|  |  |  |
| --- | --- | --- |
|  | **LIST OF CONTENTS** |  |
| **Chapter** | **Title** | **Page No** |
|  | **ABSTRACT** |  |
| **1** | **INTRODUCTION** | **1-15** |
| 1.1 | Aim and Objective | 1 |
| 1.2 | Feasibility Study | 2 |
| 1.2 | Literature Survey | 3-6 |
| 1.3 | Problem Definition | 7-8 |
| 1.4 | Analysis of the Problem | 8 |
| 1.5 | Solution Strategy | 9 |
| 1.6 | Software Requirement Specifications (SRS) | 10-13 |
| 1.6.1 | Functional Requirements | 10-12 |
| 1.6.2 | Non-Functional Requirements | 12 |
| 1.6.3 | Goal of Implementation | 13 |
| 1.6 | Preliminary user Manual (If any) | 13-14 |
| 1.7 | Organization of the report | 14-15 |
| **2** | **PROJECT PLANNING** | **16-20** |
| 2.1 | Hardware and Software Requirements | 16 |
| 2.2 | Team Structure | 17 |
| 2.3 | SLDC (if any) | 18 |
| 2.4 | Gantt–chart | 19-20 |
| **3** | **DESIGN STRATEGY FOR THE SOLUTION** |  |
| 3.1 | Architecture Diagram (if Any) |  |
| 3.2 | Flow chart (if any) |  |
| 3.3 | UML diagrams(Use case/Interaction/ activity/ sequence/class)(if any) |  |
| 3.4 | Data Flow Diagram(if Any) |  |
| 3.5 | Entity Relationship Diagram (if Any) |  |
| 3.6 | Relational Schema (if any) |  |
| **4** | **DETAILED TEST PLAN (if any)** |  |
| 4.1 | Sub headings |  |
| 4.2 | Sub Headings |  |
| 4.3 | Sub Headings |  |
| **5** | **IMPLEMENTATION DETAILS (if any)** |  |
| 5.1 | Sub headings |  |
| 5.2 | Sub Headings |  |
| **6** | **RESULT AND DISCUSSION (if any)** |  |
| 6.1 | Sub headings |  |
| 6.2 | Sub Headings |  |
| **7** | **SUMMARY AND CONCLUSION (if any)** |  |
| 7.1 | Summary of Achievement |  |
| 7.2 | Difficulty Encountered During Project |  |
| 7.3 | Future Scopes of the Project |  |
| 7.4 | Limitations of the Project |  |
| 7.5 | Special Observation (if Any) |  |
| 7.6 | Conclusion |  |
|  | **REFERENCES AND BIBLIOGRAPHY** |  |

|  |  |  |
| --- | --- | --- |
|  | **LIST OF FIGURES** |  |
| **FIG. NO.** | **FIGURE NAME** | **PAGE NO.** |
| 1.1.1 | AVIRIS hyperspectral data cube over Moffett Field, CA | 3 |
| 1.2.1 | Illustration of a hyperspectral cube, spectral pixel and a spectral layer. [6] | 6 |
| 1.2.2 | Steps for digital image processing | 9 |
| 1.2.3 | Monteverdi GUI | 10 |
| 1.2.4 | Gantt chart | 20 |
| 2.1 | Block diagram of development of an application for hyperspectral data processing using OTB | 23 |
| 2.2 | Flowchart for solution | 25 |
| 4.1 | Configuring OTB using CMAKE | 28 |
| 4.2 | Building the solution file | 29 |
| 4.3 | Generating GUI | 30 |
| 4.4 | Calculating the end members | 31 |
| 4.5 | Processing the data cube | 32 |
| 5.1 | HELLO WORLD in command prompt | 33 |
| 5.2 | List of GUI | 34 |
| 5.3 | Vertex component analysis | 35 |
| 5.4 | Hyperspectral Unmixing | 36 |
| 5.5 | Result of hyperspectral data processing | 37 |

|  |  |  |
| --- | --- | --- |
|  | **LIST OF TABLES** |  |
| **TABLE NO.** | **TABLE NAME** | **PAGE NO.** |
| 1.1.1 | AVIRIS hyperspectral data cube over Moffett Field, CA | 3 |
| 1.2.1 | Illustration of a hyperspectral cube, spectral pixel and a spectral layer. [6] | 6 |
| 1.2.2 | Steps for digital image processing | 9 |
| 1.2.3 | Monteverdi GUI | 10 |
| 1.2.4 | Gantt chart | 20 |
| 2.1 | Block diagram of development of an application for hyperspectral data processing using OTB | 23 |
| 2.2 | Flowchart for solution | 25 |
| 4.1 | Configuring OTB using CMAKE | 28 |
| 4.2 | Building the solution file | 29 |
| 4.3 | Generating GUI | 30 |
| 4.4 | Calculating the end members | 31 |
| 4.5 | Processing the data cube | 32 |
| 5.1 | HELLO WORLD in command prompt | 33 |
| 5.2 | List of GUI | 34 |
| 5.3 | Vertex component analysis | 35 |
| 5.4 | Hyperspectral Unmixing | 36 |
| 5.5 | Result of hyperspectral data processing | 37 |