TRIBHUVAN UNIVERSITY

INSTITUTE OF ENGINEERING

PULCHOWK CAMPUS

"Object Recognition and Image Enhancement for Night Vision Surveillance"

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The undersigned certify that they have read, and recommended to the Institute of Engineering for acceptance, a project report entitled **"Object Recognition and Image Enhancement for Night Vision Surveillance"** submitted by Aashish Bhandari, Aayush Kafle, Pranjal Dhakal and Prateek Raj Joshi in partial fulfilment of the requirements for the Bachelor's degree in Electronics & Communication / Computer Engineering.

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We would like to express our humble gratitude to everyone who has made contribution in finalizing our major project. We are very grateful for having "**Object Recognition and Image Enhancement for Night Vision Surveillance**" as our major project. This project encompasses all the key disciplines, we are keenly interested in.

We would like to heartily thank our supervisor Mr. Dinesh Baniya Kshatri sir for his wonderful insight and assistance for helping us to refine and finalize the topic of our major project. We are very thankful of him for providing us with necessary resource materials for the topic. Finally, we would like to sincerely thank the Department of Electronics and Computer Engineering for elucidating us with the concepts and constraints in choosing our major project.

Regards,
Project Members

ABSTRACT

Object recognition is critical part of any surveillance system. It is the matter of utmost concern to identify intruders and foreign objects in the area where surveillance is done. The performance of surveillance system using traditional camera in daylight is vastly superior as compared to night. The main problem for surveillance during night is the objects captured by traditional cameras have low contrast against the background. Therefore, the image taken in the low light condition is first enhanced to obtain the image with higher contrast using different enhancing algorithms. The enhanced image is then sent for classification using the neural network architecture and the object is recognized in the image.

KEYWORDS

Infra-red image processing, night vision image enhancement, low light image enhancement, night vision object recognition, night vision surveillance.

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