Final Year Thesis/Project Report Template

by

Student Name
Student ID
Student Name
Student ID
Student Name
Student ID
Student Name
Student ID

A thesis submitted to the Department of Computer Science and Engineering
in partial fulfillment of the requirements for the degree of
B.Sc. in Computer Science and Engineering

Department of Computer Science and Engineering
Brac University
Month Year.

Declaration

It is hereby declared that

1. The thesis submitted is my/our own original work while completing degree at Brac University.

2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.

3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.

4. We have acknowledged all main sources of help.

Student's Full Name & Signature:

Student Name	Student Name
Student ID	Student ID

Student Name	Student Name
Student ID	Student ID

Approval

The thesis/project titled " " submitted by

1. Student Name (Student ID)

2. Student Name (Student ID)

3. Student Name (Student ID)

4. Student Name (Student ID)

of [Semester], [Year] has been accepted as satisfactory in partial fulfillment of the requirement for the degree of B.Sc. in Computer Science in [Current Semester] Year.

Examining Committee:

Supervisor:
(Member)

_____

Name of Supervisor

Designation
Department
Institution

Co-Supervisor:
(Member)

_____

Name of Co-Supervisor

Designation
Department
Institution

Thesis Coordinator:
(Member)

_____

Name of Thesis Coordinator

Designation
Department
Brac University

Head of Department:
(Chair)

_____
Name of Head of Department

Designation
Department of Computer Science and Engineering
Brac University

Ethics Statement (Optional)

This is optional, if you don't have an ethics statement then omit this page

Abstract

Keywords:

Dedication (Optional)

A dedication is the expression of friendly connection or thanks by the author towards another person. It can occupy one or multiple lines depending on its importance. You can remove this page if you want.

Acknowledgement

Table of Contents

List of Figures

List of Tables

Chapter 1

Introduction

1.1 Background

Review of literature and background study

[**In case of internship - Company Background**] Describe the company where you completed your internship. Include information such as the company's history, mission, vision, key products or services, and its position in the industry. Highlight any relevant details that provide context for the project or tasks you worked on.

1.2 Rational of the Study or Motivation

This section discusses the significance and relevance of the research gap and its impact.

1.3 Problem Statement

Nowadays, Automatic license-plate recognition (ALPR) systems are built on law enforcement, smart transportation and traffic-safety surveillance infrastructures.However, due to movement of vehicles at high speed, the amount of motion blur and geometric distortion is induced into the images and there is also a significant difficulty to address non-Latin scripts, such as Bangla compared to standard english digits where the structural complexity of the numerals and the contacts between the characters (Matra) place a greater thinking burden on the observer[1]. Even though few researchers have addressed a solution, there remains some technical gaps.Even the previous studies focus on restoration of images using GFPGAN which specially targets low-resolution motion blur but not the high frequency motion blur[1].Moveover,Other studies by Wang et al. [2], uses YOLOv5 to ensure environment interference and lilted plates are restored which do not include a fast moving car's licence plate distortion fixing Where as low-light enhancement studies that use URetinex-Net [3] and U-Net or YOLOv10 [4], [5] Handles atmospheric noises illumination changes fails when there is motion-induced blur for more demanding character level integrity. So to overcome this gap our study will propose a powerful multi-stage deep learning architecture which will handle the motion-blurred and geometrically distorted Bengali license plates.Our suggested design uses the YOLOv8

to identify the object accurately, DeblurGANv2 to evaluate the high-speed image enhancement specifics, and a Bangla-trained OCR model to consider the script-specifics.This system offers a real world reliability which involves heavy traffic and environments aimed at preventing crime,thus providing for Bangladesh's intelligent transportation infrastructure an adaptable approach.

1.4 Objective

Our goal for this research is to design a multi-stage, multifaceted deep learning system which is designed to detect and recognize Bangla license plates in extreme motion blur and geometric distortion in images. This study deals with the significant decrease in performance of license plate detection for a fast moving vehicle in uncontrolled condition. For complex urban backgrounds our research uses state-of-the-art YOLOv8 architecture to make sure the detection is highly sensitive. One of the important stages of our study is to use DeblurGANv2 to reduce the loss of character-level accuracy, which is a denoising assistant to restore high-frequency texture detail in the image of a license plate when in motion. Additionally, to address the unique problems of the non-Latin character structure and matra relations that cannot be solved by the traditional models, our study intends to give a specialized optical character recognition (OCR) system which will be trained on complex Bengali script. Therefore, the ultimate goal of this study is to build an effective pipeline which significantly increases reliability and recognition accuracy in real world systems such as highway surveillance and criminal investigations. In order to improve the effectiveness of law enforcement operations and intelligent transportation systems in Bangladesh, our research may offer an effective In order to improve intelligent transportation systems and the effectiveness of law enforcement operations in Bangladesh, this study may offer a scalable and effective way to address the academic gap between current fixing techniques and the unique script requirements of this nation.

1.5 Methodology in Brief

This section provides a concise overview of how the study was conducted. State the research approach, data collection, analysis, etc.

1.6 Scopes and Challenges

Briefly outline the boundaries of your study and any constraints.

Chapter 2

Literature Review

2.1 Preliminaries

This section provides essential background information that readers need to understand your study. You can include information about theories, definitions, concepts, models, etc. wase is rizzzz ctg

2.2 Review of Existing Research

Perform a literature survey and find relevant materials and information.

2.3 Summary of Key Findings

Discuss key results, patterns or trends, and implications.

Chapter 3

Conclusion

3.1 Summary of Findings

3.2 Contributions to the Field

3.3 Recommendations for Future Work