

**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. First Week:**

- Define system requirements and application scope.
- Research similar existing systems and identify key components.

#### **Frontend Work:**

- Design initial layout (UI wireframes) using HTML/CSS.
- Create basic pages: Homepage, Upload Page, Results Display Page.

#### **Backend Setup:**

- Setup Flask backend framework.
- Define project folder structure (templates, static, routes, models, etc.).
- Test basic Flask routes and frontend-backend communication.

#### **Model Preparation:**

- Prepare license plate detection model (YOLO or similar).
- Preprocessing and testing model on local sample images.
- Collect sample images/videos for testing.
- Document requirements and project plan.

During this week, the main focus was on training the license plate detection model. A YOLOv5-based architecture was used due to its balance between speed and accuracy, which is suitable for real-time applications. The model was trained using a custom dataset of annotated vehicle images, covering various angles, lighting conditions, and license plate types in Vietnam.

The training process was conducted on the Lightning.ai platform, which provided efficient resource management and streamlined experimentation. After several training iterations, the model achieved satisfactory performance on the validation set, demonstrating good generalization ability for detecting license plates in real-world scenarios.

### **Next Steps:**

- Integrate the trained detection model into the Flask backend.
- Begin connecting detection output with OCR for full license plate recognition.
- Continue improving the frontend for better user experience.
- Prepare to test the full pipeline on real sample data (images/videos).