A Project Report
on

Quadrants Dynamic Histogram Equalization for Contrast Enhancement.

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in

INFORMATION TECHNOLOGY

By

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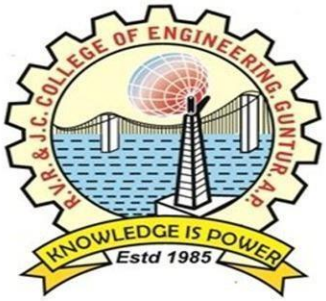

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BONAFIDE CERTIFICATE

This is to Certify that this project titled **"QUADRANTS DYNAMIC HISTOGRAM EQUALIZATION FOR CONTRAST ENHANCEMENT"** is the bonafide work of **Manga Rohith Kumar (Y20IT072), Modela Ganesh Kumar (Y20IT076), Nukathoti Arun Babu (L21IT137)** who have carried out the work under my supervision, and submitted in partial fulfillment for the award of the degree IT461-Project Work, B.Tech. in Information Technology During the year 2023-2024.

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ABSTRACT

The problem at hand concerns the enhancement of digital images captured by consumer electronic devices, where existing methods often fall short in addressing inherent limitations. In response, a novel approach known as Quadrant Dynamic Histogram Equalization (QDHE) is proposed. QDHE revolutionizes traditional histogram equalization by strategically dividing the image histogram into quadrants and employing median-based sub-histograms. These sub-histograms allow for more localized adjustments, enhancing the adaptability of the technique across different image regions. Moreover, QDHE incorporates intensity clipping based on occurrence mean, effectively mitigating issues such as intensity saturation and noise amplification commonly encountered in conventional methods. By dynamically assigning a new intensity range and performing individual sub-histogram equalization, QDHE aims to outperform current techniques in terms of image enhancement and preservation of intricate details. Notably, the study highlights the efficacy of QDHE in addressing challenges associated with images captured in low-light conditions, which are prevalent in devices such as smartphone cameras. This innovative approach not only promises to improve the overall quality of digital images but also offers practical solutions for enhancing user experience in various consumer electronic devices..

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