**SAVITRIBAI PHULE PUNE UNIVERSITY**

**A PROJECT REPORT ON**

# PROJECT TITLE

SUBMITTED TO THE SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE IN THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE

## BACHELOR OF ENGINEERING
## (Computer Engineering)

## SUBMITTED BY

**Group ID : AXX**


| | |
|---|---|
| Student Name | Exam No: |
| Student Name | Exam No: |
| Student Name | Exam No: |
| Student Name | Exam No: |


## Under The Guidance of

**Prof. Guide Name**


**DEPARTMENT OF COMPUTER ENGINEERING**
**Amrutvahini College of Engineering, Sangamner**
**Amrutnagar, Ghulewadi - 422608**


**2023-24**


**AMRUTVAHINI COLLEGE OF ENGINEERING,SANGAMNER**
**DEPARTMENT OF COMPUTER ENGINEERING**

# CERTIFICATE

This is to certify that the Project Entitled

## PROJECT TITLE

Submitted by

**Group ID: AXX**

| | |
|---|---|
| Student Name | Exam No: |
| Student Name | Exam No: |
| Student Name | Exam No: |
| Student Name | Exam No: |

are bonafide students of this institute and the work has been carried out by them under the supervision of Prof. A. B. C and it is approved for the partial fulfillment of the requirement of Savitribai Phule Pune University, for the award of the degree of Bachelor of Engineering (Computer Engineering).

Prof. Guide Name
Internal Guide
Dept. of Computer Engg.

Dr. R. G. Tambe Dr. D. R. Patil
Project Coordinator
Dept. of Computer Engg.

Dr. S. K. Sonkar
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Dr. M.A. Venkatesh
Principal
AVCOE Sangamner

**SAVITRIBAI PHULE PUNE UNIVERSITY**

# CERTIFICATE

This is to certify that,

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| Student Name | Exam No: |
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| Student Name | Exam No: |
| Student Name | Exam No: |

of BE Computer Engineering was examined in the Project Examination entitled

## PROJECT TITLE

on / / 2024

At

DEPARTMENT OF COMPUTER ENGINEERING

AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER

| | |
|---|---|
| Internal Examiner | External Examiner |

# Acknowledgment

Please Write here Acknowledgement.

# Abstract

Please Write here Abstract.It should mainly include introduction, motivation,outcome and innovation if any.

# Synopsis

Add synopsis which was finalised at the start of Semester.

# Abbreviation

| | |
|---|---|
| EM | Electomagnetic |
| EMS | Electomagnetic spectrum |
| MS | Multispectral |
| HS | Hyperspectral |
| LiDAR | Light Detection and Ranging |

# INDEX

# CHAPTER 1

# INTRODUCTION

## 1.1 PROJECT IDEA

- Project Idea

## 1.2 MOTIVATION OF THE PROJECT

- Motivation of the Project

# CHAPTER 2

# LITERATURE SURVEY

## 2.1 LITERATURE SURVEY

Add paragraph for each paper and at the end add table.

Remote Sensing [1] and [2] is a art of science which is study [3] of laser scanning and Earth observation using deep learning [4].

| Sr. No. | Paper Title | Year of Publication | Method Algorithm Used |
|---|---|---|---|
| 1 | Deep multi-feature learning architecture for water body segmentation from satellite images | 2022 | W-Net Deep Learning CNN |
| 2 | Deep multi-feature learning architecture for water body segmentation from satellite images | 2022 | W-Net Deep Learning CNN |
| 3 | | | |

Table 2.1: Comparative Analysis

# CHAPTER 3

# PROBLEM DEFINITION AND SCOPE

## 3.1 PROBLEM STATEMENT

Description of Problem

### 3.1.1 Goals and objectives

Goal and Objectives:

- Overall goals and objectives of software, input and output description with necessary syntax, format etc are described

### 3.1.2 Statement of scope

- A description of the software with Size of input, bounds on input, input validation, input dependency, i/o state diagram, Major inputs, and outputs are described without regard to implementation detail.
- The scope identifies what the product is and is not, what it will and won't do, what it will and wont contain.

## 3.2 SOFTWARE CONTEXT

- The business or product line context or application of the software is to be given

## 3.3 MAJOR CONSTRAINTS

- Any constraints that will impact the manner in which the software is to be specified, designed, implemented or tested are noted here.

## 3.4 METHODOLOGIES OF PROBLEM SOLVING AND EFFICIENCY ISSUES

- The single problem can be solved by different solutions. This considers the performance parameters for each approach. Thus considers the efficiency issues.

## 3.5 SCENARIO IN WHICH MULTI-CORE, EMBEDDED AND DISTRIBUTED COMPUTING USED

Explain the scenario in which multi-core, embedded and distributed computing methodology can be applied.

## 3.6 OUTCOME

- Outcome of the project

## 3.7 APPLICATIONS

- Applications of Project

## 3.8 HARDWARE RESOURCES REQUIRED

| Sr. No. | Parameter | Minimum Requirement | Justification |
|---|---|---|---|
| 1 | CPU Speed | 2 GHz | Remark Required |
| 2 | RAM | 3 GB | Remark Required |

Table 3.1: Hardware Requirements

## 3.9 SOFTWARE RESOURCES REQUIRED

Platform :

1. Operating System:
2. IDE:
3. Programming Language

# CHAPTER 4

# SOFTWARE REQUIREMENT SPECIFICATION

(SRS is to be prepared using relevant mathematics derived and software engg.)

## 4.1 INTRODUCTION

### 4.1.1 Purpose and Scope of Document

The purpose of SRS and what it covers is to be stated

### 4.1.2 Overview of responsibilities of Developer

What all activities carried out by developer?

## 4.2 FUNCTIONAL REQUIREMENTS

### 4.2.1 System Feature 1(Functional Requirement)

### 4.2.2 System Feature2 (Functional Requirement)

### 4.2.3 System Feature3 (Functional Requirement)

## 4.3 EXTERNAL INTERFACE REQUIREMENTS (IF ANY)

### 4.3.1 User Interfaces

### 4.3.2 Hardware Interfaces

### 4.3.3 Software Interfaces

### 4.3.4 Communication Interfaces

## 4.4 NONFUNCTIONAL REQUIREMENTS

### 4.4.1 Performance Requirements

Dont Write Definition, Write in concern with your project

### 4.4.2 Safety Requirements

Dont Write Definition, Write in concern with your project

### 4.4.3 Security Requirements

Dont Write Definition, Write in concern with your project

### 4.4.4 Software Quality Attributes

Dont Write Definition, Write in concern with your project

## 4.5 SYSTEM REQUIREMENTS

### 4.5.1 Database Requirements

4.5.1.1 Software Requirements(Platform Choice)

4.5.1.2 Hardware Requirements

## 4.6 ANALYSIS MODELS: SDLC MODEL TO BE APPLIED

## 4.7 SYSTEM IMPLEMENTATION PLAN:

# CHAPTER 5

# METHODOLOGY AND SYSTEM DESIGN

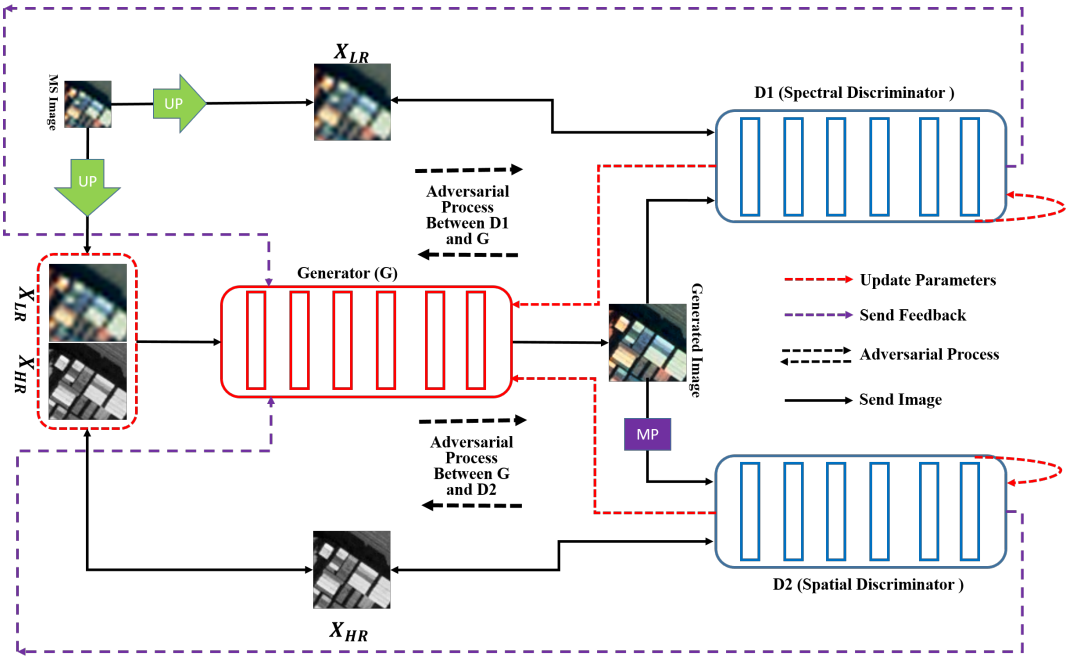


Figure 5.1: Remote Sensing System

## 5.1 SYSTEM ARCHITECTURE

## 5.2 DATA FLOW DIAGRAMS

## 5.3 ENTITY RELATIONSHIP DIAGRAMS)

## 5.4 UML DIAGRAMS

# CHAPTER 6

# SOFTWARE IMPLEMENTATION

## 6.1 TECHNOLOGY DETAILS USED IN THE PROJECT

## 6.2 DATASET USED IN THE PROJECT

# CHAPTER 7

# PROJECT ESTIMATION, SCHEDULE AND TEAM STRUCTURE

## 7.1 PROJECT COST

Use of COCOMO model or any other relevant model for cost estimation

## 7.2 PROJECT SCHEDULE AND TEAM STRUCTURE

For project schedule you may use time line chart.

# CHAPTER 8

# SOFTWARE TESTING AND VALIDATION

## 8.1 TYPE OF TESTING

## 8.2 TEST CASE

## 8.3 RISK MANAGEMENT

Risk Identification and Risk Analysis

# CHAPTER 9

# RESULT AND ANALYSIS

Description about Dataset Used. Implementation Details. Metrics used for Evaluation e.g. confusion metrics, Sensitivity, Recall, Precision etc. (May change accordingly to project) Qualitative (Visual results e.g. Input and Output images) and Quantitative (Tables or Graphs) Analysis

# CHAPTER 10

# ADVANTAGES, LIMITATIONS AND APPLICATION

## 10.1 ADVANTAGES

## 10.2 LIMITATION

## 10.3 APPLICATIONS

# SUMMARY AND CONCLUSION

Write one page summary and conclusion May include separate paragraph for Future Work or Extension of Project by other Students

# REFERENCES

[1] Paul M Mather and Magaly Koch. *Computer processing of remotely-sensed images: an introduction*. John Wiley & Sons, 2011.

[2] Zhenchao Zhang, George Vosselman, Markus Gerke, Claudio Persello, Devis Tuia, and Michael Ying Yang. Detecting building changes between airborne laser scanning and photogrammetric data. *Remote sensing*, 11(20):2417, 2019.

[3] Kaiming He, Xiangyu Zhang, Shaoqing Ren, and Jian Sun. Deep residual learning for image recognition. In *Proceedings of the IEEE conference on computer vision and pattern recognition*, pages 770–778, 2016.

[4] Ramprasaath R Selvaraju, Michael Cogswell, Abhishek Das, Ramakrishna Vedantam, Devi Parikh, and Dhruv Batra. Grad-cam: Visual explanations from deep networks via gradient-based localization. In *Proceedings of the IEEE international conference on computer vision*, pages 618–626, 2017.

# ANNEXURE A

# AWARDS/PARTICIPATION IN PROJECT COMPETITION/EXHIBITION

- Problem statement feasibility assessment using, satisfiability analysis and NP Hard,NP-Complete or P type using modern algebra and relevant mathematical models.

# ANNEXURE B

# DETAILS OF THE PAPERS PUBLICATION (IF ANY)

Details of the papers referred in IEEE format (given earlier) Summary of the above paper in not more than 3-4 lines. Here you should write the seed idea of the papers you had referred for preparation of this project report in the following format.
Example: Thomas Noltey, Hans Hanssony, Lucia Lo Belloz,"Communication Buses for Automotive Applications" In Proceedings of the 3rd Information Survivability Workshop (ISW-2007), Boston, Massachusetts, USA, October 2007. IEEE Computer Society.

# ANNEXURE C

# PLAGIARISM REPORT FOR THIS REPORT

All must attach certificate/report of Plagiarism issued by Urkund Software. Percentage of Similarity should not be more than 30%

# ANNEXURE D

# ANY OTHER DOCUMENTATION EVIDENCES RELATED TO PROJECT

All must attach certificate/report of Plagiarism issued by Urkund Software. Percentage of Similarity should not be more than 30%