Green Field Machinery

Software Project Management Plan

22CE095, 22CE100, 22CE110

Version 1.0

Preface

The purpose of **Software Project Management Plan (SPMP)** is to describe the project management plan and schedule of the project created by our team. This report defines and describes the operations, resource details, constraints, budget and timeline of the project. Moreoverthis report also includes managerial processes like estimation, staffing, resource allocation, qualitycontrol and assurance, and risk management plans. The Software Project Management Plan captures detailed requirements and complete project management plan for our project.

Revision History

Version	Status	Date	Version Definition
1	Released	September 4, 2020	SPMP 1.0

Group Details [B1-G3]

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1.1 Project Summary

1.1.1 Purpose, Scope and Objectives

1.1.1.1 Purpose

The purpose of this Software Requirements Specification (SRS) document is to define the functional and non-functional requirements for the development of "GFM" (Growers' Farm Machinery), a specialized website aimed at facilitating the rental of farming equipment to farmers. By articulating the specific needs and expectations of stakeholders, users, and the development team, this document aims to serve as a blueprint for designing, implementing, and testing the GFM platform. The primary goal of GFM is to create a seamless online marketplace where farmers can easily browse, rent, and manage agricultural machinery, while also providing equipment owners with a platform to list and manage their offerings. Through clear and comprehensive requirements documentation, this SRS ensures that the development process remains focused on delivering a user-friendly, secure, and efficient solution that meets the demands of the agricultural community and contributes to the advancement of farming practices.

The purpose of **Software Project Management Plan (SPMP)** is to describe the project management plan and schedule of the project created by our team. This report defines anddescribes the operations, resource details, constraints, budget and timeline of the project. Moreover this report also includes managerial processes like estimation, staffing, resource allocation, quality control and assurance, and risk management plans. The Software Project Management Plan captures detailed requirements and complete project management plan for our project.

1.1.1.2 Scope

Facilitating Farming Equipment Rentals: GFM (Growers' Farm Machinery) facilitates farmers in accessing a wide range of agricultural equipment for rent, fostering efficient farming practices and enabling cost-effective utilization of resources.

Equipment Listings and Availability: The platform provides a comprehensive database of available farming equipment, allowing farmers to easily browse and check the availability of specific machinery based on their requirements and timelines.

Booking and Reservation System: Users can conveniently book and reserve farming equipment through the platform, streamlining the rental process and ensuring timely access to essential machinery for agricultural activities.

User Ratings and Reviews: GFM incorporates a rating and review system where farmers can provide feedback on the rented equipment, enabling continuous improvement in service quality and fostering trust among users.

Maintenance and Support: The platform offers maintenance and support services to ensure the reliability and optimal performance of rented equipment, enhancing the overall user experience and satisfaction.

1.1.1.3 Objectives

- ***Section 1:*** The SRS will provide a detailed description of *The Common Place* project. This document will provide the outline of the requirements, overview of the characteristics and constraints of the system.

- ***Section 2:*** This section of the SRS will provide the general factors that affect the product and its requirements. It provides the background for those requirements. The items such as product perspective, product function, user characteristics, constraints, assumptions and dependencies and requirements subsets are describedin this section.

- ***Section 3:*** This section of SRS contains all the software requirements mentioned in section 2 in detail sufficient enough to enable designers to design the system to satisfy the requirements and testers to test if the system satisfies those requirements.

1.1.2 Assumptions & Constraints

1.1.2.1 Assumptions

- Users possess adequate computer literacy skills.
- The farming community has access to devices with Internet connectivity.
- Users are proficient in English, as the website's interface will be in English.
- The system can integrate with the university student database for authentication and Verification purposes.

1.1.2.2 Constraints

- All user information must be stored in a database accessible to the online system.
- The university's information security system must be compatible with internet applications.
- The online system must run continuously, 24 hours a day, connected to the university's computer.
- Users must access the online system from computers with internet browsing capabilities and an internet connection.
- • Users must have correct usernames and passwords for system access.

1.1.3 Project Deliverables

Table 1. Project Deliverables

Work Product	Description	Delivery Date
Problem Statement	The problem addressed by our site is the lack of access to affordable and efficient farming equipment for farmers, which our platform solves by providing a convenient rental marketplace for agricultural machinery. (Submitted)	1th January2024
Initial Plan	Technical: Develop user-friendly interface, implement robust search and booking functionality, ensure secure payment processing, integrate feedback mechanisms for continuous improvement. Managerial: Establish project timeline, allocate resources effectively, conduct regular meetings for updates and feedback, designate roles and responsibilities clearly, prioritize customer support and satisfaction. (Submitted)	10th January2024

Software Requirements Specification (SRS) Document	The Software Requirements Specification (SRS) document will describe the external behavior of the project. It defines & describes the operations, user interfaces, performance as well as quality assurance requirements of theproject. It also describes the design constraints that are to be considered when the system isto be designed, and other factors necessary to provide a complete and comprehensive description of all therequirements for the software. (Submitted)	21th February2024
Software Project Management Plan (SPMP) Document	Software Project Management Plan is used to define the scope, purpose & objectivesof the project, to specify roles& responsibilities of the team members as well as the customer company or end-user if it exists.	16th march2024

	Various plans are considered in order to define the assumptions and constraints of the project. It defines which process model is chosen for the project life cycle. It is also used to document the agreed deliverables and their dates.	
Software Design Description (SDD) Document	Software Design Description is used as a reference for complete description of the design of the software system to be developed. It documents all the information about the design. It specifies the form of the document which is used to specify system architecture and application design involved in a software related project.	
Reviewed SDD Document	Revised version	
Presentation	During the 4th semester, presentations will be delivered to reflect the work done at regular intervals of time.	
Software Test Document (STD)	Software Test Documentation is used to describe plans for testing the software as well as any verification and validation activity.	
Reviewed STD Document	Revised Version	

Presentation	During the 4th semester, presentations will be delivered to reflect the work done at regular intervals of time.	
Final Versions of Documents	All documents are submitted with the latest versions.	
Project Submission	Delivery Milestone	

- There will be four major deliverables in the project which are SPMP, SRS, SDD and STD. All these documents will be prepared according to the IEEE standards.

1.1.4 Schedule and Budget Summary

We have estimated the resource allocation and schedule of the project in section 5.2.4 which is also combined with budget allocation.

1.2 Evolution of the SPMP

The software project management plan is under version control. Proposed changes and new versions of the plan will be announced and updated.

1.3 References

- IEEE Std 1058-1998, IEEE Standard for Software Project Management Plans
- Pressman, Roger S., Software Engineering, 4th edition, McGraw-Hill, 1997
- Fairley, R. E., Work breakdown Structure, Software Engineering Project Management, IEEE CS Press, 1997

2. Project Organization

2.1 External Interfaces

This project will be controlled by a project supervisor and quality group in each step. The Supervisor will determine mistakes on project before implementation. After the development team corrects the mistakes, documents are delivered as a new version.

2.2 Internal Structure

Table 2. Internal Structure

Phases	**Responsibility**
Project Management	Project Manager
Web Development	Web Developer
Documentation	Documentation
Testing & Maintenance	Tester
UI Design	Designer

2.3 Project Responsibilities

Table 3. Project Responsibilities

Member Name	**Responsibility**	**E-Mail**
Pranshu Patel	Front-end Developer, Project Leader	22ce095@charusat.edu.in
Ohm Rathod	UI Designer	22ce110@charusat.edu.in
Sujal Patel	Backend Developer	22ce100@charusat.edu.in

3. Managerial Process Plans

3.1 Start-up Plan

This section contains our project's estimation plan, staffing plan, resource acquisition plan, and training plan. In the following subsections, all these plans will exist with their explanations in the details.

3.1.1 Estimation Plan

In the beginning of a project, it is difficult to predict the exact timeline of the project. This report is the first design of SPMP, we cannot expect an adequate data at this instant of time. Hence, using the following function points, we will predict our estimation plan.

Table 4. Unadjusted Function Point Calculation

		Weighing factor			Count
		Simple	Average	Complex	
Inputs	User Login	3	4	6	4*6=24
	User Registration	3	4	6	
	User Profile Account	3	4	6	
	Add to Cart	3	4	6	
	View / Buy Products	3	4	6	
	Administrator Login	3	4	6	

Outputs	Login Confirmation	4	5	7	4*5=20
	Invoice Confirmation	4	5	7	
	Post Created Confirmation	4	5	7	
	Pending Work	4	5	7	
Inquiries	Pending Work	3	4	6	3*2=6
	Track	3	4	6	
Files	Inward Documents	7	10	15	2*10=20
	Outward Documents	7	10	15	
Interfaces	Website to server database	5	7	10	2*7=14
	User to Website database	5	7	10	
Total UFP					84

Table 5. Complexity Adjustment Value

No.	Characteristic	Count
1	Data Communication	5
2	Distributed data processing	4
3	Performance	5
4	Heavily used configuration	3
5	Transaction rate	3
6	Online data entry	4
7	End user efficiency	4

8	Online updating	3
9	Complex processing	2
10	Reusability	2
11	Browse ease	0
12	Operational ease	4
13	Multiple sites	0
14	Facilitate change	3
Total		42

3.1.2 Calculations

PCA = 0.65 + 0.01 * 42 = 1.07
Adjustment Function Point = 1.07 * 78 = 83

Assuming that the 1 FP is equal to 67 lines of code in PHP then,
LOC (Lines of code) = 60 * 84 = 5628
Therefore, KLOC = 5.628

Effort of the project is E = a * (KLOC) ^ b

For the Organic project the value of a is 3.2 and value of b is 1.05.

Therefore value of effort is = 3.2 * (5.628) ^ 1.05 = 3.2 * 5.4645 = 19.63 = 19 PM
Hence, Effort = 19 Person Month

Duration of the project is M = a * (E) ^ b
a = 2.5, b = 0.38 for project in Organic Mode.

Hence, M = 2.5 * (19) ^ 0.38 = 7.65 Months

Suppose the average monthly salary of each software developer is Rs. 20,000.
Total Cost of the project is = Rs. 20,000 * 3 People * 7.65 Months = Rs. 4,59,000.

3.1.3 Resource Acquisition Plan

Considering the average hardware requirements for the web development team, the resources will be acquisitioned. The average hardware resources necessary for our project are as follows:

- Processor: Intel Core i5
- RAM: 8 GB
- HDD: 500 GB
- Network Interface Card (NIC)
- Intel(R) Iris(R) Xe Graphics

Hence, a PC or laptop that fulfills the above mentioned resources are required for the development team.

In addition to these Hardware requirements, the following Software requirements should be satisfied:

- XAMPP Server
- Microsoft Visual Studio Code
- Microsoft Project
- Microsoft Visio
- Microsoft Office
- Google Chrome Browser

3.1.4 Project Staff Training Plan

The web development team will perform accelerated learning using online resources and implement the necessary modules. They will continuously search about this project. When they meet, they will transfer knowledge to others as well. The team members already have basic knowledge and experience of working on required tools. They will learn and gain the knowledge to develop and fulfill the complexity of this system.

3.2 Work Plan

3.2.1 Work Activities

		Task Mode	Task Name	Duration	Work	Start	Finish	Predecessors	Resource Names	% Complete
1			**SoftwareGroupProject**	**66 days**	**1,000 hrs**	**Mon 01-01-24**	**Mon 01-04-24**			**61%**
2	✓		Project Planning	5 days	120 hrs	Mon 01-01-24	Fri 05-01-24		Ohm,Pranshu,Sujal	100%
3	✓		Requirement Analysis	5 days	40 hrs	Mon 08-01-24	Fri 12-01-24		Pranshu,Ohm	100%
4	✓		UI/UX Design	5 days	80 hrs	Mon 15-01-24	Fri 19-01-24		Sujal,Ohm	100%
5			**Work Schedule**	**40 days**	**640 hrs**	**Mon 22-01-24**	**Fri 15-03-24**			**64%**
6			**Initiation & Planning**	**30 days**	**480 hrs**	**Mon 22-01-24**	**Fri 01-03-24**	**3,2,4**		**85%**
7	✓		Frontend Development	15 days	240 hrs	Mon 22-01-24	Fri 09-02-24	4	Ohm,Pranshu	100%
8			Backend Development	15 days	240 hrs	Mon 12-02-24	Fri 01-03-24	7	Sujal,Pranshu	70%
9			Testing & Debugging	10 days	160 hrs	Mon 04-03-24	Fri 15-03-24	6	Pranshu,Sujal	0%
10			Deployment & Launch	5 days	40 hrs	Mon 18-03-24	Fri 22-03-24	6	Ohm	0%
11			Final Review & Refinement	5 days	80 hrs	Mon 25-03-24	Fri 29-03-24	5	Ohm,Sujal	0%
12			Delivery Milestone	1 day	0 hrs	Mon 01-04-24	Mon 01-04-24	11		0%

Figure 1. Work Plan

3.2.2 Schedule Allocation

The following figure shows the Gantt Chart and Network Diagram that describes the schedule allocation of the project.

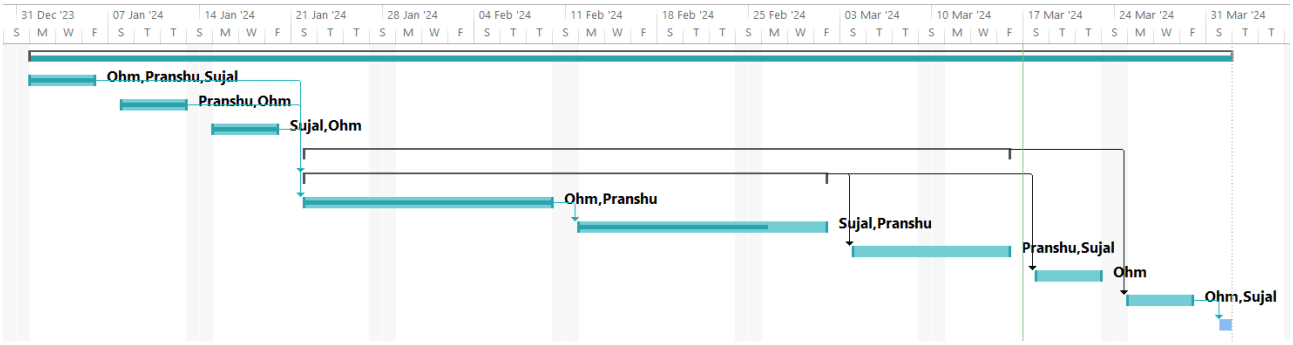

Figure 2. Gantt Chart

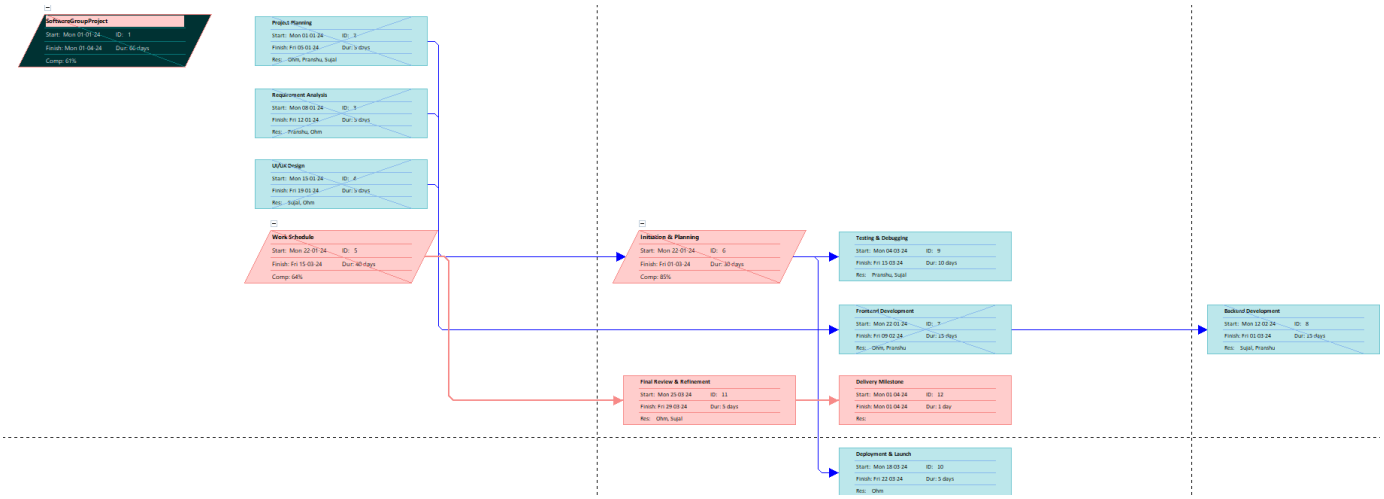

Figure 3. Network Chart

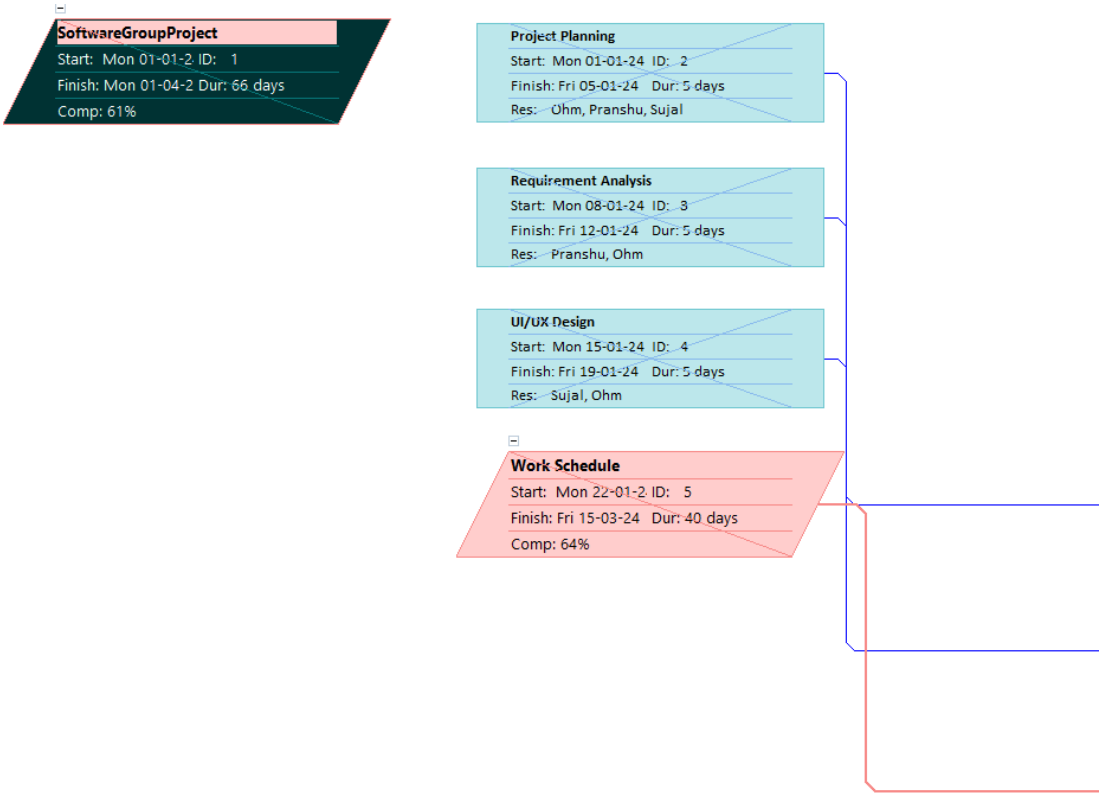

Figure 4. Network Chart

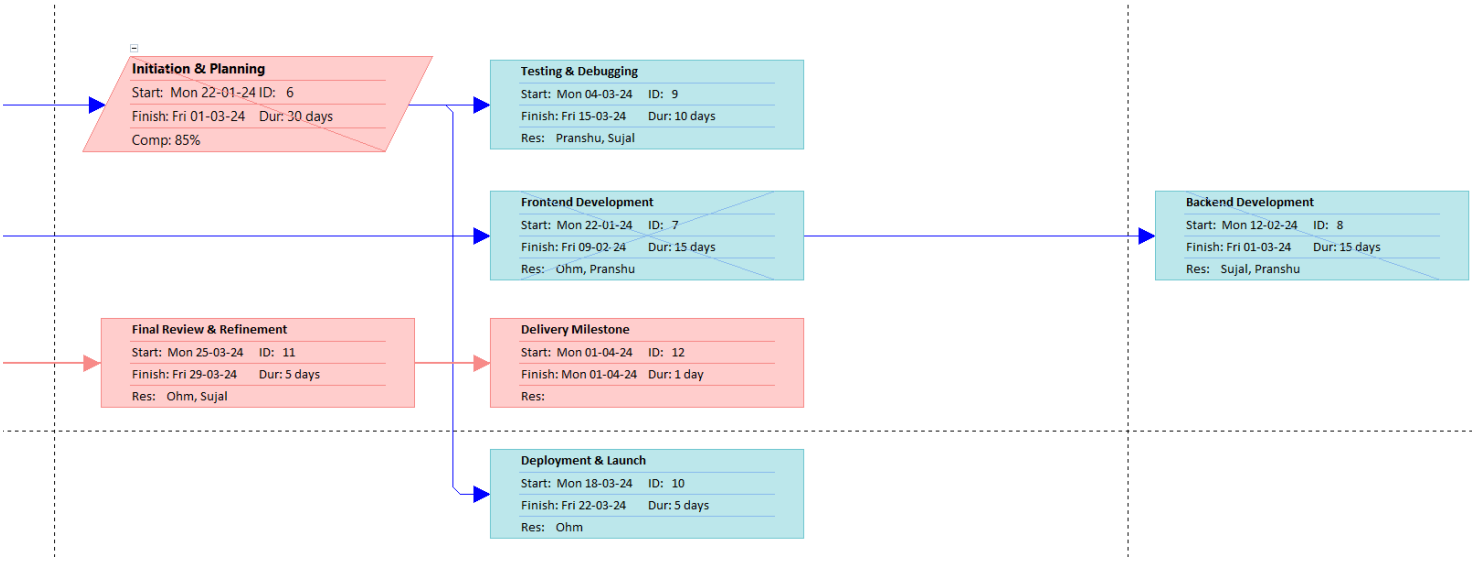

Figure 5. Network Chart

3.2.2 Resource Allocation

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt. Rate	Cost/Use	Accrue	Base
1	Pranshu	Work		P		100%	₹ 0.00/hr	1,000.00/hr	₹ 0.00	Prorated	Standard
2	Ohm	Work		O		100%	₹ 0.00/hr	1,000.00/hr	₹ 0.00	Prorated	Standard
3	Sujal	Work		S		100%	₹ 0.00/hr	1,000.00/hr	₹ 0.00	Prorated	Standard

Figure 6. Resource Allocation