VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

A CGIP PROJECT REPORT ON

Image Compression and B&W Conversion

IN

COMPUTER SCIENCE AND DESIGN

By

H M TUSHAR	4AL21CG026
HEMANT MUNAVALLI	4AL21CG028
RAKSHA SIDDESH G	4AL21CG044
SHREYA L	4AL21CG054

Under the Guidance of

Dr. Pushparani M K

Senior Associate Professor

ALVA'S

DEPARTMENT OF COMPUTER SCIENCE AND DESIGN

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MOODBIDRI-574225, KARNATAKA

2023 – 2024

ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, MOODBIDRI, D.K. -574225

DEPARTMENT OF COMPUTER SCIENCE AND DESIGN

CERTIFICATE

This is to certify that the DBMS Mini Project entitled **"IMAGE COMPRESSION AND B&W CONVERSION"** has been successfully completed by

H M TUSHAR	4AL21CG026
HEMANT MUNAVALLI	4AL21CG028
RAKSHA SIDDESH G	4AL21CG044
SHREEYA L	4AL21CG054

the bonafide students of **Department of Computer Science & Design, Alva's Institute of Engineering and Technology** in **DEPARTMENT OF COMPUTER SCIENCE & 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 in respect of Mini Project work prescribed for the Bachelor of Engineering Degree.

Dr. Pushparani M K
Mini Project Guide

Mr. JayanthKumar A. Rathod
HOD CSD

EXTERNAL VIVA

Name of the Examiners	Signature with Date
1. Suritha NV	7/8/24
2. J. A. Rathod	7/8

ABSTRACT

In the digital age, high-resolution images are integral to fields like social media, professional documentation, and academic research. However, the large storage space and high bandwidth required for these images present challenges in efficient data management and transmission. This project addresses these issues by developing a Python-based tool offering both image compression and black-and-white conversion using OpenCV. This tool reduces file sizes while maintaining image quality, making it highly beneficial for diverse applications.

Image compression minimizes storage and transmission requirements without significantly affecting quality. By using advanced compression algorithms with OpenCV, this project ensures that images retain essential details while significantly reducing size. This is particularly valuable for applications with large datasets or requiring rapid image transmission, such as online platforms and cloud storage solutions. The compression process can be customized to balance between image quality and compression level, catering to specific user needs.

Black-and-white conversion simplifies image data representation and enhances processing efficiency. This feature is useful for tasks like optical character recognition (OCR), image segmentation, and object detection, where color information is often redundant. By converting images to grayscale and applying binary thresholding techniques, the tool streamlines image processing workflows and reduces computational overhead. Combining these functionalities within a single tool provides a comprehensive solution for various image processing needs.

The developed tool offers a user-friendly interface and supports multiple image formats, ensuring broad applicability and ease of use. Users can choose between compression, black-and-white conversion, or both, based on their requirements. The project demonstrates the effectiveness of combining these processes, showcasing improvements in storage efficiency and processing speed. This approach enhances image management capabilities and contributes to advancing image processing technologies, making it valuable for developers, digital archivists, and researchers