Image Skew Correction Tool

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BORANG PENGESAHAN STATUS TESIS

JUDUL: **SKEW IMAGE CORRECTION TOOL**

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SKEW IMAGE CORRECTION TOOL

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This report is submitted in partial fulfillment of the requirements for the Bachelor of Computer Science (Software Development)

FACULTY OF INFORMATION AND COMMUNICAION TECHNOLOGY
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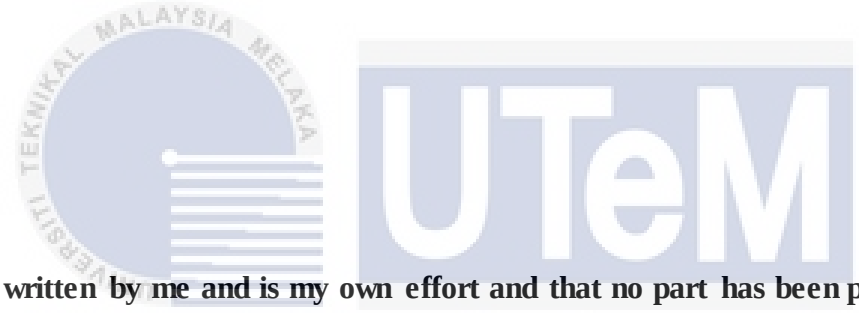
2017

DECLARATION

I hereby declare that this project report entitled
SKEW IMAGE CORRECTION TOOL



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STUDENT : _____ DATE: _____
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SUPERVISOR: _____ DATE: _____

(DR MOHD SANUSI BIN AZMI)

DEDICATION

To my beloved parents, supervisor (Dr. Mohd Sanusi Bin Azmi), friends and seniors for supporting and giving me some helps throughout the development of this project.

ACKNOWLEGEMENT

Firstly, I would like to thank to my supervisor Dr. Mohd Sanusi Bin Azmi for providing the continuous support of my final year project. I am very appreciates his patience, motivation and his immense knowledge. His advices had helped me all the time of implementation of project and report writing. I could not have imagined having a better supervisor for my final year project.

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ABSTRACT

This system is developed for the people who want to manage their photos effectively and to enhance the presentation of images to become readable. Nowadays, people like to take photos for their documents in their daily life in order to record the document easily. However, many of them having problems to manage their photos since they might have hundreds of number of photos and skew images. The skew images will affect the visibility of document and make people hard to read. When they want to enhance the skew images, they will find the software to do that. Currently, Adobe Photoshop is one of the most well-known images editors to enhance the images. However, Adobe Photoshop will be perfect for designer and it is a burden for beginner. There still some images editors in the market but those do not provide an effective images management. Besides, the process of enhancing their images is also exhausted since they have to edit the images manually and this will require a lot of effort to done it. Hence, the purpose of this project is to provide an alternative platform for the users to manage their images and also to provide an effective ways to enhance the skew angle of photo. By displaying images in correct orientation, users will have a better view experience of their images. The Image Skew Correction Tool will provide an automatic skew angle correction for images. User only needs to upload their images and the system will perform the operation. After that the images are saved into file at the local storage. The methodology used in this project is waterfall model, this is because waterfall model is simple and easy to understand, use and manage. The expected outcome for this project is users are able to manage their photos effectively and enhance it easily.

ABSTRAK

Sistem ini dibangunkan untuk orang-orang yang ingin menguruskan foto mereka dengan berkesan dan untuk meningkatkan pembentangan imej supaya dapat dibaca. Pada masa kini, orang suka mengambil foto untuk dokumen mereka dalam kehidupan seharian mereka untuk merekod dokumen dengan mudah. Walau bagaimanapun, ramai di antara mereka mempunyai masalah untuk menguruskan foto mereka kerana mereka mungkin mempunyai beratus-ratus bilangan gambar dan imej condong. Imej condong akan menjejaskan keterlihatan dokumen dan membuat orang sukar dibaca. Apabila mereka mahu meningkatkan imej condong, mereka akan mencari perisian untuk melakukannya. Pada masa ini, Adobe Photoshop adalah salah satu editor imej yang paling terkenal untuk meningkatkan imej. Walau bagaimanapun, Adobe Photoshop akan menjadi sempurna untuk pereka dan ia menjadi beban untuk pemula. Terdapat beberapa editor imej di pasaran tetapi mereka tidak menyediakan pengurusan imej yang berkesan. Selain itu, proses peningkatan imej mereka juga habis kerana mereka perlu mengedit imej secara manual dan ini memerlukan banyak usaha untuk melakukannya. Oleh itu, tujuan projek ini adalah untuk menyediakan satu platform alternatif bagi pengguna untuk menguruskan imej mereka dan juga untuk menyediakan cara yang berkesan untuk meningkatkan sudut foto yang kurang. Dengan memaparkan imej dalam orientasi yang betul, pengguna akan mempunyai pengalaman pandangan yang lebih baik mengenai imej mereka. Alat Pembetulan Skew Image akan memberikan pembetulan sudut condong automatik untuk imej. Pengguna hanya perlu memuat naik imej mereka dan sistem akan melaksanakan operasi. Selepas itu imej disimpan ke dalam fail di storan setempat. Metodologi yang digunakan dalam projek ini adalah model air terjun, ini kerana model air terjun adalah mudah dan mudah difahami, digunakan dan diuruskan. Hasil yang diharapkan untuk projek ini adalah pengguna dapat menguruskan foto mereka dengan berkesan dan meningkatkan dengan mudah.

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CHAPTER I

INTRODUCTION

1.1. Introduction

Nowadays, people like to take photos in their daily life. This activity has become a trend for most of the people. Many of them will store their photos in their laptop, but the way of management is very limited. Some photos are unorganized and duplicated and this make the photos look messy and difficult to browse. If there is large number of photos in the folder, then it is a very tedious process for people to find out which photo is useful to them and filter out the duplicated photos. Besides, the photo editing or enhancing tools nowadays are not really efficient. The available and well known photo editing tools such as adobe Photoshop is not really efficient for multiple photos as the users have to edit the photos manually. As a result, this will consume a lot of time for users on editing their photos.

In addition, some of users do not know how use a editing tool, it will take time for user to learn how to use that tools as they just want to do a simple editing on photos. Furthermore, sometime the scanned images are damaged or in the incorrect orientation; this will also cause difficulty for the user to manage the images. For example, extract the text from images. Hence, a better platform should provide to manage the image and to enhance the image.

1.2. Problem Statements

a. Users have problem to manage their skew image in folder.

- It is a burden to user for user to manage their images when there are many images.

b. Users have to edit or enhance the skew angle of photos manually.

- The user difficult to find an effective ways to correct the skew angle of the scanned images.
- Users take time to correct the skew of images manually.

1.3. Objective

a. To provide an alternative platform to manage the images.

b. To provide an alternative way to enhance the quality of images by corrects the angle of skew.

1.4. Scope

This project will be developed using java and as a desktop application. The focus of this project is on the enhancement of text document image. Some enhancements like skew angle correction and manage of images in folder will be included in this project. The target users are open for all individuals who have their own laptop and with the connection of Wi-Fi.

1.5. Project Significance

From this project, enable the users to manage and enhance their images effectively and simple. The users just need to upload their images to the application and wait for a couple of minutes and the processed images will be automatically saved to the local disk from the application. The processing of images is all done automatically by the system. Hence, this makes the processing image simple.

1.6. Expected Output

The expected result of this project is to make the people able to correct the angle images without known of skew angle. Firstly, the users can login or register an account in this application. The authentication of identity of user must be success before the users can proceed to the next steps. Next, users are able to upload their images to the system and the system will correct the skew images and display the results.

All the images involved in system will be saved to the local disk. The correction of skew angle of images is limited by the quota. Initially, the quota given to users is 20 which mean the users are able to process 20 images by using this system. When the quota is finished, the users need to purchase the quota. The establishment of purchase will be based on the decision of administrators.

1.7. Conclusion

The proposed project is Image Skew Correction Tool which is a web application and develops using Java language. The project area of this system is software technology and the planned duration of this project is 4 months. The purpose of this project is to provide an alternative platform for the users to manage their images and to improve the quality of images. Through this project users are able to manage their images in an effective ways. The methodology used in this project is Water Fall model and will be further discuss on next chapter. Besides, there are also some references are study in order to develop and complete this project will be also stated in next chapter.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1. Introduction

In this chapter, the facts and discoveries will be discuss in detail, revealing the concepts, theories and knowledge related to system domain. Besides, the analysis and comparison of existing systems and proposed system will be discussed in next session. Next, the chosen methodology during the development of this project will also discuss in this chapter. Furthermore, the requirements of this project including software requirements and hardware requirements will be included in the next section. Last but not least, the project progress schedule and milestone are listed.

2.2. Facts and Findings

2.2.1. Domain

The domains of this project are web application, scanned or captured image processing and image processing. The topics of this project is concern about correct the skew images and manage the corrected images to proper file management. There are some existing systems or similar systems release in the market. These systems will be further study in the next section.

2.2.2. Existing System

2.2.2.1. Adobe Photoshop

Adobe Photoshop is the visual editor which mostly known by its features of manipulating and control images. Adobe Photoshop is published by Adobe Systems Incorporated. This editor is very popular among the graphics designers in which they use this editor as a tool to carry out some tasks like website design, logo design, poster design, and resume design. The programming language used to develop Photoshop is C++.

Adobe Photoshop was first found by Charles Geschke and John Warnock. In early, the Adobe was located in Northern California. The main features of Adobe Photoshop are Images manipulation, painting, illustration, typography, create animation cells, sprites and gift animations and create web images.

Adobe Photoshop is a wonderful tool for professional designers to use however for those who are beginner it is very a burden for them to learn. Adobe Photoshop is complex and sophisticate tools that are designed mainly for the profession designers to use. Hence, some features of Adobe Photoshop are difficult for the normal users to learn if they do not have any knowledge about the concept and theories like the concept of image processing and animations. It is time consuming for the normal users to learn all concept and theories.

Besides, to install Adobe Photoshop a good computer is required. Adobe Photoshop is heavy software; it required a fast processor and drive, quality graphics card and great space of memory in user's computer or laptop. In addition, some laptop's operating system might be crushed when users try to handle large number of images in Adobe Photoshop or might be experience a long idle time.

Furthermore, the retail price of Adobe Photoshop is expensive. The Photoshop only offer about 30 day's free trial for users, after this the users have to purchase the software of Adobe Photoshop. According to the official website of adobe, the price for Adobe Photoshop version creative cloud is about RM 222.00 per month.

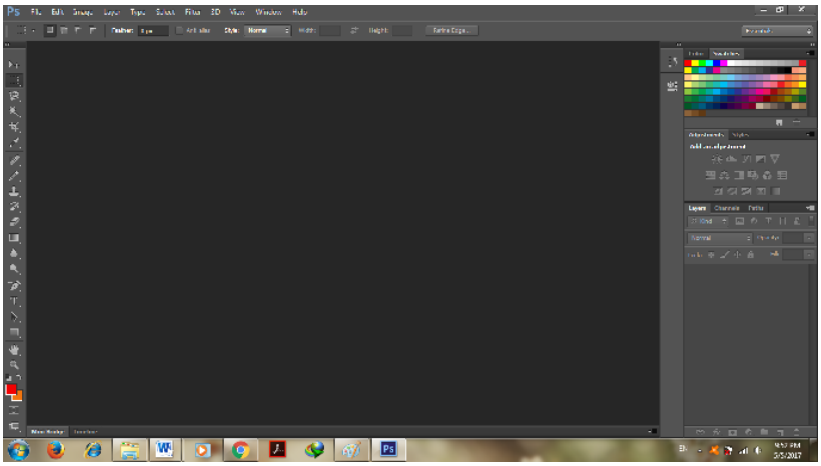

Figure 1 Screenshot of Adobe Photoshop

2.2.2.2. ImageJ

ImageJ is the public domain of Java image processing program which create by NIH Image for the Macintosh. It can be run as an online applet or install as application with the condition of using Java 1.4 and above virtual machine on computer. There are many version of ImageJ provided as free to download such as versions suit for Window and Linux. It is open source architecture, it provide free Java plug-in for java complier and free source code of ImageJ. ImageJ is developed on Mac OS X by using the built in editor and Java compiler and also the BBEdit editor and the Ant build tool.

ImageJ is able to display, edit, analyze, operate, save and print 8-bit, 16-bit and 32-bit images. In addition, it also can read varies type of image. It also able to perform operation in parallel as ImageJ supports the multithreaded operations and allows a group of images share in one scene. Furthermore, it is also able to calculate the distance and angle of the graph draw the histogram and line graph, perform simple image processing modules and perform geometric transformation.

ImageJ has a simple interface of compare to Adobe Photoshop. But, the guideline provide to user are less. This cause the beginners do not have any hint to get start. Users will have to explore the function of ImageJ or surf the tutorials on websites before start using ImageJ. As a result, this will burden the users to study the manual and features in the ImageJ.

Besides, ImageJ allow users to display a group of images in same window. This will be clumsy if the images are more than 10 or above, cause the workplace become complex and unorganized. In addition, the processed images and unprocessed images will be mixed up if all the image display on the same screen. User also needs to edit the images manually and this will consume a lot of work done if there is a large amount of images.

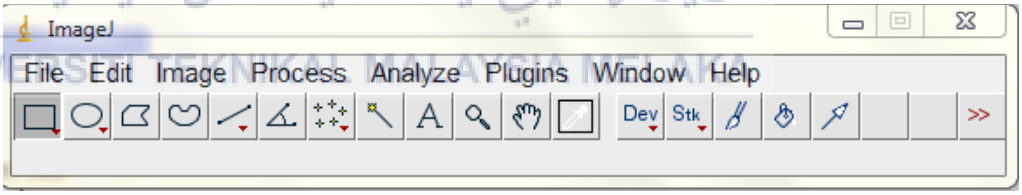

Figure 2: Screenshot of ImageJ

2.2.2.3. CamScanner

CamScanner is the intelligent scanning application in various platform such android and iOS. It has provides features to scan the text document and enhance the scanned images by improving the brightness and sharpness of images. After editing the image, users are able to export the folder. In addition, the users are able to synchronize their images to cloud storage.

CamScanner is a handy application as it can be used at everywhere and anytime. However, the features in CamScanner are not free in charge; the users have to purchase the features. It is comparatively expensive if compared to other similar application. Besides, the CamScanner can only operate single image in once time. This causes users will have to take time to edit their images manually. Furthermore, the available enhancing tools in CamScanner are less is only improve the brightness and sharpening the images.

Figure 3: Screenshot of CamScanner

2.2.2.4 Comparison of existing systems and proposed system

The system proposed in this project is Image Skew Correction Tool. Image Skew Correction Tool is web-based applications which provide free enhance tools to correct the skew images and manage the images in a systematic way. Users are able to use this system to correct their images and save the images to the files. The system will correct the skew images automatically with minimal manipulation of user. Users can upload multiple images after their login or register an account and waiting for the processing of images and after the processing of images successful the images will save to a specific folder in user's computer. This system is limited to quota used.

Table 1: Comparison between proposed system and existing system

Features	Adobe Photoshop	ImageJ	CamScanner	Image Skew Correction Tool
User Friendly	No	No	Yes	Yes
Charge	Expensive	Free	Expensive	Charge when exceed quota
Size of software	Large	Medium	Small	small
Skew Automatic Correction	No	No	No	yes
One time multiple processing	No	No	No	yes
Save processed Image as a folder	No	No	Yes	yes