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15-112 Term Project: Competitive Analysis

There is no similar product to my project, but there are similar research projects/experiments being done with similar features. Here are the main dimensions of my project that I will use to compare it to competitors:

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| --- | --- |
| Focus of Image Processing: | For my project, this is the interior design of a room, but the majority of image processing will focus on how to find empty spaces in an image. This will include: 1) feature and contour detection 2) creating an algorithm that accurately finds empty spaces 3) use features in the image to determine the size of these empty spaces, all using OpenCV |
| Output of Program: | For my project, the output is a collection of products that can be bought online and the user’s original image with images of the possible product ‘pinned’ to the empty spaces in the image to create a useful visual. |
| User Input: | In my project, the input from the user includes the following: budget, color schemes (optional), keywords, website urls (optional), dimensions. |
| Use of the Web: | My project will take image processing and user input and then conduct a search on a relevant website (specifically Etsy) to finally create the output for the user. |

Similar System #1: This is a tutorial released by a data science company, Tooploox.

<https://www.tooploox.com/blog/building-image-search-engine-for-interior-design>

What this provides to the user: Given an image of a typically decorated home/room, this project provides the user with a list of objects that were able to be detected using OpenCV image processing, and images of similar products online.

What makes this project unique: This project is unique because of its convenience for the user. Essentially, it takes away the effort of having to determine an object from looking at an image, and then coming up with the right ‘term’ to google search to find similar objects.

Dimension Comparison:

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| --- | --- |
| Focus of Image Processing: | The focus of the image processing for this project is 1) Object Detection and 2) Object Matching. This is almost the opposite of what my project does, since it focuses on what is already there and my project will try to find ‘empty spots’. |
| Output of Program: | The output of this project is similar to mine – a collection of online products that the user may seek to purchase. |
| User Input: | This project takes no user input. |
| Use of the Web: | This project uses machine learning on the image net dataset to find pictures of similar objects to those in the image. Rather than using a dataset online, my project uses a realtime website. |

Similar System #2: This is a research paper published in IEEE for “A mobile application and web recommendation system for assisting indoor decoration.” (source: <http://ieeexplore.ieee.org/document/6247012/>)

What this provides to the user: Given an image of a room, this project provides the user with a variety of products the user may want to buy from companies who also use the platform based on color analysis. There are also features provided to the user such as sharing/liking/recommending products to other users on the platform.

What makes this project unique: This project is unique because it turns the process of interior design/indoor decoration into a sort of social platform where buyers and sellers interact in a market place.

Dimension Comparison:

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| --- | --- |
| Focus of Image Processing: | The focus of the image processing for this project is 1) Color Analysis. |
| Output of Program: | The output of this project is similar to mine – a collection of online products that the user may seek to purchase. However, the collection generated by this project is only based on color analysis, not other user preferences. |
| User Input: | This project takes an image of a room as user input. |
| Use of the Web: | This project does not use the web, rather the dataset it searches to find output for the user are the products that have already been uploaded to its platform by companies. |