National Institute of Business Management

Higher National Diploma In Software Engineering - 23.1,23.2,23,3F

Digital Image Processing

Course Work (Individual)

The aim of this individual project is to experiment with three different Digital Image Processing (DIP) techniques to enhance surveillance images. Students are required to analyze and compare the effectiveness of these techniques and propose a recommended solution based on their findings.

Project Guidelines:

Each student will apply three distinct image processing techniques to improve the quality of surveillance images and evaluate their performance. The pipeline should include:

1. Select three different image enhancement techniques based on your knowledge.
2. Apply each technique to a set of few surveillance images and analyze the results.
3. Compare the effectiveness of the techniques based on predefined criteria.
4. Justify the selection of the most effective technique and propose an optimal solution.
5. Provide a well-structured report that includes all required sections.

Report Structure: (Maximum 3000 Words)

1. Introduction & Background

- Provide an introduction and background of digital image processing and its applications in surveillance based on your scenario.
- Explain the importance of image processing for your problem.

2. Previous/Existing Studies

- Summarize relevant studies and existing techniques used for surveillance image enhancement.
- Discuss their advantages and limitations in there.

3. Objectives

- Clearly state the goals of the project.

- Define how the comparison will be conducted and what criteria will be used.

4. Technology Stack

- Explain and justify the choice of tools and libraries used in the project.

5. Methodology

- Explain the selected three image processing techniques in detail.
- Describe how each technique is applied to enhance the surveillance images.
- Discuss any preprocessing or filtering steps taken before applying the techniques.
- Elaborate your complete process.

6. Results & Comparison (Allowed to attach images, diagrams, snapshots, etc.)

- Present the processed images and any quantitative results obtained.
- Compare the three techniques based on key performance criteria.
- Provide visual evidence and/or statistical measures for comparison.

7. Conclusion & Proposed Solution

- Summarize findings from the comparisons.
- Recommend the most effective technique based on the results.
- Discuss any potential improvements or future enhancements.

**********End**********