

# CART351 Concordia

## Polymind Final Documentation

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Polymind is a networked webpage optimized for Phone and Tablet. It is a display that extends and helps communication. Originally thought for brainstorming it should help people talk and explore every kind of topics. People are bound around a central area "the main pool" defined by an iPad and they can interact with this area through their own space which is defined by their phone. The idea is to create debate, research on new topics or as support of communication for people that have difficulty to express or focus themselves. Each participant is able to create and inject idea and thought to the main pool. The main pool is there to gather all the ideas, analyse them, connect them and retrieve them to modify them.

### First step: The Idea

Taking this module was a challenge for me, I had some skills in CSS and HTML but did never really work with JavaScript or data. However, I decided to take the course because I am fascinated by screen communication and the magic that can happen between two screens when they communicate to each other. The moment I decided to go with my idea Polyphone I still had not that much notion of how and what it would be needed to be realized, so I concentrate myself firstly on the experience I wanted to create.

### Starting questions

*"What is your starting topic? What importance does it hold for you? For others? Why is it important to make this topic into an explorable networked space?"*

I chose as a theme the communication; after reflection I did not want to create a web page that allows to discuss remotely but rather a way to help people who are all in the same place think dynamically together. We all communicate through the web in distance but when we are face to face the web does not have a big place in our way of communicating. So I wondered how and in what context I could integrate a kind of networked space that could be used "live" with people who are side by side. I wanted my Project to help in some way with "direct" communication. I then thought about the mind mapping session that we regularly have in design. Session that ends with most of the time a wall filled with post-it. Post-it says that you always end up losing and that you can't change and keep forever. As the Mins Maps is used by a lot of people to organize themselves, to create for many different reasons, I told myself that I would try to create a digital and collaborative space that takes up this idea of mind mapping. My Project will therefore be to create a direct digital experience between people, to create an interactive communication space that simulates the participants.

*"Think about the kind of relationship you wish to encourage between your users and this space. How can you use this space to destabilize the users and make them reflect on themselves, their environment and society?"*

The relationship with my connected space requires direct and fun participation, each individual has his own personal creative space so that everyone can at any time add elements and complement the "common" space. These elements are composed of different parameters such as keywords, possibly a paragraph of text, the importance that the element possibly represents a size, a style. All participants can see during the process the different elements created by the others. The common space that contains all the elements brings together by the participants serves as a space for collective reasoning. The elements can be linked to separate, organize and resume in order to be modified according to the course that the discussion takes and the new reflections that emerge. The idea is not to annihilate oral discussions but to support them with a more visual and tactile tool. The project can be saved as a PDF for example to be printable or viewable but can also be viewed and modified constantly. This project does not really make participants think about society but rather about how they interact with each other.

*"Think about the notion of empowerment. Will your space help, challenge, teach, enable collaboration, understanding between user(s)? How and Why?"*

Polymind offers a different way of communication and reflection, based on a computer support it meets a new

generation. It is a more flexible way to start a group reflection and allows you to add a game aspect to this process. This should help communication, everyone has the same opportunities to express themselves through their individual space and then the ideas once mixed are no longer linked to a particular person. The space should thus ideally facilitate sharing for people with difficulty expressing themselves in groups, allowing everyone to participate simultaneously to make the process more dynamic.

## Inspiration

“Mindmapper: <https://www.mindmapper.com>”

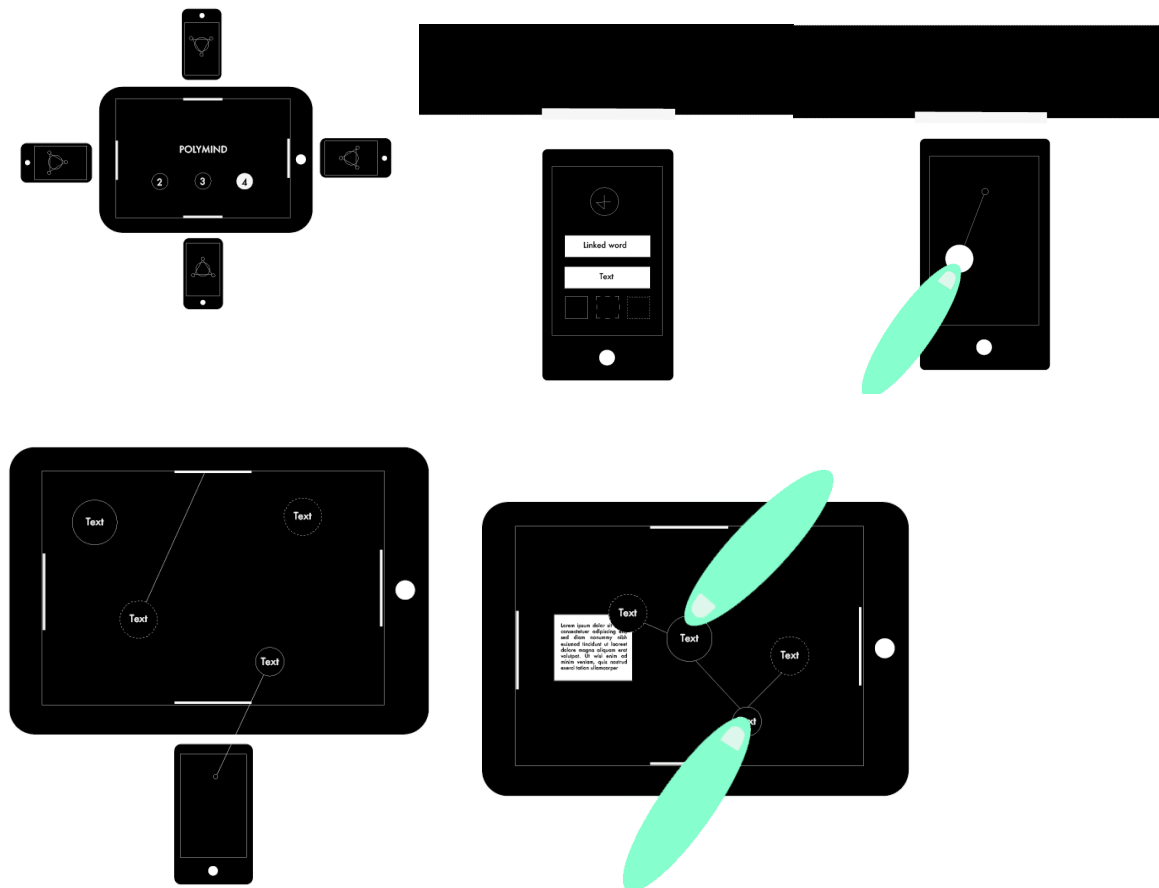
“Topicscape: <https://www.topicscape.com/blog/tag/topicscape-tag/mind>”

“Chain reaction: <http://www.onemorestud.io/11/chain-reaction.html>”

Polymind is inspired by these projects. However, I think I added an additional value that of collaboration and direct interaction on a project, unlike Topicscape and mindmapper. I will create a more collaborative space. Concerned the last project I will draw from it the game and magic side so that the users and also the pleasure of interacting. On the other hand, it will not just be a contemplative and experimental space, but a real place for exchange and sharing that has functionality.

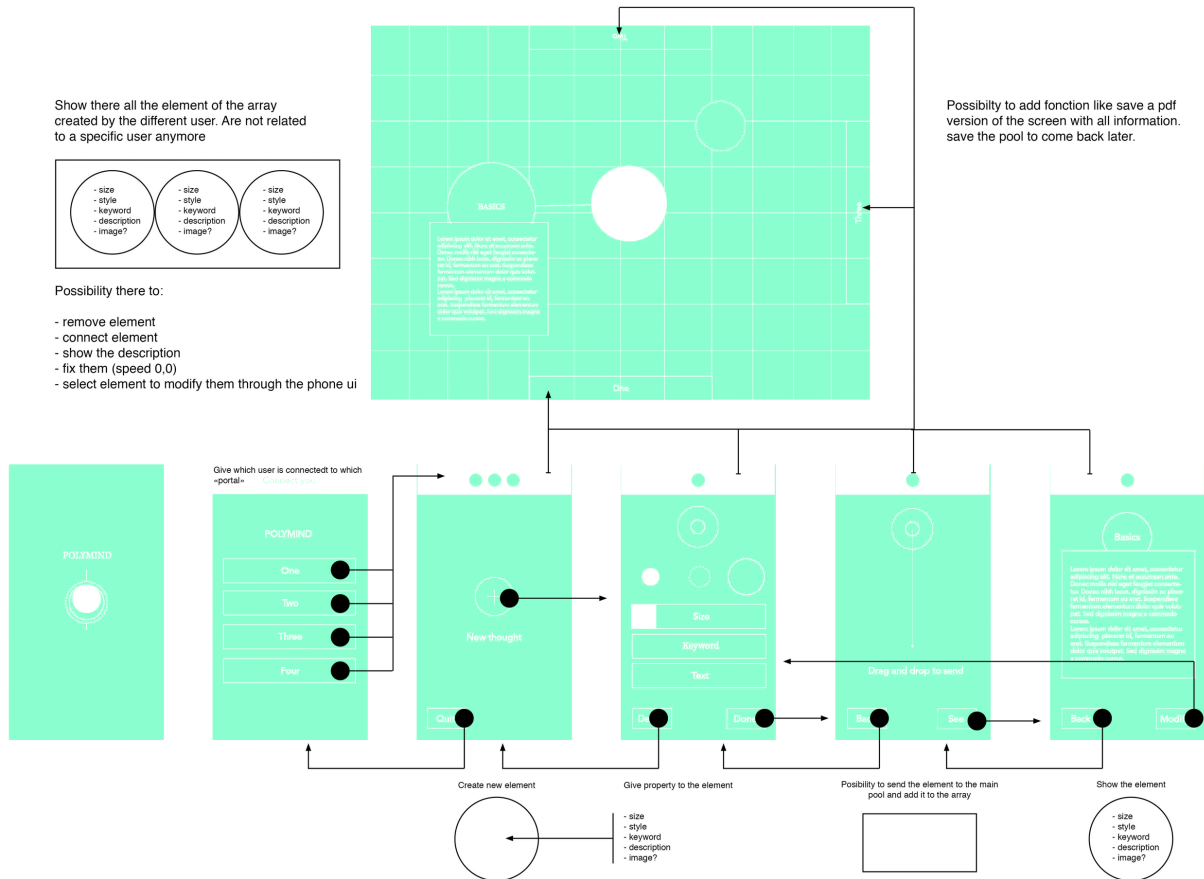
## First Story board

Without going to much in details, my main goal was with this storyboard to demonstrate my idea and how it in general would work. I already had this gaming aspect as an important point.

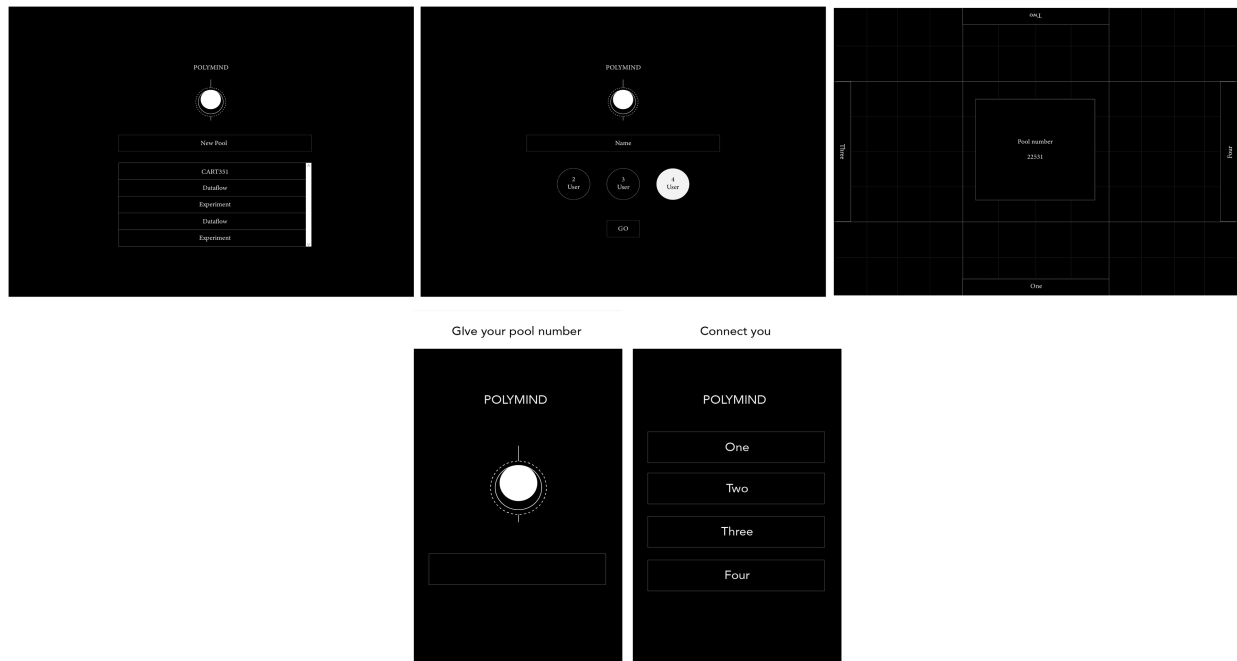


## Second step: The Prototype

My prototype was mainly made of different HTML page and some basic JavaScript and the canvas function seen in class. With this prototype I get an overall idea of the functionality and how my network and the interaction should work. I already have the design interface the working flow and overall style of my final product. During the prototype test and development, I went really deep in the feature I could implement for the project and I started to realize that it would not be possible to implement everything and that I needed to set priority. I also started to think about how the data where moving through my “story line”.



*Starting page:* The starting page was not a part of my prototype but I realize that I needed somewhere a place to start. I decide that the main pool would be the control interface. There people would choose if they want to create a new discussion area or use one already existing. In the case of a new space they would provide a name for it and it under this name that all the space data would be stored. It is at this moment that a data array where all element would be stored is created. This choice made they would need to define how much person are taking part to the debate. I am not sure how the connection can be made but probably the main pool would give a number that all user would insert in their phone to start the session. Once all are connected we are rejoining the above diagram. In the case of retrieving a session already existing they would jump the naming session and go directly to the number of person playing.

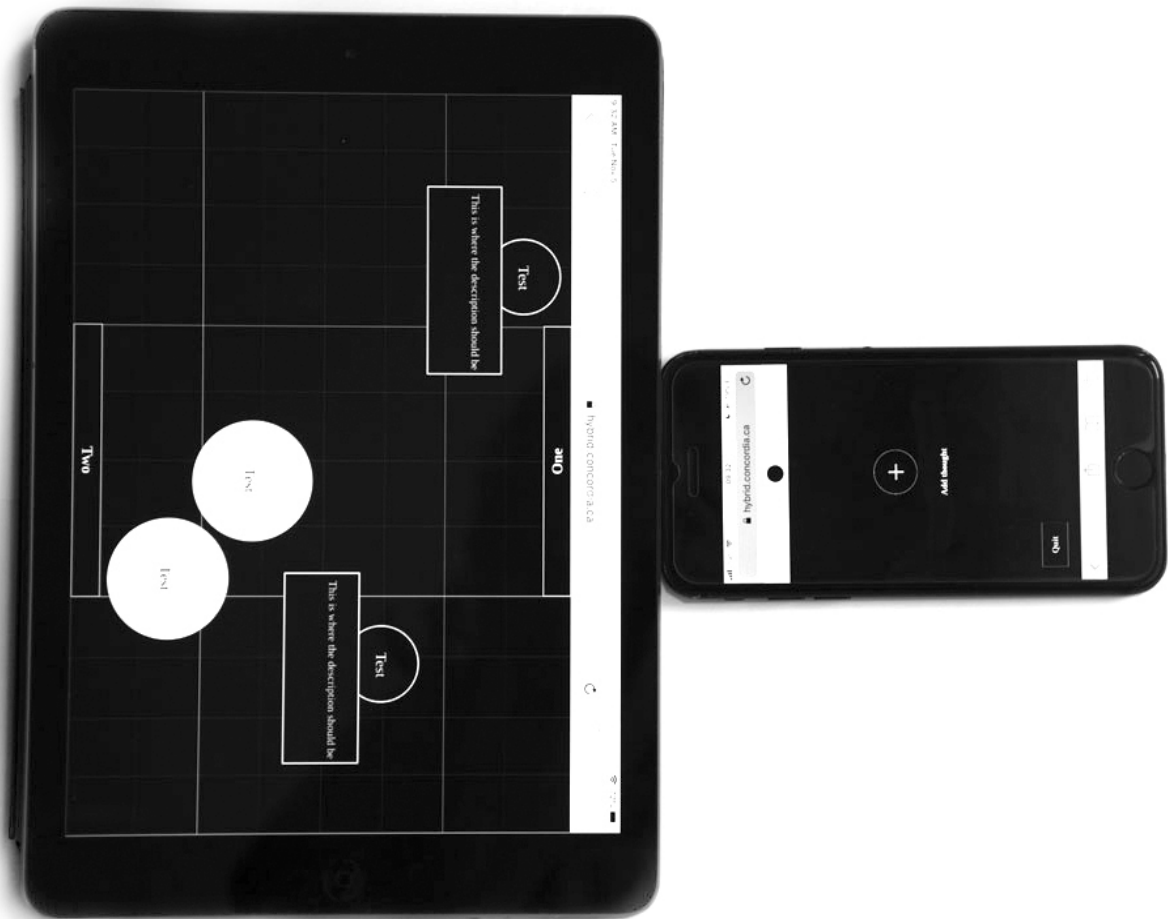


*Phone:* On the phone the user is able to connect himself with the different user port, add element to the array as describe in the schematic above (with a defined style size name and description) and can modify the element. He can also look at them and of course send them to the main pool by drag and drop which add a gameplay aspect.

*Main pool:* On the main pool elements are gathered all the user can link them by click on them and drag and drop them. Can move them on the space by dragging them. By clicking on them they should be able look at their description and I would give them the possibility to fix them by clicking on an icon in the screen. They are also able to retrieve them to their own personal device in order to modify or delete them.

## User Test

User testing allowed me to test my wireframe test how instinctive my design was. I ask every tester to connect to the screen with me and to send an element. People actually instinctively understood the connection to the main pool and their phone with the number (One, Two and the number of circle in the phone) which was an important point. The workflow was also kind of smooth and even if in my prototype I did not implement the drag and drop movement they all did it correctly and were enthusiastic with the main idea. Regarding the pool, I did show them how elements were moving and should be represented on the screen. I ask them different kind task to see what interaction they would do to operate them. First moving element around. Second connecting two element together. Third retrieve an element to modify it. The all mime the dragging to move element. As I ask them to connect them some mime a drag on top of each other but some realise that it reflecting the movement they have done to move them they were a conflict (which is funny and probably I got this reflecting because my tester were also designer used to those kind of test). Some propose to click on them to rely them or to click and drag and drop. To retrieve elements, they all make a connection to the bar with their user number, by clicking or drag and dropping.



## User test adaptation

Concerning the phone part, the functionality is quite clear and I would not modify the feature. The prototype worked really well. I just realise the necessity of a start page connecting both but I decide to start by the iPad screen. This page should also give the possibility to retrieve old work.

Concerning the main pool this user test gives me an inside of what was the most instinctive for each movement and I decided myself with those: Moving elements by drag and dropping them. Click on an element to show the description and drag and drop an element that has been click to another one (clicked or not) would connect them. Then to retrieve an element I choose that people needed to drag and drop a clicked element to the user bar. This in order to avoid mistake due to imprecise movement close to user bar.

I open also the possibility of new feature like having stylized link or linked with name so that you could make also category with links. To have main subject sub subject an idea could me that the link style is define by the style of the element it is connecting.

I ask myself too if there was a need that you could change the orientation of the element in order to read them, but as you can retrieve an element to analyse them it would not be my priority. I would perhaps add a slow rotation movement to each element so that each user as the same chance to read all the elements. Finally, I want to add the feature or save it and send it in a form film that is printable and useable for presentation for example, that feature would probably be implemented as the “locker” in a static mode in a corner of the screen.

## Third step: Implementation

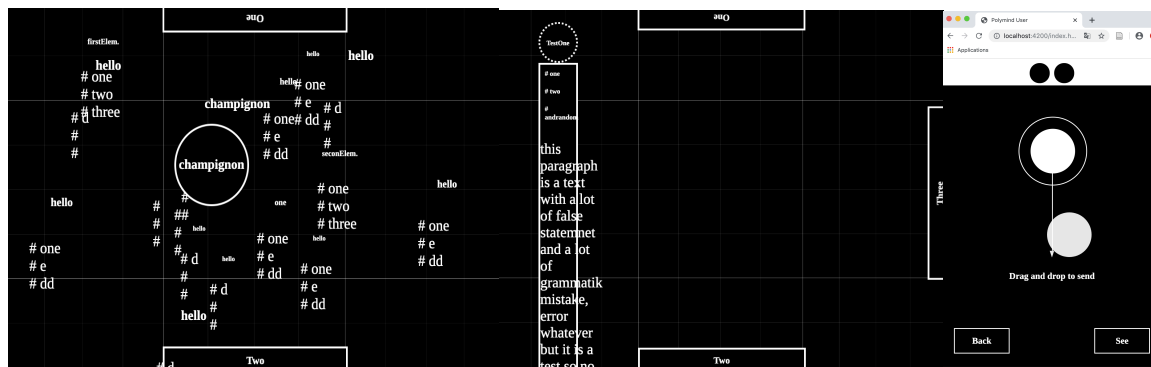
My Idea was at this point pretty well developed and I started to think about the right way to create it for my final prototype. My project required a lot of clicking and touch behaviour so the first decision I made after brainstorming with the teacher was to avoid the canvas I had in my prototype. As my visual are still simple I was able to create it using HTML and CSS styling.

### Programming

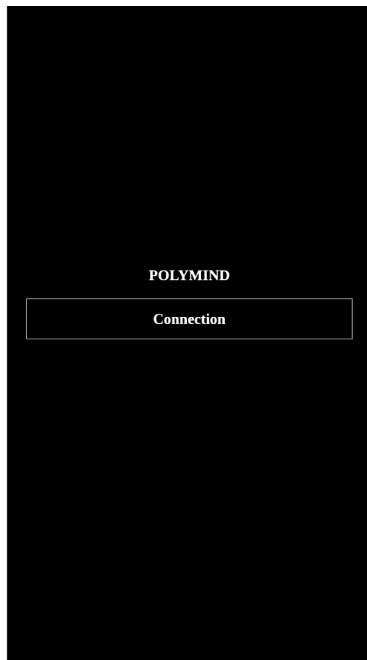
Node was my first implementation; my entire project was based on simultaneous communication between page and node with web socket (a real time library for web application) was the perfect tools to achieve that. Node allowed me through diver's request to the server to have a dynamic and multiuser page. I started programming my app with different HTML page however we realise with my teacher that having different page would require a lot of more energy with node, as I would need to retrieve and share the data through the server for each page so I played with the show and hide function to simulate a change of page. This allowed me to keep just the client sessions and the main pool html page. Once the connection, "handshake" implemented I focused myself on the different functionality: Choosing the number of user and creating data. Therefore, I used SQLite to create and have a data base. Some Ajax to make request to get the data from the database in the different page and JSON to convert and interpret it easily. All of that of course is related to the server side. Actually the server retrieves the information and send them back to the client's pages.

I got a lot of error and bugs during the programming part with help I manage to get a good basis. Data is good implemented and retrieved and I could implement the experience part that were most important to demonstrate my concept: The dragging with direction and pop up in the correct field. Finally I put it online on Heroku.

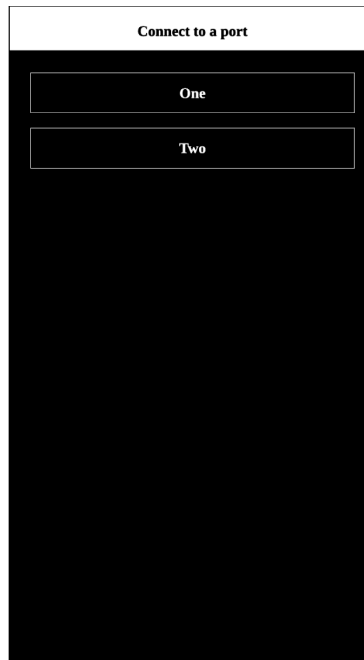
### Ongoing screen



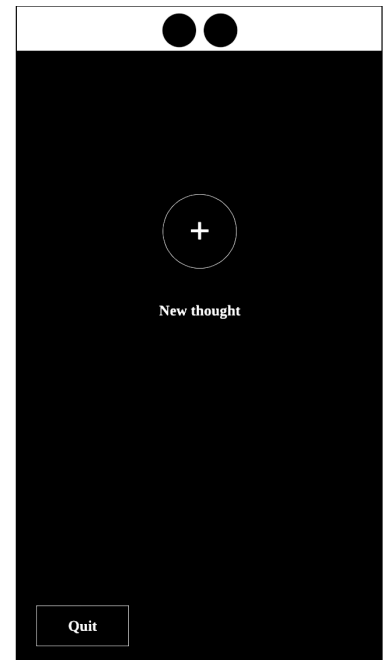
## Final Phone/Users screen



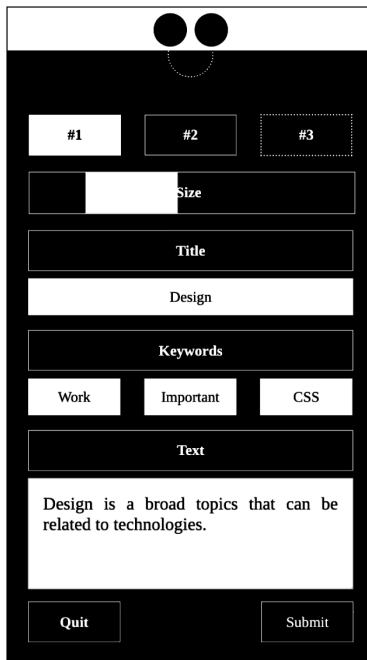
[1]



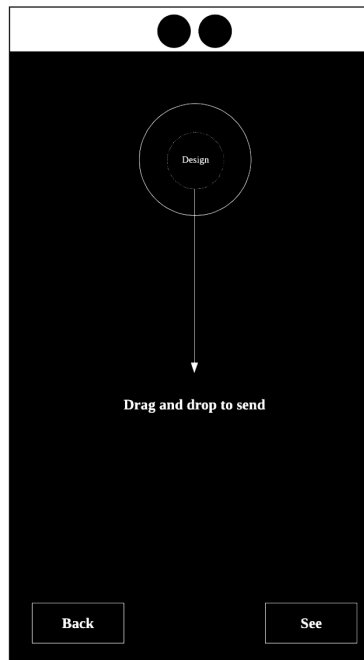
[2]



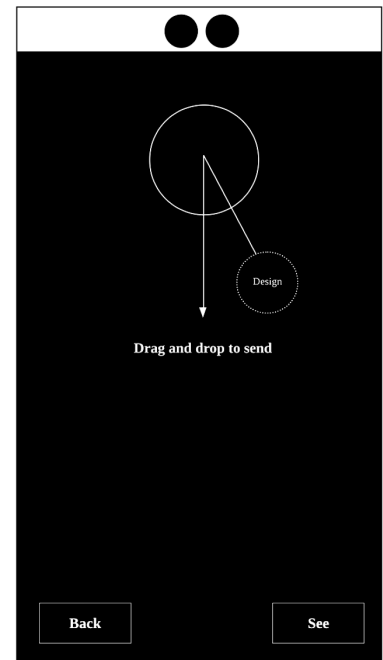
[3]



[4]



[5]



[6]

[1]

Connection screen, here the connection to the server is made, the client (phone screen) by clicking he receive an ID and the information given by the pool (the pool name and the number of user).

[2]

The user is invited to choose the port; the port choose is by clicking related to this specific session.

[3]

The user is now on the main page, here he has the possibility to create some thought. By clicking on create he landed on page [4].

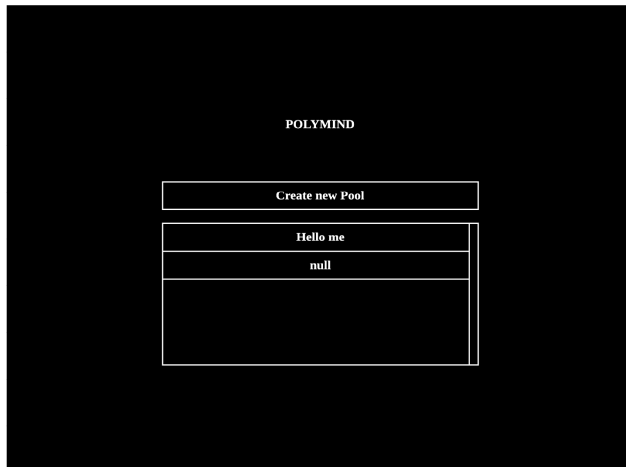
[4]

The creation page different parameter as needed: chose one of the three style (dotted, black circle or full white one), The size of the thought, the title, three keywords, and a description. The submit button land to page [5], the back to page [3] removing the ongoing creation.

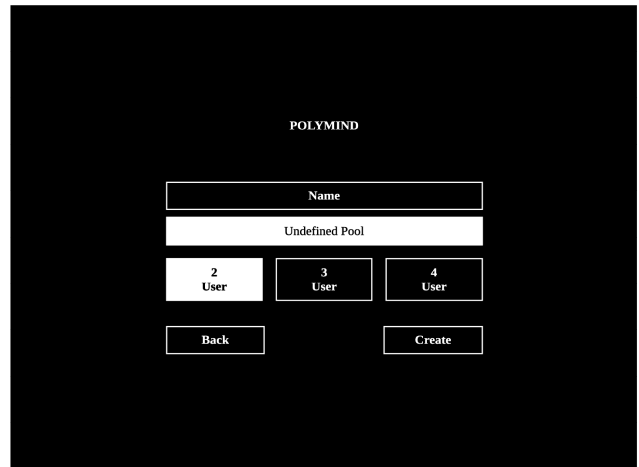
[5]

The user now just had to send the idea to the main pool by drag and dropping [6]. Here the element is created with the different input plus the direction vector. It here sends the information to the server which would put it into the data base and send it directly to the pool. Once the element send the user is redirected to the home page [3].

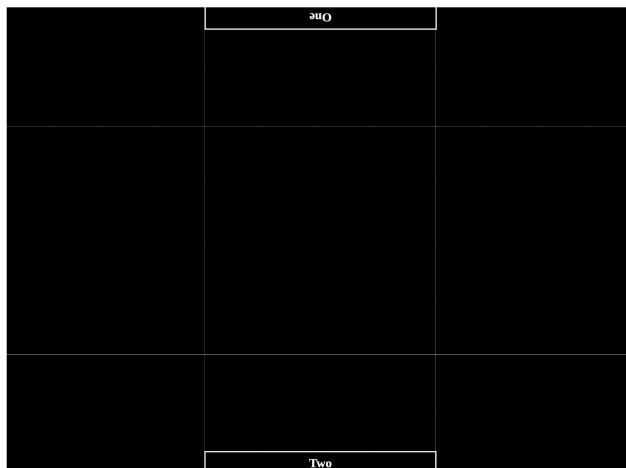
### Final Pool/Common screen



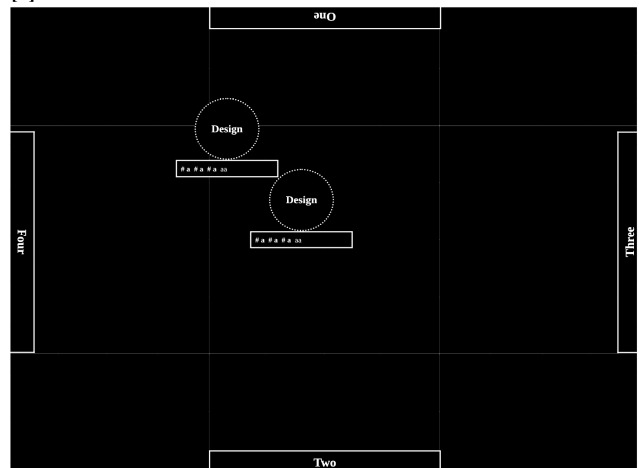
[1]



[2]



[3]



[4]

[1]

here the screen is connected to the server. Users can choose if they want to create a new space or use one already existing. In both case they come in next page where they can choose how much user they are.[2]



[2]

the number of user is choosing, in the case of a new pool they have to put a name, however if they choose to go back to an old pool the functionality is not there. By clicking on create the page send the info: pool name and user number to the server that would send it to the user individual screen when connecting.

[3]

If the pool is new it would be empty ready to get information from the users.

[4]

Here it is how it look when user send idea or if the pool already has some information saved in the data base. The element is moving around and it is possible to click on them to stop them.

## **Next step: ?**

I am really happy with the work I have done during the last weeks I learn a lot by doing and I am positively surprise of what I could implement. And I think that a good final project to demonstrate my idea.

However, there is still some problem there is to fix in order to be fully functional like the dragging function on mobile screen or the show and hide of the information. Ideally I could implement to a constraint that no more that the user number can be connected, that they are just one user that can be connected to one port and a disconnection function/ saving pool function.

Otherwise the next functionality I would try to implement is the connection between two idea. Find a way to store it in the database to, and the possibilities to retrieve an element from the pool to modified it (on the screen and in the database) and send it back to the pool. The delete function of an element is also I think important and for fun there is also some detail effect I would implement later. That would be the main element missing to have a more final working and usable application. The ideal would also to have the possibility to have multiply user creating and modified different pool at the same time.