

Project Title

Final Project Report

DT228

BSc in XXX XXX

**Student Name**

**Supervisor**

School of Computer Science

Technological University, Dublin

**Date**

Abstract

This project is to design an application use to modify images it is about image processing; I may decide to design this application in android site.

This application allow user to select image from gallery or use camera to make image, user

can rotate image, change hue of image, tailor image, add some decorates for the image and so on. also user can share the image to other social media. This application will have a database to store all element you want add in the image, for example, animals, plants, weather and so on.

In the database will have different category file to differentiate element. This application will have a search box to allow user easy to find elements.

The goal of this project is to help me learn more knowledge from research and digest the

Knowledge from class, this project is benefit and more helpful in my future.Declaration

I hereby declare that the work described in this dissertation is, except where otherwise stated, entirely my own work and has not been submitted as an exercise for a degree at this or any other university.

Signed:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Name

Date

Acknowledgements

Body text

Table of Contents

[1. Introduction 7](#_Toc21459636)

[1.1. Project Background 7](#_Toc21459637)

[1.2. Project Description 7](#_Toc21459638)

[1.3. Project Aims and Objectives 7](#_Toc21459639)

[1.4. Project Scope 7](#_Toc21459640)

[1.5. Thesis Roadmap 7](#_Toc21459641)

[2. Literature Review 8](#_Toc21459642)

[2.1. Introduction 8](#_Toc21459643)

[2.2. Research Topic 1 8](#_Toc21459644)

[2.3. Research Topic 2 8](#_Toc21459645)

[2.4. Existing Final Year Projects 8](#_Toc21459646)

[2.5. Conclusions 8](#_Toc21459647)

[3. Experiment Design 9](#_Toc21459648)

[3.1 Introduction 9](#_Toc21459649)

[3.2. Software Design 9](#_Toc21459650)

[3.3. Software Test plan 9](#_Toc21459651)

[3.4. Front-End 9](#_Toc21459652)

[3.5. Middle-Tier 9](#_Toc21459653)

[3.6. Back-End 9](#_Toc21459654)

[3.7. Conclusions 9](#_Toc21459655)

[4. Experiment Development 10](#_Toc21459656)

[4.1. Introduction 10](#_Toc21459657)

[4.2. Software Development 10](#_Toc21459658)

[4.3. Front-End 10](#_Toc21459659)

[4.4. Middle-Tier 10](#_Toc21459660)

[4.5. Back-End 10](#_Toc21459661)

[4.6. Conclusions 10](#_Toc21459662)

[5. Evaluation 11](#_Toc21459663)

[5.1. Introduction 11](#_Toc21459664)

[5.2. Software Evaluation 11](#_Toc21459665)

[5.3. Specific Evaluation 11](#_Toc21459666)

[5.4. Questionnaires and Interviews Evaluation 11](#_Toc21459667)

[5.5. Conclusions 11](#_Toc21459668)

[6. Conclusions and Future Work 12](#_Toc21459669)

[6.1. Introduction 12](#_Toc21459670)

[6.2. Conclusions 12](#_Toc21459671)

[6.3. Future Work 12](#_Toc21459672)

[Bibliography 13](#_Toc21459673)

# 1. Introduction

## Project Background

With the rapid development of human science and technology, most people have a smartphone, human cannot leave without smartphone [1] This article is about why smartphone is be pervasive. This article is help me to analysis which part the application belong to. Eg mobile or web. People would like use smartphone to communication and entertainment [2]. This article is about why people use mobile phone to communication and entertainment. This article is help me to analysis what part people would like use mobile to. Most people would like use social media to communication with each other, they may want to share photo, video or image to each other [3]. This article is about why photo and video is important use in social media. This article help me to analysis what is important in communication of social media. Image Processing [4] will be used in this project, and this book describes the fundamentals of image processing. This book will help me to understand fundamentals of image processing, that I can able to analysis the design of application. So, I want design image embellish software use for smartphone.

References:

[1] A. Oulasvirta, T. Rattenbury, L. Ma, E. Raita, 2012, “Habits make smartphone use more pervasive”, Personal and Ubiquitous Computing, <https://dl.acm.org/citation.cfm?id=2124486>

[2] Ran Wei, 2006, “Motivations for using the mobile phone for mass communications and entertainment” <https://doi.org/10.1016/j.tele.2006.03.001>

[3] Lee Rainie, Joanna Brenner, Kristen Purcell (2012) “Photos and Videos as Social Currency Online” <http://john.do/wp-content/uploads/2013/04/PIP_OnlineLifeinPictures.pdf>

[4] Maria MP Petrou, Costas Petrou, 2010, “Image Processing: The Fundamentals”

<https://books.google.ie/books?hl=zh-CN&lr=&id=w3BpSIxN9ZYC&oi=fnd&pg=PR23&dq=image+modify&ots=3LepeC1C-G&sig=_xA3BDvzVuW-o21yw1uPJTQUeWw&redir_esc=y#v=onepage&q=image%20modify&f=false>

## Project Description

Image embellish is design by android studio use for mobile phone. It use to design image as user want.

I choose waterfall methodology for my project, I will follow step by requirement, analysis, design, Implementation, testing, development and maintenance. I believe this methodology is more helpful for my project.

Image embellish is 3-tier structure, it have presentation tier, application tier and data tier.

Requirement:

I am going to find what is the good idea for this project, then clear and define the idea.

Analysis:

I will to do a lot of research to think about how this project look like, what function this application will have, what programming language I will use, what area will use for and so on. Then I discuss about my project with teacher in class.

Design:

I will be going to do some paper work to show structure of image embellish to show each function. Then I will create use case diagram, class diagram, sequence diagram and erd for image embellish.

Implementation

I will follow design to design code for image embellish. If I meet error I will to do research from internet to solve problem.

Testing and evaluation:

When I finish implementation the design, first I test code to make sure it is no error, then I will ask somebody to use my application and evaluation to find any error or problem is existing, if it exist then I will fix the error then test again. Also I will get evaluation from user, this will help me to find what is good or bad in this project, that I will know how to improve this application.

Maintenance:  
I will get advice from user who test image embellish then update it.

## Project Aims and Objectives

Overall aim and some milestones along the way to achieve the aim

## Project Scope

Project scope, what the project isn’t about

## Thesis Roadmap

One sentence summary of the following chapters

# 2. Literature Review

## 2.1. Introduction

In this chapter …

## 2.2. Research Topic 1

## 2.3. Research Topic 2

## 2.4. Existing Final Year Projects

Project 1

Title: Euro Coin Classification Using Image Processing & Machine Learning

Student: Yumin Chen

Description (brief):

this project is through suitable mathematical model to recognition denomination of euro coin.

The main technologies involved in this project are image processing and machine learning. For Image Processing, computer vision techniques are used to process the image-based sample dataset and extract features. Machine Learning is used for predictive data analytics to build the models of generalized euro coin denominations.

This project allows human easy to calculate a large number of money.

What is complex in this project

Visual object recognition is one of the most challenging computational problems in machine vision. Human can easy to recognition any euro coin but machine can not, so have to create an artificial recognition system.

What technical architecture was used

JSON language, image processing techniques, machine learning techniques, data mining techniques, computer vision techniques, statistical techniques

Explain key strengths and weaknesses of this project, as you see it.

The strength of this project is allowed user easy to calculate money

The weakness of this project is this application have to scan each coin sometime is not necessary.

**Project 2**

**Title:** **Image Selection Based on Optimal Characteristic Analysis**

**Student:** Jameel Briones

**Description (brief):**

This project is through compare Basic image properties such as sharpness, noise level, exposure and contrast will be analyzed to test for the image’s quality to find similar image then category. User can share the image to social media site.

It helps user to tidy up images.

What is complex in this project

This project have to research and implement a good image comparison algorithm can to use to compare image’s quality.

Have to assessment measure for different image properties that can affect image quality

What technical architecture was used

Python language, opencv, image processing technical

Explain key strengths and weaknesses of this project, as you see it.

The strength of this project lies on the image quality assessment. The tests performed has produced a higher success rate than the image comparison, often matching human’s assessment of image quality. The image assessment is also made more efficient due to multithreading. It also provides a share functionality in the application.

project’s weaknesses lies on the image comparison. It may be accurate in a few samples, but it can also have a few outliers resulting from its brute force matching of its descriptors. Because of this, it often leads to an inaccurate matches of the images. It can also be quite slow at times, depending on the image size and quantity to be compared.

## 2.5. Conclusions

# 3. Experiment Design

## 3.1 Introduction

## 3.2. Software Design

## 3.3. Software Test plan

## 3.4. Front-End

## 3.5. Middle-Tier

## 3.6. Back-End

## 3.7. Conclusions

# 4. Experiment Development

## 4.1. Introduction

## 4.2. Software Development

## 4.3. Front-End

## 4.4. Middle-Tier

## 4.5. Back-End

## 4.6. Conclusions

# 5. Evaluation

## 5.1. Introduction

## 5.2. Software Evaluation

## 5.3. Specific Evaluation

## 5.4. Questionnaires and Interviews Evaluation

## 5.5. Conclusions

# 6. Conclusions and Future Work

## 6.1. Introduction

## 6.2. Conclusions

## 6.3. Future Work

# Bibliography