Dialogue in Helvetica Neue

iat 222 final project

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Bio

My name is Tim Heng, a third year SIAT student with Informatics concentration. Although I have never produced any artwork before, I am always fascinated by all the famous artwork around the world. I believe that art can play a huge role in our society. Art allows people to be aware of something that they are not aware of. It can deliver messages, express emotions and some other things that can only be told or felt in an artistic way.

My name is Abdullah Jasim, I'm second year SIAT student with Informatics and Design concentration. I have always been interested in the most traditional form of art which is painting and sketching. However, during this course I learned how to involve my obsession with coding and programming into artistic means. Through this project I hope to be able to put my coding skills and passion into an artwork that can deliver a message which I stand by strongly, and that is the massive effect of the newly found social networking websites.

I am Kyle Historillo, a second year SIAT student in the Media Arts concentration. I've always had a great fascination with interactivity, as it manipulates people's behaviour and effectively makes them part of the art piece. However, I believe that an art piece is only as good as it's message, and I believe that every element of an interactive art piece should be analyzed using this context. Thus, through this project, I hope to have analyzed our piece and made sure that our message is clear and provokes thought, and moreover, reflection.

Jun Peng, a second year SIAT student. As a SIAT student, I have been always interested in how the science of human experience and art are combined together. Through the study of artworks in historical and cultural contexts, I explored the issues surrounding digital art and understood the interativity in the context of new media art. By creating our own work of art, I managed to incorporate my interactive art concept with technologies. I have got an opportunity to exercise and improve my skills as a interactive designer as well as an artist through this project.

This is Kwai Yin Chau, the only girl in this team who is a second year SIAT student concentrating in Media Arts. IAT222 is probably the only course in the School of Interactive Arts and Technology program in which the "Technology" is completely optional. The other IAT courses require quite a heavy portion of technical skills where this one, requires you to be artistic. That being said, we still added technical elements to drag "Technology" back in this course. Our interactive art piece has a message to spread, but we are open to any interpretations. Some may not understand the point of slowly moving the curtain; some may immediately realize what social networking has done to them. It is amazing how people perceive what they experience differently. And we hope this piece of ours could bring up discussions among people, preferably not on those social networking sites though.

DESCRIPTION OF ARTWORK

In the past few years, social networking has become a dominant aspect of our daily lives. These social networking sites have developed into an online space where people can identify themselves and commune with friends and colleagues. However, these networks have become so tightly integrated into every facet of our society, that it almost seems like people are spending most of their time communicating online as opposed to natural physical interaction. Dialogue in Helvetica Neue aims to comment on this situation and let people question the role of social networking in their lives, be it a positive or negative one.

Dialogue in Helvetica Neue lets two users, each in a separate booth, communicate through the Twitter social networking website, using it as an instant messenger. It uses the Processing and Arduino programming languages, as well as related hardware, to create a mechanism that reacts to the user's interaction with the Twitter website. The artwork aims to let the users reflect and question social networking on a personal and global level.

ANALYSIS OF ARTWORK

Philosophical/Conceptual Goals

Dialogue in Helvetica Neue is, in essence, an exposition and exploration of technology-mediated communication, primarily in the form of social networking. The art piece developed, simply enough, from the casual observation of people in public spaces, ranging from shopping centres and transit, to libraries and educational institutions. We noticed a growing trend of individuals who are constantly connected to social network technologies, either through their phones, computers, or any other Internet-capable device. What's even more surprising is how quickly society has adopted and integrated social networks into our daily lives. Whether it is in the field of advertising, business, or education, social networking has become a ubiquitous part of everyday communication.

The trend is especially noticeable when concerning youths. In a university setting, students are completely dependent on social networking to communicate with team members, professors, teaching assistants, and to receive emails from their respective faculties. The idea of being connected to a network is continually ingrained and assimilated into their means of communication that, in a very short period of time, utilizing social networks seemingly becomes second nature. People start to build a dependency on social networks like Twitter or Facebook --- amongst many other derivatives --- and begin to accumulate multiple hours using the aforementioned networks. This dependency has become so pronounced that it is difficult to differentiate time spent communicating on social networks and natural face-to-face interaction. In this sense, social networking is seemingly shifting our primary means of communication from

the interpersonal space to the digital space.

Thus, the main goal of Dialogue in Helvetica Neue is to act as a social commentary on technology-mediated communication. Superficially, the art piece simply appears to be two users using social networking to engage in a dialogue. However, the art piece comes to fruition when it causes people to reflect on their usage of social networks, and to question if social networking is effectively connecting the world in an online space, or whether it is disconnecting people from natural human interaction. It's an interesting concept that we wanted explore through the use of confined booths that help to emphasize that social networking creates an inherent isolated space. We wanted every element of the art piece to contribute to the discussion of social networking --- from the choice of social network, usernames, and title of the art piece. Throughout the interactive session, we utilize these elements to cause users to critically think of society's dependency on these methods of communication. Some questions our art piece poses are as follows: Are social networks doing the opposite of what they're intended to do --- disconnecting people as opposed to fostering human connection? How expressive can social networking be? Can it have the potential of replacing our primary means of communication, speech and body language? How much time are we really spending on social networks? Are we spending most of our time in a physical space or a digital space? It is precisely these type of questions that we wish to pose to the audience, thereby inciting discussion on our present use of such social technology. According to Berys Gaut's Cluster Theory of Art, our telematic art piece provokes thought through complex meaning and implication, is formally complex in regards to the programming code, and is very expressive of our reliance on social networking.

Dialogue in Helvetica Neue, however, is not meant to discourage the use of social networking. Instead, it's meant to expose how we are using these technologies and how it has manipulated our natural means of communication. It allows us to appreciate how far society has come in the realm of communication technologies --- from the innocent intentions of the telegraph and telephone, to the tightly integrated web of the Internet and social networks. Ultimately, Dialogue in Helvetica Neue should leave participants with a multitude of questions regarding the society's current state of communication, hopefully causing them to undergo their own internal dialogues on the subject.

At a glance, Dialogue in Helvetica Neue invites two participants to enter their respective booths and engage in a dialogue using the social networking site, Twitter.com.

The two booths are situated at the respective ends of a table so that they are facing each other. Each booth has a window that act as a means for participants to see each other, effectively establishing the initial sense of a natural, face-to-face interaction. Due to the booth's small size, the participant is meant to feel confined and claustrophobic, replicating the apprehension of meeting and connecting with new people. Additionally, the participants will be required to wear noise-cancelling headphones to further enhance that sense of isolationism that is inherently present when using social networks. This limits the interaction between participants to face-to-face interaction via the window, or the use of social networking.

The participants interact with the piece by sending each other messages using laptops that employ the use of the Twitter website as a medium of communication. The reason we chose to use Twitter is due its simple functionality of posting textual status updates of a short length of 140 characters. This built-in limitation allows us to incite the question of whether social networks are as expressive as we perceive them to be. Each participant will be given one of the two usernames: "S0cial_" and "_Cl0sure," which, on their own don't have very little implication to the work. However, when the interaction ensues, participants will be able to notice the names and begin to make a connection between the two words "social closure," where participants must decide whether social networking is causing closure between people, or whether it is closing people off from face-to-face interaction. It is also noted that the Twitter accounts follow each other so as to avoid the "@reply" convention, and allow for simple textual input.

The laptops will also be running a Processing program in the background that accesses the participant's Twitter information, and retrieves every tweet that the participant inputs. The program then calculates the tweet's string length and uses that value to control a servo motor. The motor is rigged to pull a curtain over the window by using the string size to dictate the amount of movement. As the participants continue to communicate using the Twitter website, the curtain subtly begins to close and cover each window, mitigating fundamental face-to-face interaction. This in turn builds a metaphorical social barrier between the two participants and emphasizes the whole idea that social networking may in fact be accomplishing the opposite of what's intended --- causing people to drift away from our nature and become isolated, instead of fostering meaningful human connections.

The reason the servomotor follows a "ticking" pace instead of fluent rotary motion is to create a sense of slow, gradual isolation as opposed to immediately noticeable interaction. The same reason also applies when referring to the latency between a posted tweet and

movement from the curtain; however, it also exemplifies the inefficiencies of social networking in general. During the first few minutes of interaction, the participants will take little notice to the subtle movements of the curtain. However, once the participants have sent a number of tweets, the curtain will have covered a significant area of the window, causing the participants to become aware of the curtain's movement with respects to their Twitter use. This further enhances the metaphor that social networking creates a social barrier that isolates its users based on how frequently it is used. It also explores the idea that people become so immersed in online communication that they become frightfully unaware of their surroundings, effectively extracting them from a physical space, into an ethereal digital space. By the end of the session, we hope that participants understand and question their own usage of social networking, and its implications on communication in general.

Once the Processing program has detected that the curtains have been closed, an external, moderated Twitter account, "Big_Br0ther_," will message each of the participants that the interactive session has ended and that they may exit the booths. The purpose of having this third, moderated Twitter account is two-fold: to indicate the end state of our interactive piece, and to remind participants that social networking communication is vulnerable to the public eye. It causes people to think of the risks involved with communicating in a potentially vulnerable online space, as opposed to the manageable discretion of face-to-face interaction.

Connection to Art History & Other Artists

Our project is inspired by the artwork We Feel Fine by Jonathan Harris and Telematic Dreaming by Paul Sermon. We were inspired with Harris' idea of using social media data as an integral part of an art piece. Thus we integrated the idea of retrieving Twitter's status updates, or "tweets," into our artwork. We also used Sermon's concept of cross-communication between the physical world and the virtual world by effectively extracting them from the physical world, and immersing themselves in the digital world. In doing so, we aim to blur the distinctions between the two, as social networking is very much an ethereal technology that straddles the line between the physical and digital. Additionally, this physical-digital paradigm is extended to the interactive element of the piece, as the artwork retrieves tweets from the online space and utilizes this data to manipulate the physical space, via the movement of the curtains.

By allowing the audience to engage in dialogue through Twitter, and then experience the gradual closing of the curtains, we allow for a sense of physical consequence caused by digital action. This again emphasizes this whole inspired idea of intersecting these two distinct spaces. However, our work does contrast Harris' concept due to the fact that, instead of connecting people through social networking, we are exposing a sense of disconnect when using such sites as a means of communication.

Tools

2x Cardboards: $11.72 from Staples. Used to build the booths.

2x Transparent folders: $2.50 from Staples. Used for windows.

2x Light blankets: $12 from IKEA. Used for curtains and roofs.

String: $1 from A Dollar Store. Used to tie the Servomotors with the curtains.

1x Knife: $7.95 from Staples. Used to cut the cardboards, transparent folders etc.

2x Hair rolls: $1.50 from Zellers. Used to reel the the curtains.

3x Bottles of paint: $14.52 from Staples. Used to paint the booths.

2x Laptops: Provided by SFU Library.

38 feet of wooden moulding: $25.11 from Home Depot. Used to support booths.

1x Glue gun: $3 from A Dollar Store. Used to attach wood supports and curtains.

Code

**Ensure that there is at least one message on each account before you begin the experience.

The code begins by importing 2 libraries: the first is the Processing Serial library which lets us connect to Arduino, the second is Twitter4j which lets us use processing to carry different functions that connect to the Twitter website which our project uses as a medium.

The code then declares 7 int variables, 2 of them being counters to control the pace of the program and control the speed of changing and transferring variables (timer and timer2). Two more variables (a1 and a2) act as StringSize comparators, one holding the value of a current StringSize, and another holding the value of the next StringSize. These variables hold values that correspond to the string size of each tweet and are only updated whenever a tweet of a different length is recieved. The maxTicks closes the program (or runs nothing) when the string size has reached a certain limit so as to stop the servomotor from moving once the curtain has fully closed. Finally, countDown controls the speed of the curtain movement (intially set to 1 tick per 6 letters, changing the value to 5 would make it 1 tick per 5 letters).

There are 3 boolean variables which are used in the logic statements of the program. An arraylist which stores the tweets taken from an account, and finally a port that lets Processing connect to a certain port and send values to Arduino.

In the setup() method, we initialize the port, set the background and window size, and print the list of available ports on the computer. In the draw() method, we have the two main if() statements. The first tests if the first counter (timer) is above or below 1 - if above, it decreases counter's value by 1 in order to move on to the next part of the code. By the end of the if()

statement, the counter is reset back to 30 to refresh the time (1 second) in order to control the speed of the program and not force it to carry on too many operations at once.

The second part is when timer is below 1. When it's true, we start to set the four variables of information of the Twitter account using the Twitter4j library and then we proceed to make the Twitter object and set a query for it. The account information codes are manually retrieved from the developer's page of Twitter website, which are then implemented into the program in order to access the account. When a message has been retrieved from the account which we've declared, we retrieve the username, the message itself, and the date.

We then begin the complex logic statements of the code. The first begins by testing if the boolean ready is false or not (initially set to false). When it's false the variable a1 is set to be equal to the length of the tweet, and then ready is set to false. When ready is set to false, a2 will be set to the size of the tweet as well, and hence a1 and a2 will be equal on the first loop and will always be equal unless there's a new tweet, where a2 will change while a1 will not. When they're equal no other operation will occur and the counter will reset back to 30. When they're not equal however ready is set back to false in order to let a1 be equal to a2 in the next loop and not retrieve the same message again.
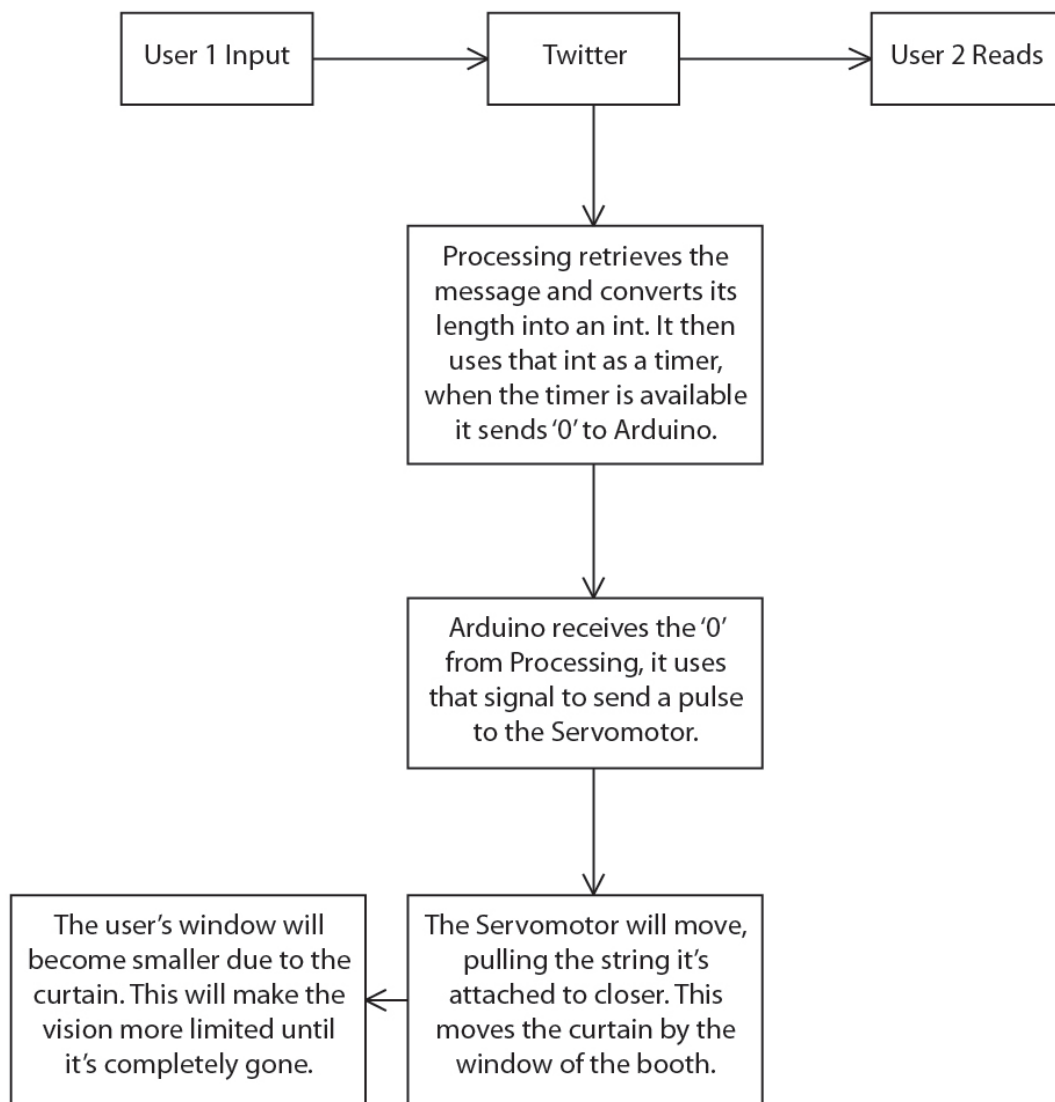
It then sets the variable StringSize to be the same length as the tweet (at this point we have 3 variables with the same value, but each has different usage and each will change during a different stage in the program and the order is extremely vital). At the beginning of the code StringSize is set to 0, and hence nothing else would happen. When it changes however - when a new tweet has been retrieved - then we send the value to Arduino followed by a packet, in this case, the character "R". The code then tests if timer2 is above 0 or not, initially it's set to 1 and hence it is above 0. It sets it back to 0 in order to carry the rest of the code. If, however, timer2 is below 0, then it sets change to true. It sets the boolean done to true in either way.

The next part tests if timer2 is above or below 0. If it's above 0, and initially it is (only changes when a new tweet has been retrieved) then it delays the program by 0.1 seconds. When it's equal to or less than 0 then it writes "0" to the Arduino program (will be discussed later). It then tests if done is true or not (if a new tweet has been received or not), when it's true it also tests if change is true or not. When both done and change is true (what this means is there's a new tweet while the Servomotor is still ticking) then it adds a negative value of the StringSize to timer2. When change is false (when a new tweet has been retrieved but the Servomotor is not ticking) then it simply sets timer2 to the negative value of StringSize, and then sets change back to false (to make sure that if we receive a new tweet we don't ignore any of them). This makes sure that the Servomotor will be running for a duration that is controlled by the string (the tweet) that has been posted.

It then tests if timer2 is at or below 0 again. If it's below 0, it will add 6 to it (meaning that timer2 will get closer to 0 by 6, each "tick"), eventually reaching a value greater or equal to 0. When it reaches 0, timer2 is set back to 1 again to repeat the cycle.

The Arduino code is rather simple. It simply gets the values from the Processing code and when prompted to do so, it'll send a pulse to the Servomotor moving it slightly in one direction. The number of those pulses, or "ticks", is controlled by the length of the tweet. Basically for each 6 letters of each tweet, the Servomotor will tick once.

Additional Technical Information

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┌──────────────┐        ┌──────────────┐        ┌──────────────┐
│ User 1 Input │ ─────> │   Twitter    │ ─────> │ User 2 Reads │
└──────────────┘        └──────┬───────┘        └──────────────┘
                               │
                               ▼
                 ┌───────────────────────────┐
                 │  Processing retrieves the  │
                 │  message and converts its  │
                 │  length into an int. It then│
                 │  uses that int as a timer,  │
                 │  when the timer is available│
                 │  it sends '0' to Arduino.   │
                 └─────────────┬─────────────┘
                               │
                               ▼
                 ┌───────────────────────────┐
                 │  Arduino receives the '0'  │
                 │   from Processing, it uses  │
                 │  that signal to send a pulse│
                 │      to the Servomotor.    │
                 └─────────────┬─────────────┘
                               │
                               ▼
┌───────────────────────┐   ┌───────────────────────────┐
│ The user's window will│<──│ The Servomotor will move,  │
│ become smaller due to │   │  pulling the string it's    │
│ the curtain. This will│   │  attached to closer. This   │
│ make the vision more  │   │  moves the curtain by the   │
│ limited until it's     │   │  window of the booth.       │
│ completely gone.       │   └───────────────────────────┘
└───────────────────────┘
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The diagram (pictured above) takes a look at the interaction between a single user and the art piece. In the context of two users, each will undergo similar interaction processes, however, with an additional connection between the two at the "Twitter" interaction node.

Design Process

Brainstorming Ideas

At the early stage of the design process, we came up a breadth of topics ranging from simple ideas like interaction with a projector, to more complex ideas that delved into multiverse theory. However, after much deliberation, we decided to focus our ideas that would be feasible given the short development time. We ultimately decided to explore the idea of social networks and how this form of technology-mediated communication is manipulating our behaviours.
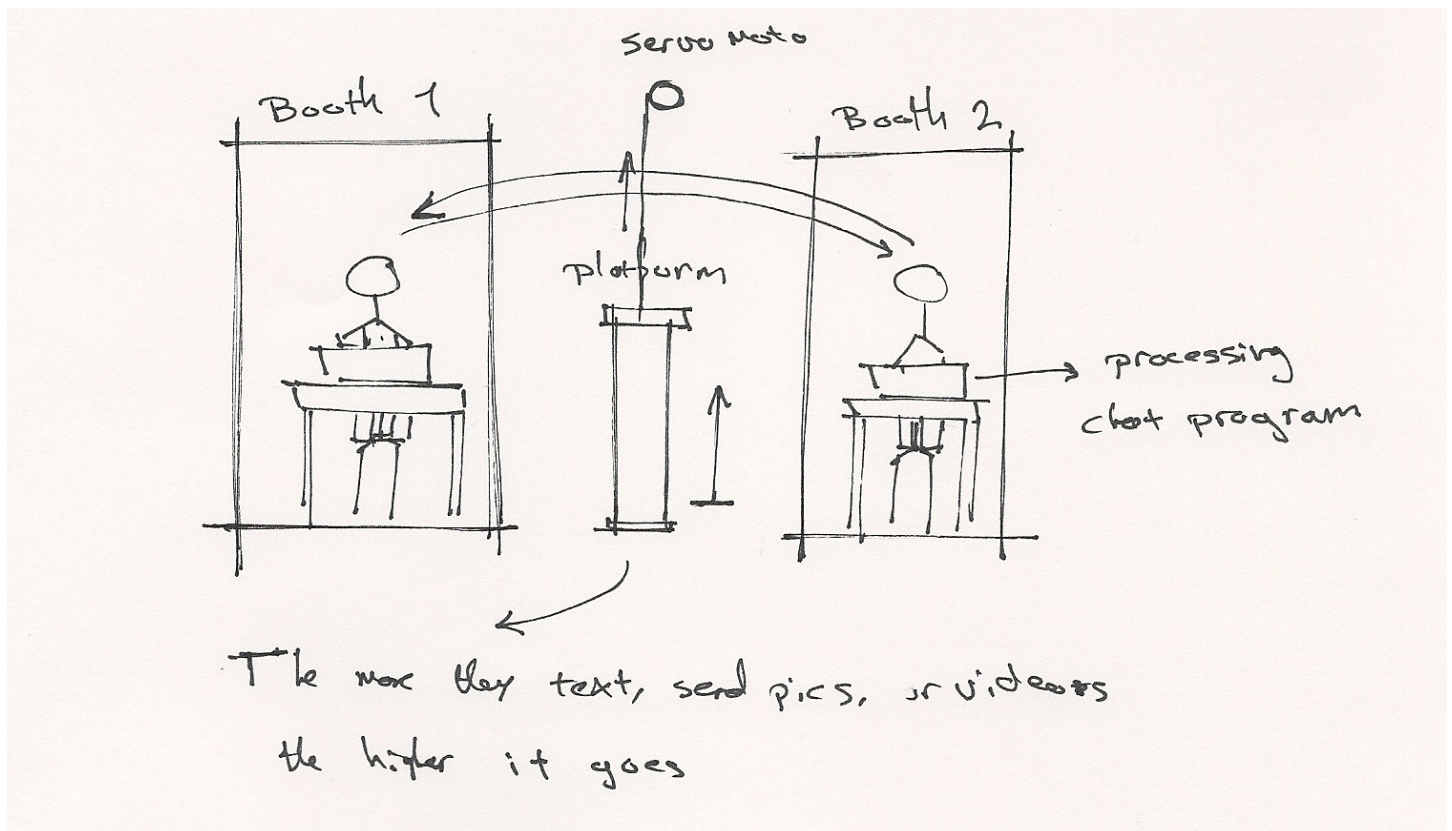
This was our very initial idea. Having 2 people on the side of each other conversing through a digital medium with a platform rising up as they use that digital medium.
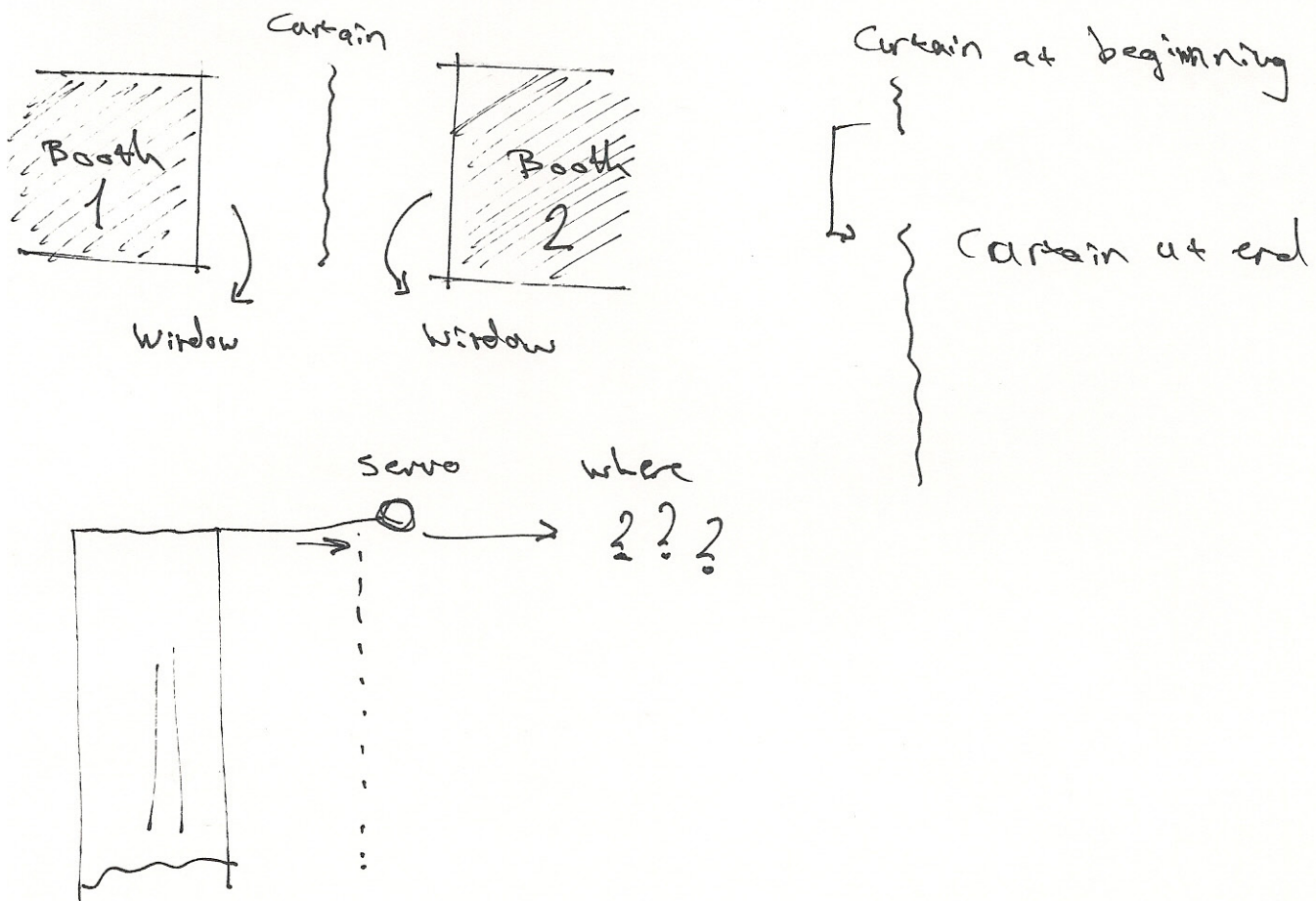
Since we didn't know how to move a big platform using simple tools (such as a servomotor) we decided to use a light curtain instead. The curtain would move in one direction and is in the middle of the two booths. It would react to both users.

Redefining the Idea

At this stage, we came up with meaningful metaphors and interaction paradigms that would reinforce our commentary on social networking technologies. We made a number of sketches outlining how the interaction would be conducted and began to research ways of using Processing to access social network information.
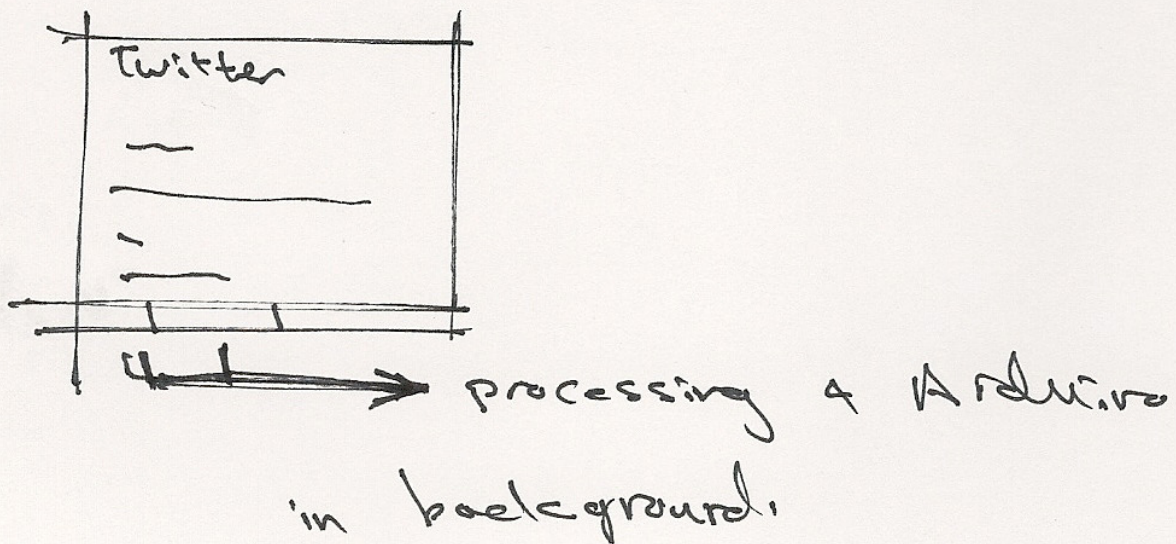
closes slowly

window to outside world
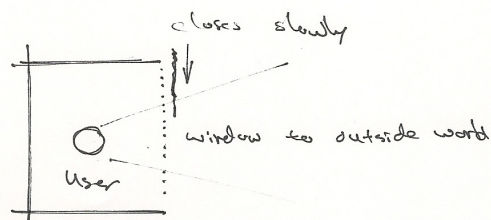
User

Curtain at each booth

For each user:
- Booth
- curtain
- servomotor
- Processing code

Due to the feedback we received, we decided to use one curtain for each booth. That meant we needed different code for each booth, one servomotor and one curtain per booth as well.


Twitter

processing & Arduino

in background.

Since we could not use Processing to post status updates to Twitter we decided to let the users use the Twitter interface, which would help convey the idea of social networking even better. When they post a status update, the Processing program will retrieve it and send signals to Arduino based on it.

Once the concept was solidified and the planning of the design was completed, we spent the remaining time programming to make the movement of the curtains correspond to the lengths of the tweets. We did research on how to retrieve tweets from Twitter using Processing. When the coding was done, we connected the servomotors to the Arduino boards and to the computers. After countless testings, we were able to control the rotations of the servomotors and effectively test our interactive dialogue.

Building the Booths

With all the programming done, we collected all the resources that we needed to build the booths. Although this process was very straightforward, it did take up a good amount of time to complete.
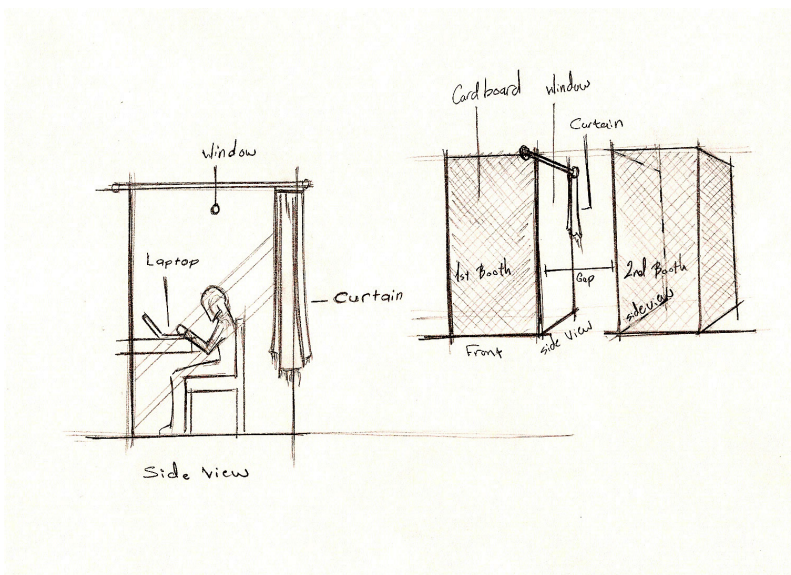
After refining the idea, we still wanted the users to be on the side of each other and we wanted the booths to be human size. We also wanted the window to take up a whole side and the curtain to go all the way down to the ground. The left sketch explains it from the side view, while the one on the right shows the two booths together.
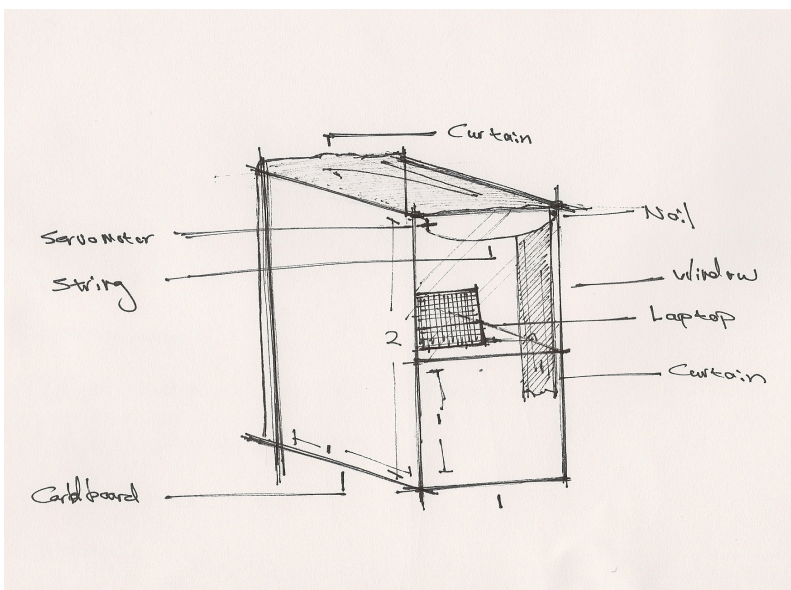
We then decided to have the users facing each other to emphasize the physical contact between them. We resized the window to make it smaller, and hence resized the curtain as well. We decided to replace the back side with a curtain instead of a cardboard to make entering and leaving easier. The rest of the sketch shows how we first decided the curtain to be installed, but we then changed it to make it move smoother.

Once we applied the paint to the booths, the cardboard grew too heavy and was unable to stay at a straight angle. Therefore, we had to use wood sticks to support the sides.

These are the final booths during our testing phase. The cardboard has been painted white to avoid any unintentional messages, and the inside holds the users as well as their respective laptops. The curtains at the window will move slowly as the users tweet and so will block the view of the window.

Us testing the project. The reel on the right is attached to the servo-motor and when it moves it pulls the string attached to it to move the curtain.

This is a close-up of the reel. It's originally a hair roller, once we removed the cloth part of it we could use it as a reel.

Final Testing

At the final stage of the design process, we made sure the piece supports our artistic message, is fully functional, and is stable enough for public display by testing the artwork multiple times.

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