Group01

Pic2Model
Software Development Plan
Version <1.0>

Revision History

Date	Version	Description	Author
07/11/2024	1.0	This version includes the initial overview of the project plan.	All group members

Table of Contents

Software Development Plan

1. Introduction

The introduction of the **Software Development Plan** provides an overview of the entire document. It includes the purpose, scope, definitions, acronyms, abbreviations, references, and overview of this **Software Development Plan**.

1.1 Purpose

The purpose of the *Software Development Plan* is to gather all the necessary information to control the project. It describes the approach to the development of the software and is the top-level plan generated and used by managers to direct the development effort.

The following people use the *Software Development Plan*:

- The **project manager** uses it to plan the project schedule and resource needs, and to track progress against the schedule.
- **Project team members** use it to understand what they need to do, when they need to do it, and what other activities they are dependent upon.

1.2 Scope

This *Software Development Plan* describes the plan to be used by the **Pic2Model** project, including deployment of the product.

The plans outlined in this document are based upon the product requirements as defined in the *Vision Document*.

1.3 Overview

This *Software Development Plan* contains the following information:

Project Overview — provides a description of the project's purpose, scope, and objectives. It also defines the deliverables that the project is expected to deliver.

Project Organization — describes the organizational structure of the project team.

2. Project Overview

2.1 Project Purpose, Scope, and Objectives

Purpose: The Pic2Model project aims to address the needs of various users across education, e-commerce, tourism, and design sectors. The reasons for undertaking this project include:

- **Enhancing Educational Quality**: Providing interactive 3D models to help teachers and students understand complex concepts more effectively.
- **Improving Online Shopping Experience**: Allowing customers to view products from all angles before making a purchase.
- **Creating Virtual Travel Experiences**: Enabling people to explore destinations without the need to travel physically.
- **Supporting Design Work**: Assisting designers in creating accurate and detailed 3D models quickly.

Scope: The scope of this project includes the development and deployment of the Pic2Model platform, which encompasses the following:

- **Development of AI-powered tools** for converting 2D images and textual descriptions into 3D models.
- **Creation of an interactive user interface** that allows users to engage with and manipulate 3D models.
- **Implementation of virtual travel experiences** with immersive and educational content.
- **Integration of e-commerce features** that enable detailed product views and customization options.
- **Deployment of design assistance tools** that support rapid and precise model creation.

Objectives:

- Develop and launch the Pic2Model platform on local website with basic functions.
- Ensure the platform is user-friendly and accessible to all target user groups.

2.2 Assumptions and Constraints

Assumptions:

- The project team will have continuous access to necessary development tools and resources.
- All team members are proficient in the required technologies and methodologies.
- Stakeholders will provide timely feedback and approvals throughout the project lifecycle.
- The platform will be accessible through major web browsers and mobile devices.
- Adequate documentation and guidelines will be provided for all third-party tools and libraries used.
- End users will be willing to engage with the platform and provide valuable feedback for improvements.

Constraints:

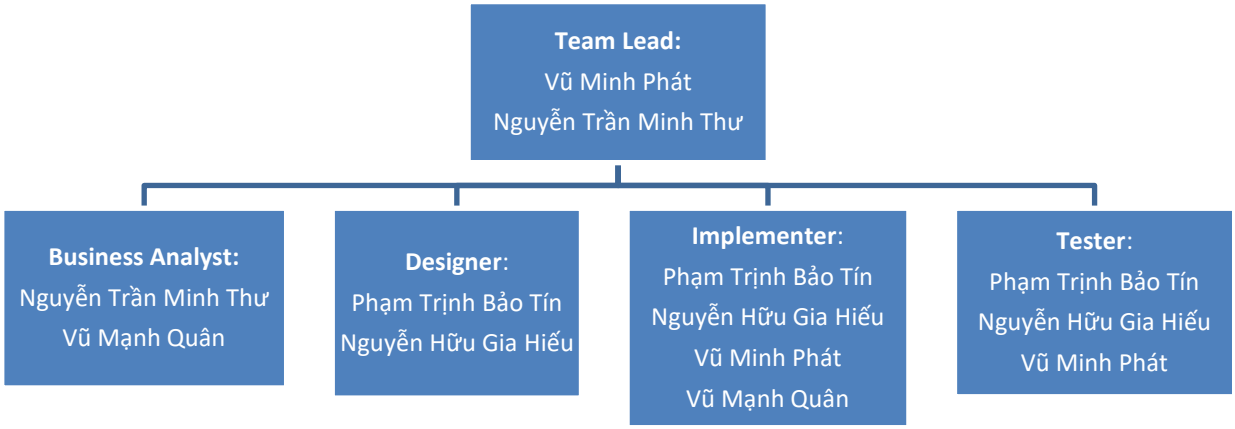
- The project timeline is tight, with only 12 short weeks for completion.
- The project's resources are limited to 5 members, with varying levels of expertise, and no additional support from other members.
- The product is being developed for free, which may impose certain limitations on its features.
- The working hours of each member differ, making it challenging to find a common time for group meetings, summaries, or organizing joint working sessions.
- Hardware and software must be compatible with existing systems, and any third-party tools or libraries used must be open-source or licensed for commercial use.

2.3 Project Deliverables

Deliverables for each project phase are identified in the Development Case. Deliverables are delivered towards the end of the iteration, as specified in section *4.2.3 Project Schedule*.

3. Project Organization

3.1 Organizational Structure



3.2 Roles and Responsibilities

Member	Roles	Responsibilities
Vũ Minh Phát	Team Leader Implementer Tester	Write Project plan and assign task Write source code Perform unit test Review source code
Nguyễn Trần Minh Thư	Team Leader Business Analyst	Monitor and report status (weekly report) Coordinate meetings Connect point for the project Communicate with team members about the requirements Coordinate to review requirements
Vũ Mạnh Quân	Business Analyst Implementer	Document requirements (interview customers, etc.) Coordinate to review requirements Write source code Perform unit test Review source code
Nguyễn Hữu Gia Hiếu	Designer Implementer Tester	Design the system (components, classes, databases, etc.) Create Software Architecture Document Write source code Perform unit test Review source code

Phạm Trịnh Bảo Tín	Designer Implementer Tester	Design user interface Creating Software Architecture Document Develop test plans and test cases based on software requirements and specifications. Execute manual and automated test cases to verify the software's functionality. Create Test plan and Test case Document

4. Management Process

4.1 Project Estimates

None

4.2 Project Plan

4.2.1 Phase and Iteration Plan

One iteration or sprint = 2 weeks

- Phase 1: (1 Sprint)
  - Phase name: Inception
  - Starting date: 25/10/2024
  - Ending date: 07/11/2024

Sprint	Objectives
Sprint 1	- Project plan document - Vision document - 2 weekly reports

- Phase 2: (1 Sprint)
  - Phase name: Elaboration
  - Starting date: 08/11/2024
  - Ending date: 21/11/2024

Sprint	Objectives to achieve	Releases
Sprint 1	- Revised project plan document - Detailed vision document - Complete Use-case model document - Complete Use-case specification document - Draft software architecture document (SAD)	- 3D Model Creation from 2D Images and Descriptions. - AI-Driven Image Generator

	- 2 weekly reports	

• Construction: (2 Sprint)

- Starting date: 22/11/2024
- Ending date: 12/12/2024

Sprint	Objectives to achieve	Releases
Sprint 1	- Revised software architecture document (SAD) - UI prototype - Test plan and test cases document - 2 weekly reports	- Object Segmentation (Demo) - Interactive 3D Experiences (Demo)
Sprint 2	- Final product - Project presentation - 2 weekly reports	

4.2.2 Releases

- 3D Model Creation from 2D Images and Descriptions: Transform 2D images or textual descriptions into detailed 3D models, catering to needs in education, shopping, tourism, and art-related activities. This allows users to visualize and interact with complex concepts and objects.
- AI-Driven Image Generator: Use AI to generate images from user-provided text descriptions. This feature helps users to easily visualize their ideas without needing extensive design skills, making the platform more accessible.
- Object Segmentation in Images: Enable object segmentation in images for instances where only specific elements need to be converted into 3D models. This allows users to isolate and focus on objects within an image, creating precise and targeted 3D representations. (Beta Release)
- Interactive 3D Experiences: Provide users with immersive experiences by interaction with generated 3D models on the website. This includes functionalities like rotating, zooming, and manipulating the models for an in-depth exploration, enhancing their understanding and engagement. (Demo)

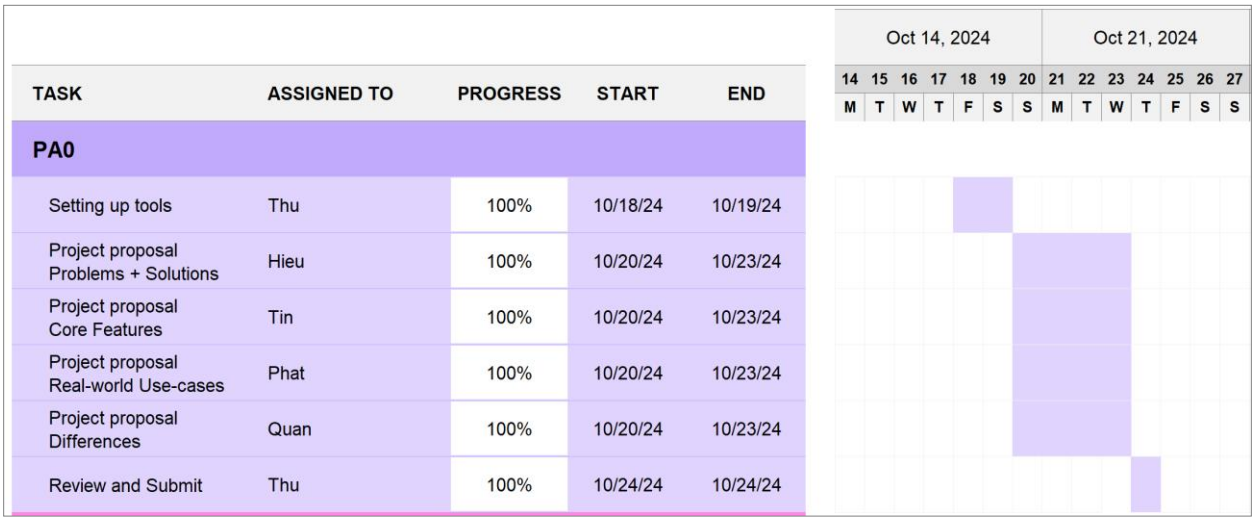
4.2.3 Project Schedule

Phase	Interation	Start date - Due date	Task	Result	Releases
Inception	**Sprint 1**	24/10/2024 - 07/11/2024 (2 weeks)	• Idea for the project. • Discuss the environment to develop the project, programming languages, technology, etc.	• Project plan. • Vision document. • Weekly report 1. • Weekly report 2.	

			• Divide roles for each team member. • Write an initial version of the project plan. • Write an initial version of the vision document. • Write weekly reports and the description of project.	• Work division. • PA1.	
Elaboration	**Sprint 1**	07/11/2024 - 14/11/2024 (1 week)	• Write a revised project plan. • Write a detailed vision document. • Design use-case model. • Draft the use-case specification document. • Write a weekly report. • Learning and training technology: API, Server, Docker, MongoDB, Figma, ReactJS, etc.	• Revised project plan. • Detailed vision document. • Use-case model. • Use-case specification. • Weekly report. • PA2.	3D Model Creation from 2D Images and Descriptions.
		14/11/2024 - 21/11/2024 (1 week)	• Write a revised use-case specification document. • Draft the software architecture document (SAD). • Design class diagrams. • Write a weekly report. • Learning technology and generating code.	• Revised use-case specification. • Software architecture document. • Class diagrams. • Weekly report. • PA3.	AI-Driven Image Generator
Construction	**Sprint 1**	21/11/2024 - 28/11/2024 (1 week)	• Write a revised software architecture document. • Design UI prototype. • Write a weekly report. • Learning technology and generating code.	• Revised software architecture document. • UI prototype. • Weekly report. • PA4.	Object Segmentation (Demo)
		28/11/2024 - 5/12/2024 (1 week)	• Prepare test plan and test cases. • Write weekly reports.	• Test plan and test cases document • Weekly report.	Interactive 3D Experiences (Demo)
	Sprint 2	28/11/2024 -	• Complete all functions of software and connect them	• Final product • Project	

		12/12/2024 (2 weeks)	together • Prepare project presentation. • Write weekly reports. • Learning technology and generating code.	presentation slide. • Weekly report 1. • Weekly report 2. • PA5.	
		12/12/2024 - 26/12/2024 (2 weeks)	• Prepare final submission.	• Final submission. • PA6.	

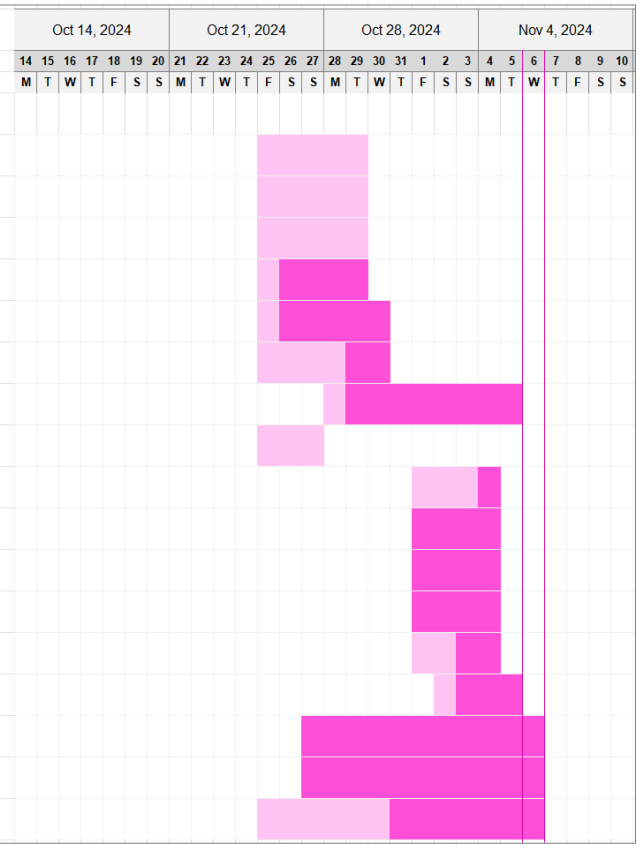
- **PA0**: 17/10/2024 – 24/10/2024



TASK	ASSIGNED TO	PROGRESS	START	END
PA0				
Setting up tools	Thu	100%	10/18/24	10/19/24
Project proposal Problems + Solutions	Hieu	100%	10/20/24	10/23/24
Project proposal Core Features	Tin	100%	10/20/24	10/23/24
Project proposal Real-world Use-cases	Phat	100%	10/20/24	10/23/24
Project proposal Differences	Quan	100%	10/20/24	10/23/24
Review and Submit	Thu	100%	10/24/24	10/24/24

- **PA1**: 24/10/2024 - 07/11/2024 (2 weeks)

TASK	ASSIGNED TO	PROGRESS	START	END
PA1				
Project Plan - Section 1	Phat	100%	10/25/24	10/29/24
Project Plan - Section 2	Thu	100%	10/25/24	10/29/24
Project Plan - Section 3	Thu	100%	10/25/24	10/29/24
Project Plan - Section 4.1	Tin	30%	10/25/24	10/29/24
Project Plan - Section 4.2.1	Hieu	20%	10/25/24	10/30/24
Project Plan - Section 4.2.2	Hieu	70%	10/25/24	10/30/24
Project Plan - Section 4.2.3	Phat	20%	10/28/24	11/5/24
Project Plan - Section 4.3	Phat	100%	10/25/24	10/27/24
Vision document - Section 1	Thu	80%	11/1/24	11/4/24
Vision document - Section 2	Thu	0%	11/1/24	11/4/24
Vision document - Section 3.1	Phat	20%	11/1/24	11/4/24
Vision document - Section 3.2	Hieu	10%	11/1/24	11/4/24
Vision document - Section 3.3	Tin	60%	11/1/24	11/4/24
Vision document - Section 3.4	Phat	40%	11/2/24	11/5/24
Vision document - Section 4	Quan	0%	10/27/24	11/6/24
Vision document - Section 5	Quan	0%	10/27/24	11/6/24
Weekly reports	Thu	50%	10/25/24	11/6/24



4.3 Project Monitoring and Control

4.3.1 Reporting

Effective and consistent reporting is essential to ensure that all team members and stakeholders remain informed about the Pic2Model project's progress. Our project uses a combination of structured meetings, formal reports, and informal check-ins to maintain transparent and regular communication. The following approaches are implemented to provide timely updates on project status:

- **Weekly Meetings**: Every week, the project team gathers for a structured meeting, where we review recent achievements, discuss any challenges, and plan for the upcoming week. These meetings serve as a platform for more in-depth discussions on progress, allowing team members to present their work, get feedback, and collaboratively resolve any issues. Weekly meetings also ensure alignment with the project's goals and allow us to adjust plans as needed based on current progress.
- **Weekly Status Reports**: Each team member submits a weekly status report summarizing their completed tasks, ongoing work, and any issues they encountered. These reports provide a written record of individual contributions and project progress, which allows for easy reference and tracking of the project timeline. The weekly reports are reviewed collectively to assess project health and ensure transparency with stakeholders, including the Teaching Assistant (TA).
- **Informal Chats**: Beyond formal meetings and reports, we use informal chats via Facebook Messenger to stay connected throughout the week. These chats provide an accessible channel for team members to quickly share updates, ask questions, or discuss minor issues as they arise. The informal chats encourage a collaborative environment where everyone can stay in the loop and maintain momentum between formal check-ins.

4.3.2 Risk Management

[Identify risks in your project. The risks should be prioritized, and shorted according to their priority.]

Risk ID	*Risk Description*	*Probability*	*Impact*	*Risk Exposure*	*Priority*	*Mitigation Strategy or Contingency Plan*
				*=Probability * Impact*		

RiskID	Risk Description	Probability	Impact	Risk Exposure	Priority	Mitigation Strategy or Contingency Plan
1	Intensive and new knowledge to learn at the same time.	75	85	6,375	High	Try to consider and divide hard knowledge into smaller parts for others.
2	Not identify the right scope of project.	70	90	6,300	High	The team could review and adjust the project plan and schedule to accommodate the additional work. The team could also conduct a root cause analysis to identify the reasons for the scope and take corrective actions to prevent it.
3	The time planned is not enough to complete the task.	65	85	5,525	Medium	Adjust the timeline (minimize the tasks which we could reduce time and increase) or other members can support.
4	Change in project requirements (it is too difficult to work).	55	85	4,675	Medium	The team must conduct impact assessments and risk analyses for change to evaluate its feasibility and consequences. Then, we find way to adjust but still maintain main features.
5	Team member is busy or cannot work in small amount of time (have flu, have family work, etc.).	50	80	4,000	Low	Project manager can discuss and update to them later, team member can do another time when they are free which does not affect to the project.
6	Team member turnover.	40	90	3,600	Low	If key team members leave the project unexpectedly, the team could conduct a knowledge transfer session and document critical information and skills. Or team must adjust timeline and divide jobs again to minimize the bad effects to project.

4.3.3 Configuration Management

To effectively manage and streamline communication, document sharing, and version control within the Pic2Model project, our team utilizes a range of tools tailored to specific collaboration needs:

- **Facebook Messenger**: Primarily used for quick, informal discussions among team members, Facebook Messenger facilitates direct communication within the team. It allows us to stay connected, discuss daily updates, and quickly share ideas or clarifications.
- **Telegram**: The team uses Telegram to communicate with the Teaching Assistant (TA).

- **Google Drive**: All essential documents and files are stored and shared using Google Drive, which provides secure, cloud-based storage. Google Drive enables version control for document sharing, making it easy to access previous versions and collaborate in real time.
- **Google Meet**: Team meetings are conducted on Google Meet, which provides video conferencing capabilities. This tool allows for remote collaboration, enabling us to maintain regular check-ins and progress updates without being limited by physical location.
- **GitHub**: GitHub is used as the primary platform for managing source code and related files. It provides robust version control, ensuring that code updates are tracked and managed efficiently, allowing the team to collaborate on code changes in a structured manner.
- **Jira**: Our project management and task tracking are managed in Jira, which enables us to organize, assign, and track project tasks following the Scrum methodology. With Jira, we can monitor progress, set deadlines, and manage sprints, ensuring that project milestones are met.