EECS 3461: Assignment 2

XiaoTong Wu (215072309),

Matthew Longphee (214976096),

Ibrahim Suedan (215140569)

Table of Contents

Requirements3

User Profiles5

**Personas6**

**Use Cases7**

**Conceptual Model and Low-Fidelity Prototype8**

**Requirements**

**Functional Requirements**

* Scope of the Work
  + Current Situation
    - Many photo editors already exist, we must at least match their functionality to be successful.
  + Context of the Work
    - Photo editing
* Scope of the Product
  + Product Boundary
    - Automated: visual output of editing tools.
    - Non-automated: the modification process
  + Product Use Case List
    - Applying **small** modifications to photographic images
* Functional Requirements List
  + Select a region for editing.
  + Draw lines with simulated brushes of different color, size, shape and pressure.
  + Fill a region with a single color, gradient of colors, or a texture.
  + Select a color using different color models, e.g., RGB, HSV, or by using a color dropper.
  + Edit and convert between various color models.
  + Add typed letters in various font styles.
  + Remove imperfections from photo images.
  + Apply filters for effects including sharpening and blurring.
  + Convert between various image file formats.
  + No layer support will be provided to preserve simplicity.

**Non-Functional Requirements**

* Look and Feel Requirements
  + Appearance
    - Uncluttered interface.
  + Style
    - “Holds the user’s hand” (beginner-friendly) through plentiful tool-tips.
* Usability and Humanity Requirements
  + Ease of Use
    - Efficiency of use: high.
    - Ease of remembering: high.
    - Error rates: minimal.
    - Feedback: none needed, this is a visual product, effects are seen immediately.
  + Personalization and Internationalization
    - Multi-language support.
    - Canvas and palette position can be altered and saved.
  + Learning
    - Very little time should be needed to learn this product.
  + Understandability and Politeness
    - Tool icons should appear similar to those tools in real life.
* Performance Requirements
  + Speed and Latency
    - Modifications should apply the effect instantly.
  + Precision and Accuracy
    - Image quality should remain the same, especially the unmodified portions of the photo.
  + Reliability
    - 99.99% reliable, should almost never crash.
* Operational and Environmental Requirements
  + Expected Physical Environment
    - Indoors
  + Interfacing with Adjacent Systems
    - At least 1 image output format should be included from each supported platform.
      * Supported platforms include web browsers, other image editors, photo viewers.
  + Productization
    - One-click install.
  + Release
    - The maintenance releases will be offered monthly to end users free of charge.
    - Each release shall not cause previous features to fail.
* Maintainability and Support Requirements
  + Maintenance
    - Critical bugs must be fixed within a week.
  + Supportability
    - Tooltips will appear for every tool on hover.
    - Official forums will be created for community help.
  + Adaptability
    - Windows 10 support.
* Security Requirements
  + None, this product does not deal with sensitive data.
* Cultural and Political Requirements
  + None, this product is to be used domestically.
* Legal Requirements
  + Disclaimer
    - The developers are not legally responsible for any loss of photo resulting from a software crash.

**User Profiles**

A user profile is a collection of attributes that categorize how the user will use the UI and program. For the user profiles we will categorize the users using the following: demographic data like age range, skills/experience, education, occupation and key tasks. The three user profiles will be split up into casual/non- experienced users, experienced users and users using it for their profession.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Casual/Non- Experienced** | **Experienced** | **For Profession** |
| ***Age range*** | Can all ages 4 and over | Can all ages 12 and over | Can all ages 18 and over |
| ***Skills/Experience*** | * Not very experienced in how to use the program * Not sure where certain icons are or how to do certain actions * Somewhat familiar with the different things the program can do * Still learning how to use the program | * More experienced in how to use the program * Knows where certain icons are or how to do general certain actions * Familiar with the different things the program can do * Has learned a good grasp on how to use the program | * Very experienced in how to use the program * Knows where certain icons as well as very specific sub icons * Knows the full scope of the program and how to do certain actions * Very familiar with the different things the program can do * Has learned how to fully use the program |
| ***Level of education*** | Can vary from elementary school to university | Can vary from elementary school to university | Can vary from high school to university |
| ***Occupation*** | Their occupation does not directly relate to using the program | Their occupation may not directly relate to using the program.  Might be a photographer. | Their occupation does directly relate to using the program. Might be a graphic designer |
| ***Key Tasks*** | Usually involves simple tasks like adding text to an image, cropping a photo or adding colored lines to a photo | More complex tasks like editing photos and adding effect to them | Very complex task such as designing a magazine, product packaging or designing advertisements. |
| ***Experience with Technology*** | Not very familiar to very familiar | Not somewhat familiar to very familiar | Very familiar with technology |

**Main Scenario’s/ Persona’s**

A scenario is a story that describes how a user profile would complete a task or behaves in a given situation. For the scenario we will need to have a setting, actors, objectives/goals, a sequence of events and a result.

A persona is a fictional character created to describe the typical user based on the user profile.

***Casual/Non- Experienced***

Jakub is 9 years old in elementary school and has a project to do for his business class. For his project he must create a small simple ad for a product that his teacher randomly picked for him. The product his teacher picked for him is a tropical fruit drink. The ad must have a slogan, a picture of the drink on the ad, and must be themed appropriately to showcase the product. Jakub knows he will have to use an image editor but doesn’t have to much experience with using it. He will need clear instructions and easy to understand menu’s with pictured icons to help him with using the program. He gets a tropical photo and adds it to the image editor. He then uses the text editor to add a slogan along with the drinks name to the ad. He crops an image of the drink and adds it on top of the tropical background. Lastly, he uses the brush tool to add a design to the ad. He saves the file and exports it to an image file format like a jpeg. He hands in his project to the teacher and his teacher is very impressed, so impressed that she gives him a very good mark.

***Experienced***

Grace is 17 years old in high school and loves to take photos on her spare time. One day she deiced to turn her hobby for taking photos in a small photography business. She set up a website and a few days later she got her first customer. She was hired to take photos for a wedding. After taking all the photos for the wedding the couple looked through the photos and wanted a black and white themed picture along with some other effect done on the photo for some of them. They realized that somebody walked by in one of the photos and really liked that photo and wondered if she could crop that person out of the photo. Lastly, the groom requested to remove a stain that is on her wedding dress. Grace said that it was no problem and knew exactly how to do that. She opened the image editor and got to work. She was already quite familiar with the editor as she had used it multiple times with her own photos. She first applied a filter which took out the color and changed everything to black and white. She then found the photos with the person walking by and cropped the person out. Lastly, she used the color tool and set the color to white and went over the stain on the wedding dress in all the photos. After doing that, she showed the photos to the couple. They were very satisfied and paid her quite well also leaving her with a tip.

**For Profession**

David is 24 years old and graduated from York University with a Bachelor of Arts degree. He just recently got a job as a graphic designer for a big animated movie company. His boss wants him to design their upcoming main character that will issue in the movie. David is sent a rough idea of what the character should look like. He then gets to work and opens the image editor. He is quite experienced with the editor as he took several classes on it in school. He selects the brush tool and gets to work. He uses a wide variety of brushes, brush sizes, brush shapes and pressures. He selects the colors he needs by making custom colors with the RGB customizer tool. After many days, he is finally finished. He drew up the main character and showed it to his boss. His boss looked at it and really likes what he did.

**Use Cases**

This use case will be oriented towards the casual/non-experienced user profile. A use case for basic photo editing (cropping and adding text) might be:

1. The user opens the image editing program
2. The user chooses the option to add a photo into the editor
3. The system prompts the user with the folder directories of the computer
4. The user then finds and clicks the photo to add it to the image editor
5. The user clicks the crop icon on the left menu vertical
6. The user clicks and drags the cropping tool to fit the area they want to crop
7. The system displays the user with a message asking if they are sure they want to crop that area. They are presented with a yes or no option.
8. The user clicks the text icon on the left menu vertical
9. They then click and drag on the area they want to make a textbox on
10. The user then enters the text into the textbox
11. The user then saves his photo on the desktop as a JPEG file
12. The user quite image editing program

*Alternative courses:*

7. The user clicks the no option

7.1 The system returns to step 4

10. The user is not satisfied with where the textbox is

10.1 The user then re-adjusts the textbox

The use case captures one of the many envisioned goals a casual/non-experienced user may want to accomplish which is doing some basic photo editing on a photo. Like mentioned before, a casual/non-experienced user doesn’t have to much experience with the image editor and is looking to complete a simple task. In the use case above there are 4 simple tasks the user is faced with doing. These tasks are:

1. Choose the photo to be edited
2. Crop the image
3. Add text to the image
4. Export the image to an appropriate image format

**Conceptual Model and Low-Fidelity Prototype**

The design has a ribbon side menu that is separated into three categories: Colour, Effects, and Tools. This menu can be moved to either side of the screen and its position can be saved by pressing the nail icon in the top left corner of the menu. When the nail is bolted in, the menu position is saved. When the nail appears loose, that means the position of the menu is not saved.

Under the colour tab is color dropper that can be used to capture the colour it points to, and a place to set the colors for the gradient fill option when selected in the tools menu. Under that is a colour wheel with the currently selected colour and its corresponding RGB and HSV value as textboxes – custom values can be entered for each. The colour wheel is stuck to the bottom of ribbon menu no matter which tab one chooses for quick access when drawing or coloring on the canvas.

Also stuck to the bottom bar of the menu are save, ‘new-canvas’, convert, and open file buttons. The menu can also be minimized/maximized when the arrow on the side of the menu is pressed. The tools tab contains a selection, crop, and fill tools. It also has a brush to draw with different sizes, and a rotation tool that rotates the image.

Under the effects tab are the blur and sharpen tool where the degree of their effects can be controlled by a slider; furthermore, there are warm, and black-and-white filters.

Each icon has a tooltip that contains its title to help explain what the tool does.



