BỘ THÔNG TIN VÀ TRUYỀN THÔNG

HỌC VIỆN CÔNG NGHỆ BƯU CHÍNH VIỄN THÔNG

9th Report

Foundation Internship

Project Title: Traffic License Recognition

Instructor: Kim Ngoc Bach

Student Name : Bui Xuan Hai

Student ID : B22DCAT105

Lớp : E22CQCN05-B

Hà Nội - 2025

INTERNSHIP BASE REPORT

I. Project Introduction

This project aims to develop a web application that supports automatic recognition of vehicle license plates from uploaded images or videos. The system uses a deep learning model (trained by myself) to detect and recognize license plate numbers. This can be applied in real-life scenarios such as entry/exit management in parking lots or garages.

Users can interact with the system via a web interface, upload photos or videos, and the system will display the detected license plates. The backend is implemented using Flask, while the frontend is designed using HTML, CSS, and JavaScript (with optional integration of Bootstrap or Tailwind CSS).

II. Key Features

- Allow users to upload vehicle images or videos.
- Automatically detect and recognize license plate numbers.
- Display recognition results in a user-friendly format.
- Possibility to store recognition history or export results.
- Designed for application in garage or parking management systems.

III. Technologies Used

- **Frontend**: HTML, CSS, JavaScript (Bootstrap/Tailwind CSS).
- **Backend**: FastAPI (Python).
- **AI Model**: YOLO-based license plate detection + OCR model (e.g., PaddleOCR or custom model).
- **Storage**: Local server or database (SQLite/MySQL)

IV. Week 9

1. **Weekly goals**

- Improve the accuracy of license plate character recognition
- Handle cases where OCR recognizes wrong characters
- Test the system on a more diverse set of real images
- Upgrade the logic for checking and cleaning the results returned from OCR
- 2. **Work done**
- Add a post-processing step for OCR
- Create a post-processing module for PaddleOCR results
- Significantly reduce the number of incorrectly formatted license plate strings
- Test the system with real images from many different sources

3. **Results achieved**

- The license plate recognition system is more stable, capable of self-correcting common OCR errors
- Collect additional error data sets for model improvement or tuning later

4. **Difficulties encountered**

- It is not easy to accurately determine valid license plate strings when the image is blurry or obscured license plate

- The format check regex needs to be flexible to avoid missing rare valid license plates
- Crops that are too small or distorted still cause OCR to work unstable