

# Concepts and Early Prototype - CS 352 Group 4

Alison Jones | Victoria Dmyterko | Jonathan Chen | Zhuohong Gu  
Oregon State University, Corvallis, OR

**ABSTRACT -- This paper discusses potential interfaces for a 2D floor planning website or application and presents arguments for each concept. We then present a storyboard-based prototype to demonstrate how potential users could interact with the 2D floor planner.**

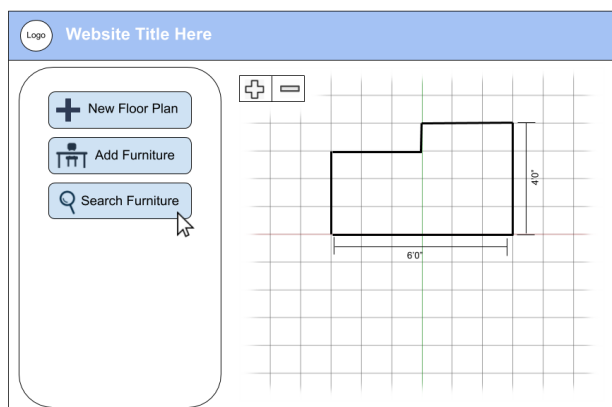
## I. INTRODUCTION AND SUMMARY

When people plan to move to a new space to live, whether it's a new-built property, a second-handed house, or just an apartment for rent in a new city, deciding which kind of space to choose is always to major problem. One of the biggest concern is how can they purchase furnitures or moving their old furnitures to the new space so they can fit in. Our project is a website that helps people design a 2D floor plan and visualize how their furniture will look like in the plan. We could also add a commercial feature like an online furniture store so this project could be profitable.

would be a good choice because of the ample screen space it provides for designing and creating the floor plans. Considering the database of pre-made shapes we would like to provide the user, a larger screen would be ideal to show the large variety of options. Another benefit of a website would be the option to print or save the layout directly to your computer. This option would be more difficult to achieve with a mobile-based interface.

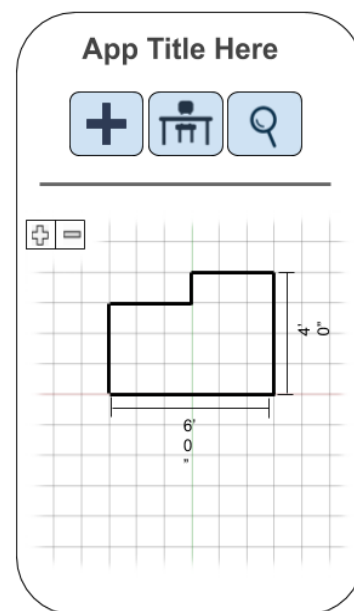
One issue that may come up with a website-based design includes the lack of mobility that comes with using a desktop or even a larger laptop. This means that the user is confined to one place, thus they can't update their layouts while moving through their home. Another potential usability issue is the use of a mouse or trackpad to create the floorplan. Drawing with a pointer on a computer is not as intuitive to most users as using a stylus or finger. We would have to address this issue when creating the floor plan drafting tool.

## II. INTERFACE CONCEPTS



**Fig. 1.1 Website Interface**

Our first design concept is that of a website-based interface (Fig. 1.1). A website



**Fig. 2.1 Mobile Application**

Another potential concept is that of a mobile-based application (Fig. 2.2). A large advantage the mobile application provides to users is the ability to update and create your design while moving through your home. This gives the user an opportunity to make a very detailed layout since they can update it in real-time. Additionally, a mobile phone or tablet application can be used with either a stylus or a finger. This would be a more intuitive way to draw the layout since it mimics the way we naturally draw with pen and paper. A mobile application would also be easier to share with friends and family through social media because of inter-application connectivity. For instance, the 2D floor planning application could be paired with the user's already existing Facebook profile if they wished to do so.

A potential issue that could affect and limit our users is that the touchscreens on mobile phones and tablets use electrical conduction in our fingers to work. Elderly users or other users with poor conduction could face difficulties using the application for drawing and designing. This could be fixed by using a stylus, but this solution may not be appealing to users since it requires them to have an extra tool. Another reason a mobile application might not be ideal is because of the small amount of screen space they provide. Large designs and the database of pre-made shapes might be cramped on small devices. This could lead to screen clutter and frustration for the user. Finally, saving a layout on a mobile phone or tablet may use up memory which is often limited on those devices when compared to traditional computers.

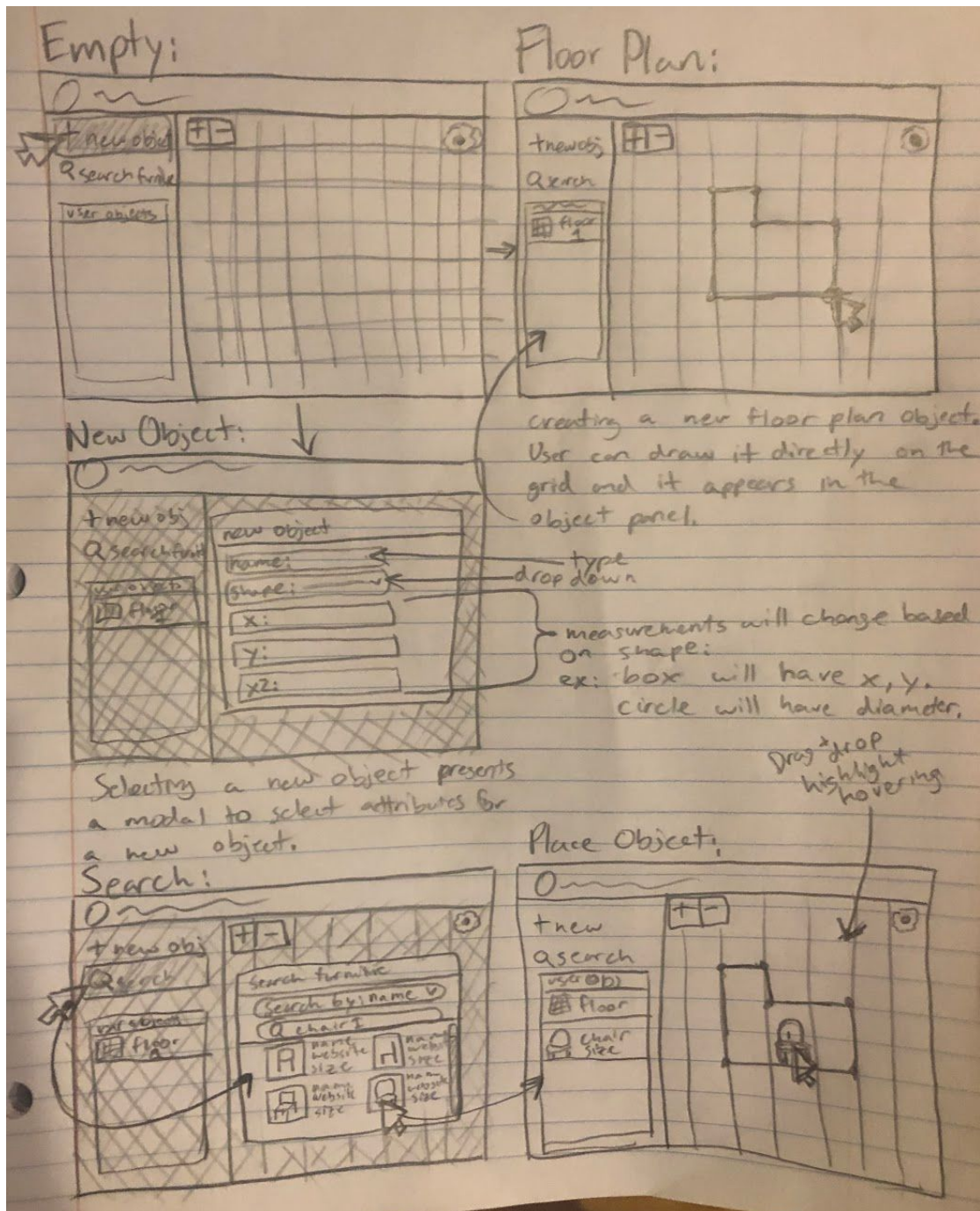
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### **III. PROTOTYPE DISCUSSION**

This website project creates a diagram of the floor plan of a building that allows users to plan out furniture placement. This project would use dimensions to visualize how each object

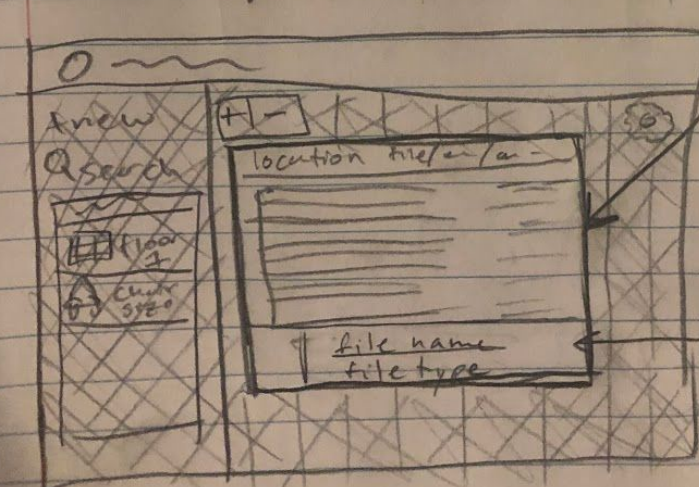
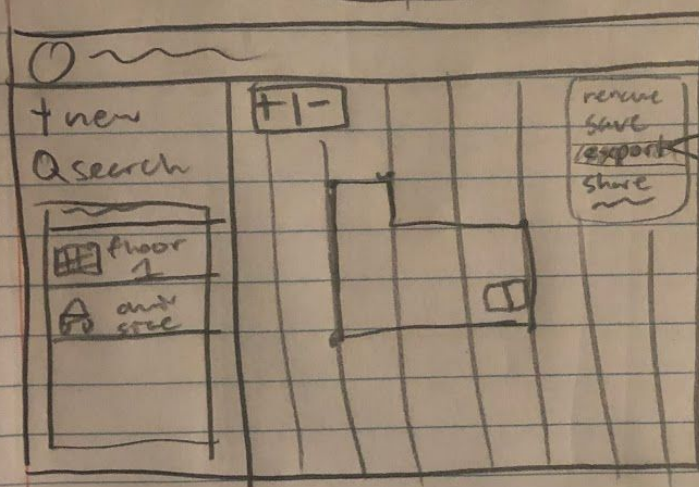
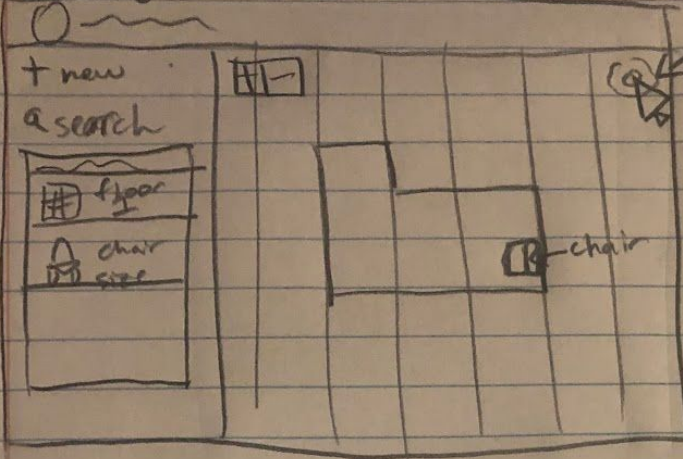
would fit into a room. Functionalities would include searching for premade furniture templates with default dimensions that give the user a general idea of their layout. For more accurate results, the user is able to input their own dimensions. The project needs to be simple to understand for both new and experienced users. The design of the interface has a simple compact menu that lets the rest of the screen be dedicated to the grid layout of the floor plan. Another benefit of using a website-based design is the ample screen space allows the grid layout and the pre-made design database to be featured at the same time. Using a website based design also allows the user to save their layout directly to their computer and use a printer to print out the layout. In order to reduce the difficulties with drawing the layout using a pointer we can have the lines 'snap' to the grid lines on the page. This way the lines stay straight and neat for the user. We believe this 2D planning website will be an effective tool for people to plan their living spaces, whether they are moving, adding furniture, or simply want to try-out a different layout.

#### IV. PROTOTYPE STORYBOARD





# Settings / save + export



user selects  
name & type & location

## **CONTRIBUTIONS**

Alison Jones, Visual Design:

- Figures
- Storyboard images
- Prototype images
- Completeness: 5

Victoria Dmyterko, Leadership:

- Concept descriptions
- Abstract
- Document setup
- Completeness: 5

Jonathan Chen, Writing:

- Prototype Discussion
- Completeness: 5

Zhuohong Gu, User Communication:

- Introduction and Summary
- Completeness: 5