**Capstone Design(2)**

**Proposal**



**Subjects : Capstone Design(2)**

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**Team Name : 316**

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**20161344 Heo JeongWoo**

**20164245 Hong Jin**

1. **Project Title**

Project Title : Smoothie

“Smoothie” is a Photo Edit Program,

We select this project’s title to emphasize feeling of ‘Smooth’.

1. **Introduction & Motivation**

Sometimes, we need to edit photos. In particular, we must extract and copy or delete certain objects shown in the photos. However, there are many inconveniences in the process of extracting objects and in using extracted objects.

First, it is inconvenient to extract the objects. Even if program cut it automatically, it is not accurate and requires a lot of modifications.

Second, if we work with multiple photos, we need to do a lot of similar tasks.

So, we will develop some photo edit program named "Smoothie". If users want to extract same object in multiple photos, users can use our program to open multiple photos and enter the object name. Then "Smoothie" extracts object in photos that user opened, and user uses that freely.

So, with our "Smoothie", users can avoid tedious repetitive tasks.

예를 들면 좌측의 사과 더미에서 맨 위의 사과를 얻기 위해서는 우측츼 작업처럼 번거로운 작업이 필요하다.

노력 끝에 사과 따기를 완수하더라도 개인차에 따라 결과물이 천차 만별이다.

1. **Development & Implementation Contents**

* **Lasso Function**
* 기존의 올가미들은 직접 원하는 부분을 선택하여 사용하는 방식
* 현장에 시장에 존재하는 올가미들은 “모두” 영역을 직접 선택하는 방식으로 이루어져 있음.
* 단순 올가미 기능의 성능을 높이기 위해 딥러닝을 사용하는 것은 ‘배보다 배꼽이 큰 격’일 수도 있다고 판단하여 새로운 아이디어를 가미함.
* 사진에 올가미 기능을 사용하고 싶은 Object를 입력하면 해당 Object를 자동으로 따주는 기능을 구현할 것임.
* 기존 하나 하나씩 따는 과정을 탈피하여 다수의 사진이나 다수의 Object도 한번에 사용 가능할 수 있도록 구현할 예정.
* **Image Edit Function**
* Develop image editing programs using Qt
* Develops other useful features such as layers, paints, brushes, trims, resizing, spades, text, erasers, etc.
* **Error Minimization With TDD**
* Recognized the importance of error minimization through last Capstone design class.
* We will try to minimize errors by writing as many TCs as possible with TDD.
* We will open TC often.

1. **Goal**
2. 올가미 기능에서 정확한 인풋을 입력했을 때, 정확한 아웃풋이 나올 수 있도록 하는 것을 목적으로 한다.
3. Provide a variety of image editing functions
4. Minimize program errors

Our goal is developing simple photoshop program using Qt.

The main function is to apply ML to the lasso function to recognize a specific image area through four user-selected points, and to separate that area from the background layer so that users can edit it freely.

1. **Roles**

Park Juhyeon

-Collect Running Datasets

-Implementing Detection Learning Model

-Layer Function Implementation

-Test

Heo JeongWoo

* + Collecting Running Datasets
  + Implementing Segmentation Learning Model
  + Implementing sizing
  + Test

Hong Jin

-Collecting Running Datasets

-Learning data to model

-Implementing Qt UI and basic functions

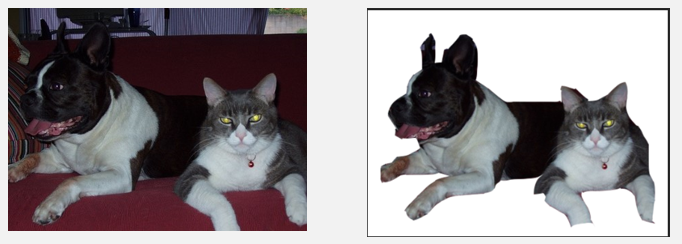
-Test

1. **Market Research**

1. Photoshop

- Point by point to draw out an object.

- Not only is it taking a long time, and it takes a lot of hands, the results also differ depending on individual ability

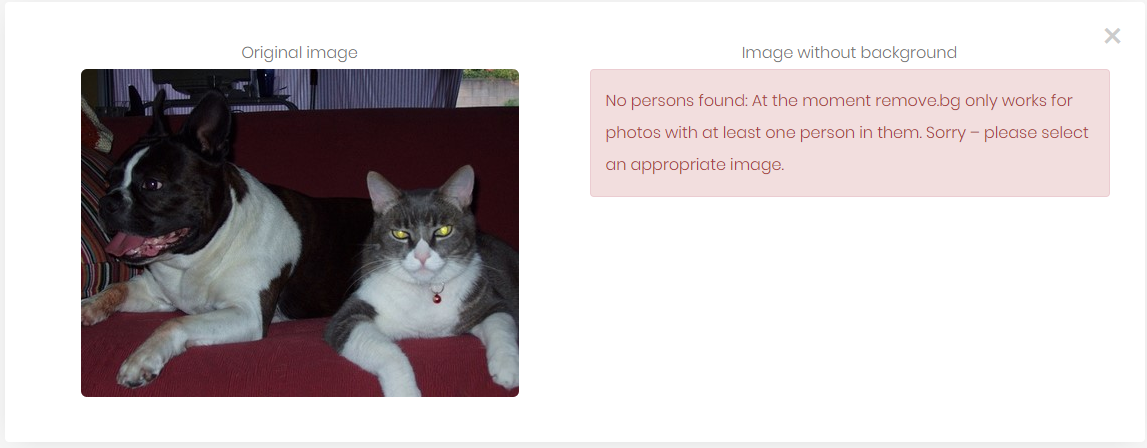


2. Remove.bg

-Free.

-Use background erasing method**.**

-Unable to set the desired part and only people can be recognized



3. Photopea

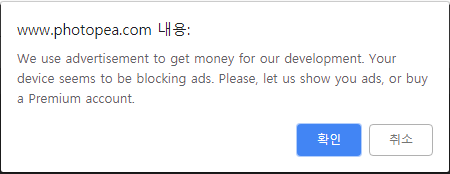
-Free.

-Provide basic image editing functions in Web.

-Magnetic Lasso function exists but it’s too weak.

-Ads appear often.



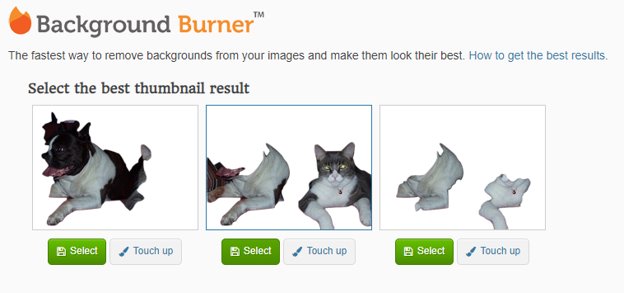


4. BackGround Burner

-Remove background by separating regions in two colors**.**

-Good performance for simple images, but not for complex images**.**

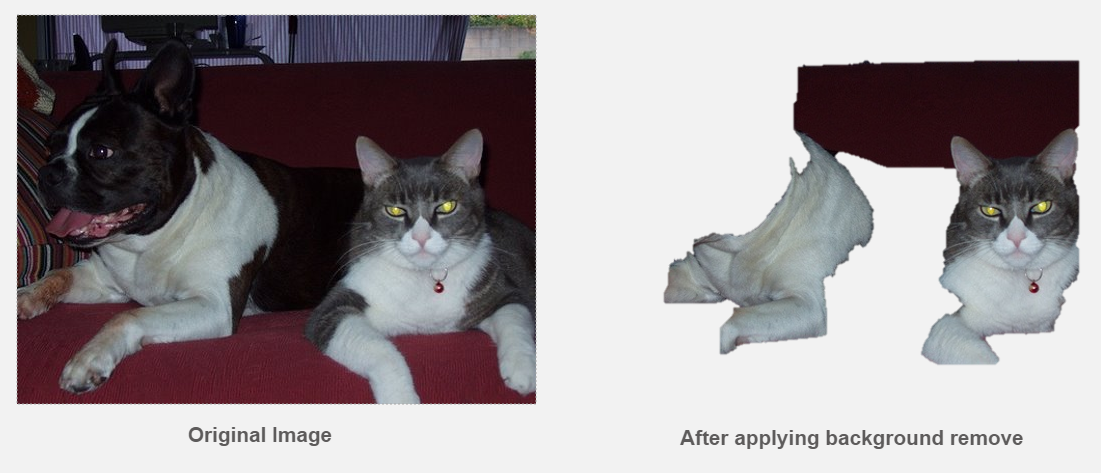
-It can’t be edited and only available as JPG, PNG.



5. PowerPoint

-PowerPoint offers ‘background remove’ function

-free



**7. Project Schedule.**

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|  | March | | | April | | | | | May | | | | June | | |
| Development Contents | 11 | 18 | 25 | 1 | 8 | 15 | 22 | 29 | 6 | 13 | 20 | 27 | 3 | 10 | 17 |
| Content Acquisition &  Data Survey |  |  |  |  |  | Midterm Demonstration and Presentation |  |  |  |  |  |  | Final Demonstration and Presentation |  |  |
| Collect Initial Usage Datasets |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Implementing Detection Deep Learning Model |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Implementation Segmentaton Deep Leaning Model |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Oligami Functional Implementation |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Program basic Fuction & UI |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Preparing Midterm Demonstration and Presentation |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Implementing other editing functions & QT Details |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Test and Debugging |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Preparing Final Demonstration and Presentation |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Writing manuals and reports |  |  |  |  |  |  |  |  |  |  |  |  |  |

* Park Juhyeon`s Schedule

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* Heo JeongWoo`s Schedule

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| Implementing a Segmentation Learning Model |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Oligami Functional Test |  |  |  |  |  |  |  |  |  |  |  |  |  |
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* Hong Jin`s Schedule

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