VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI - 590018

Mini Project Report

On

"AUTOMATIC VEHICLE LICENCE DETECTION USING HAAR CASCADE CLASSIFIER"

A report submitted in partial fulfillment of the requirements for

COMPUTER GRAPHICS AND IMAGE PROCESSING LABORATORY (21CSL66)

In

Computer Science and Design

Submitted by

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DEPARTMENT OF COMPUTER SCIENCE AND DESIGN
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CERTIFICATE

This is to certify that the Computer Graphics and Image Processing Laboratory with Mini Project entitled **"AUTOMATIC VEHICLE LICENCE DETECTION USING HAAR CASCADE CLASSIFIER"** has been completed by

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The Bonafide students of the Department of Computer Science and Design, Alva's Institute of Engineering and Technology in the **DEPARTMENT OFCOMPUTER SCIENCE AND DESIGN** of the VISVESVARAYA TECHNOLOGICAL UNIVERSITY,BELAGAVI during the year 2023–2024. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The Mini Project report has been approved as it satisfies the academic requirements concerning the Mini Project work of Computer Graphics and Image Processingsubject prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

The rapid advancements in computer vision and optical character recognition (OCR) technologies have significantly impacted the transportation and security industries. This project aims to develop an automated vehicle licence plate recognition system to address the inefficiencies and inaccuracies of manual data recording methods. Utilizing OpenCV for image and video processing and Tesseract OCR for text recognition, the system ensures high accuracy and reliability in real-time applications.

The system captures video frames from pre-recorded files or live webcam feeds and processes them using a Haar Cascade Classifier trained specifically for licence plate detection. Detected licence plate regions are extracted and preprocessed for OCR, where the Tesseract engine accurately reads the text. This automated process supports applications such as traffic monitoring, automated toll collection, and vehicle tracking, significantly reducing the need for manual intervention and minimizing errors.

The system's real-time processing capability ensures efficient operation in dynamic environments, making it suitable for various practical scenarios. This project demonstrates the effective integration of advanced computer vision and OCR technologies to create a robust licence plate recognition system. The results highlight significant improvements inoperational efficiency and accuracy. Future enhancements will focus on improving adaptability to different licence plate formats and integrating the system with broader surveillance and traffic management infrastructures, contributing to smarter and safer urban environments.