

Pic2Model

"3D Models at Your Fingertips"

Class 22CLC02 – Group 01

Agenda

Project Overview

**Project
Management**

**Software
Requirements**

Analysis and Design

**Project
Testing**

**Project
Demo**

Problem and Solution

Education: Interactive 3D models for education

E-commerce: Customizable 360-degree product views for e-commerce.

**The lack of
accessible visual
tools**

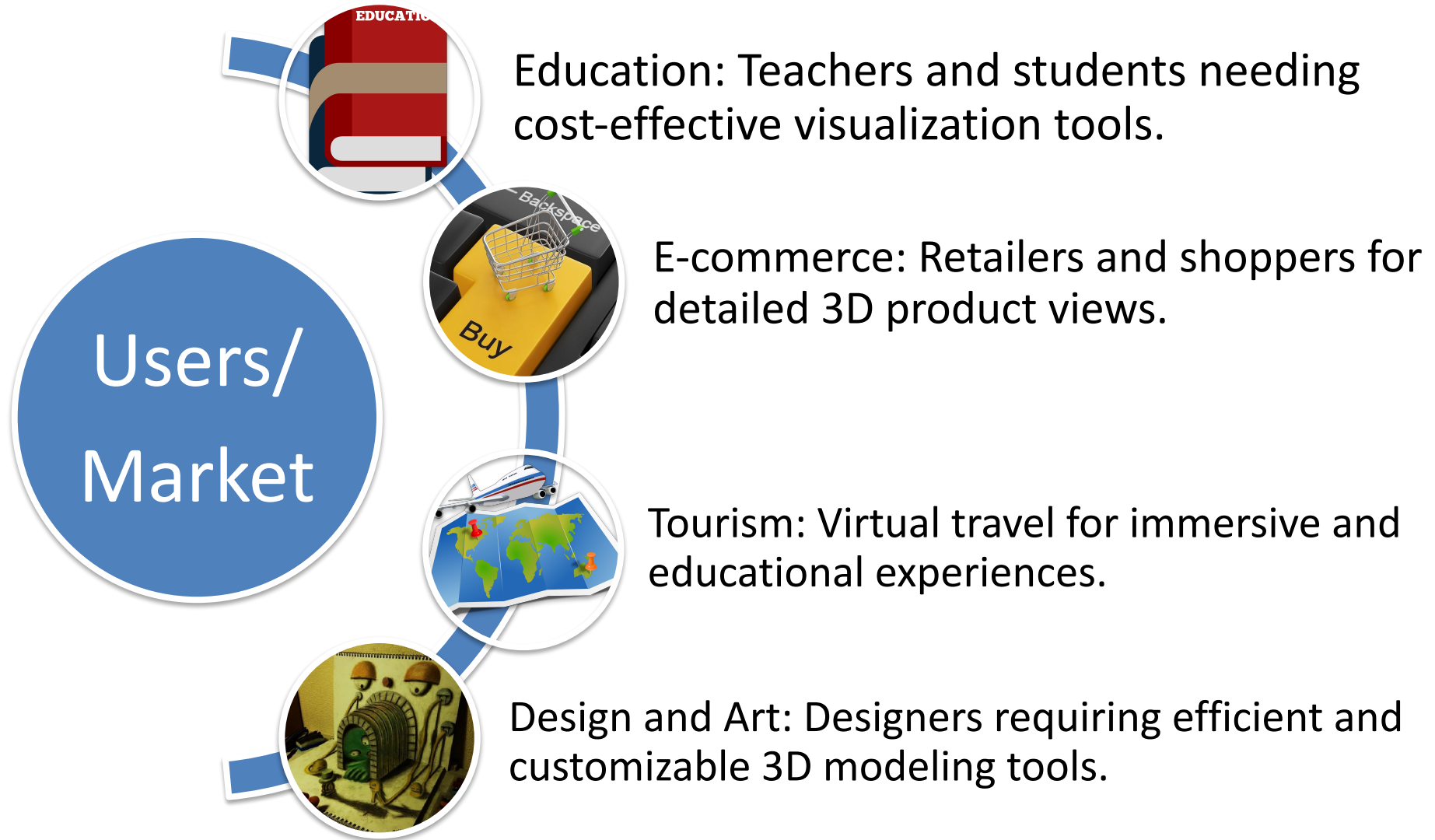
Travel: Virtual travel experiences.

Design: AI-powered tools for design automation and creativity.

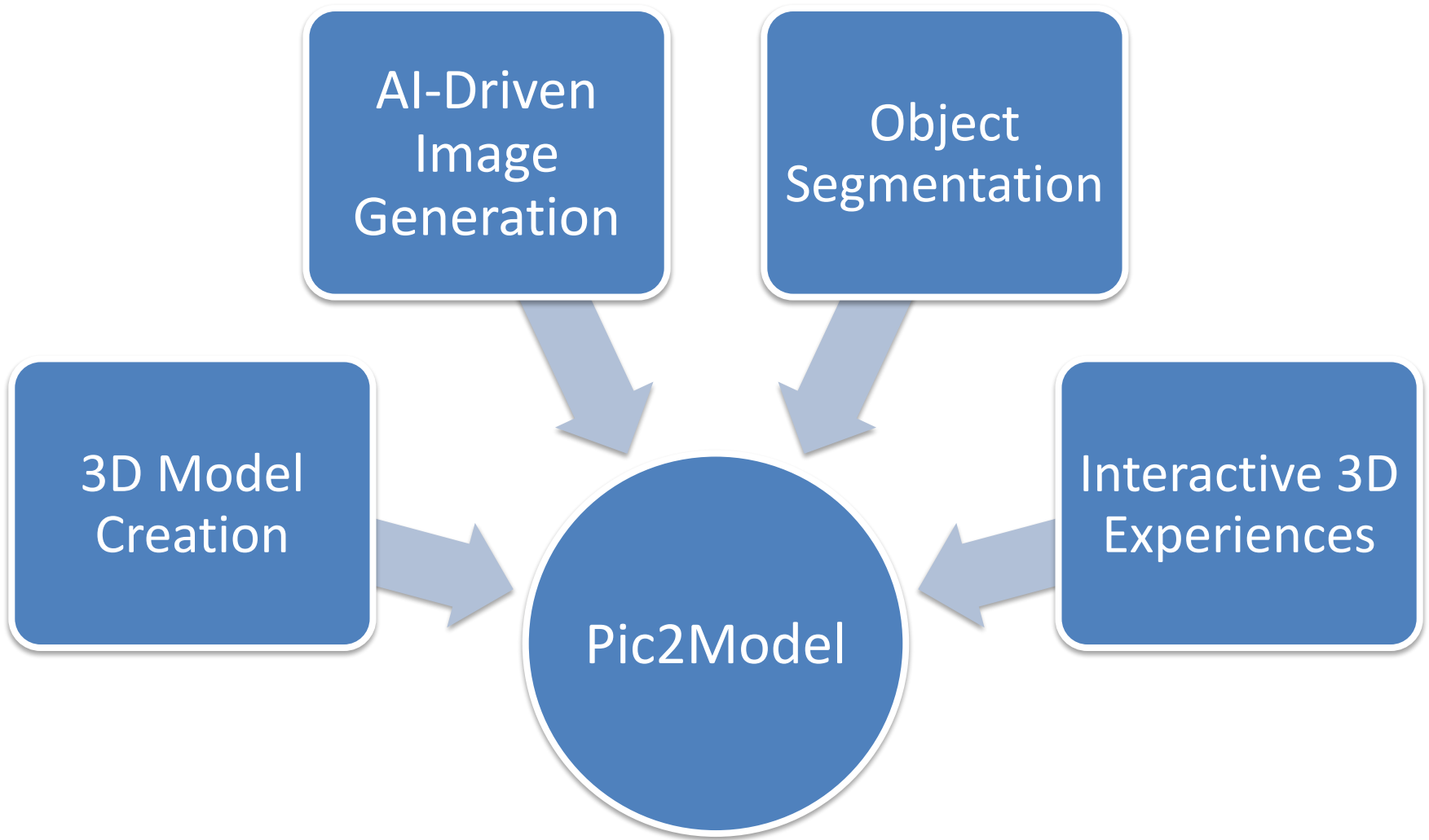
Product Positioning

For	Almost all citizens, especially: <ul style="list-style-type: none">- Teachers, students- Travelers- Designers
Who	Need virtual tools or 3D designs for studying, working, entertainment, etc.
The Pic2Model	is a web app
That	Converts 2D images into detailed 3D models or creates a detailed 3D model from a description text. Helps users provide interactive and customizable 3D content.
Unlike	Alpha3D, CSM AI, Image to STL, Kaedim
Our product	Offers accessibility, AI integration, and versatile output formats, making 3D modeling more user-friendly and adaptable to various needs.

Users/Market



Product Features



Development Team

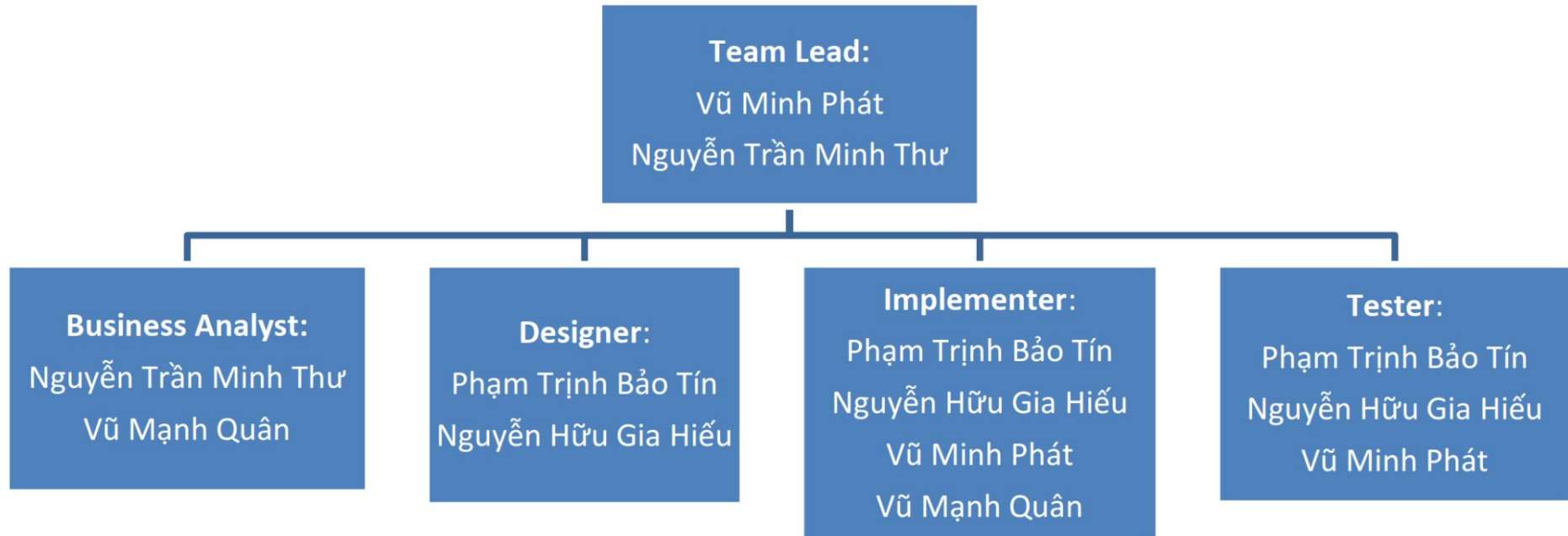
Team Structure:

- Team Leaders: Vũ Minh Phát, Nguyễn Trần Minh Thư
- Business Analysts: Nguyễn Trần Minh Thư, Vũ Mạnh Quân
- Designers: Nguyễn Hữu Gia Hiếu, Phạm Trịnh Bảo Tín
- Implementers: All members
- Testers: All members

Responsibilities:

- Leaders: Plan, manage, and assign tasks.
- Analysts: Gather and document requirements.
- Designers: Create UI and system components.
- Implementers: Write and review code, perform unit testing.
- Testers: Develop and execute test plans.

Team Structure



Development Team

Member	Roles	Responsibilities
Vũ Minh Phát	Team Leader	Write Project plan and assign task
	Implementer	Write source code
		Perform unit test
	Tester	Review source code
		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

Development Team

Member	Roles	Responsibilities
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

Development Team

Member	Roles	Responsibilities
Vũ Mạnh Quân	Business Analyst Implementer	Document requirements (interview customers, etc.) Coordinate to review requirements Write source code Perform unit test Review source code

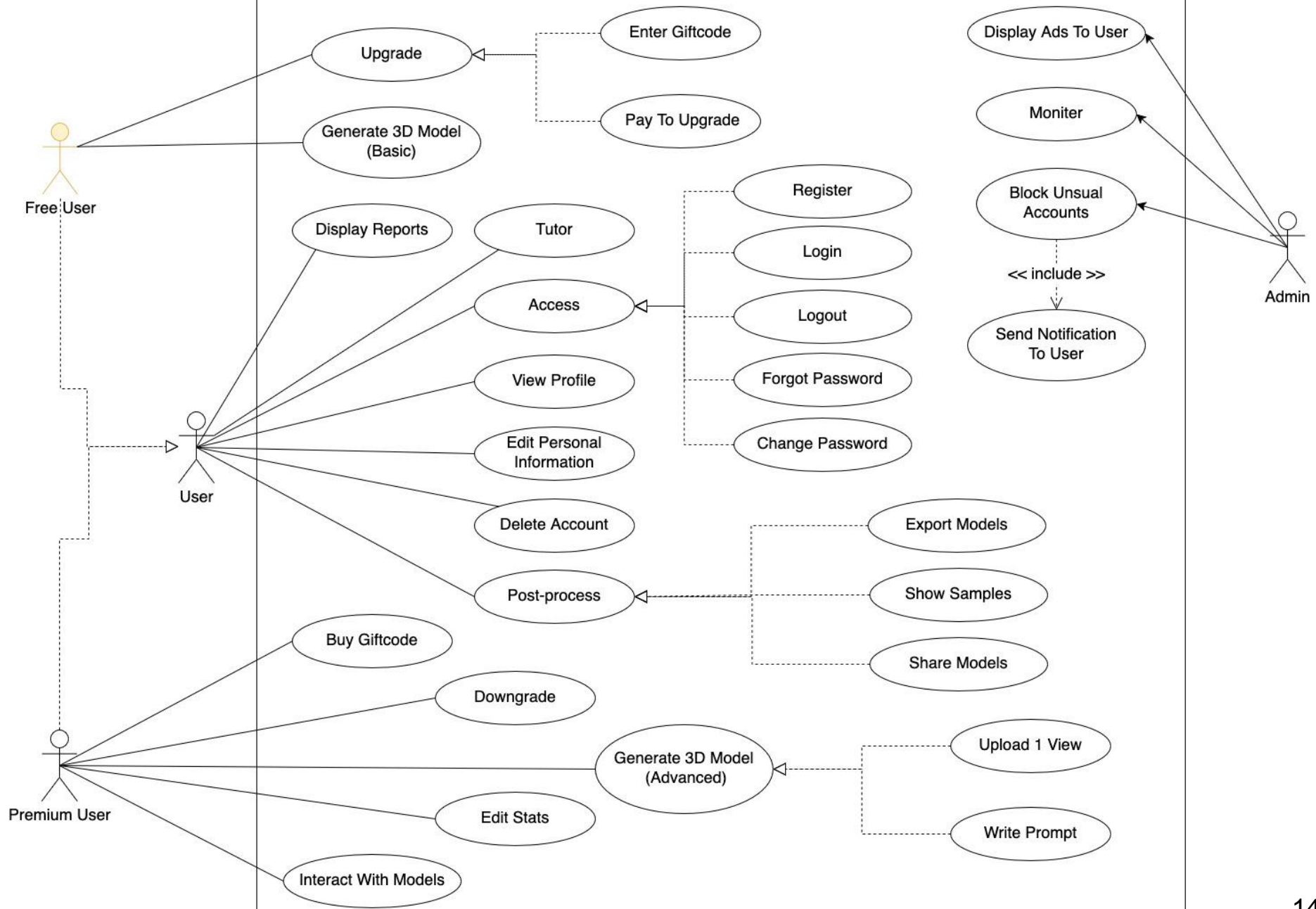
Development Team

Member	Roles	Responsibilities
Nguyễn Hữu Gia Hiếu	Designer	Design the system
	Implementer	Create Software Architecture Document
	Tester	Write and review source code
		Perform unit test
		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

Development Team

Member	Roles	Responsibilities
Phạm Trịnh Bảo Tín	Designer	Write source code
	Implementer	Perform unit test
	Tester	Review source code
		Design user interface
		Creating Software Architecture Document
		Develop test plans and test cases
		Execute manual and automated test cases to verify the software's functionality.
		Create Test plan and Test case Document

Pic2Model



Non-functional requirements



Scalability: Handle concurrent users efficiently.



Security: Robust encryption for data and user privacy.



Performance: Fast model generation and minimal lag.



Usability: Intuitive interface for easy use.



Compatibility: Support for modern browsers and devices.



Reliability: Minimal downtime and reliable backups.

Analysis and Design

Technologies

Frontend:
HTML,
Javascript,
CSS

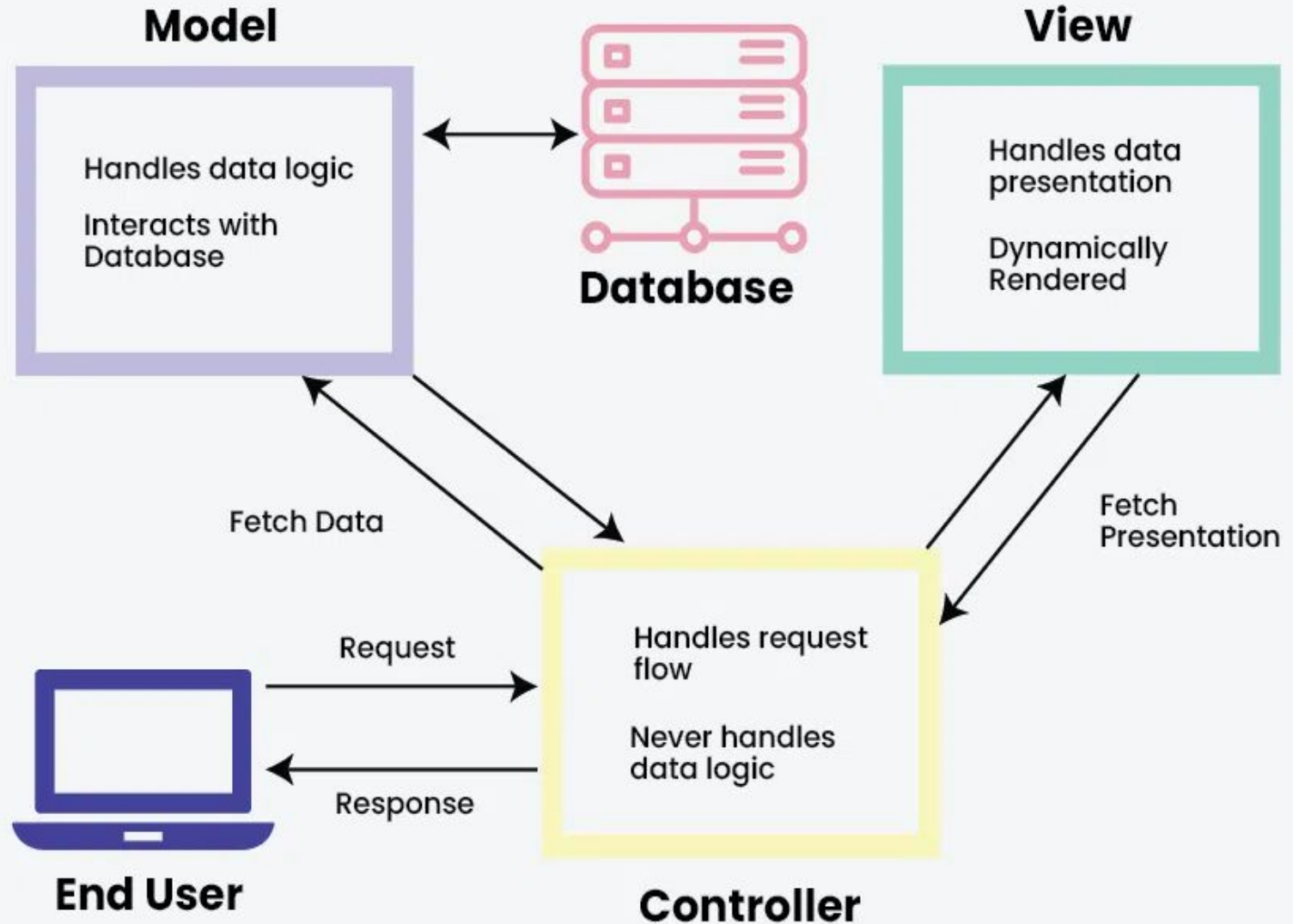
Backend:
Node.js

Deployment
: Heroku

**Template
engine:** EJS

Database:
MongoDB

MVC Architecture



Hardware Requirements

Component	Specification	Notes
Web Server	AMD EPYC / Intel Core Xeon, 1 TB RAM, 10 Petabyte SSD, NVIDIA A series / AMD MI series	Sufficient for hosting and computing tasks. Avoid older CPUs due to performance limits. Dedicated GPU to accelerate the speed of the model.
Client Desktop (Windows)	AMD Ryzen 5 / Intel Core i5, 8 GB RAM, 256 GB SSD	Balanced performance for general testing and browser tasks with the bare minimum laptop that most user may have.
Client Desktop (macOS)	Apple M1 / Intel Core i5, 8 GB RAM, 256 GB SSD	Supports macOS Big Sur or newer.
Mobile Devices (iOS)	iPhone 8 or newer.	Ensures compatibility with iOS 14 or later. Older models may lack performance and features.
Mobile Devices (Android)	Mid-range devices (e.g., Samsung Galaxy A series or equivalent)	Compatible with Android 9 (Pie) or newer.
Network Requirements	50–100 Mbps internet connection or 4G and higher for mobile device	Stable connection for real-world testing.

Software in the Test Environment

Software Name	Purpose	Version	Type and Other Notes
Google Chrome	Execute application for web browser	131.0.6778.140	Internet Browser
Firefox	Execute application for web browser	133.0.3	Internet Browser
Microsoft Edge	Execute application for web browser	131.0.2903.86	Internet Browser
Windows 10, 64-bit	Test client OS	22H2	Operating System
Windows 11, 64-bit	Test client OS	24H2	Operating System
Mac OS 13 Ventura	Test client OS	13.5.1	Operating System
Mac OS 14 Sonoma	Test client OS	14.6.2	Operating System
Ubuntu Linux	Execute application for server-side	20.04 LTS	Operating System
Gmail	Test email client functionality	Latest	eMail Client software

List of features

Upload image: Users can upload images directly from their device.

Get 3D model: Automatically converts uploaded images into detailed 3D models of the objects.

Download model: Users can download the generated 3D models in .ply format.

Personal Album: Each user has a dedicated collection to store uploaded images, generated models, and inputs for future reference.

Upgrade Account: Users can upgrade to a Premium account via card payments or gift codes, unlocking advanced features.

Admin Panel: Admins can manage user accounts, access user albums, and oversee platform activity.

And More: Additional features to enhance user experience and functionality.

Test Results

ID	Feature Name	Number of passed test cases	Number of failed test cases	Number of test cases
UC01	Login as admin	6	2	8
UC02	Login as end user	12	0	12
UC03	Sign up	11	1	12
UC04	Reset password	5	0	5
UC05	Upload photo	2	4	6
UC06	Generate 3D model	7	1	8
UC07	User's functions	4	0	4
UC08	Admin's functions	7	0	7

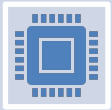
Test Report

Number of functions be tested	8
Number of test cases	62
Number of passed test cases	54
Number of failed test cases	8
Number of bugs	8
Number of closed bugs	7
Number of open bugs	1

Install and run instruction



In the project folder, run **npm install** to install dependencies



To start the project locally, run **npm run dev** in terminal



Or use the deployed version
here: <https://pic2model-e0bcecc6ad3b.herokuapp.com>

Demo

PIC2MODEL

GENERATE SAMPLES TESTIMONIALS ABOUT PROFILE ▾

Select a file: No file chosen

prompt

Describe how you want your 3D object to be

negative prompt

ugly, blurry, pixelated obscure, unnatural colors, poor lighting, dull, unclear, cropped, lowres, low quality, artifacts, duplicate

elevation (0)



inference steps (30)



random seed (0)



Generate



Download your .ply file [here](#)

Demo video playlist

References

- [Bootstrap 4.6 Documentation](#)
- [Bootstrap 4 Tutorial by W3Schools](#)
- [Momo Payments Testing](#)
- [Themes and Templates by StartBootstrap](#)
- [MongoDB Documentation](#)
- [NodeJS Documentation](#)
- [Heroku Documentation](#)