially on a social media platform. There may be additional laws at a county or city level, as well as rules in place at specific hospitals. We must remember that the application cannot be a cookie cutter application for all hospitals across the United States.
Fact:	There is a team of volunteers and employees who oversee and help promote socialization among children in the hospitals.
Implication:	We should design our application to allow admin roles to allow a subset of this team of people to both better understand the teens' needs/interests as well as help facilitate the interactions in the application. We must design a system to minimize inappropriate or hateful remarks, spam, or unwelcoming environments.
Fact:	Patients will spend different amounts of time at the hospital depending on their diagnoses and treatment plans.

Implication:	We must design our application such that it has a long immersion lifecycle. While some games may take hours or weeks to finish, we have to be prepared to give new and interesting things for the teens to do. We should also consider how to pull in new data to keep each visit to the application fresh.

Interview Results

The interviewees all expressed difficulties getting children to willingly socialize in the hospital. John said he felt that he required outside assistance to be actively social; the recent trauma he had been through would have otherwise left him wanting to be alone. Rachel mentioned that while the kid's playroom often had lots of activity and many children were playing in it, the "teen room" was often empty; teenage patients were less likely to frequent the room. She had no specific reason for this behavior other than the fact that teens in general are less likely to be open to their peers. In our interview with Jeff, this speculation was confirmed. He said that many teens chose to stay in their rooms and keep to themselves, perhaps because they found it awkward and uncomfortable to approach people that they were not acquainted with. This led us to consider changing our target age range from all children to teens age 13 - 18 to facilitate connections in a difficult age group.

Similarly, the difficulty of making and maintaining person-to-person contact was a common theme. Rachel mentioned cases of children in isolation or the intensive care unit, who may not be able to have contact at all outside of their own hospital room. John said that even though he was mobile, it was hard to know when he could visit other patients in his hospital wing. In addition, any movement in itself was difficult because he was recently paraplegic.

In terms of electronic means of communication, John said he avoided using Facebook to post about his experiences in the hospital, but enjoyed using chat to talk to friends. In fact, he preferred this method at first to interacting in person because his new paralysis would not be part of the conversation in any way. Through an online medium, he was not any more disabled than his friends.

Another interesting point John mentioned was that in his experience, knowing something about someone made it easier to meet them. He suggested allowing users to see some information about each other to facilitate chatting and connecting. While Rachel also mentioned this, she shied away from this, not wanting to address the issues of privacy and HIPPA. She instead suggested that we utilize a very simplified profile model, including only such things as gender and age. Jeff recommended that we find a way to connect teens who are in the hospital for similar reasons, which would allow them to form intimate support groups.

One unique aspect of John's experience was the fact that his hospital was a center that specialized in his condition; he was recovering alongside peers in his own age range. He was very grateful for the interaction with the others that this required of him. John mentioned that he

was not extremely social, so getting out and meeting people would have been hard, even without having the recent trauma. John's experiences demonstrated the need we had foreseen for facilitating social interaction, particularly among hospitals without the already specialized nature similar to John's.

Jeff voiced a concern that if we created an online game, children could become hooked and be even less likely to pursue real life friendships. He has encountered a boy at the hospital who was so invested in the game Candy Crush that he would not even talk to the nurses or volunteers. He also mentioned Seattle Children's Hospital's recent adoption of a program called the GetWell Network, a program with a Wii-like remote available on the television in each room. Among other things, it allows children to watch movies and play games, but not collaboratively. Since this system is very new, many details regarding its functionality are still unclear.

Design Implications

Fact:	Teens in the hospital do not have the energy we would normally expect; recovering from illness or injury takes a lot of energy, which can make it difficult to find the motivation to socialize.
Implication:	The application we develop should be easy to use. It should be engaging enough for teens to want to use it, even when their energy is low.
Fact:	Teens have varying ability to socialize outside of their own hospital rooms. Teens in isolation are not allowed visitors. Teens with mobility issues can find it hard to travel. Further, chatting online allows for communication without disruption by disabilities; because you are not in-person, medical equipment does not become distracting.
Implication:	The application should encourage and allow both in person and online contact. Teens should be comfortable and safe with the amount of contact they make with those they meet through our application.
Fact:	Sharing a condition can be both incentive and disincentive to meet. (John found that he did not want to be friends with the people he was "supposed" to. I.E., meeting other people with his same condition felt forced. However, his program allowed him to recover alongside others in a similar situation, and the connections he made were important to his happiness.)
Implication:	The ability to know who is in your same ward or has your same condition could be a useful way to start connections. It could also come across as forced. We should not emphasize why someone is in the hospital, but we may want to make that information available.
Fact:	13 - 18 is an age range in which teens often begin to care about being "cool," and will probably not use an application if they think it is childish.
Implication:	We must design our application with the appropriate level of

	sophistication to keep the attention of the teens.
Fact:	Teens expressed the feeling that it was awkward to approach others in person if they did not already know them.
Implication:	Our design should allow children to become partially acquainted within the virtual environment in order to make them feel more comfortable when it comes to pursuing a relationship in real life. As Rachel suggested, our design could have a minimalistic profile, perhaps containing only such things as gender and age. We will need enough information to give teens a idea of who they're talking to, but not to the extent that privacy would be sacrificed. We could give children the option to share their condition if they are hoping to meet others who are in the hospital for the same or similar reasons.

Design Choice

We decided to move forward with our second design, an application for tablet devices. Some factors we took into account included:

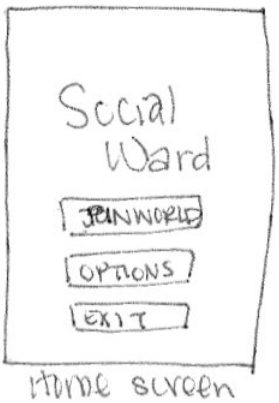
Ideal Interface: The main uses of our application, communication and play, lend themselves to a mobile interface. Teens are also used to playing mini-games and communicating with friends using handheld devices. Jeff's story of a boy in love with Candy Crush can attest to this.

Mobility: Phones are easy to keep on one's person at all times; most people have their phone with them constantly. This allows for use of the application even if a user has left his or her room, but it will also not impede use within the room. Further, it allows for functionality like event reminders and chat notifications that we are used to seeing on smart phones.

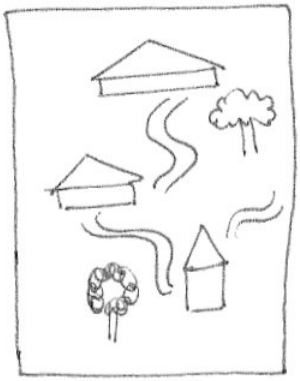
Target Audience: According to a study done by Nielsen, 13 - 17 year olds are the fastest growing user group for smart phones, with 58% now owning a smartphone compared with 36% just a year ago[1]. This makes it more likely than not that a user would have access to a platform on which to run our application. Further, this platform is one that our target audience enjoys using. However, we will have to put thought into making the application accessible to those without smartphones.

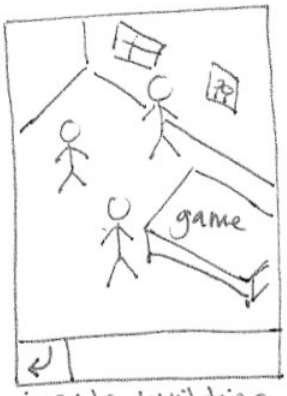
[1] Nielsen. "Young Adults and Teens Lead Growth Amoung Smartphone Users". Nielsen. 10 September 2012. Web. http://www.nielsen.com/us/en/newswire/2012/young-adults-and-teens-lead-growth-among-smartphone-owners.html

Sketch of Selected Design



Home screen

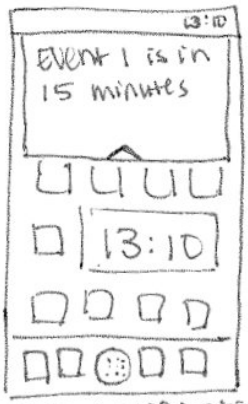

Map



inside building

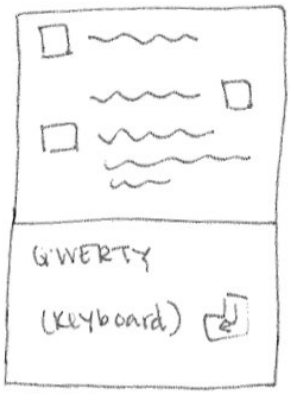
Customize avatar

view events/rsvp

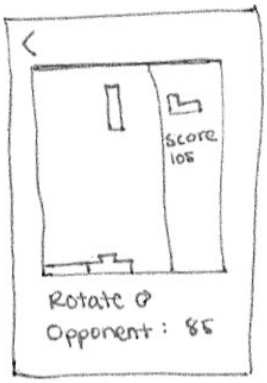


push notifications

menu for another avatar

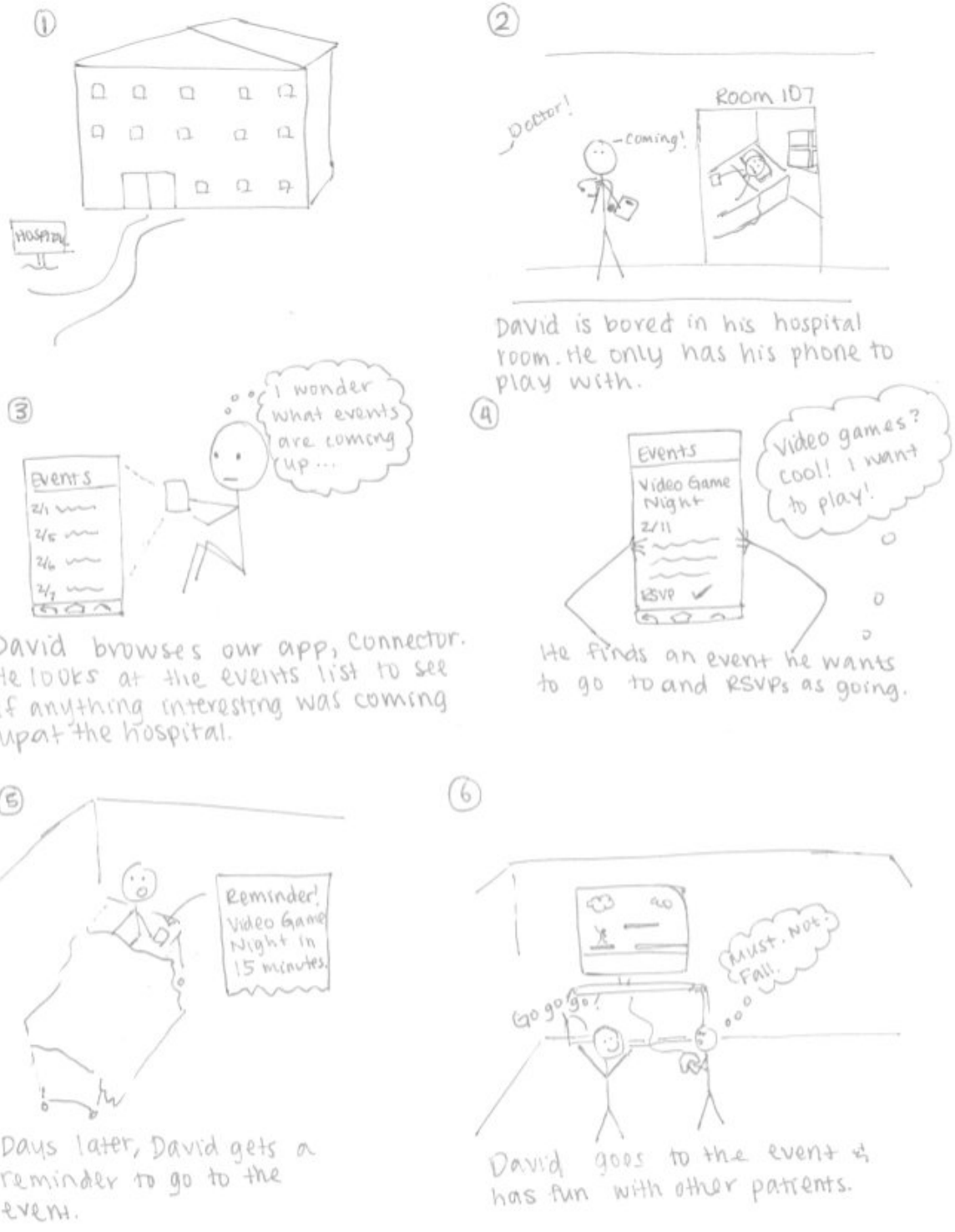


chat



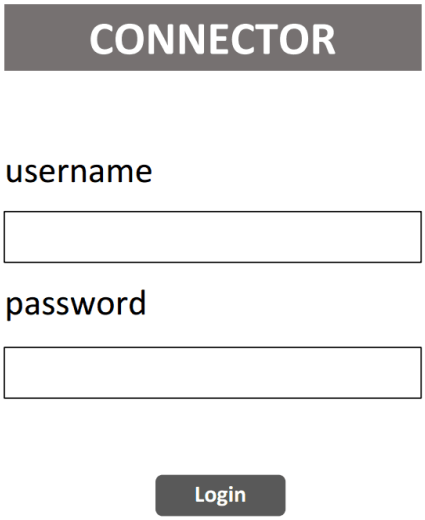
games

Storyboard of the selected design for seeing hospital events:

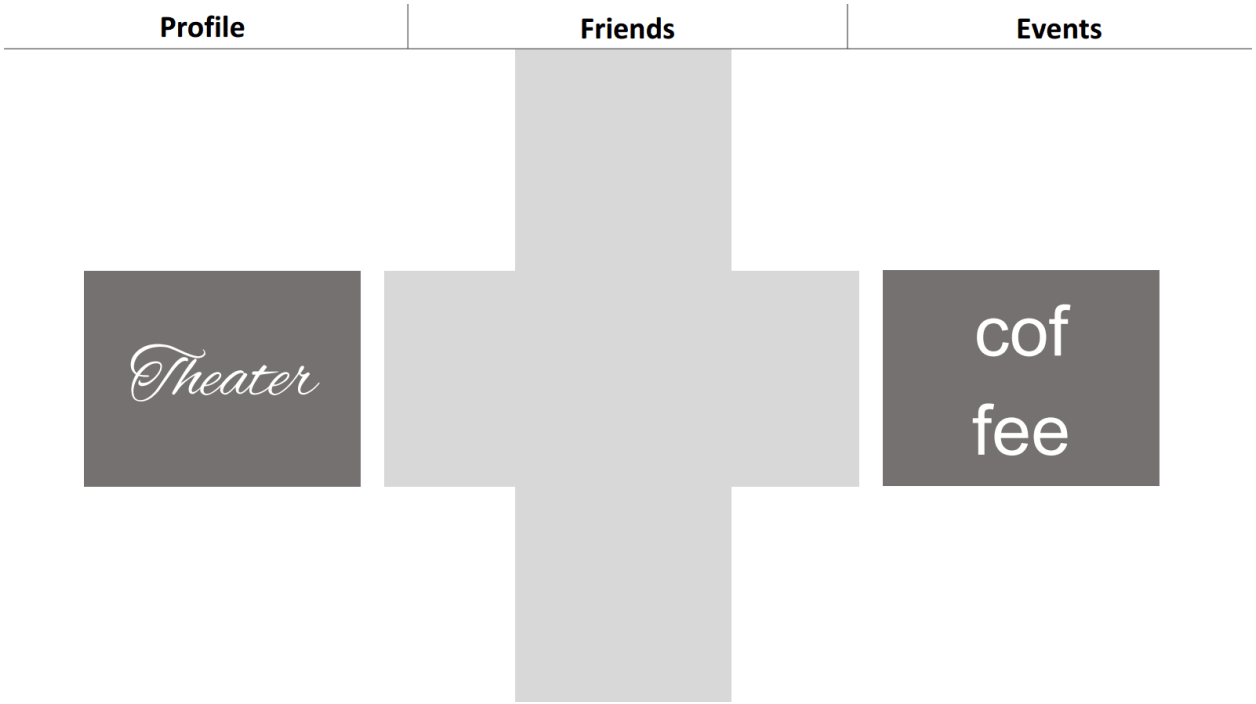


Paper Prototype

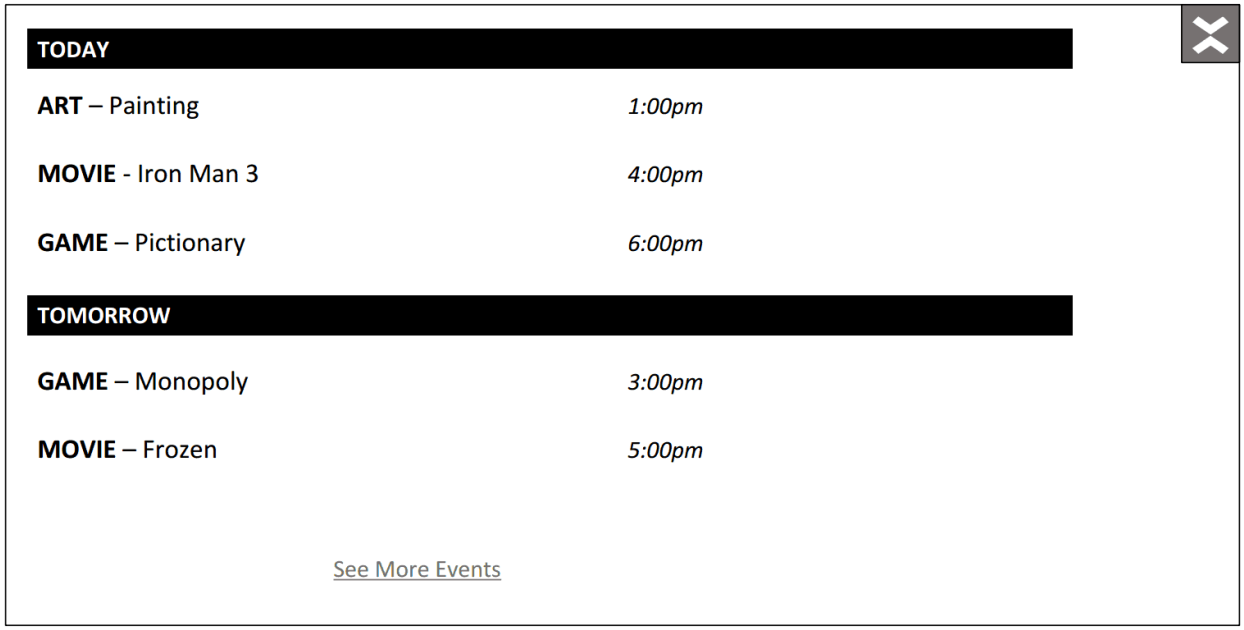
The paper prototype was designed to support each of our three tasks, from login to completion of a detailed version of the task. To begin with, users are presented with a login screen.



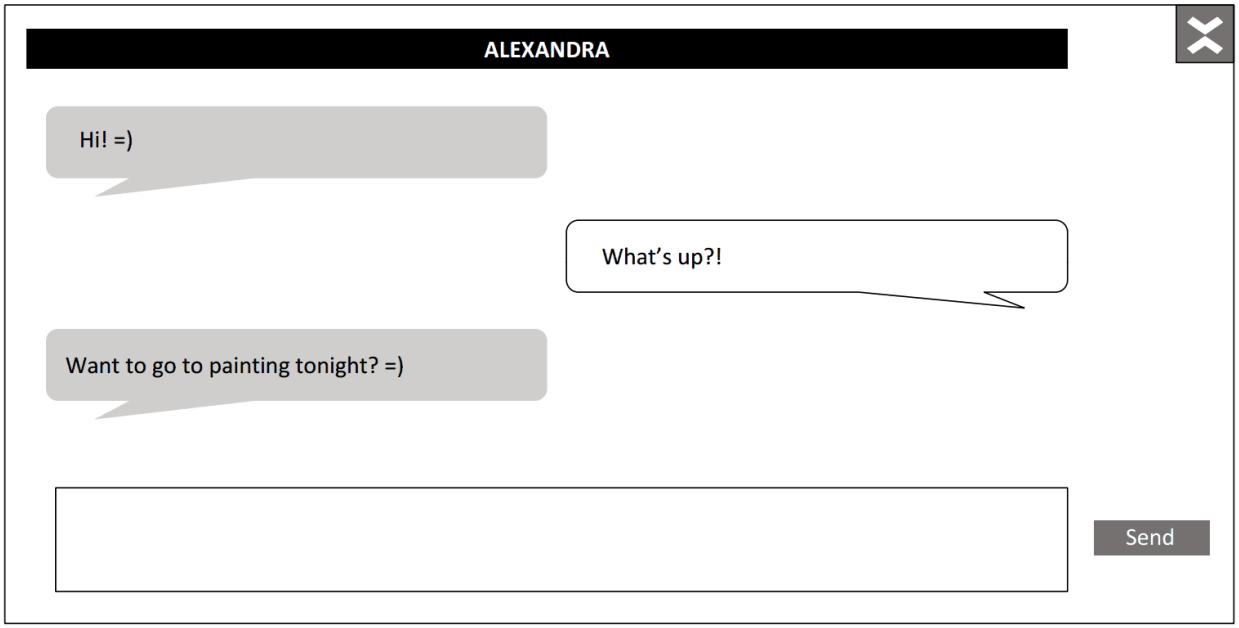
Following login, users are brought to our home screen, which is the main center of functionality.

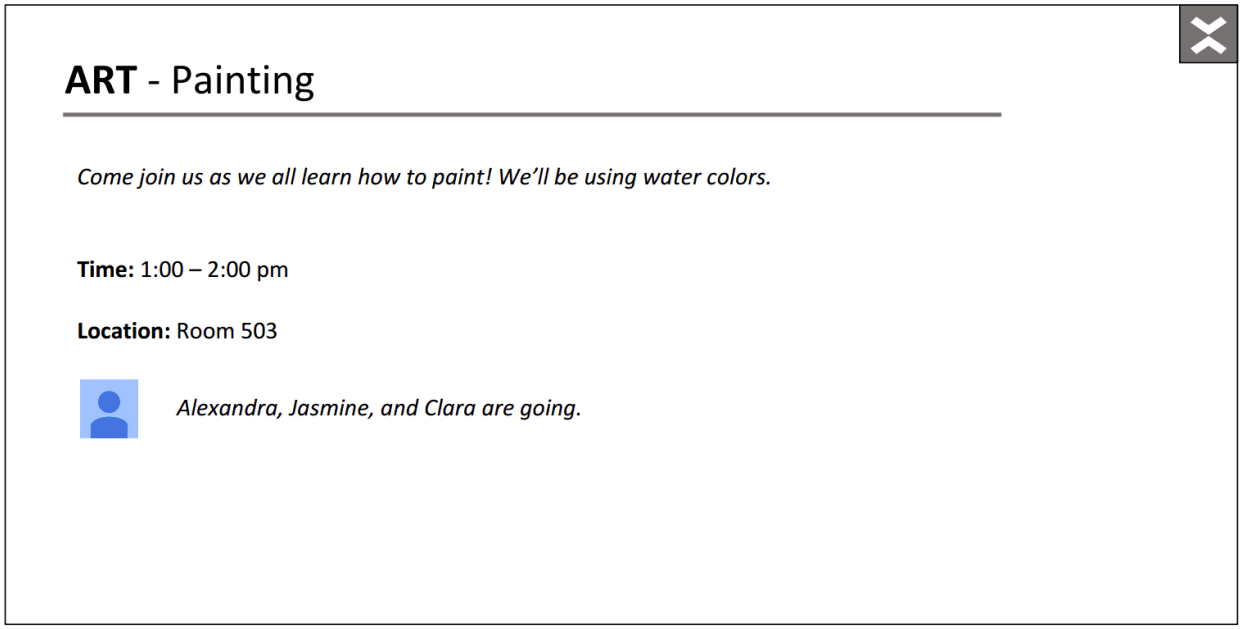


This is the main page of our app, and our paper prototype. From here, users can ‘click’ on either the ‘Friends’ or ‘Events’ top buttons (‘Profile’ was not made for this version, as it does not support the tasks directly). When either is clicked, their corresponding screens are overlaid above the map (not completely covering it), leaving the top buttons exposed. All of these popups can be closed by clicking the ‘x’ in the corner, or can be changed via clicking within, or clicking the top buttons.

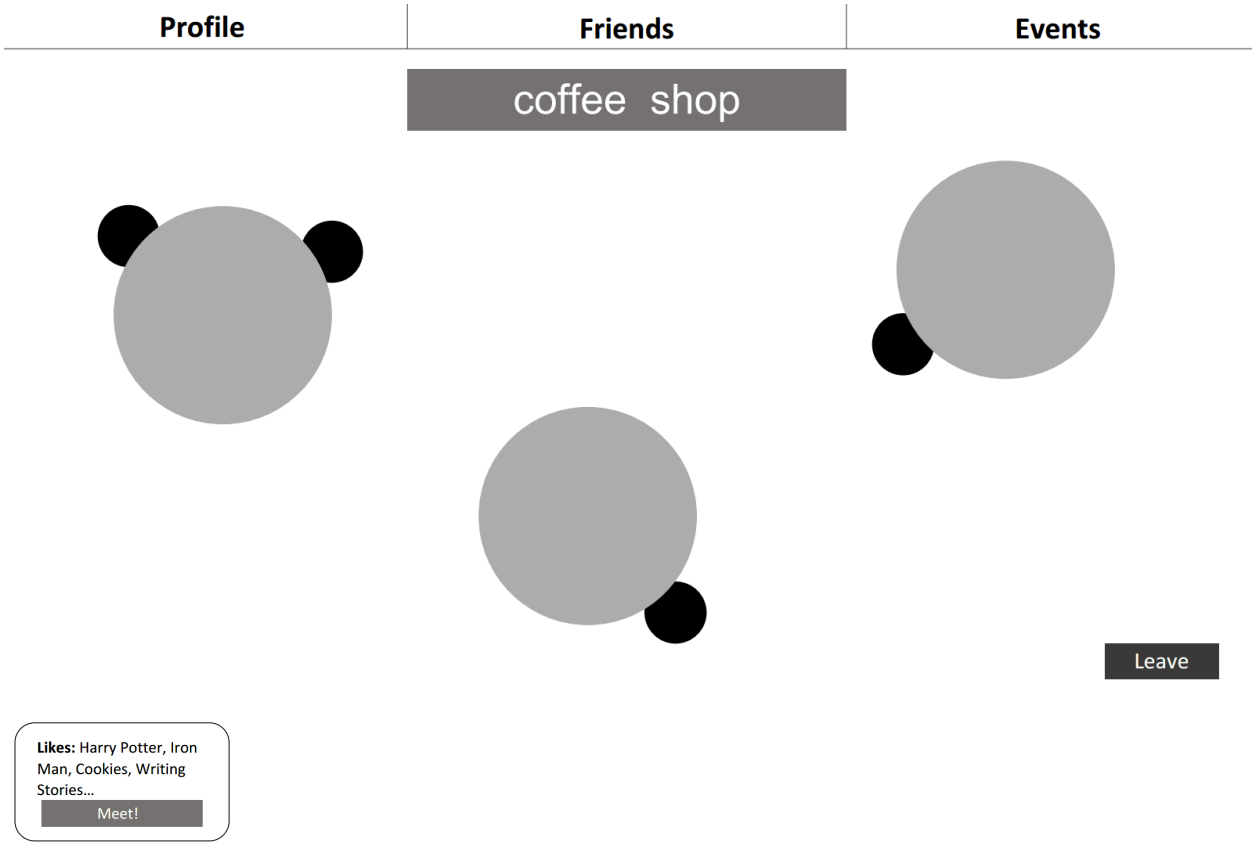


Clicking on the message button for a friend leads to the messaging screen, and clicking on a specific event leads to the detail screen for the event. These screens are also popups, replacing the current popup when accessed.

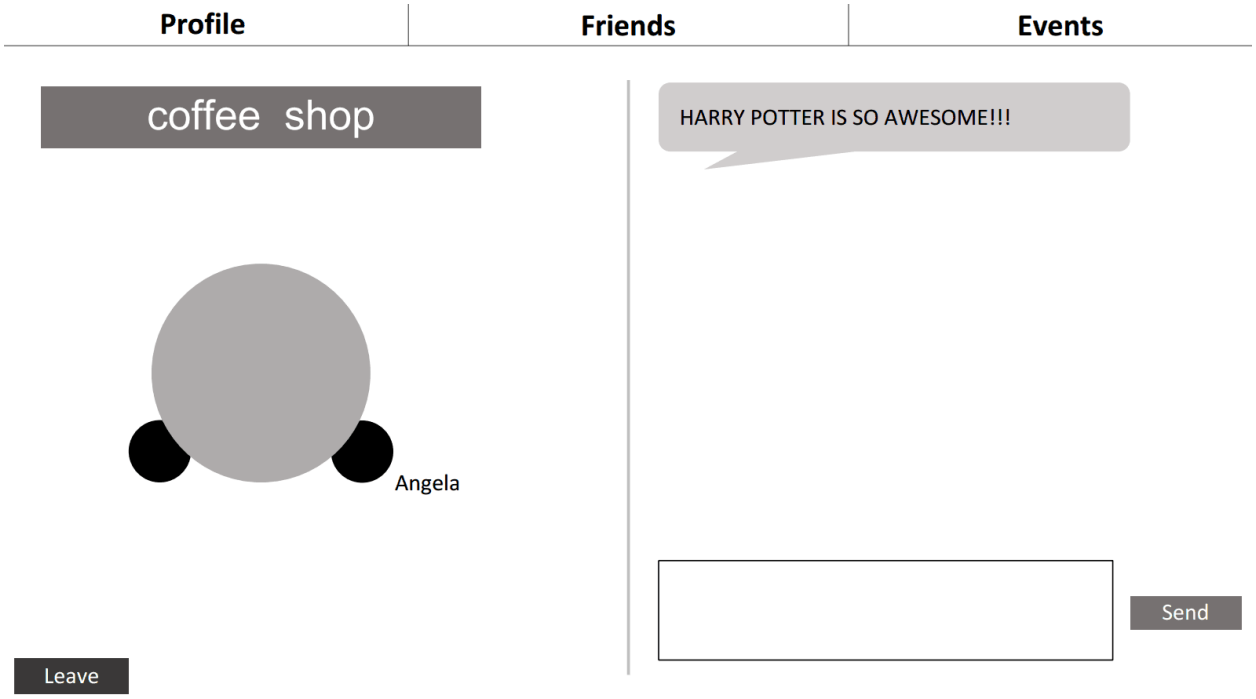




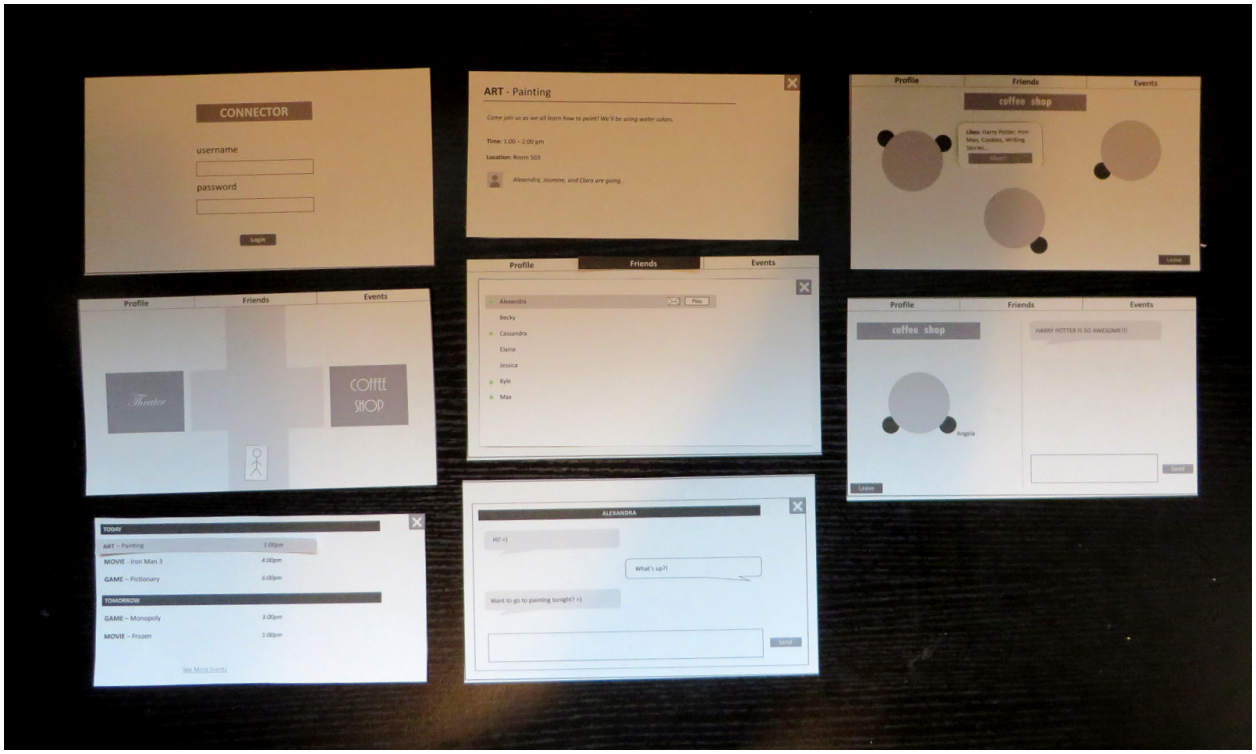
The other area of our prototype revolves around the map on the main screen. Our design calls for a movable map, with multiple centers of activity. Our prototype implements the pathway for the coffee shop area, which facilitates meeting people with similar interests. Clicking on the shop presents the main shop screen, which shows tables with people at them (people are a separate part to be overlaid). People have lists of some of the things they like above them (a separate piece), and a button users can click to 'meet' them, which invites the other user to chat.



Chat brings up a screen split between the shop and chat, continuing the meeting metaphor, and distinguishing it from regular chat. After chatting, users have the option to send a friend invite to each other.



There are a few miscellaneous parts, including button highlights for ‘Friends’ and ‘Events’ that should be placed over the top buttons when related popups are displayed, and a highlight for the art event on click.



Evaluation Methods

Tasks

Our first task is to evaluate our prototype in viewing hospital events. In particular, we want to test accessing detailed information about a specific event. We ask each participant to “find out what time the painting event is.” To do this, they need to login to the application and click on the events button. This will give them the start timing. If they continue, and click on the specific event in the resulting list, they will get detailed information on the timing, both the start and end times.

Our second task is designed to test users usage of the messaging system, for messaging an already established friend in the application. We ask the participant to “send [their] friend, Alexandra, a message.” To do this, they need to be logged into the application, click the friends button. They will then need to click on the message button next to Alexandra’s name, and type a message in the resulting message screen.

Our third task asks the user to find someone with similar interests. We instruct them to “meet someone new with a similar interest”. To do this, they will need to login and get to the home screen. Then, they would need to navigate to the coffee shop, where they could converse with someone else. This will pop up the split screen chat, allowing them to connect. The participant will need to realize that coffee shops are associated with meeting new people.

Environment

We set up our testing environment in an isolated room free from other people and distractions. There was a central table that was clear of everything where our participant sat. The observer sat directly to the side of the participant, so they were able to both take notes and manipulate the interface elements. As we went through each of the tasks, we replaced the views of the low fidelity prototype as our participants interacted with them. Nearby, we used a computer to take notes as the test participant gave feedback.

Participants

Again faced with tough legal complications regarding children in the hospital, we decided to first test our prototypes on teens within the age range who are not in the hospital. The 16 year old is a junior in high school who directly interacts with friends frequently, and even more often via social media. The 17 year old was a more reserved teenager who didn't go out with friends frequently and preferred to do things on his own. The 18 year old is a sophomore in college who is outgoing and enjoys meeting new people.

Procedure

Three group members each tested one person on their own, and thus each tester had to perform a number of tasks, including directing the test, running the prototype, and taking notes on responses. In order to keep our procedure consistent between tests for individuals, we scripted it completely, with each tester following the script through the entirety of the test. First, it goes through consent, and gets signatures, and the demographic survey. Next, users are instructed to give constant feedback on their thought process, and handed task cards one by one. After completing or attempting the three tasks, the users are asked to fill out a post-survey. Our script is included in the appendix.

Measures

In order to measure beyond simply noting user comments and thoughts throughout the testing, and to be able to ask comparable questions, we asked each of our users to answer questions regarding Nielsen's heuristics, their experience with the application, and then a few general questions (see Appendix F).

Evaluation Results

As was expected with a paper prototype of a computer interface, several issues arose regarding the ability of a user to "click" and otherwise interact with our interface. Barring this, our overall results of our can be split into three categories: whether or interface provided visual affordances and appropriate mappings, whether the navigation between the application views were straight forward, and whether the experience was enjoyable.

We found that our interface didn't provide sufficient mappings and affordances. Across the board, it was difficult for our participants to determine what was clickable and how to use the interface. However, this is something that will be fixed by switching to a higher fidelity prototype, which provides more immediate feedback to a user as they interact with the interface. Separately, several of our users mentioned that the main screen was not obviously a map. This

will require a redesign for the next iteration of our prototype.

For the most part, our test participants found the navigation of our application to be intuitive. Using pop-up windows with “X”s to quit was intuitive to our users. They found that once they knew what they could click on, finding their way between different sub-areas of our application was straightforward. Once participants 1 and 2 were informed that the interface was clickable, they were easily able to find appropriate buttons and menus to navigate the application.

We’re not completely sure if the experience will be enjoyable when fully deployed. Since some of our main functionality of our application, including chatting, game playing, and navigating on a map, could not be easily simulated in the low fidelity prototype, we can only tentatively guess, However, our participants seemed optimistic about the application’s use in a hospital setting. Participant 1 mentioned that he would likely spend hours using the application to connect with others and lose himself in a virtual world. Participant 2 was intrigued by the idea of chatting with someone with shared interests in a “coffee shop”, and felt that it was something he would do, even as he describes himself as extremely outgoing.

Time (seconds) to Task Completion

	Participant 1	**Participant 2**	**Participant 3**	**Average**
Task 1	28	15	20	21
Task 2	22	30	26	26
Task 3	63	30	40	44.33

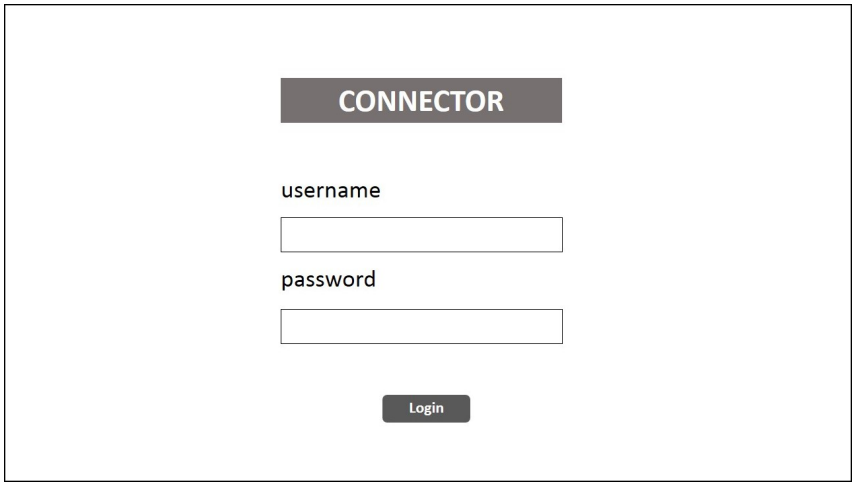
Errors per Task

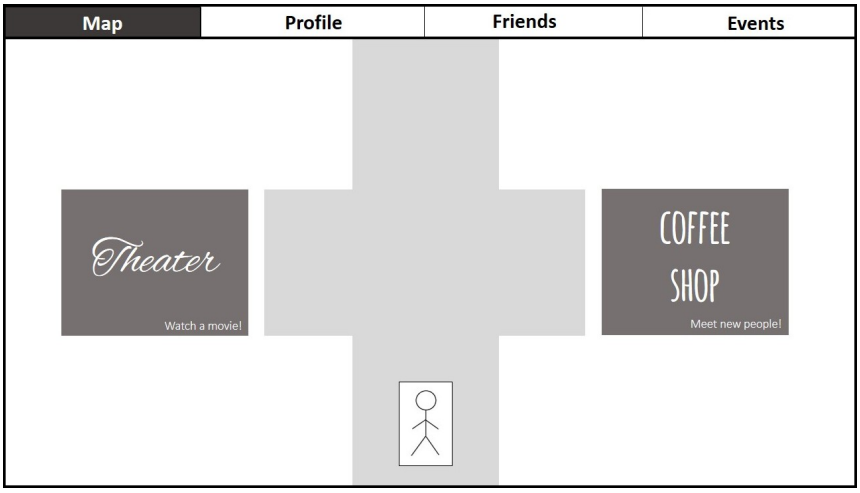
	Participant 1	**Participant 2**	**Participant 3**	**Average**
Task 1	0	1	0	0.33
Task 2	0	0	1	0.33
Task 3	2	0	0	0.66

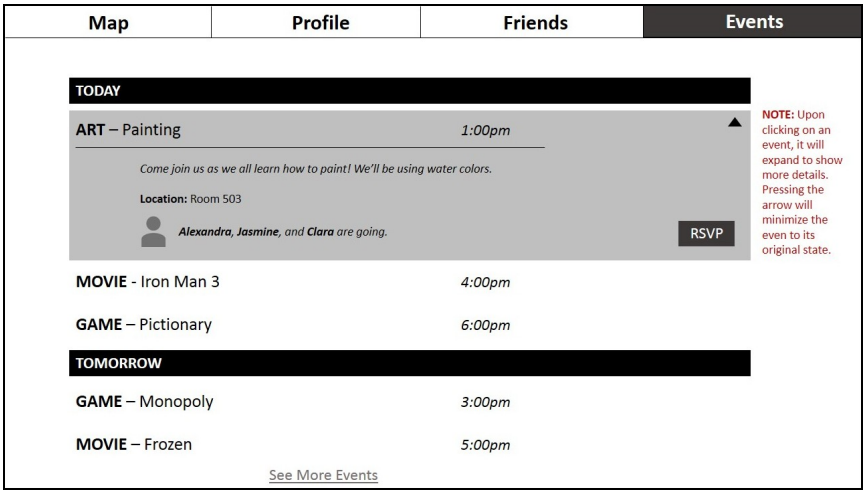
Revisions and Refined Sketches

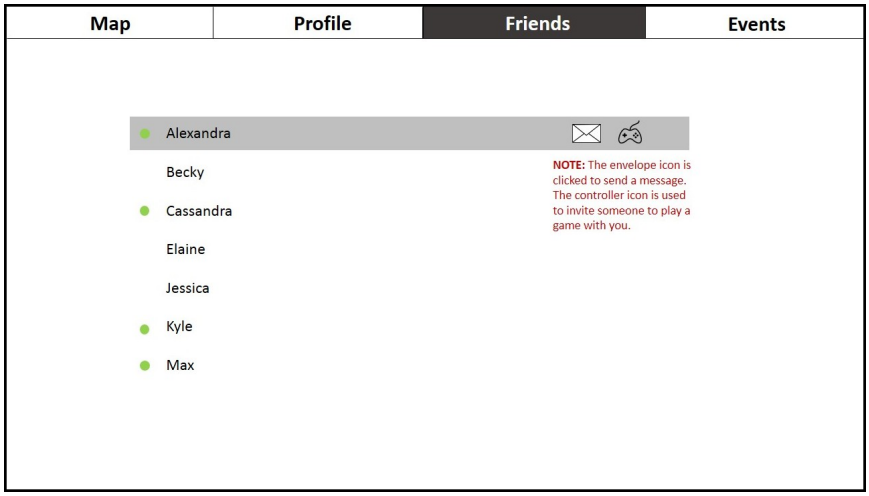
From our prototype testing, we made a few revisions to our interface. In order to make it clear that our home screen is a map, we should have one more tab labeled “Map.” This will also eliminate the need for users to exit out of sub-screens. We also found that we needed to find an appropriate icon to represent inviting someone to play a game. Finally, we found that the participants wanted a more straight forward representation of the map; we decided that we

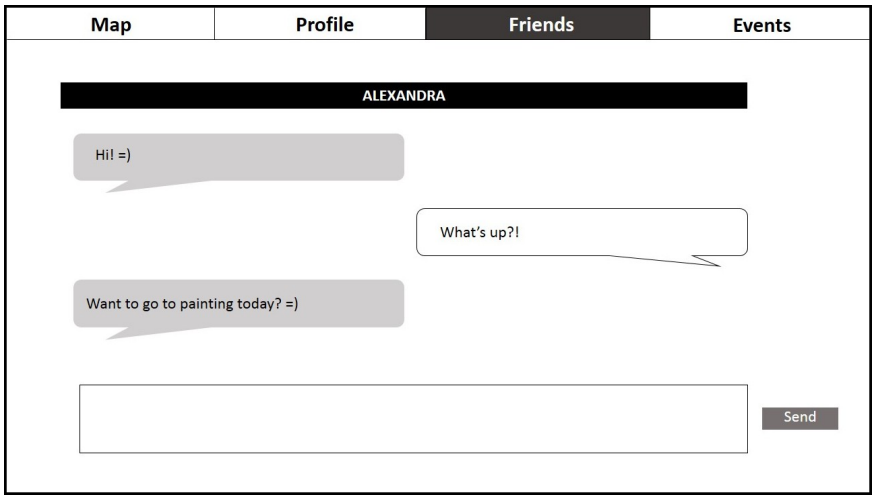
should add a caption that explains what could be done at each location.

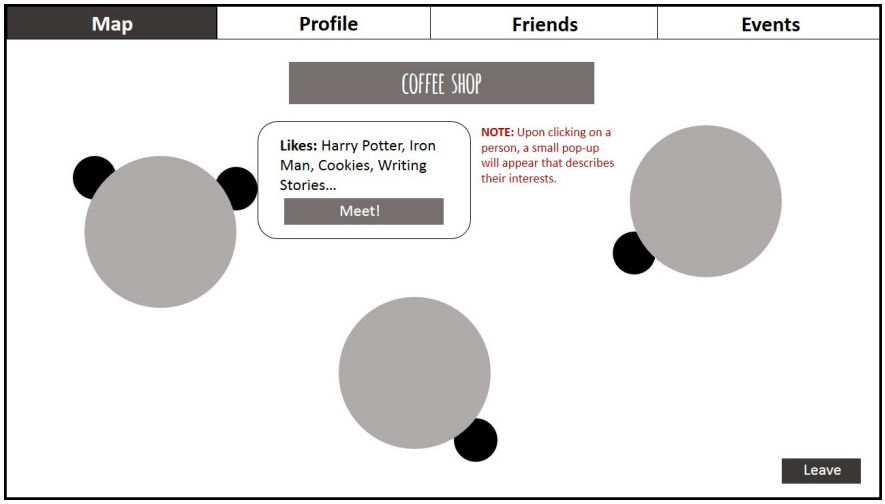


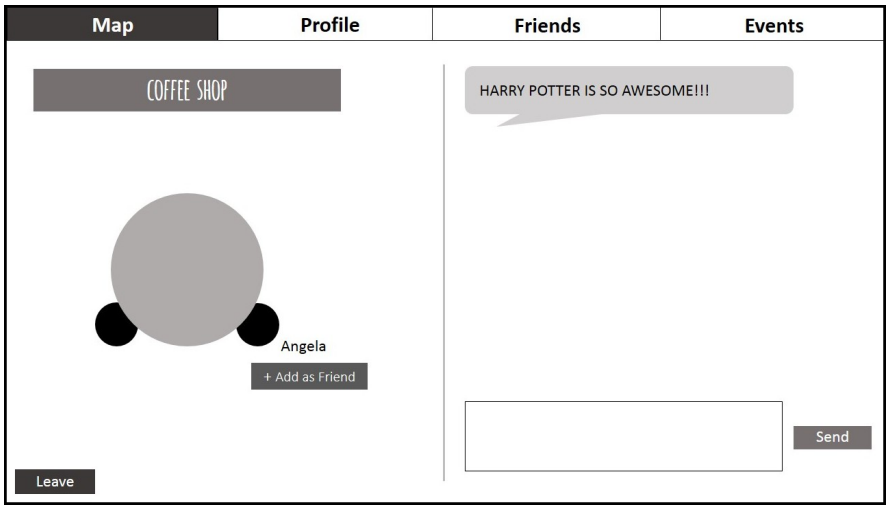



Map
Profile
Friends
Events
TODAY
ART – Painting 1:00pm
Come join us as we all learn how to paint! We'll be using water colors.
Location: Room 503
Alexandra, Jasmine, and Clara are going.
RSVP
MOVIE - Iron Man 3 4:00pm
GAME – Pictionary 6:00pm
TOMORROW
GAME – Monopoly 3:00pm
MOVIE – Frozen 5:00pm
See More Events
NOTE: Upon clicking on an event, it will expand to show more details. Pressing the arrow will minimize the even to its original state.


Map
Profile
Friends
Events
Alexandra
Becky
Cassandra
Elaine
Jessica
Kyle
Max
NOTE: The envelope icon is clicked to send a message. The controller icon is used to invite someone to play a game with you.


Map
Profile
Friends
Events
ALEXANDRA
Hi! =)
What's up?!
Want to go to painting today? =)
Send





Interactive Prototype

Link: http://dc1y3a.axshare.com **(password is p1a2s3s4w5o6r7d8)**

Overview of Implementation

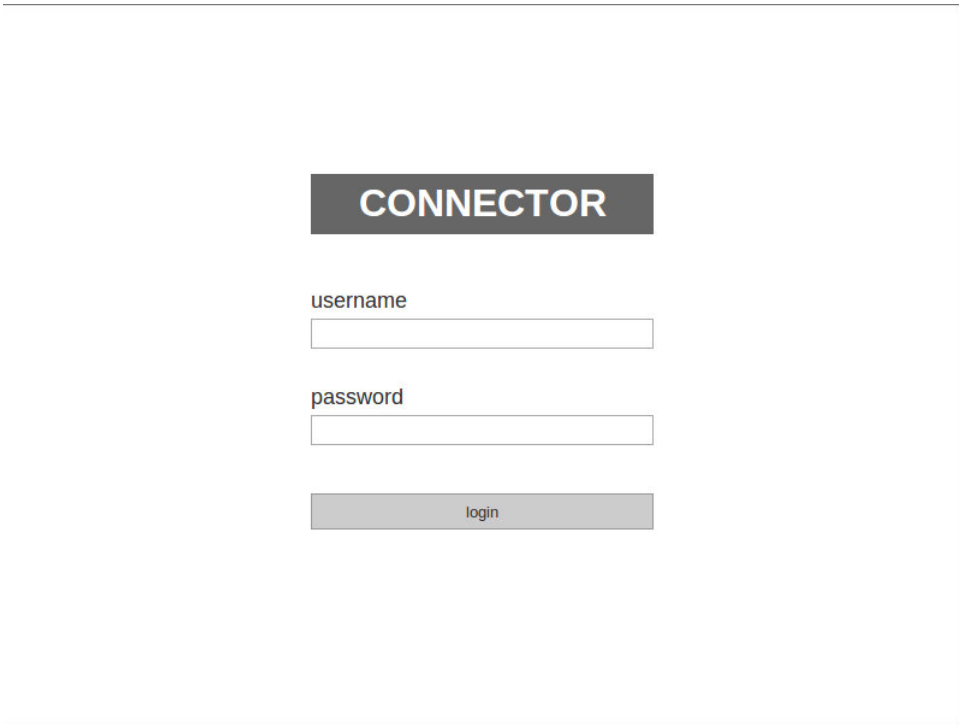
After testing our paper prototype, we made a couple of changes to our interface based on the feedback we received from our testers. First of all, we added more “places” to our map so that it would be more apparent to users that it was actually a map. While testing our paper prototype, some of the participants said that it looked like a gigantic plus sign and could not tell that it was a map, which lead to much confusion. So by making our map more map-like, we eliminated the need to create an extra tab explicitly labeled “Map.”

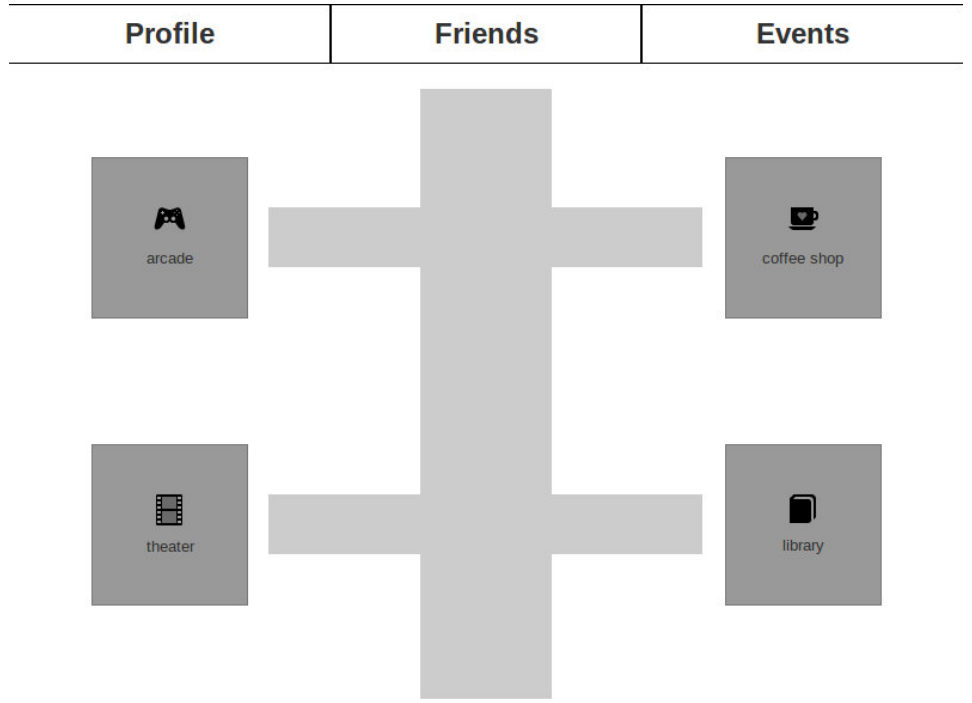
Additionally, we inserted icons permanently next to each person’s name on the list of friends, rather than only having them pop up for a single person only when you hover over their name.

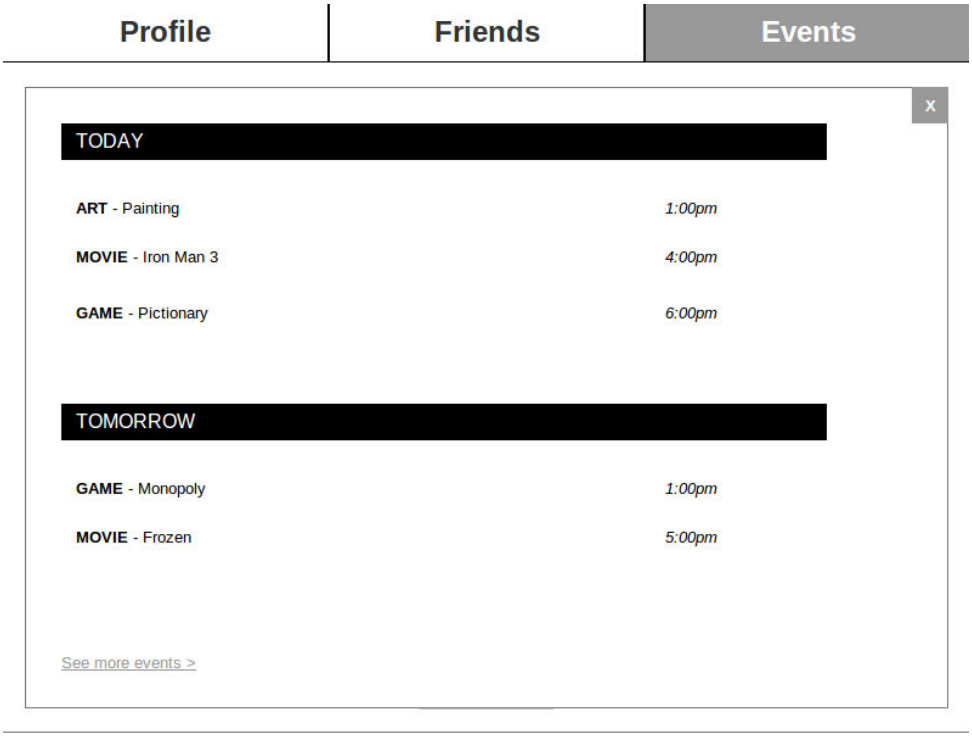
Again, when testing our paper prototype, our participants said it was not apparent that you had to hover over a name to access the messaging and game invitation functionality. We also added a controller icon to represent asking a friend to play a game with you. (Previously, there had just been a button that said “Play.”)

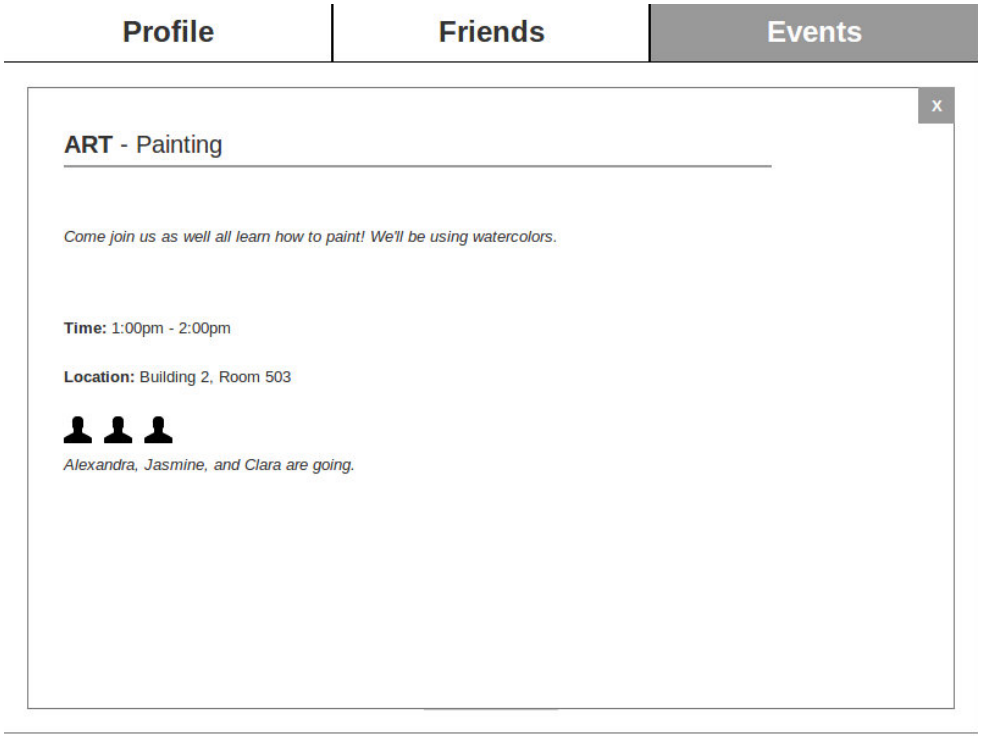
Storyboards for Tasks

Task 1: Find the time and location of the painting event.

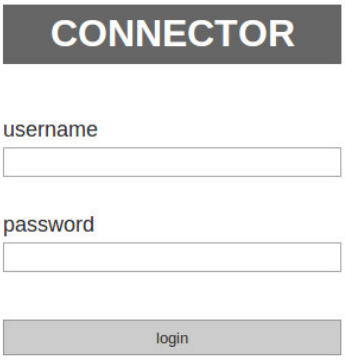



Profile
Friends
Events
arcade
coffee shop
theater
library

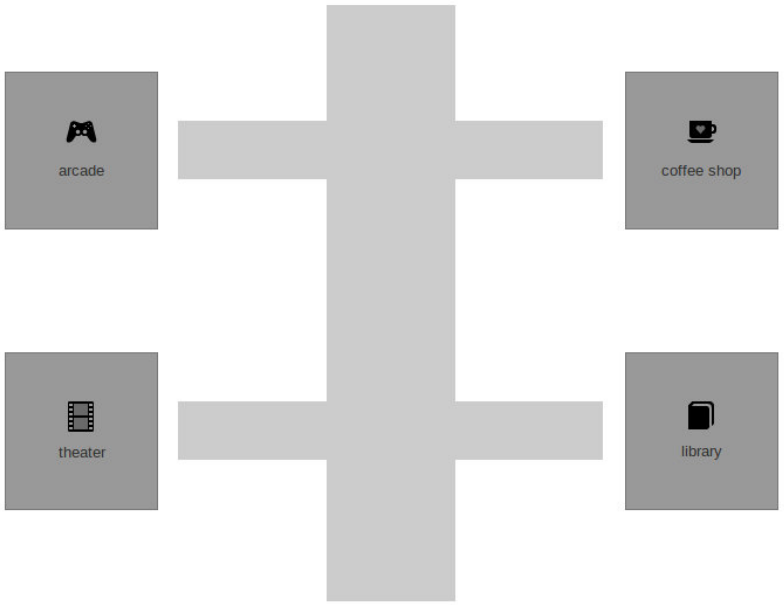

Profile
Friends
Events
x
TODAY
ART - Painting 1:00pm
MOVIE - Iron Man 3 4:00pm
GAME - Pictionary 6:00pm
TOMORROW
GAME - Monopoly 1:00pm
MOVIE - Frozen 5:00pm
See more events >



Task 2: Send your friend, Alexandra, a message



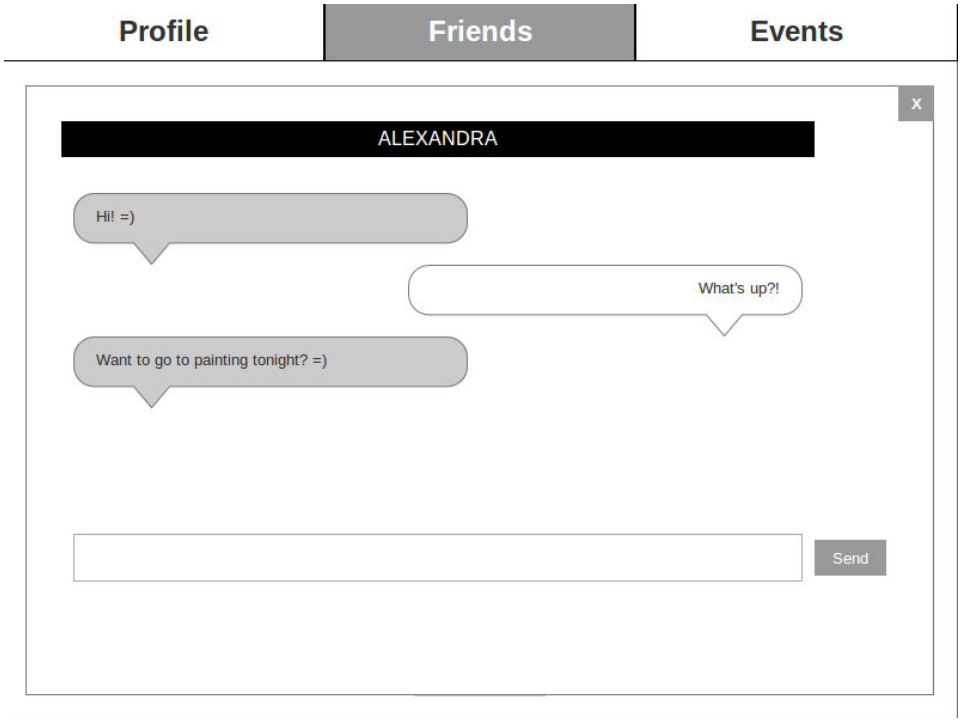
Profile	Friends	Events

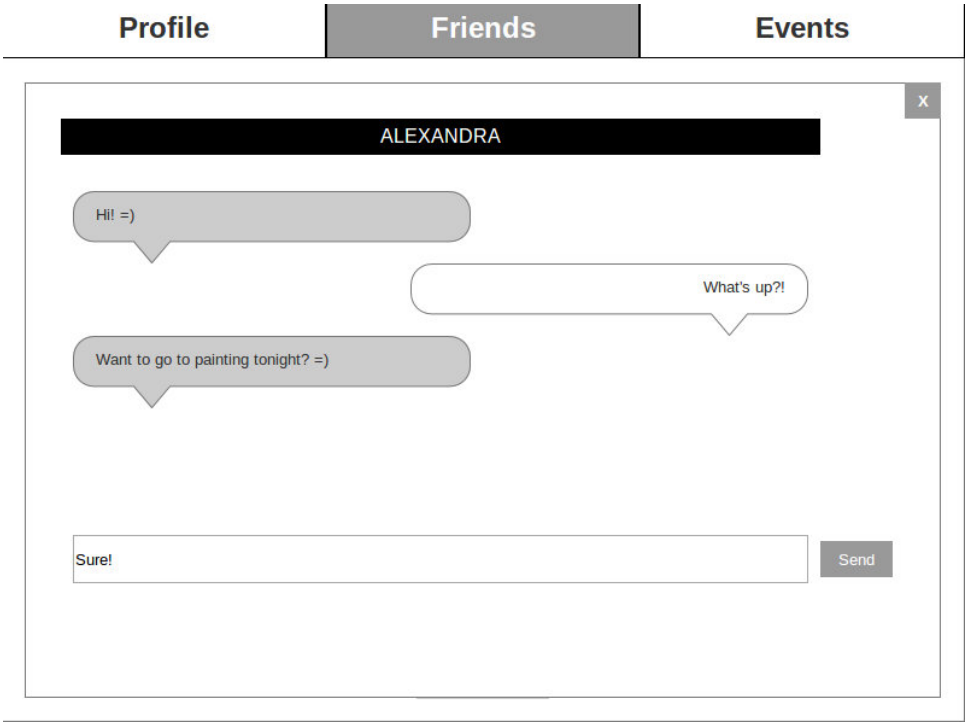


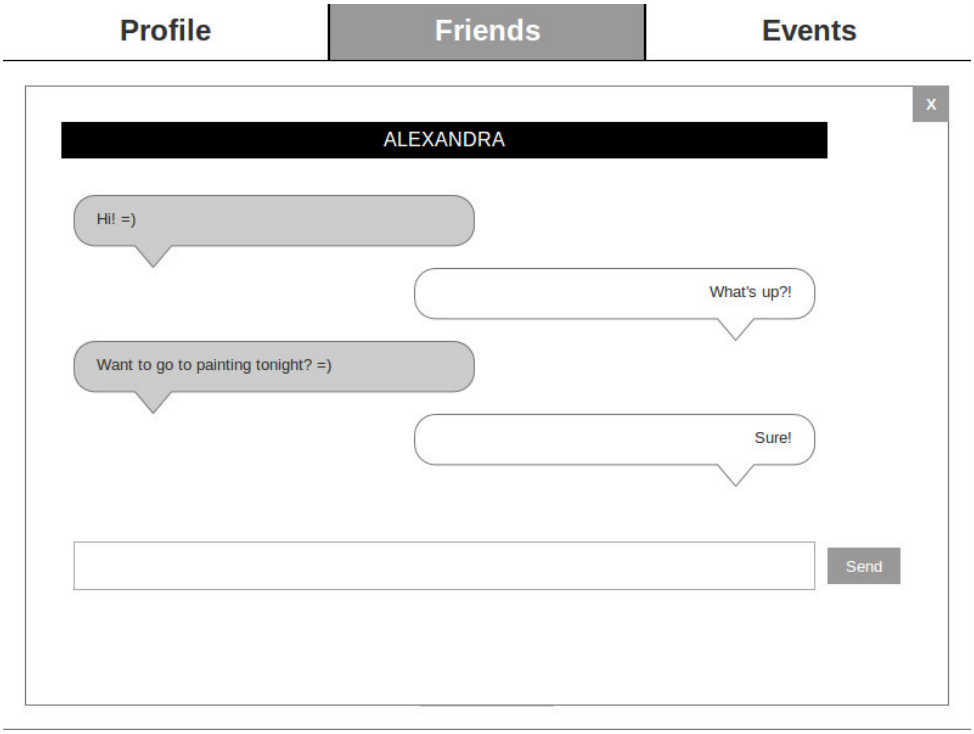
Profile	Friends	Events

x

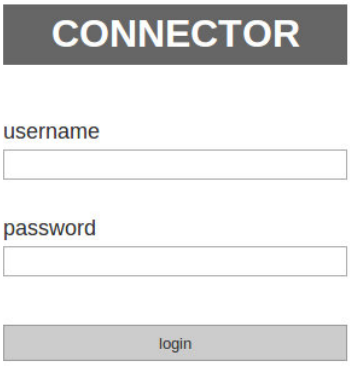
- Alexandra
- Becky
- Cassandra
- Elaine
- Jessica
- Kyle
- Max


Profile
Friends
Events
x
ALEXANDRA
Hi! =)
What's up?!
Want to go to painting tonight? =)
Send

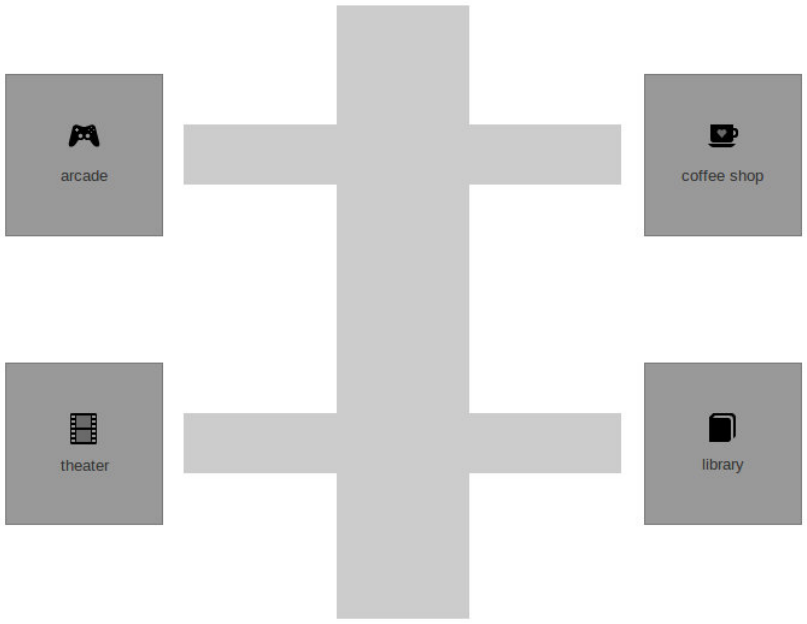

Profile
Friends
Events
x
ALEXANDRA
Hi! =)
What's up?!
Want to go to painting tonight? =)
Sure!
Send



Task 3: Meet someone new with a similar interest.

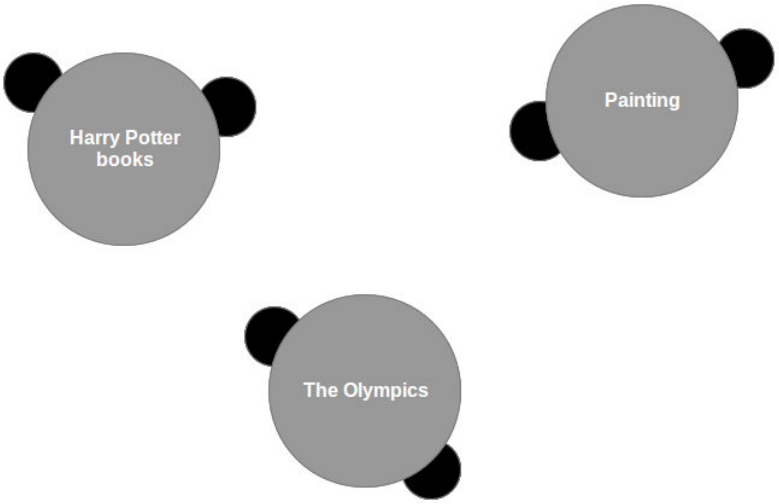


Profile	Friends	Events

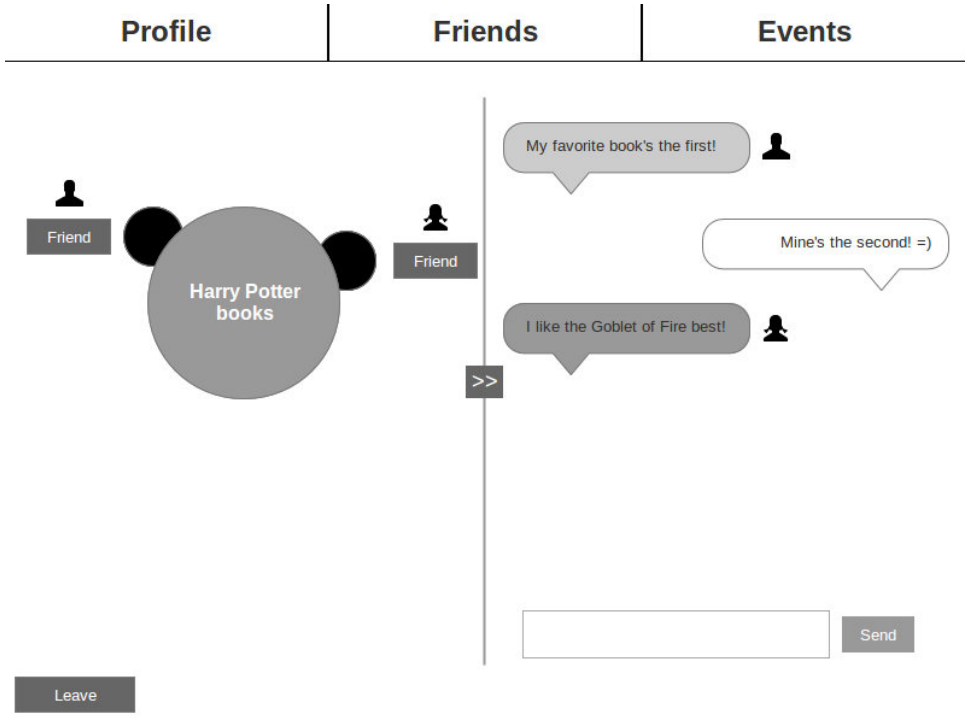


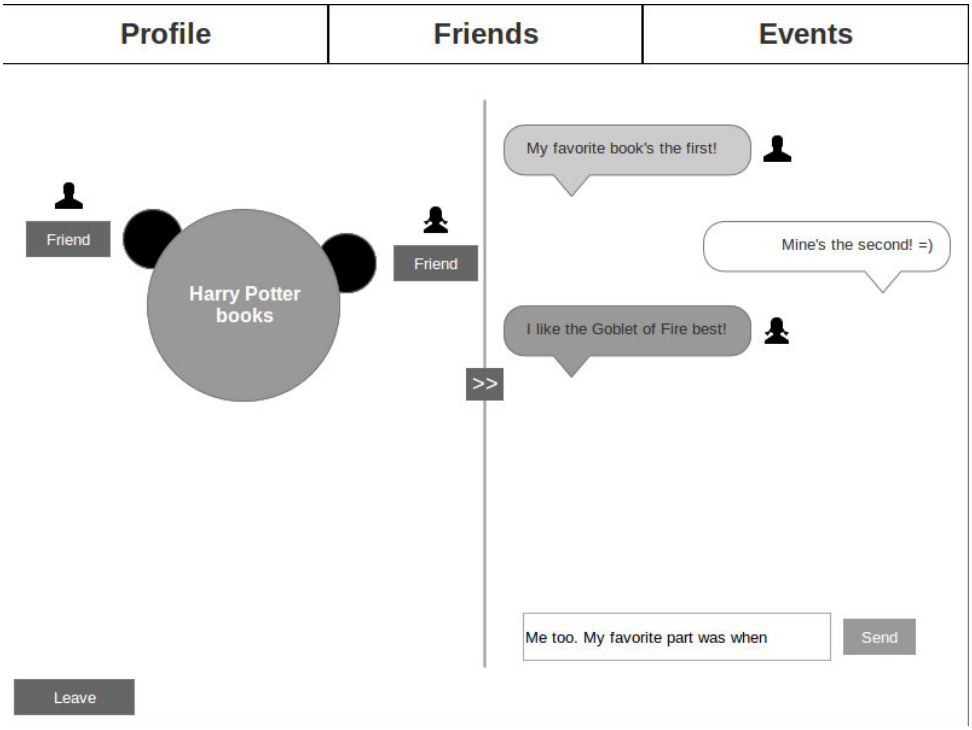
Profile	Friends	Events

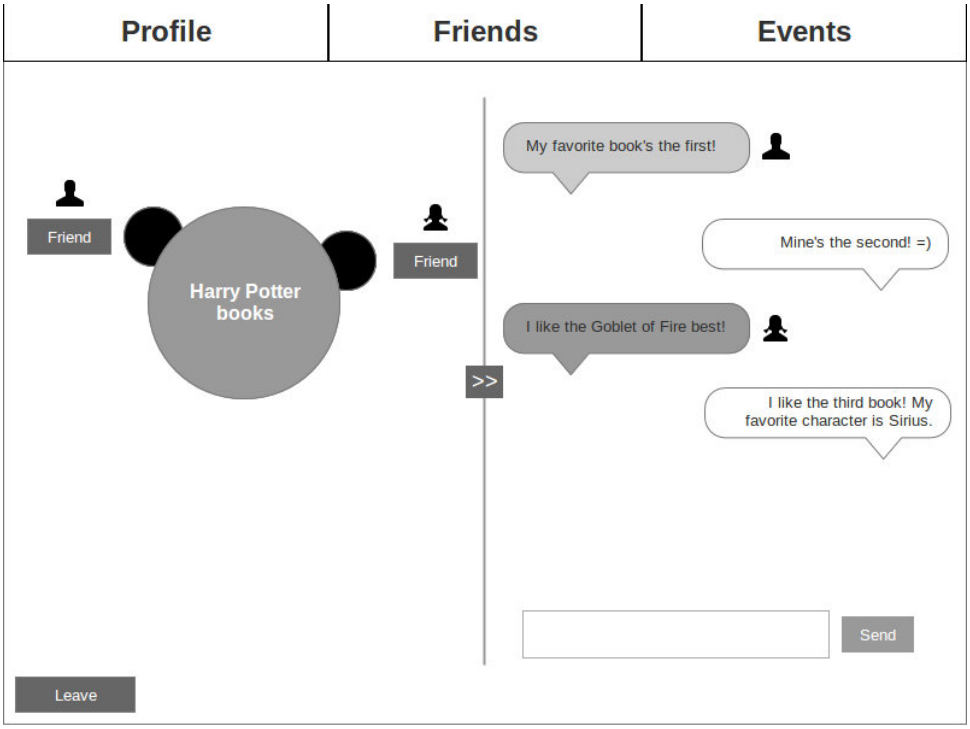
coffee shop



Leave


Profile
Friends
Events
My favorite book's the first!
Friend
Friend
Mine's the second! =)
Harry Potter books
I like the Goblet of Fire best!
>>
Send
Leave


Profile
Friends
Events
My favorite book's the first!
Friend
Friend
Mine's the second! =)
Harry Potter books
I like the Goblet of Fire best!
>>
Me too. My favorite part was when
Send
Leave



Prototype Feedback

In order to elicit feedback from our two participants, we followed the script that corresponded to our high-fidelity prototype (See *Appendix G*). We told each tester the context in which they would use the application, and advised them to interact with our prototype as they would with a tablet. We described to them each task we wanted them to complete, but did not tell them *how* to do so. After the participant completed each task, we explicitly asked them if there was anything that would have made that task easier. At the conclusion of the study, we again asked them if they had an suggestions that would improve any aspect of the system or interface.

Participant 1: 16 year old high school student

Throughout all three tasks, the first participant did not experience any usage errors. He thought the interface was “pretty straightforward.” However, he did provide a few suggestions that may be useful as we begin to create future versions of our application. First of all, he suggested that we don’t use two different icons for messaging. He understood that the icon with two speech bubbles indicated that you had already messaged that person before, but he didn’t think this was such an important piece of information that it required a different icon.

The first participant also commented that when you exit out of the screen that displays the details for a certain hospital event, he would have expected to be brought back to the screen that displayed all hospital events, but was instead taken to the map. After testing with our paper prototype, we had decided to simply have detailed event information drop down on the same

screen, and then the user could simply retract the dropdown to get back to the main hospital events page, which would have solved the problem explained by this participant. However, we found that this was too difficult to implement in our interactive prototype in the time allotted. But the dropdown event details will definitely become a feature in future versions of our application.

Participant 2: 18 year old college student

The updated interface was presented to participant 2 with minimal introduction. He was told the purpose of the application, the target audience, and that he should be able to chat to a friend, meet someone new with similar interests, and find upcoming events. He was then asked to log in and attempt some of these possible tasks.

Overall the interface was easy for him to navigate. His biggest issue was that “there are so many things to click on, but none of them work”. This was expected, since we had only completed the interface for our planned tasks, and not those that should work on a fully functioning version. He did not have any trouble meeting someone with a similar interest, even though it involved the most navigation of any of our tasks.

Participant 2 felt that the app was easy to use, but perhaps too simple. He was skeptical that someone would want to talk to a stranger in the app, although he felt that it would not be unlikely for someone to add a stranger as a “buddy” to play games with.

Appendix A

Connector User Testing Questionnaire

Participant ID: _____

Gender: Male _____ Female _____
Age: _____
Occupation: _____

On average, how often do you hang out with friends in person?
____ Daily
____ Weekly
____ Monthly
____ Yearly
____ Never

On average, how often do you talk to friends (in person, phone, online)?

____ Daily
____ Weekly
____ Monthly
____ Yearly
____ Never

On average, how often do you approach another teenager you don't know for any reason?
____ Daily
____ Weekly
____ Monthly
____ Yearly
____ Never

From 1 (least) to 10 (most), how happy are you with your current level of social skill? _____

Appendix B

Connector Consent Form

The Connector application is being produced as part of the coursework for the University of Washington Computer Science & Engineering course "CSE 440: Introduction to Human-Computer Interaction". Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of Connector. Data will be collected by interview, observation, and questionnaire.

Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers (Connector) or with Professor Maya Cakmak, the instructor of CSE 440:

Maya Cakmak
Computer Science & Engineering
University of Washington

mcakmak at cs.washington.edu

Participant anonymity will be provided by the separate storage of names from data. Data will only be identified by participant number. No identifying information about the participants will be available to anyone except the researchers and their supervisors.

I acknowledge that I have been given an opportunity to ask questions about the nature of the experiment and my participation in it. I give my consent to have data collected on my usage and opinions in relation to the Connector experiment. I understand I may withdraw my permission at any time.

Name _____

Date _____

Signature_____

Witness Name _____

Witness signature_____

Appendix C

Appendix C highlights the raw data that we gathered during our testing.

Participant 1: Pre-Testing Questionnaire
Gender: male
Age: 17
Occupation: student
On average, how often do you hang out with friends in person? Weekly
On average, how often do you talk to friends (in person, phone, online)? Daily
On average, how often do you approach another teenager you don't know for any reason? Monthly
From 1 (least) to 10 (most), how happy are you with your current level of social skills? 5

Participant 1: Testing Feedback
Task 1: "Find out what time the painting event is."
Time: 28 seconds
Errors: 0

Feedback: “You should make it more clear that you can click on the event for more details. The first screen after login was super confusing. It looks like a T.. or a plus (+)... I have no idea what it is or what happens.” Participant was able to find the events view easily, but didn’t know that you could press each of the individual events for more details.

Task 2: “Send your friend, Alexandra, a message.”
Time: 22 seconds
Errors: 0
Feedback: “This was really straight forward. I’m not sure what ‘play’ is supposed to be, though.” Participant immediately found the friends view and sent a message to Alexandra. He was confused as to what the ‘play’ button was supposed to signify and thought Alexandra was automatically highlighted so he could scroll through the participants.

Task 3: “Meet someone new with a similar interest.”
Time: 63 seconds
Errors: 2
Feedback: “I had no idea what to do so I just clicked things. I have no idea what I need to do in the main menu. I also wanted to go to the events because people going to the ones I want to go to probably have the same interests. Maybe you could add the most recent message or the topic of the thread on each of the coffee shop tables so people know what they’re getting themselves into. “

Participant 1: Post-Testing Questionnaire
Did you ever feel lost as to what was going on? Working on the third task
Do you feel like this product will naturally flow in your daily life? Yes, because it’s a virtual place that I could ‘lose myself’ in that isn’t super realistic.
Did you feel it was easy to recover from your mistakes? Yes. Yay! Back buttons.
Did any part of the UI stick out like a sore thumb? The big + on the first page after login page was really confusing and didn’t really fit in with the rest of the UI.
Was there something that happened that you were not expecting? I wasn’t sure what was clickable.
Did anything feel intrusive to your view? The +.
Favorite aspect: I like how friends and events are prominent on the UI.
Least favorite aspect: The main menu (and the +).
Suggestions? General comments? A bunch of labels would help with understanding parts of the UI. For example, adding them to the tables in the coffee shop, or “map” in the main menu.

Participant 2: Pre-Testing Questionnaire
Gender: male
Age: 18
Occupation: student
On average, how often do you hang out with friends in person? Daily
On average, how often do you talk to friends (in person, phone, online)? Daily

On average, how often do you approach another teenager you don't know for any reason? Weekly
From 1 (least) to 10 (most), how happy are you with your current level of social skills? 9

Participant 2: Testing Feedback
Task 1: "Find out what time the painting event is."
Time: 15 seconds
Errors: 1
Feedback: About the main menu: "Are these buttons? Or banners? Why is the font different?". Was able to quickly find events page when told that all labels represented buttons. However, did not find the more detailed events page "It should be more obvious that you can click the individual events."

Task 2: "Send your friend, Alexandra, a message."
Time: 30 seconds
Errors: 0
Feedback: "Why is her name highlighted but no one elses? What does "play" mean? I guess I'll click on her name. Why is she asking me to go to painting tonight when the event page said it's at 1:00pm?"

Task 3: "Meet someone new with a similar interest."
Time: 30 seconds
Errors: 0
Feedback: Participant found this surprisingly quickly, while commenting that it was not straight-forward. "I'll go to the coffee shop, you don't meet people in theaters. What are these things?" (Referring to the tables). Once told, immediately "clicked" on a table and found chat screen.

Participant 2: Post-Testing Questionnaire
Did you ever feel lost as to what was going on? The third task was a little confusing
Do you feel like this product will naturally flow in your daily life? Yes, if it was easier to use.
Did you feel it was easy to recover from your mistakes? Yes.
Did any part of the UI stick out like a sore thumb? It's not intuitive what to click on. The functionality of the main screen is not obvious.
Was there something that happened that you were not expecting? The chat screen in the coffee shop
Did anything feel intrusive to your view? No
Favorite aspect: The third task
Least favorite aspect: The main menu / map
Suggestions? General comments? Making it more obvious what you can click on. Making the main map more of a map.

Participant 3: Pre-Testing Questionnaire

Gender: male
Age: 16
Occupation: high school student
On average, how often do you hang out with friends in person? Daily
On average, how often do you talk to friends (in person, phone, online)? Daily
On average, how often do you approach another teenager you don't know for any reason? Monthly
From 1 (least) to 10 (most), how happy are you with your current level of social skills? 9

Participant 3: Testing Feedback
Task 1: "Find out what time the painting event is."
Time: 20 seconds
Errors: 0
Feedback: When participant's finger was near the "screen", I told him that the event would be highlighted as he hovered over it, and overlaid "highlighting" on the event. He then decided to click on it, and had no further trouble with this task. But when he clicked on an event to see details, he said that there was not very much information on this new page, and that it could have been shown in the list. Although he was exposed to the map for the first time at this point, he made no comments on it because it did not pertain to the task he was given.

Task 2: "Send your friend, Alexandra, a message."
Time: 26 seconds
Errors: 1
Feedback: Participant immediately clicked the Friends tab without hesitation, using the tabs to navigate from where he was instead of returning to the home screen first. When he encountered the list of friends, he first tried clicking on Alexandra's name instead of clicking on the envelope icon to send a message. (Perhaps the participant is used to the chat feature on Facebook?) I asked him if he knew the functionality the "Play" button. There was a long pause, and then he asked if it was to play a game with the person. When I confirmed that it was, I also told him that we intend to have an arcade on the map. He said if he had seen that, he would have been able to guess what "Play" meant. He suggested using a joystick or some other gaming icon.

Task 3: "Meet someone new with a similar interest."
Time: 42 seconds
Errors: 0
Feedback: Participant knew to exit the chat window in order to return to the home screen. He hesitated for a few seconds, and asked, "This is a map right?" I said yes, then he moved his avatar to the theater, but I told him that was not our intention. I explained that we figured people usually meet new people at a coffee shop. The participant said, "Ohhhh yeah, duh. I just thought…you go to a theater with people…" So he then moved his avatar to the coffee shop. Upon "entering", he asked, "Are those people at tables?" and I said yes. I told him to try hovering over one of the people, so he did, and saw that information about that person popped up. He

hesitated for a moment, then clicked “Meet.”

Participant 3: Post-Testing Questionnaire

Did you ever feel lost as to what was going on? I didn’t know exactly where to go on the third task, but that wouldn’t be a problem after the first time.
Do you feel like this product will naturally flow in your daily life? Yes, if I was in a hospital.
Did you feel it was easy to recover from your mistakes? Yes.
Did any part of the UI stick out like a sore thumb? No.
Was there something that happened that you were not expecting? No.
Did anything feel intrusive to your view? No
Favorite aspect: Meeting someone new.
Least favorite aspect: Friends list and its icons/buttons.
Suggestions? General comments? I think it would be a lot easier to understand what I could click if it were on a computer. And maybe if the map was more graphically developed, it would be easier to tell that it was a map.

Appendix D

Critical Events

- Confused as to what the ‘play’ button was supposed to signify
- Thought Alexandra was automatically highlighted so he could scroll through the participants.
- [For the third task] I had no idea what to do so I just clicked things. I have no idea what I need to do in the main menu.
- I also wanted to go to the events because people going to the ones I want to go to probably have the same interests. Maybe you could add the most recent message or the topic of the thread on each of the coffee shop tables so people know what they’re getting themselves into.
- The big + on the first page after login page was really confusing and didn’t really fit in with the rest of the UI.
- About the main menu: “Are these buttons? Or banners?”
- Did not realize that the events were clickable
- Not obvious what to click on
- Confusion over functionality of theater vs coffee shop
- I think it would be a lot easier to understand what I could click if it were on a computer.

- Maybe if the map was more graphically developed, it would be easier to tell that it was a map.

Photos

Appendix E

Script

Thank you for participating in this user testing session. Please remember that this is completely voluntary and you can quit at any time. Connector, our application, is designed to be deployed on a tablet to teenagers in hospitals. Its purpose is to help those patients connect with each other within the hospital during their stay.

In this session, we are testing our user interface. All errors or mistakes are the fault of our UI, not you.

Do you have any questions? [Wait for answer]

Would you like to continue with your participation? [Wait for answer]

Please sign this consent form indicating that you understand everything we have told you so far. [Wait for participant to sign consent form]

Before we begin, we have a short survey for you to fill out. [Wait for participant to finish survey]

During this process, please give us feedback. Talk out loud what you are thinking or what you think will happen. Please let us know if something unexpected happens or if you really like something.

We will give you three tasks to perform. Don't hesitate to ask us any questions or give us comments or suggestions during the process.

[Hands Card 1: "Find out what time the painting event is."]

[Hands Card 2: "Send your friend, Alexandra, a message."]

[Hands Card 3: "Meet someone new with a similar interest."]

Now that we have finished all of our tests, please answer the following questions.

Thank you for your time.

Appendix F

Heuristic Evaluation Questions (Nielsen):

- Did you ever feel lost as to what was going on? (Visibility of system status)
- Do you feel like this product will naturally flow in your daily life? (Match between system and real world)
- Did you feel it was easy to recover from your mistakes? (User control and freedom)
- Did any part of the UI stick out like a sore thumb? (Consistency and standards)

Experience:

- Was there something that happened that you were not expecting?
- Did anything feel intrusive to your view?

General:

- Favorite/Least favorite aspect:
- Suggestions? General comments?

Appendix G

Interactive Prototype Script

Thank you for participating in this user testing session. Please remember that this is completely voluntary, so you can quit at any time. Connector, our application, is designed to be deployed on a tablet to teenagers in hospitals. Its purpose is to help those patients connect with each other (both digitally and in-person) during their stay.

In this session, we are solely testing our user interface. All errors or mistakes are the fault of the interface, not you. Do you have any questions? [Wait for answer]

Would you like to continue with your participation? [Wait for answer]

During this process, we would appreciate any feedback you could give us. Talk out loud and explain what you are thinking as much as possible. Please let us know if something unexpected happens, or if you really like something. Also, if there are specific changes that you believe would improve the user experience, please share those.

We will give you three tasks to carry out. For all the tasks, imagine that you are performing them on a tablet, and interact with our prototype as you would with a tablet. Don't hesitate to ask us any questions or give us comments or suggestions during the process.

Now we'll get started with the first task. Imagine that you are teenager in a hospital, and are particularly bored today. Please try to find out what time the painting even is occurring today. [Wait until they signal that they are finished with the task.]

Great. Can you think of anything that would have made this task easier? [Wait for answer.] Okay,

now we'll move on to the second task. Imagine that Alexandra is one of your friends in the hospital. Please send her a message. [Wait until they signal that they are finished with the task.]

Alright, so was there anything that would have made that task easier for you? [Wait for answer.] Let's move on to the final task, then. Please try to meet someone with whom you share a similar interest. [Wait until they signal that they are finished with the task.]

So we believed that this task was a bit more difficult than the first two. Is there anything that would have made it easier? [Wait for answer.]

Now that we have finished all of our tasks, do you have any more suggestions for improvement? [Wait for answer.] Okay, well that concludes our study! Thank you so much for your time.