**TABLE OF CONTENTS**

|  |  |
| --- | --- |
| **Contents** | **Page No** |
| **ABSTRACT** | i |
| **ACKNOWLEDGEMENT** | ii |
| **TABLE OF CONTENTS** | iii |
| **LIST OF FIGURES** | v |
| **LIST OF TABLES** | vi |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Chapter no** | | | | | **TITLE** | | |  | | | |
| **1.** | | | | | **INTRODUCTION** | | | 1-4 | | | |
| 1.1 | | | | | Introduction | | | 1 | | | |
| 1.2 | | | | | Problem Statement | | | 2 | | | |
| 1.3 | | | | | Objectives | | | 3 | | | |
| 1.4 | | | | | Scope of the project | | | 3 | | | |
| 1.5 | | | | | Organization of the report | | | 4 | | | |
| **2** | | | | | **LITERATURE SURVEY** | | | 5-8 | | | |
| 2.1 | | | | | Existing System | | | 5 | | | |
| 2.2  2.3 | | | | | Limitations of existing systems  Proposed System | | | 7  8 | | | |
| **3** | | | | | **SYSTEM REQUIREMENTS SPECIFICATION** | | | 9-13 | | | |
| 3.1 | | | | | Overall description | | | 9 | | | |
|  | | | | | 3.1.1 Product Perspective | | | 9 | | | |
|  | | | | | 3.1.2 Product Functions | | | 10 | | | |
|  | | | | | 3.1.3 User classes and Characteristics | | | 10 | | | |
|  | | | | | 3.1.4 Design and Implementation constraints | | | 10 | | | |
|  | | | | | 3.1.5 Assumptions and Dependencies | | | 10 | | | |
| 3.2 | | | | | Specific Requirements | | | 11 | | | |
|  | | | | | 3.2.1 Hardware Requirements  3.2.1 Software Requirements | | | 11  11 | | | |
| 3.3 | | | | | | Functional Requirements | | | 12 | | | |
|  | | | | | | 3.3.1 Model Development and Prediction  3.3.1 User Interface and Accessibility | | | 12  12 | | | |
|  | | | | | | 3.3.3 Model Validation and Evaluation | | | 12 | | | |
|  | | | | | | 3.3.4 Data Security | | | 13 | | | |
| 3.4 | | | | | | Non-Functional Requirements | | | 13 | | | |
|  | | | | | | 3.4.1 Usability  3.4.1 Reliability | | | 11  11 | | | |
|  | | | | | | 3.4.3 Performance | | | 13 | | | |
|  | | | | | | 3.4.4 Maintainability | | | 13 | | | |
|  | | | | |  | | |  | | | |
| **4** | | | | | **GANTT CHART** | | | | | | 15-16 | | | | |
| **5** | | **SYSTEM DESIGN** | | | 17-22 | | | | | | | |
| 5.1 | Architecture Diagram | | | | | | 22 | | | | | | |
| 5.2 | Use Case Diagram and Description | | | | | | 24 | | | | | | |
| 5.3 | Sequence Diagram | | | | | | 25 | | | | | | |
| 5.4 | Activity Diagram | | | | | | 26 | | | | | | |
| 5.5 | Data flow Diagram | | | | | | 22 | | | | | | |
| **6** | | **IMPLEMENTATION** | | | 22-31 | | | | | | | |
| 6.1 | | Module Implementation | | | 28 | | | | | | | |
| 6.2 | | Data Preprocessing | | | 28 | | | | | | | |
| 6.3 | | Model Development | | | 28 | | | | | | | |
| 6.4 | | Web Interface Development | | | 28 | | | | | | | |
| 6.5 | | Deployment | | | 28 | | | | | | | |
| **7** | | **TESTING** | | | 32-34 | | | | | | | |
| 7.1 | | System Testing | | | 32 | | | | | | | |
| 7.2 | | Testing Methodology | | | 32 | | | | | | | |
| 7.3 | | Test cases | | | 33 | | | | |
| 7.4 | | Evaluation Metrics | | | 32 | | | | |
| 7.5 | | Test Results and Analysis | | | 32 | | | | |
| 7.6 | | Challenges and Resolutions | | | 32 | | | | |
| **8** | | **RESULTS AND SNAPSHOTS** | | | 35-39 | | | | |
| 8.1 | | | | Introduction | | | 40 | | | | |
| 8.2 | | | | Model Performance Metrics | | | 40 | | | | |
| 8.3 | | | | Visualizations of Model Predictions | | | 40 | | | | |
| 8.4 | | | | Snapshots of Web Interface | | | 40 | | | | |
| 8.5 | | | | User Feedback | | | 40 | | | | |
| 8.6 | | | | Observations and Insights | | | 40 | | | | |
|  | |  | | |  | | | | |
| **9** | | **CONCLUSION AND FUTURE WORK** | | | 40 | | | | |
| 9.1 | | Conclusion | | | 40 | | | | |
| 9.2 | | Future Work | | | 40 | | | | |
| **REFERENCES** | | | | | | 41 | | | | | |
| **PAPERS PRESENTED** | | | | | | 42 | | | | | |

## LIST OF FIGURES

|  |  |  |
| --- | --- | --- |
| **Figure No.** | **Figure Name** | **Page No.** |
| Figure 4.1 | Gantt Chart | 21 |
| Figure 5.1 | Architectural Diagram | 23 |
| Figure 5.2 | Use Case Diagram | 24 |
| Figure 5.3 | Sequence Diagram | 25 |
| Figure 5.4 | Activity Diagram | 26 |
| Figure 5.5 | Data Flow Diagram | 27 |
| Figure 6.1 | Block Diagram of YOLOv8 | 30 |
| Figure 6.2 | Block Diagram of COBW Variant of Word2Vec Model | 31 |
| Figure 6.3 | Block Diagram of Overall Working of the recommendation system | 31 |
| Figure 8.1 | YOLOv8 Model Loss and Accuracy | 36 |
| Figure 8.2 | YOLOv8 Model F1-Confidence Curve | 36 |
| Figure 8.3 | YOLOv8 Prediction Result | 35 |
| Figure 8.4 | Application Interface | 35 |
| Figure 8.5 | Application Input | 38 |
| Figure 8.6 | Image Result Sample – 1 | 38 |
| Figure 8.7 | Image Result Sample – 2 | 38 |
| Figure 8.8 | Recipe Details - 1 | 38 |
| Figure 8.9 | Confusion Matrix For The YOLOv8 Model | 39 |

**LIST OF TABLES**

|  |  |  |
| --- | --- | --- |
| **Table No.** | **Table Name** | **Page No.** |
| Table 4.1 | Gantt Chart of Planning and Scheduling of Project | 20 |
| Table 7.1 | Test Cases | 33-34 |
| Table 8.1 | Recommendation System output for Potato or Onion | 37 |