

CSE 403  
Project Pitch Documentation  
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## **Motivation**

In professional web development, developers usually follow a predefined design by designers. But for end users who are resource-constrained in the design aspect, they usually employ the approach of coding and designing at the same time. Because of the very nature of this approach, how to quickly try out different possible designs, especially in the middle of developing existing code, becomes a problem for end users.

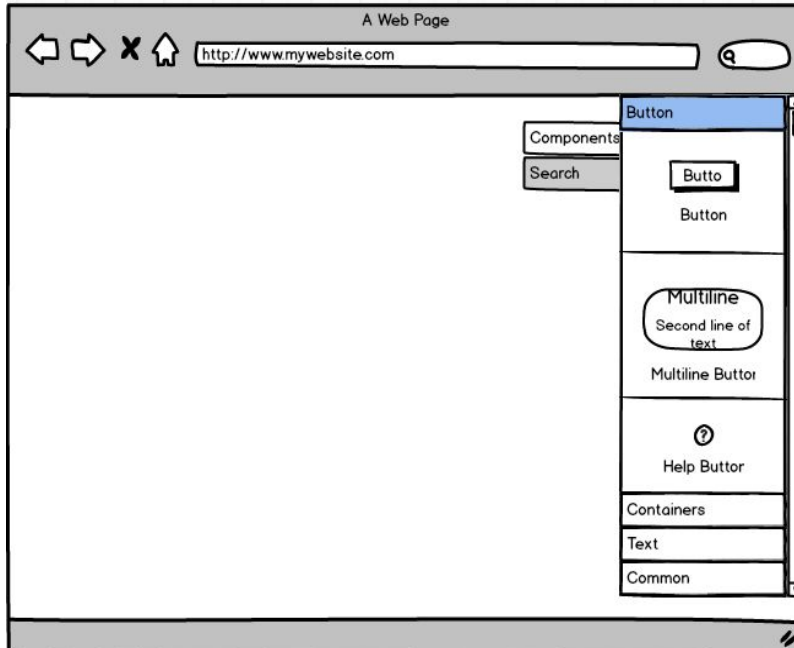
The existing approaches are:

1. Copy code from Bootstrap which has some demo components available. While this can make the component simply show up on the web page, it is very hard to integrate with the existing code such that it can show up in the desired position, especially if you are using a framework.
2. Use software dedicated for website prototype where you can draw out your design or use existing components to quickly build out a website layout. However, non-professional programmers usually code and design at the same time. So if they want to explore some possible design directions based on their existing page, these software cannot help as they are intended to use from scratch.
3. Use chrome extensions, such as Web Paint, that allow you to draw on the existing website. While this approach would fit the style of coding and designing at the same time, it cannot convey a visually meaningful design as user often can only draw simple shapes or lines using these tools.

A exemplar scene would be an end user trying to write his own blog website. He has already implemented the website skeleton and is trying to put a top navigation menu. But he is not sure about what style so he wants to try out a couple design options. An ideal solution in this case would be having some tool that enable him to put some possible design components onto his existing page, to which none of the above approaches satisfy.

## Approach

At a high level, our approach is to develop a tool, possibly a chrome extension, that allows user to “drag” website components, such as buttons and navigation menus, into the in-development page. Here is a sketch of a possible interface:



User can select and customize components from this chrome extension and drag their design onto anywhere of their existing page. This approach enables end users to focus on the design aspect of their web page when they want to quickly try out different designs in the middle of development. It eliminates unnecessary code for components that may not actually being used. Also, it is much more visually meaningful comparing to hand-drawing. Besides, it allows users to perform this process in the middle of an unfinished project which fits most end users' development style of coding and designing at the same time.

## Challenges and Risks

The biggest challenge we currently foresee is how to use an opened web page as a canvas while preserving the properties of a website. That is, after adding the components, users can still scroll up and down, click into hyperlinks, etc. Another difficulty would be how to allow customization of the components.

In worst case scenarios where we can't finish our project on time, we can discard preserving the website properties and simply screenshot the existing page as a background image and add predefined components on to it. While it is not as convenient as viewing the webpage in its original format, this minimal viable product still achieves the core functionality which is allow end users to quickly explore possible visual design in the middle of developing a web page.