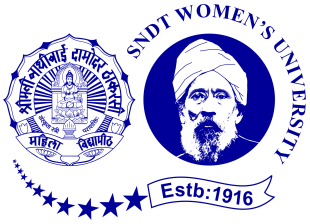
A Project Report On

Topic Name

Submitted in partial fulfilment for the
degree of Bachelor of Technology in
———(Dept Name)

Submitted by
Name of Student (Roll No)
Name of Student (Roll No)
Name of Student (Roll No)

Under the guidance of
Guide Name



Name of College
Address
Address

Year

Declaration

I, [**Your Full Name**], hereby declare that the work presented in this *project* entitled "*[Title of Your Work]*" is entirely my own. The content of this *project* has been generated through my independent efforts, research, and scholarly contributions. I further declare that:

1. **Originality:**
    - The ideas, concepts, and contributions presented in this work are solely the result of my own intellectual endeavours.
2. **Authenticity:**
    - All data, figures, tables, and findings presented in this *project*are genuine and have not been fabricated or manipulated.
3. **No Use of AI Tools:**
    - I have not used any AI-based tools to generate significant portions of this *project* including but not limited to content, research objectives, hypotheses, and analysis.
4. **No Plagiarism:**
    - I have properly cited and referenced all external sources and works consulted during the preparation of this *[thesis/dissertation/research project]*.
    - There is no instance of plagiarism or unauthorized use of others' intellectual property.
5. **Independent Work:**
    - This work has been conducted independently, without any collaboration or assistance that would compromise the originality of the content.
6. **Academic Integrity:**
    - I have adhered to the principles of academic integrity and ethical research throughout the entire process of producing this *[thesis/dissertation/research project]*.

I understand the consequences of academic dishonesty and affirm that this declaration accurately reflects the nature and authenticity of my work.

Date: *[Date of Submission]*

Signature: _____

[Your Full Name]

CERTIFICATE

This is to certify that (—Name of student) has completed the —- (project-I/ Project-II..etc as per structure of syllabus) report on the topic " topic name " satisfactorily in partial fulfillment for the Bachelor's Degree in ———(dept) under the guidance of —-Guide Name during the year —- as prescribed by —- Shreemati Nathibai Damodar Thackersey Women's University (SNDTWU)

Guide

Guide name

Head of Department

HOD name

Principal
Name of Principal

Examiner 1

Examiner 2

Abstract

This abstract provides a concise summary of the main points and findings of your research paper, thesis, or article. It should be clear, informative, and engaging, allowing readers to quickly understand the purpose and significance of your work.

Introduction: Start by introducing the topic and providing context for your study.

Objective/Research Question: State the main objective of your research or the specific research question you aimed to address.

Methodology: Briefly describe the methods or approaches used to conduct your research. This may include experimental techniques, data collection methods, or theoretical frameworks.

Results/Findings: Summarize the main findings or outcomes of your study. Highlight the key results that contribute to addressing your research question.

Conclusion/Implications: Conclude with the significance of your findings and discuss any potential implications or applications of your research.

This abstract should be concise, typically between 150-250 words, and written in clear, direct language. Avoid unnecessary jargon or complex terminology.

Keywords: Include relevant keywords that reflect the main topics and themes of your research. This helps with indexing and searchability.

Contents

List of Tables

List of Figures

Nomenclature

dB	Decibel
σ_s	3 dB Bandwidth of source
3G	Third generation
4G	Fourth Generation
TDM	Time Division Multiplexing
WDM	Wavelength Division Multiplexing

Chapter 1

Introduction

This chapter serves as the introduction to the document. It provides an overview of the topic, establishes the context and significance of the research, and outlines the objectives and scope of the study.

1.1 Background

Provide background information on the topic of the study. Discuss relevant literature, previous research, and key concepts related to the subject matter.

1.2 Research Motivation

Explain the motivation behind conducting this research. Describe why the topic is important and relevant, highlighting any gaps or challenges that the study aims to address.

1.3 Research Objectives

Outline the specific objectives and goals of the research. Clearly state what the study aims to achieve and the questions it seeks to answer.

1.4 Scope of the Study

Define the scope of the study by specifying the boundaries and limitations. Describe what aspects will be included and excluded from the investigation.

1.5 Structure of the Document

Provide an overview of the document's structure. Briefly outline the chapters or sections that follow and explain how they contribute to addressing the research objectives.

Chapter 2

Review of Literature

This chapter should consists the information regarding already available solutions/methods of whatever you are proposing.

Introduction

Provide an introduction to the literature review, explaining the importance of the topic and the objectives of the review.

Scope and Objectives

Define the scope of the literature review and outline the specific objectives.

Methodology

Describe the methodology used for literature search and selection of sources.

Review of Literature

Theme 1: [Title of Theme]

- **?**: Summary of key findings and methodologies.
- **?**: Comparison with previous studies and critical analysis.

Theme 2: [Title of Theme]

- **?**: Discussion of trends and gaps in the literature.
- **?**: Analysis of conflicting viewpoints and implications.

Synthesis and Discussion

Synthesize the findings from different sources and discuss their implications for your research question.

Conclusion

Summarize the main findings of the literature review and highlight areas for further research.

Chapter 3

Methodology / Research Methodology/ Experimental Methodology / Analytical Methodology/Descriptive Methodology /Case Study Methodology / Quantitative Research Methodology

Select any suitable title fro this topic based on your project

3.1 Introduction to Methodology

Purpose: The objective of the Methodology chapter is to describe the research approach and methods used to address the project objectives.

Context: This section provides a brief overview of the project and explains its significance in the context of the field of study.

3.2 Research Design

Describe Research Design: The overall research design adopted for the project is *[insert type of research design]* (e.g., experimental, analytical, descriptive, case study).

Justification: This research design was chosen because *[provide reasons why this design aligns with the project goals].*

3.3 Research Approach

Explain Approach: The approach used to collect data or information is *[insert type of research approach]* (e.g., quantitative, qualitative, mixed-methods).

Rationale: This approach was selected based on *[explain how it aligns with the research questions and objectives].*

3.4 Sampling Strategy

Define Sampling: The sampling technique used is *[describe sampling technique]* (e.g., random sampling, purposive sampling).

Sample Size: The sample size of *[specify sample size]* was chosen to *[justify representativeness or reliability].*

3.5 Data Collection Methods

Detail Data Collection: Data was gathered using *[describe data collection methods]* (e.g., surveys, interviews, experiments, observations).

Instruments Used: The tools and instruments utilized include *[mention specific tools or technologies].*

3.6 Data Analysis Techniques

Outline Analysis Methods: Collected data will be analyzed using *[explain analysis methods]* (e.g., statistical analysis, thematic analysis, content analysis).

Software Tools: Analysis will be conducted using *[mention software tools or packages]* (e.g., SPSS, MATLAB, NVivo).

3.7 Research Ethics

Ethical Considerations: Ethical issues related to data collection, participant consent, and confidentiality were addressed by *[explain ethical considerations]*.

Compliance: The research adheres to ethical guidelines and regulations set by *[mention relevant regulatory bodies]*.

3.8 Limitations and Assumptions

Identify Limitations: Potential limitations in the research approach or methods include *[acknowledge limitations]*.

Discuss Assumptions: Assumptions made during the research process are *[state assumptions]*.

3.9 Validation and Reliability

Ensure Validity: Steps taken to ensure validity and reliability include *[describe validation methods]* (e.g., triangulation, pilot testing).

3.10 Timeline and Schedule

Project Timeline: A brief timeline outlining the sequence of research activities and milestones is provided in *[include project timeline]*.

Gantt Chart (Optional): A Gantt chart or schedule diagram can be included to visualize the project timeline.

3.11 Writing Tips

- Use clear and concise language to describe each methodological aspect.
- Provide sufficient detail for readers to understand the research process and its rationale.
- Include citations to relevant sources to support methodological choices.
- Organize the chapter logically, following a structured format from general to specific details.

Study the LaTeX code in chapt3.tex. It will help you for figure insertion, math using LaTeX . Table creation, citations, labels.

3.12 Homomorphic filter

By performing simultaneous gray level range compression and contrast enhancement on illumination reflection model,one can improve the appearance of an image by designing a frequency domain procedure Mantas [1987]. An image $f(x, y)$ can be expressed as a product of illumination and reflection components Foucher [2009].

$$f(x, y) = i(x, y)r(x, y) \tag{3.1}$$

here $i(x, y)$ is illumination component and $r(x, y)$ reflection component.

Fourier transform of the product of two functions is not separable, So we can define shown in as shown in Equation 3.2

$$F.T[z(x, y)] = F.T[lnf(x, y)] = F.T[lni(x, y)] + F.T[lnr(x, y)] \tag{3.2}$$

$$Z(u, v) = F_i(u, v) + F_r(u, v) \tag{3.3}$$

$$S(u, v) = H(u, v)Z(u, v) \tag{3.4}$$

where $S(u, v)$ Fourier Transform of result and $H(u, v)$ Filter function

$$S(u, v) = H(u, v)F_i(u, v) + H(u, v)F_r(u, v)$$

$$s(x, y) = F^{-1}[S(u, v)]$$

$$s(x, y) = F^{-1}[H(u, v)F_i(u, v)] + F^{-1}[H(u, v)F^r(u, v)]$$

Say

$$i'(x, y) = F^{-1}[H(u, v)F_i(u, v)]$$

$$r'(x, y) = F^{-1}[H(u, v)F_r(u, v)]$$

Hence,

$$s(x,y) = i'(x,y) + r'(x,y)$$

Therefore, Let $g(x,y)$ be the inverse exponential operation

$$g(x,y) = e^{s(x,y)}$$

$$g(x,y) = e^{i'(x,y)} e^{r'(x,y)}$$

$$g(x,y) = i_0(x,y) + r_0(x,y)$$

where $i_0(x,y) = e^{i'(x,y)}$ and $r_0(x,y) = e^{r'(x,y)}$

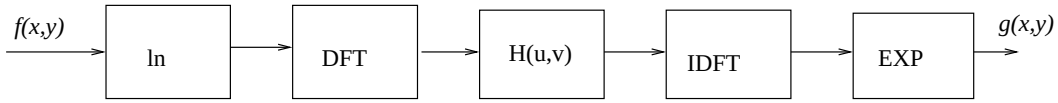


Figure 3.1: Block digram

- This approach is used for homomorphic filtering as shown in figure 3.1. The key to the approach is separation of the illumination and reflection components. Between them $i(x,y)$ contributes to the low frequency since illumination is more or less uniform and $r(x,y)$ is high frequency component as it tends to vary abruptly at junctions of dissimilar objects.
- $H(u,v)$ is the homomorphic filtering function.A typical homomorphic filter $H(u,v)$ is as shown in figure below. Generally, $\gamma_L < 1$ and$\gamma_H > 1$, $H(u,v)$ tends to decrease the contribution made by low frequencies and amplify the contribution made by high frequency.

3.13 Morphological Filters

To understand morphological filters we first need to understand the operations dilation, erosion,opening and closing.

3.13.1 Dilation

With A and B as sets in Z^2,the dilation of A and B denoted as $A \oplus B$ is defined as

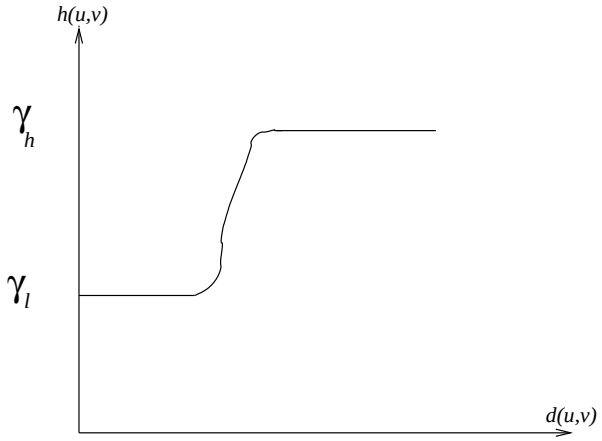


Figure 3.2: Transfer function

$$A \oplus B = Z/(\hat{B}_z \cap A \neq \phi$$

Equation obtained by reflection of B about origin and shifting reflection by z . B and A should overlap by at least one element.Set B is the structuring element in all morphological operations.

Erosion For sets A and B in Z^2,the erosion of A by B denoted as $A \ominus B$ is defined as

$$A \ominus B = Z/(B_z \subseteq A)$$

This equation indicates that the erosion of A by B is the set of all points z such that B,translated by z is contained in A Erosion shrinks an image.

3.13.2 Opening and closing

Opening smooths the contour of an object. Closing also tends to smooth sections of contours but it generally fuses narrow breaks and long thin gulfs,eliminates small holes and fills gaps in contour. Opening is denoted by $A \circ B$

$$A \circ B = (A \ominus B) \oplus B$$

i.e. Erosion followed by dilation Closing is denoted by $A \bullet B$

$$A \bullet B = (A \oplus B) \ominus B$$

i.e Dilation followed by erosion. Morphological operations can be used to construct

filters.

1. Suppose we have a binary image which is corrupted by noise.The noise manifests itself as light elements on a dark background and dark elements on light components of image .

2. A morphological filter consisting of opening followed by closing operation eliminates the noise and its effect on the image while distorting it as little as possible.

3. The steps are as follows

   - We have a structuring element
   - We erode A with the structuring element.The background noise gets eliminated in the erosion stage of opening because in this case all noise components are physically smaller then the structuring element. For e.g. in some images the size of the noise elements actually increases.This is because these elements are inner boundaries that should increase in size as object is eroded.
   - This enlargement is countered by performing dilation.The noise components in the image are reduced in size or deleted completely. The two operations constitute "opening" A by B.
   - Net effect of opening is to eliminate all noise components in both the background and image itself.However,new gaps may be formed.
   - To counter this effect we perform dilation on the opening.Sometimes most breaks are restored but ridges are thickened. This thickening is countered by erosion.
   - The above two steps are the closing operation.

Hence the final result is remarkably clean of noise specs. Disadvantage of this filter is that some of the point ridges might not be fully repaired and can contain breaks.

The Table 3.1 is used to explain how table can be created in Latex and also observe how table in the document can be referred in text.

Roll No	Name of the student	marks
1	Sonal	95
2	Komal	97

Table 3.1: list of students

Chapter 4

Realization/Implementation of the Proposed *[Name of the System]* System

This chapter presents the detailed design, development, testing, and results of the proposed *[Name of the System]* system.

4.1 System Design

Describe the design architecture and components of the system. Include diagrams (e.g., UML diagrams, flowcharts) to illustrate the system's structure and interactions.

4.1.1 System Architecture

Provide an overview of the system's architecture, including high-level components, modules, and their interactions.

4.1.2 Design Details

Explain the design decisions and considerations for each component or module of the system. Discuss data structures, algorithms, and technologies used.

4.2 System Development

Outline the implementation process and development stages of the system.

4.2.1 Programming Languages and Tools

Specify the programming languages, frameworks, and tools used for system development.

4.2.2 Implementation Details

Describe the implementation details of key features and functionalities of the system.

4.3 System Testing

Discuss the testing methodologies and procedures used to ensure the quality and functionality of the system.

4.3.1 Types of Testing

Describe different types of testing performed (e.g., unit testing, integration testing, acceptance testing).

4.3.2 Test Cases and Results

Present specific test cases, test scenarios, and their results. Include tables or figures to showcase testing outcomes.

4.4 Results and Evaluation

Provide an analysis of the system's performance and effectiveness based on the testing results.

4.4.1 Performance Metrics

Discuss performance metrics (e.g., response time, scalability) and evaluate the system's performance against predefined criteria.

4.4.2 Comparison with Requirements

Compare the achieved results with the initial project requirements and objectives.

4.5 Conclusion

Summarize the key findings and outcomes of the system realization and implementation process.

Chapter 5

Conclusion and Future Scope

5.1 Conclusion

The conclusion of this study can be viewed from both theoretical and experimental perspectives. From a theoretical standpoint, the research has contributed to the understanding of [insert key findings or insights]. The experimental results have demonstrated the effectiveness of [describe experimental outcomes or observations]. Overall, this study has achieved its objectives of [summarize main achievements or contributions].

5.2 Future Scope

Although significant progress has been made, certain tasks were not completed due to [mention reasons such as time constraints, technical limitations, etc.]. To address these shortcomings, future work could focus on [propose specific tasks or areas for improvement]. For instance, implementing [suggest modifications or enhancements to the system] could enhance the performance and scalability of the proposed system. Additionally, further research is warranted to explore [identify potential avenues for future research].

Appendix A

Monthly Progress Evaluation Report

Project Title: [Enter Project Title]
Group Members:

- Student 1
- Student 2
- Student 3 (if applicable)

Month of Evaluation: [Enter Month 1 dates: ()]

Progress Report

1. Individual Contribution

- **Student 1:** [Describe Student 1's Contribution]
- **Student 2:** [Describe Student 2's Contribution]
- **Student 3 (if applicable):** [Describe Student 3's Contribution]

2. Update of Proposal

- **Proposal Background:** [Briefly summarize the project proposal]
- **Progress Clarification:** [Specify the context and purpose of the progress report]

3. Explanation of Progress

1. **Work Completed:**

    - Task A: [Describe tasks completed by the group]
    - Task B: [Describe additional tasks completed]

2. **Future Work:**

    - Task A: [Outline tasks planned for the upcoming week]
    - Task B: [Specify future work goals and timelines]

4. Conclusion

[Summarize the overall progress of this month and future expectations for the effective project completion]

Evaluator's Comments:
[Provide any additional feedback or comments for each student]

Month of Evaluation: [Enter Month 2 dates: ()]

Progress Report

1. Individual Contribution

- **Student 1:** [Describe Student 1's Contribution]
- **Student 2:** [Describe Student 2's Contribution]
- **Student 3 (if applicable):** [Describe Student 3's Contribution]

2. Update of Proposal

- **Proposal Background:** [Briefly summarize the project proposal]
- **Progress Clarification:** [Specify the context and purpose of the progress report]

3. Explanation of Progress

1. **Work Completed:**

    - Task A: [Describe tasks completed by the group]
    - Task B: [Describe additional tasks completed]

2. **Future Work:**

    - Task A: [Outline tasks planned for the upcoming week]
    - Task B: [Specify future work goals and timelines]

4. Conclusion

[Summarize the overall progress of this month and future expectations for the effective project completion]

Evaluator's Comments:
[Provide any additional feedback or comments for each student]

Month of Evaluation: [Enter Month 3 dates: ()]

Progress Report

1. Individual Contribution

- **Student 1:** [Describe Student 1's Contribution]
- **Student 2:** [Describe Student 2's Contribution]
- **Student 3 (if applicable):** [Describe Student 3's Contribution]

2. Update of Proposal

- **Proposal Background:** [Briefly summarize the project proposal]
- **Progress Clarification:** [Specify the context and purpose of the progress report]

3. Explanation of Progress

1. **Work Completed:**
    - Task A: [Describe tasks completed by the group]
    - Task B: [Describe additional tasks completed]
2. **Future Work:**
    - Task A: [Outline tasks planned for the upcoming week]
    - Task B: [Specify future work goals and timelines]

4. Conclusion

[Summarize the overall progress of this month and future expectations for the effective project completion]

Evaluator's Comments:
[Provide any additional feedback or comments for each student]

Appendix B

Brief Bio data of each student

Appendix C

Plagiarism Report

Appendix D

Research paper based on project

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References

Samuel Foucher. An evaluation of medical imaging. In *IGARSS*, 2009.

J. Mantas. Methodologies in pattern recognition and image analysis-a brief survey. *Pattern Recognition*, 1987.

Acknowledgement

Write Ack para and sign with date

Date:

Name of Candidate