

Design and Implementation of a Smart Web Application for Automated Bulk Image Processing

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Abstract: *In today's digital world, a large number of images are generated every day from different sources such as cameras, surveillance systems, and monitoring applications. Processing these images one by one is a slow and inefficient task, especially when the dataset size is large. This creates a need for an automated system that can handle multiple images together with minimum manual effort.*

This project focuses on the development of a smart web application for automated bulk image processing. The system allows users to upload a compressed file containing multiple images, which are then automatically extracted and processed through a predefined workflow. Basic image preprocessing techniques are applied to improve image quality and prepare the images for further analysis.

To demonstrate the practical use of the system, vehicle number plate detection and recognition is considered as a key use case. The application detects number plate regions from vehicle images and extracts the alphanumeric characters using optical character recognition techniques. The extracted results are displayed through a simple and user-friendly web interface.

The proposed system helps in reducing processing time, manual work, and human errors while handling large image datasets. It provides an efficient and flexible solution that can be extended to other image processing applications where bulk image handling is required..

Keywords: Smart Web Application, Automated Bulk Image Processing, Vehicle Number Plate Detection, Computer Vision, OCR, Web-Based Systems, Image Automation

