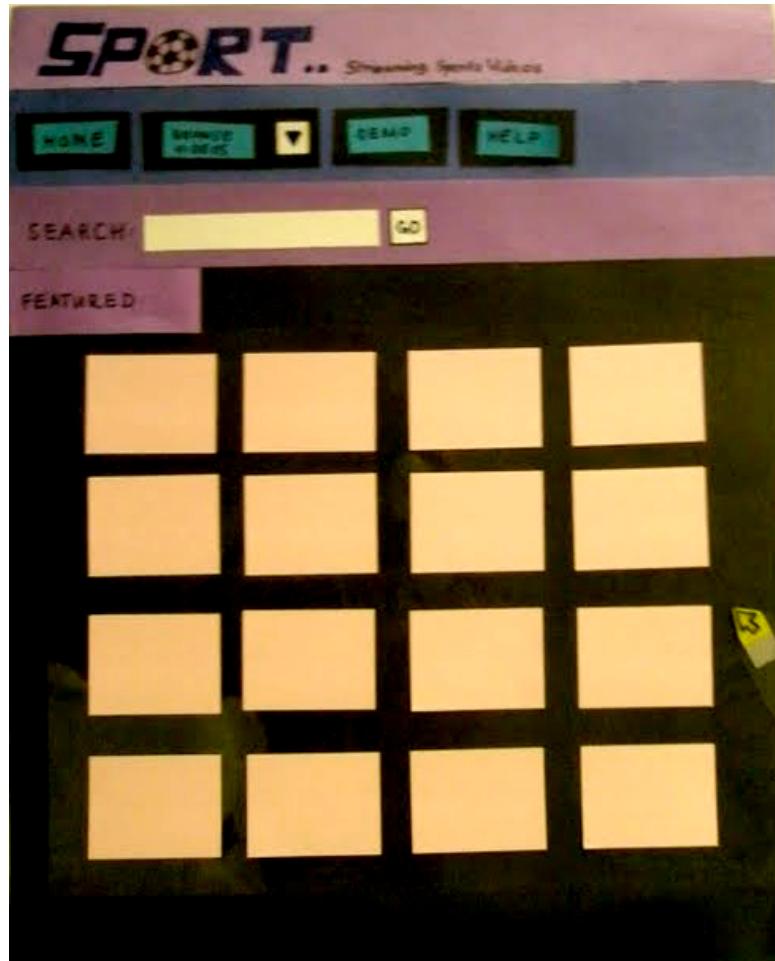


COMS W4170: User Interface Design

Project Report



Team 1001

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Introduction

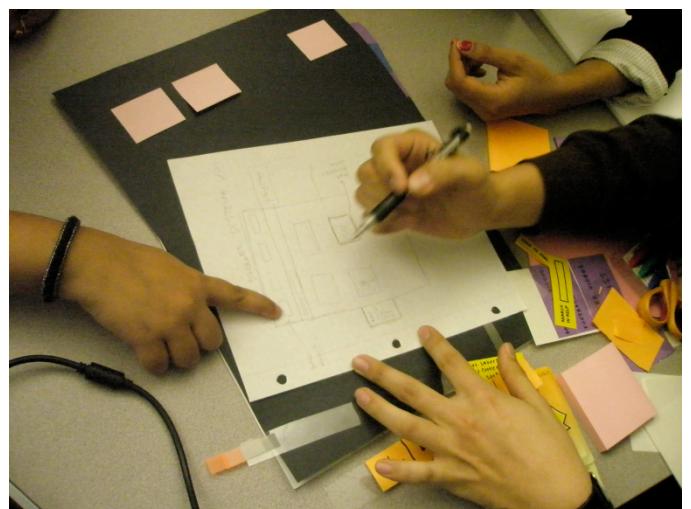
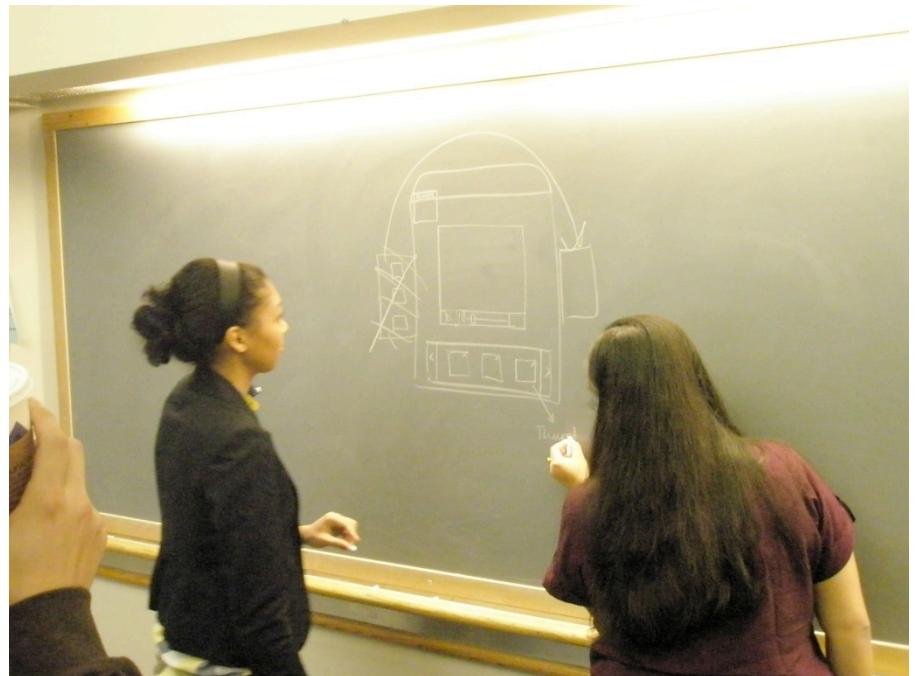
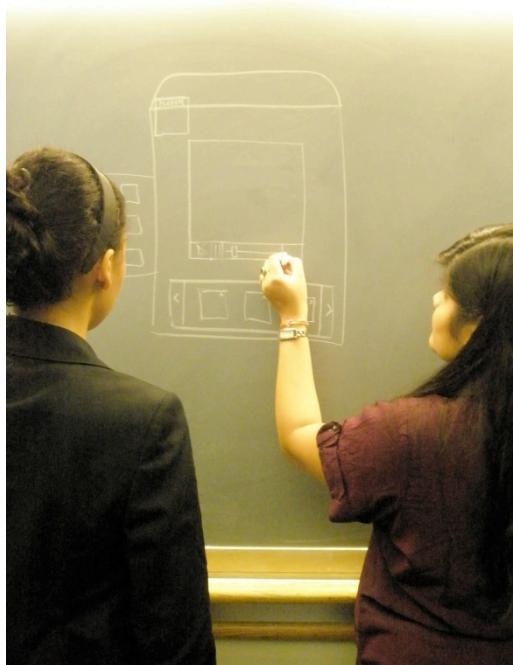
For this project, we were required to create a Lo-Fi paper prototype that depicts the user interface of a video browsing system. This system allows a user to view a large number of simultaneous videos, in addition to query videos, add and remove presented videos, and highlight desired videos. In thinking about the user interface and functionality of the system, we had to consider the usability heuristics set down by J. Nielsen¹.

The first thing we considered was how to narrow the scope of the project. We asked the question, what kind of videos would users want to watch simultaneously? Tutorial videos (i.e. to learn languages), news/weather and sports were among our ideas. We decided to focus on sports, specifically streaming sports games. This concept was inspired by sports bar that often play several different games at once on television sets. Our system could offer a user the ability to watch simultaneous games across different types of sports. We selected five major sports: baseball, basketball, football, soccer and tennis. We wanted to give the user flexibility to browse videos by sport or search for specific videos. The video results page would show a grid of thumbnails of playing videos and clicking on a thumbnail would enlarge the screen, pushing the remaining thumbnails to the side. Also, we wanted to include a playlist feature that let the user compile certain videos to play at once. We named our system “SPORT.”

With these preliminary ideas, we set out to sketch the initial design. Some important interface elements we wanted to incorporate were a menu bar, a search bar, and a sliding playlist sidebar. First, we created two personas, specific profiles of potential users, for our system and considered how they would want to navigate the site. We applied our ideas to a blackboard and paper sketches. After agreeing on the overall user interface, we transferred our ideas to construction paper.

¹ See here: http://www.useit.com/papers/heuristic/heuristic_list.html

The following are pictures of the team's brainstorming session and the work on the initial design for the prototype:



Personas and Use Scenarios

These were the personas and use scenarios we envisioned for our system.

1) **Persona:** John Smith

35-year-old – Ardent basketball fan – is a frequent visitor of ‘SPORT’. He likes to pick videos right away and watch them. He likes to make bets on teams with his friends.

Use Scenario: John opens up SPORT, and finds two games he is looking for in the ‘Featured’ list on the Homepage. He clicks on the ‘add to playlist’ button on each video to add them to the playlist. He wants to watch another game, which is not being featured, so he searches for it in the search box and presses the ‘GO’ button. When the Search Results are displayed, he sees two more games that he likes and wants to watch them simultaneously. So he selects two more videos to add them to the playlist, and then clicks on the playlist arrow button, and then clicks on view all – to watch all 4 videos simultaneously. He then wants to watch one video in full screen – so he moves his mouse over his favored video and clicks on it to enlarge. He keeps shuffling between the 4 videos in the playlist. He then realizes he does not want to watch one of the videos, so he deletes it from the playlist – he goes to playlist and just presses the cross button on the video to delete it from the playlist – Then clicks ‘OK’ on the pop-up to confirm that he wants to delete it and keeps watching the rest of the videos.

2) **Persona:** Lauren Weinberger

17-year-old – High School student – Loves to browse the net – Likes exploring new websites.

Use Scenario: Lauren stumbles onto the SPORT site- and sees a lot of different sports videos being played simultaneously. She likes the idea, and wants to know more about the site, so she clicks on the ‘DEMO’ button on the menu bar. After watching the ‘DEMO’, she understands that the site allows you to create your own playlist and watch all of the videos in the playlist simultaneously. She wants to try that out. She does not know what to see, so she goes to ‘browse’ and selects ‘Tennis’ from the drop down menu. All videos related to ‘Tennis’ are then displayed. She uses the navigation button at the bottom of the screen to see

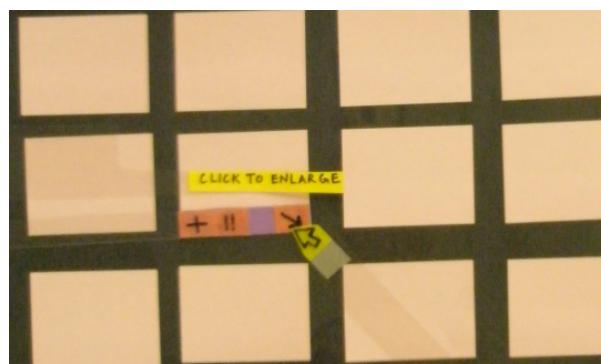
more options. She then selects one video and wants to just see it in enlarged mode, so she wonders how to do that and as soon as she moves the mouse pointer over the video, a tooltip is displayed saying – ‘click to enlarge’. So, she clicks on it. The enlarged video now starts playing. After a while, she just wants to check what the ‘help’ menu has, so she clicks on it and the ‘help’ contents are displayed. She clicks on the hyperlinks – and the corresponding contents are displayed. She’s satisfied with it and just goes back to the homepage by clicking on the homepage button.

Storyboards

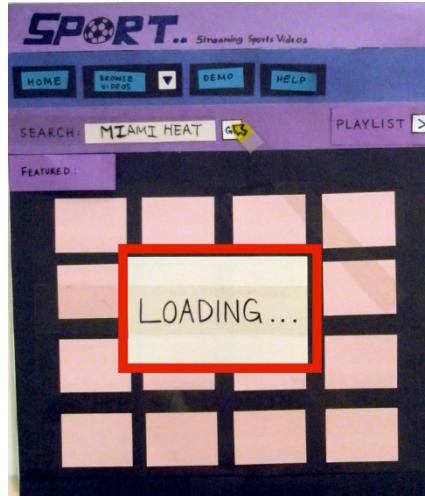
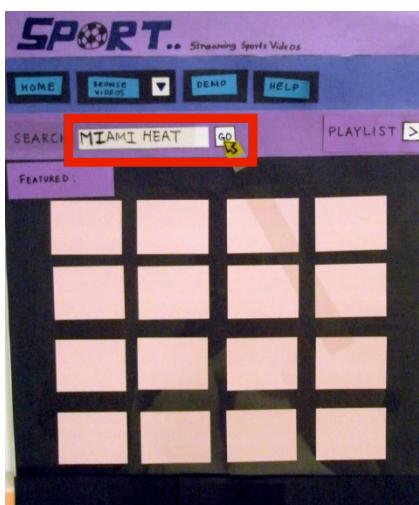
These storyboards capture the user experience of each persona we described.

Scenario 1

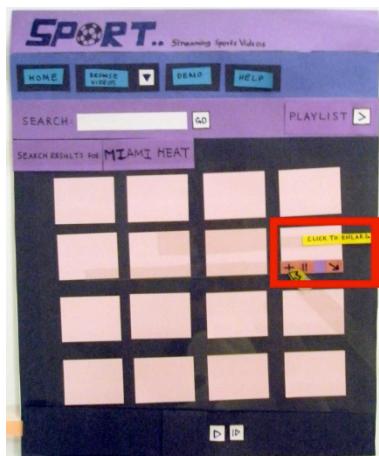
- 1) From the home screen, John clicks on the “add to playlist” button and adds two videos to the playlist. The system shows the dialog “video added to playlist” for both. The message goes away in 1 second.



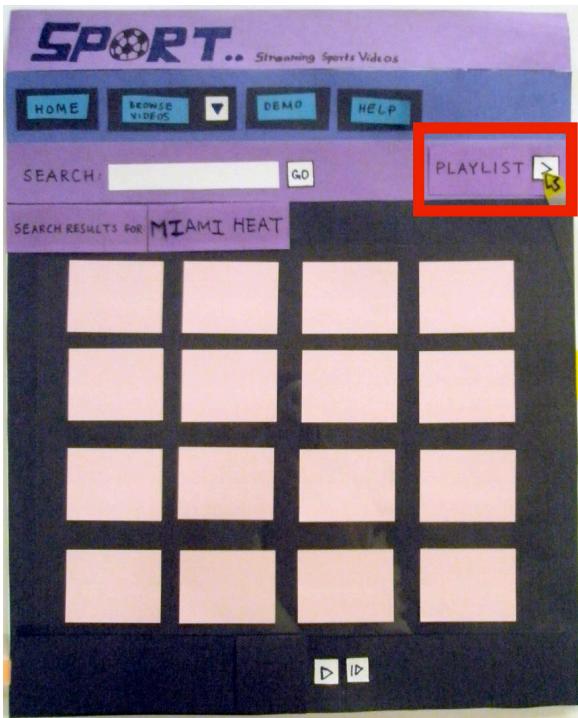
- 2) John wants to search for a team, so he enters the team's name in the search box and clicks go. The system shows loading and then shows him the results.



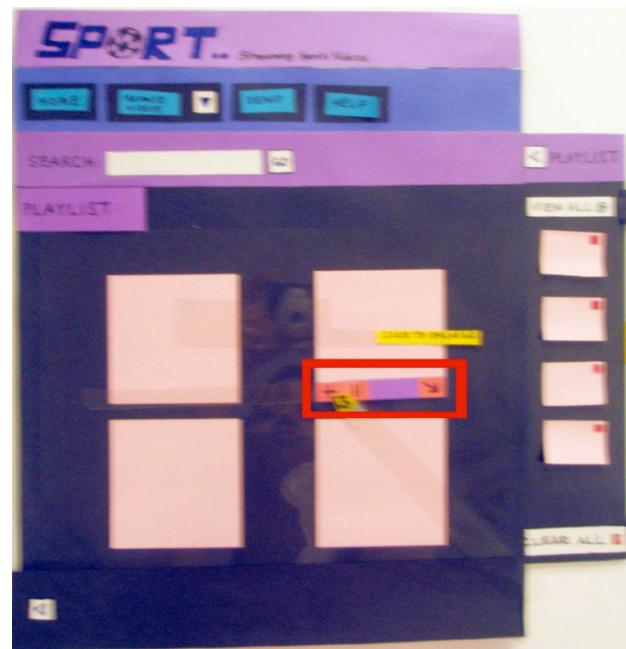
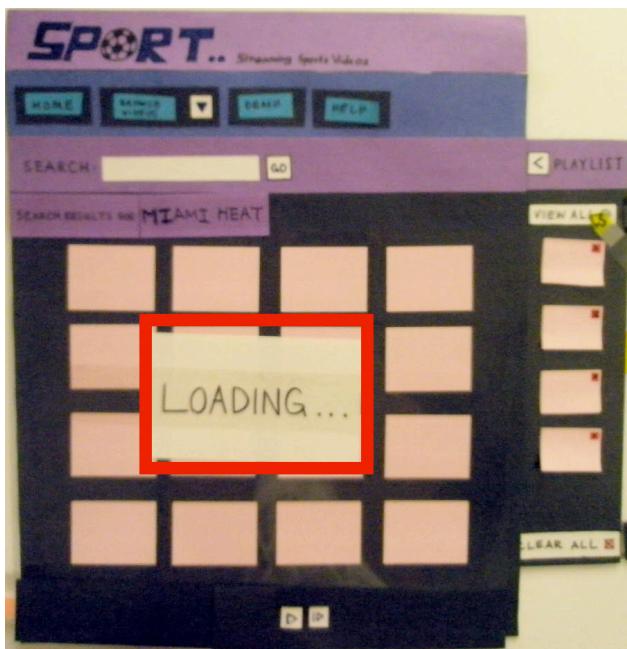
- 3) John now adds two videos to the playlist.



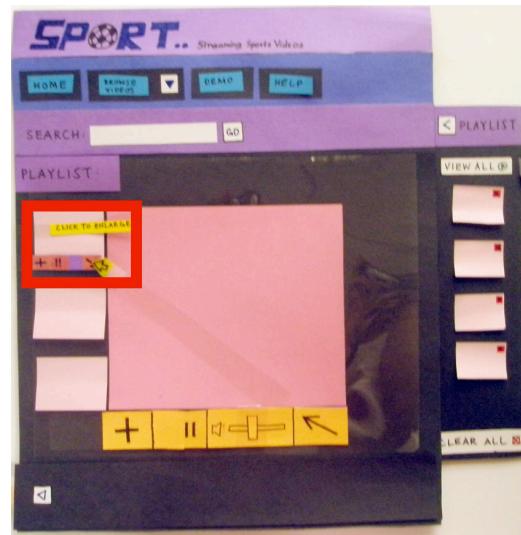
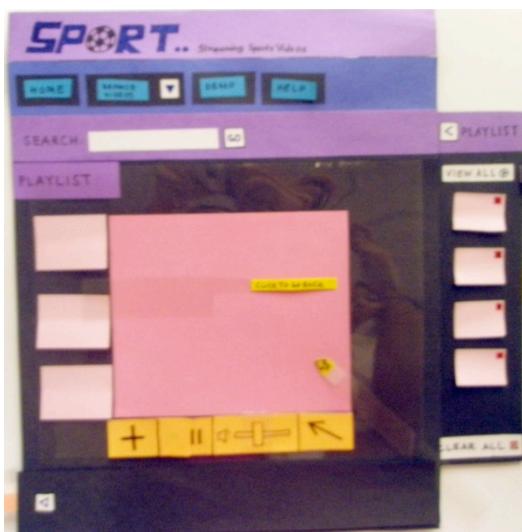
- 4) John opens the playlist and selects view all.



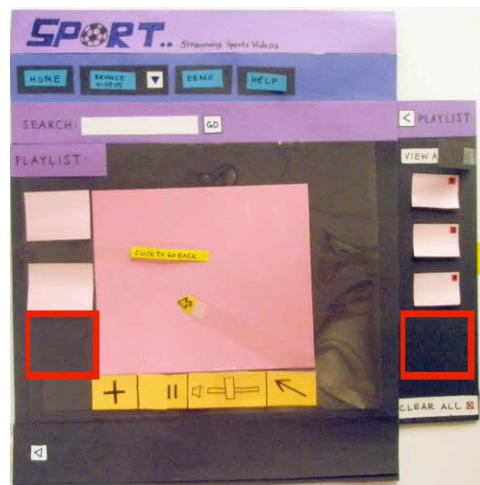
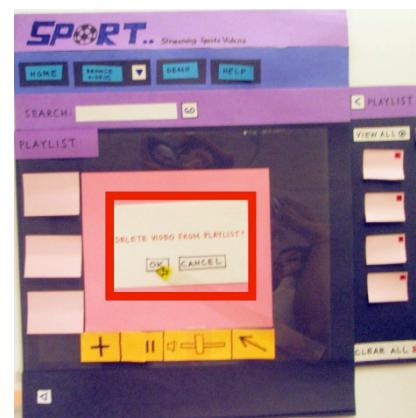
- 5) System “Loads” the videos, and the screen changes to show the playlist playing. John, then clicks on the video he likes to watch to enlarge it.



- 6) While on the next screen, John clicks on a smaller image to enlarge that video and resize the enlarged one.

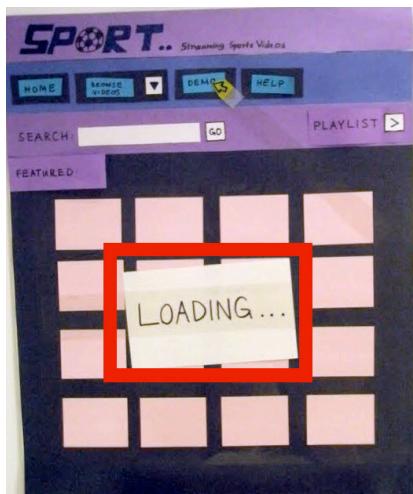
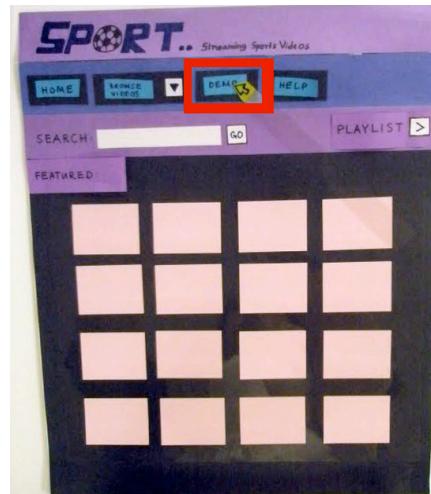
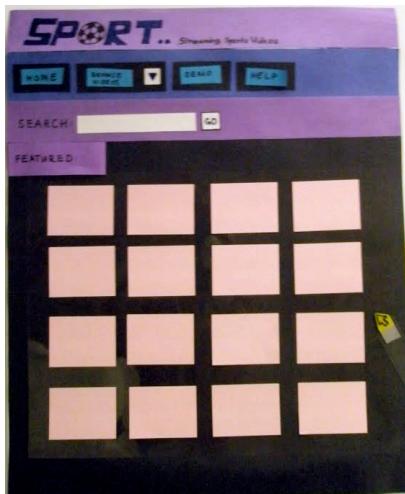


- 7) John then removes one of the videos from the playlist and continues watching the rest of them.

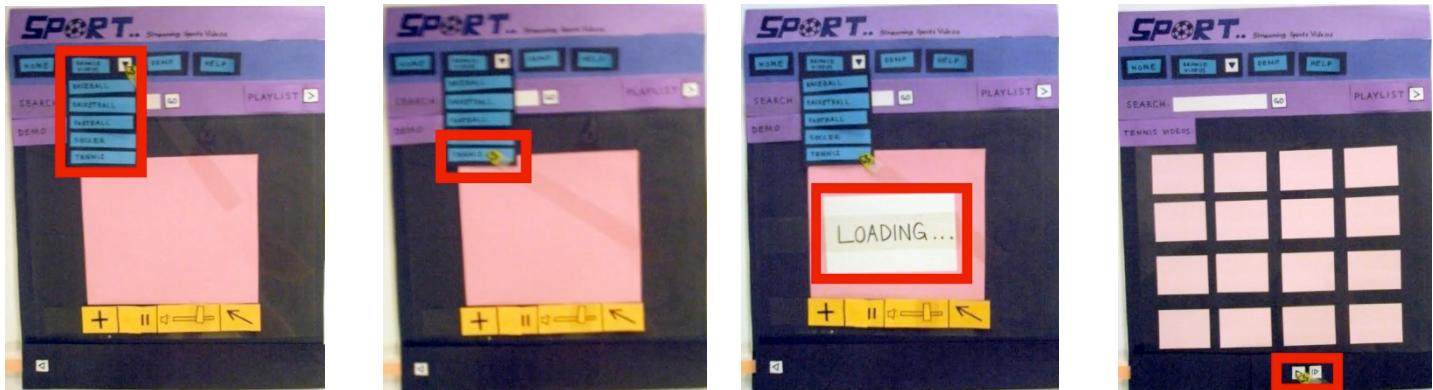


Scenario 2:

- 1) Lauren starts from the home screen. Looks at the demo button and clicks on it to go to the demo screen.



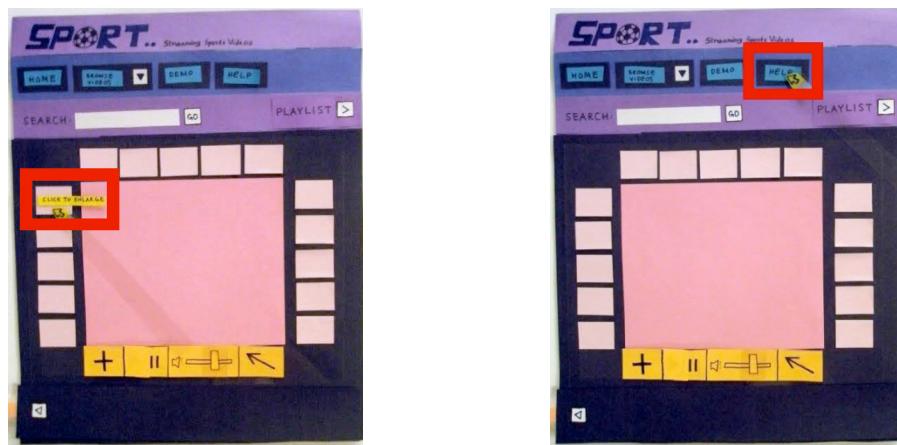
- 2) She starts with the browse button and choosing tennis videos from the browse menu.



- 3) While browsing through the tennis videos she likes one and clicks on it to view the enlarged video.



- 4) She changes the video by clicking on the small ones, and then she tries to check out the help menu.



- 5) She plays around with help screen, by selecting different help subjects/questions. Then she goes back to home screen.



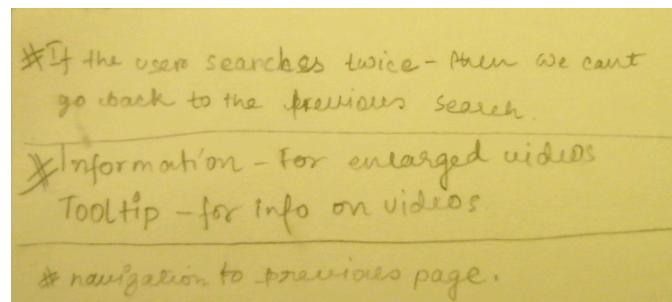
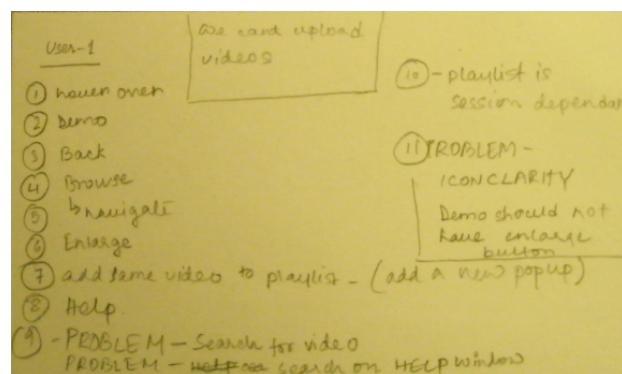
Testing

The test took place in the CS Lounge. All four users tried some same features and some different features. One was more concerned with the help screen. He is the one who discovered the “problem” of searching for help. He typed something related to the help in the search box, which was still visible, but it gave an error. This reminded us to make sure we make changes to the search field.

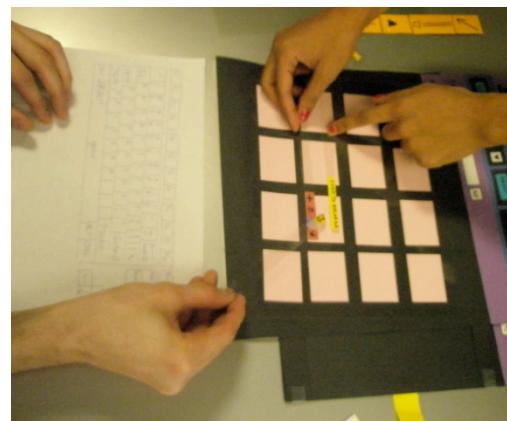
Another user pointed out the minimize button present in the demo video and asked what will happen if I click on it. We need to change that feature too. Demo screen should not have the minimize button anywhere in the control bar.

The others were more concerned with the playlist. And extensively tested the playlist feature our system provides.

Following are some of the pictures of the index cards on which our observer took notes.



The problems found will be explained and then fixed in the sections to come. Below are a few pictures of the users testing our prototype:



Evaluation

i) Visibility of System Status

SPORT has a very horizontal UI. The entire task transition is quite visible. The user knows when he/she is in the system at all time. However, there is requirement for explicitly showing system status for two kinds of tasks. First, when the user adds a video to the playlist and second is when transitioning from one major view to another, e.g., hitting go after typing in a search query for videos, shows a loading dialog box, that shows the system is retrieving videos for the user. (See figures 1(a) and 1(b) below).



Figure 1(a): Loading... Dialog



Figure 1(b): Video Added Dialog

ii) Match between System and the Real World

SPORT uses very basic terminology, as it is a very simple system that presents the user with the videos of the five famous sports. The Menu has a very understandable layout and the names for each search result are self-explanatory.



Figure 2: Realistic Menu Entries

iii) User Control and Freedom

Since, SPORT is a web-based application, users can simply go back and forward, as they like. However, SPORT does provide internal navigation, especially for search results.

Also, the user can simply click on the home menu button to go to the home page.

Nevertheless, the navigation among the search results is provided by SPORT Since, there is no user specified deletion, so there is no need for undo or redo. As mentioned before, SPORT has a pretty horizontal interface. There is no possibility of user getting lost in the depth of the system somewhere.



Figure 3: Easy navigation through the playlist and the main screen

iv) Consistency and Standards

The entire UI is pretty clear and there are no ambiguities as far as the main features are concerned. However, the testers did find an error with the search box. While on the help screen, there needs to be a search box for searching through the help menu. The users thought that the search box, we use to search for videos, was also for the help search. It was not originally in the UI design, so we are going to take measures to correct this problem. Figures 4(a) and 4(b) show the problem areas I the interface.



Figure 4(a): Change Search Heading

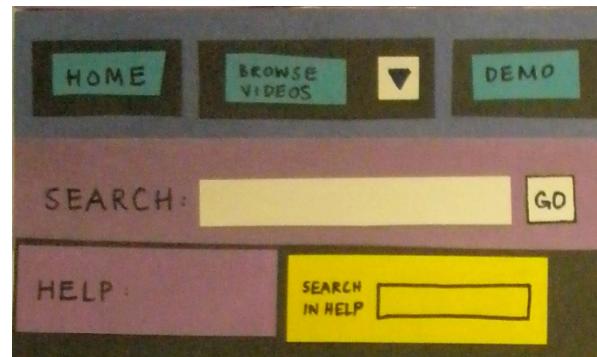


Figure 4(b): Add Search Box for Help

v) Error Prevention

SPORT takes good measures to implement the error prevention. The only place where a user can commit error is when a user clears up the playlist by mistake or even deletes a video from the playlist. SPORT provides a check in the form of a popup dialog box that asks the user to confirm the action. Other than that, SPORT doesn't provide the user any other openings to commit errors.



Figure 5: Confirmation Dialog Box to Delete a Video from Playlist

vi) Recognition Rather than Recall

Again, because of its horizontal nature, the UI of SPORT doesn't require its users to remember much. All they need to remember is what they want to see. This is also taken care of in the playlist. The items (videos) that the user adds to the list are visible in the

playlist as the thumbnails. Also the interface has appropriate labels for user to know where in the UI there are at that moment. Figure 6 shows the playlist (opened).

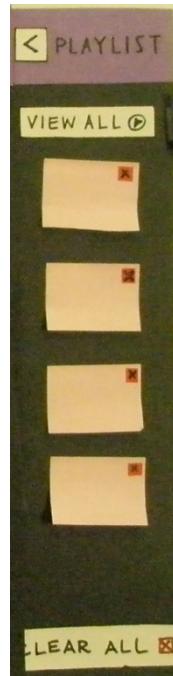


Figure 6: The Playlist (opened)

vii) Flexibility and Efficiency of Use

While in the Enlarged video screen, the users have the choice to change to any other smaller videos on the same screen by clicking once on the small video they want to enlarge. A novice user, who hasn't followed the demo provided with the system, will go back to the original screen and then click on the other video to see it, thus doing extra unnecessary steps.



Figure 7: Click on Smaller Videos to Enlarge Them

viii) Aesthetic and Minimalist Design

SPORT originally shows just the videos playing. When a user puts the mouse over one, it is then that the buttons to play/pause, add to the playlist, and enlarge and the tooltip become visible. Figure 8(a) and 8(b) show both.

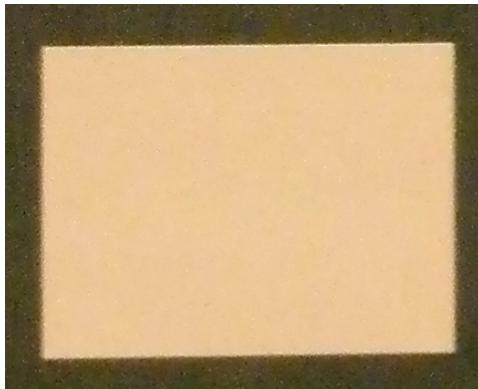


Figure 8(a): Plain Video Playing

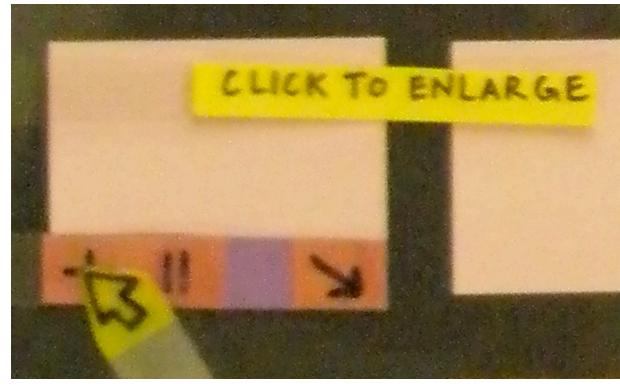


Figure 8(b): When Mouse is over the Video

ix) Help users recognize, diagnose, and recover from errors

The error messages are only needed 1) when a user searches for a video that is not there, 2) when a user tries to add a video to the playlist that is already present in the playlist and 3) when the playlist is full and user tries to add videos to it. SPORT takes good care in making the messages precise and understandable, so the users know what they did wrong.

x) Help and Documentation

SPORT provides extensive help documentation for the users. This help covers all the topics from usage problems, to system troubleshooting. There is this search problem with the menu, as it was mentioned in one of the sections before, which will be fixed in the next section.

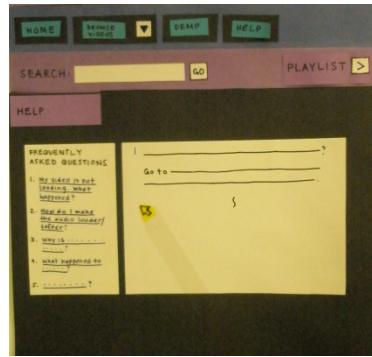
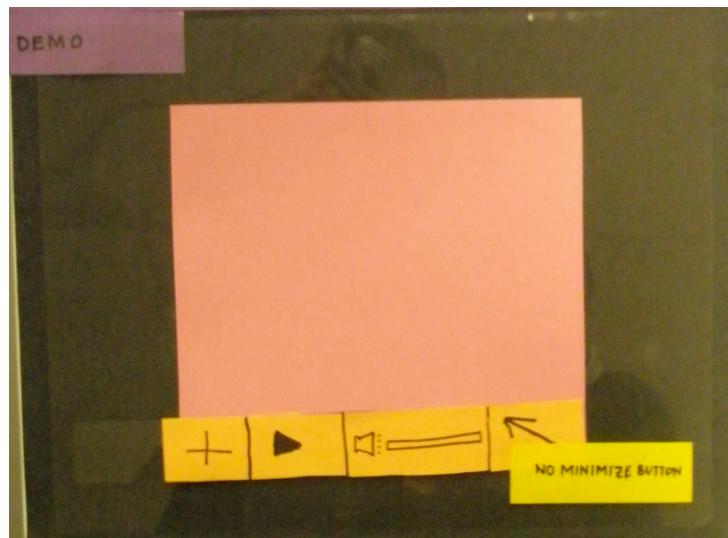


Figure 9: Help Screen

Miscellaneous

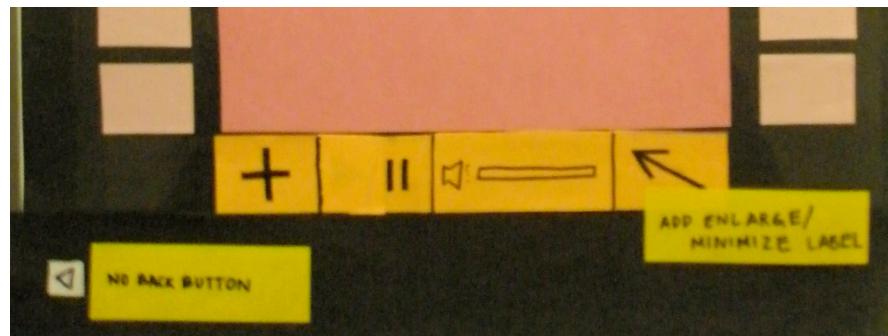
Despite it being a great UI, SPORT still has a few problems, which came up during the user evaluation with the other team. One of them was mentioned above. These problems will be briefly stated here and then fixed in the next section.

- 1) Since the demo has only one view (enlarged), there is no need for the minimize button that the other videos have for returning to the normal view.



- 2) Here I will cover two problems that the users found, first is the navigation confusion. The web browser has its own back button, so we don't need a separate back button. It's just confusing, since we have navigation within the search results. Next, the resize/minimize

button should have a tooltip to say what it means. Some users may not recognize the button and thus get confused, so by putting that tool tip there we can take care of it.



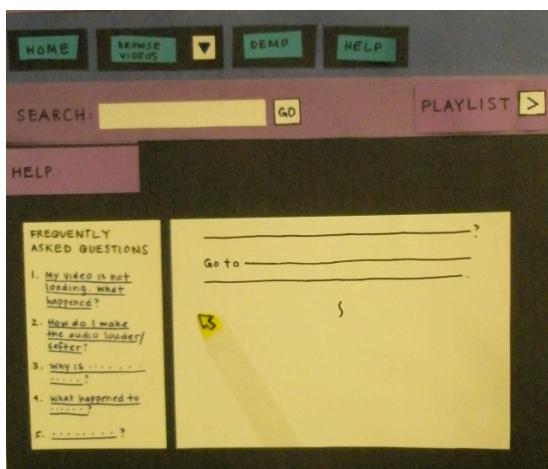
- 3) Finally, the users sometimes can't make out what video is being played, so there should be some sort of info that shows up for the video. We will use a tool tip that becomes visible when a mouse moves over a video. It has the info. For the video in it.



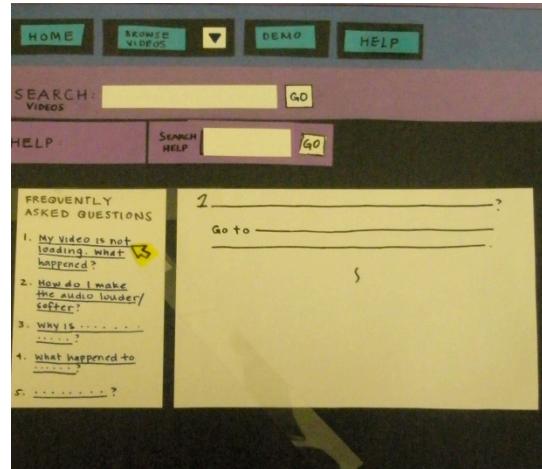
Revision

As listed in the Evaluation (part 3), there were a few problems with the UI. In this section, we will show the changes we made to SPORT's user interface to fix those problems. Let's go over them one by one:

- 1) The addition of help search capabilities to the interface

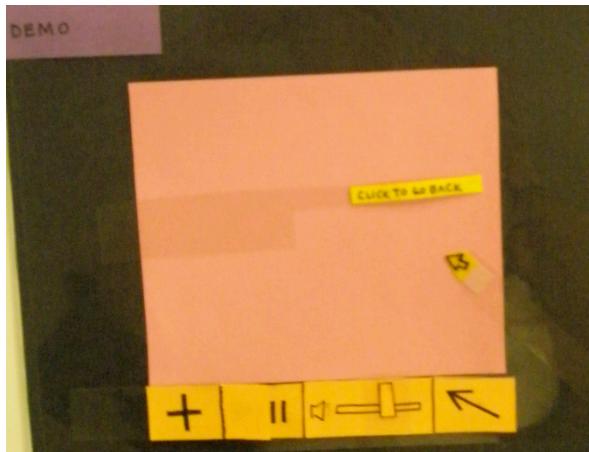


Before

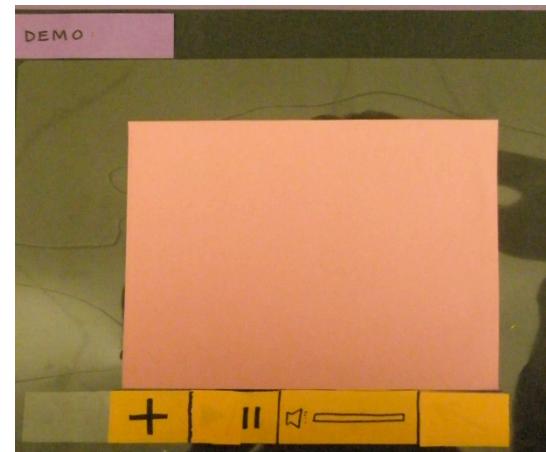


After

- 2) Remove the minimize button from the demo video

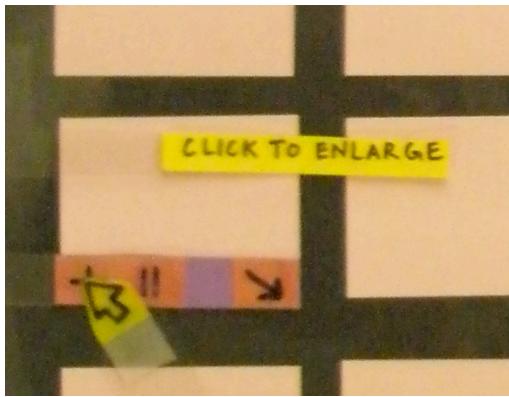


Before

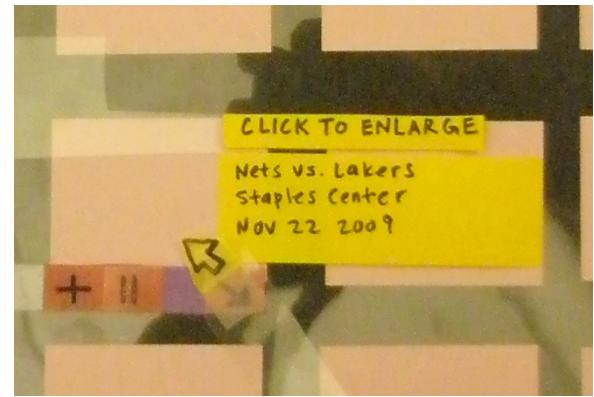


After

- 3) Information tool tip for the videos on the screen

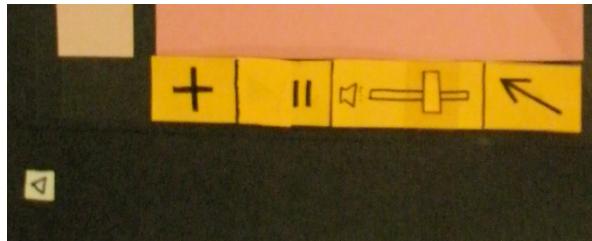


Before

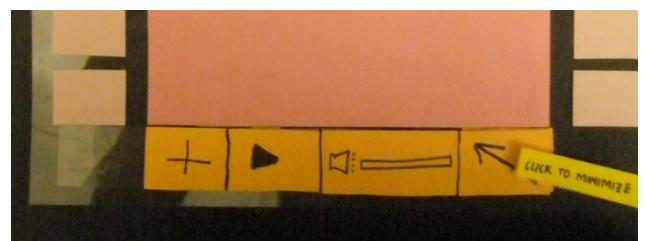


After

- 4) Here, we will cover both the tool tip for the minimize button and the removal of the back button at the bottom of the screen.



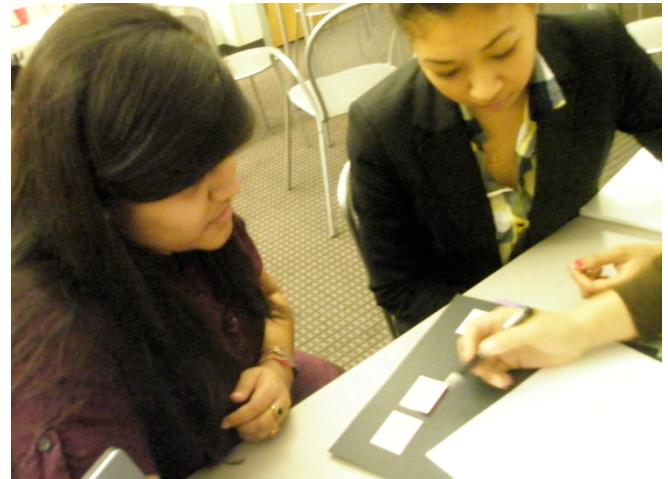
Before



After

This concludes the required changes in the user interface. The above-mentioned changes don't affect the transition through our use scenarios provided in the storyboards (part 1).

Below are a couple of snapshots of the team while working on this part:

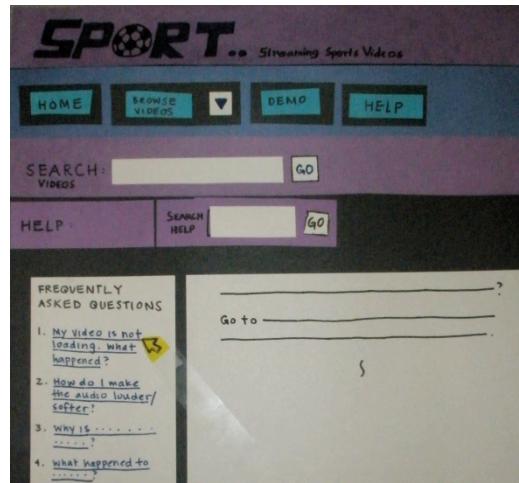


The Revisions change the visual outlook of the screens; however they don't affect any of the steps originally performed by our personas, in the user scenarios we gave in the part 1. Following are snapshots for the new screens for some of those screens viewed earlier on.

- i) Now, when the user moves his/her mouse over a video, they will be able to see some info about it as a tool tip.



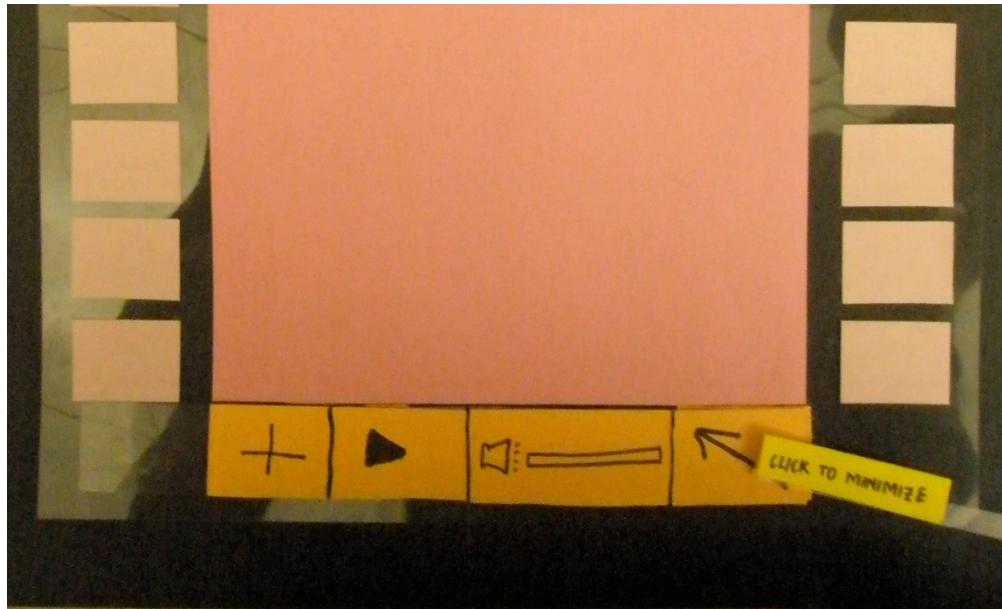
- ii) Help Screen has its own search box, and to avoid confusion search box's title says, "search videos".



- iii) Demo Screen's control bar doesn't have the minimize button, because there is no need.



- iv) There is no need for a back button at the bottom since the browsers support this feature. And also there is a possibility of confusion by having that extra back button. Also there is a tooltip for the minimize button for those who may not know what the button is.



Conclusion

After all the above steps, we have our UI ready. We can start the implementation process now. The software UI follows all the usability heuristics and is very attractive. It will be a great hit.