

BỘ THÔNG TIN VÀ TRUYỀN THÔNG
HỌC VIỆN CÔNG NGHỆ BƯU CHÍNH VIỄN THÔNG



First Report
Foundation Internship
Project Title: Smart Sport Shop

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INTERNSHIP BASE REPORT - WEEK 1

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:** Flask (Python).
- **AI Model:** YOLO-based license plate detection + OCR model (e.g., PaddleOCR or custom model).
- **Storage:** Local server or database (SQLite/MySQL)

IV. Development Plan

1. 19/04/2025:

- Focused on training the **license plate detection model** using **YOLOv5**.
- Selected YOLOv5 for its balance between **accuracy** and **real-time inference speed**.
- Utilized a custom dataset with annotated images of Vietnamese vehicles, including a variety of angles, lighting conditions, and license plate types.
- Performed image preprocessing (resizing, augmentation, normalization) before training.
- Split the dataset into training, validation, and test sets (e.g., 80/10/10).
- Conducted training using the **Lightning.ai** platform for efficient GPU usage and experiment tracking.
- Fine-tuned hyperparameters such as batch size, learning rate, and image size.

Next Steps:

- Integrate the YOLOv5 detection model with the Flask backend for real-time inference.

- Connect the output of the detection model with an OCR module (e.g., PaddleOCR or Tesseract) for full license plate recognition.
- Test the full pipeline on real-world image and video samples.
- Improve frontend interface for better visualization of results.