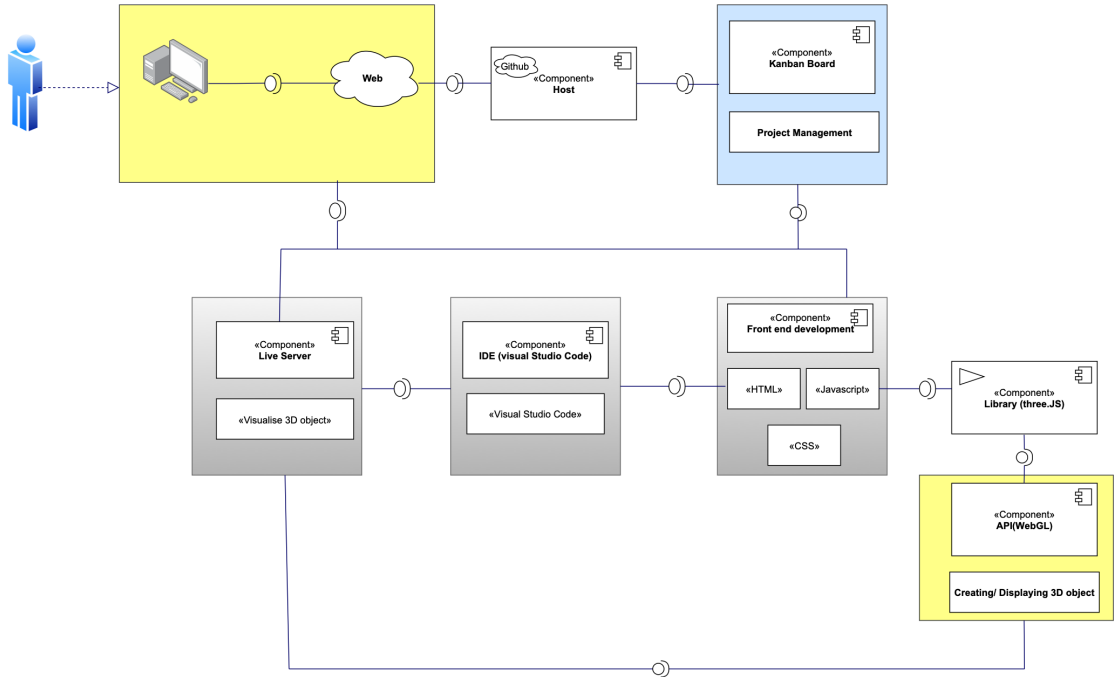
Software Architecture Description

AMOS SS2021

Project 5 - 3D Viewer

1. Architecture Overview

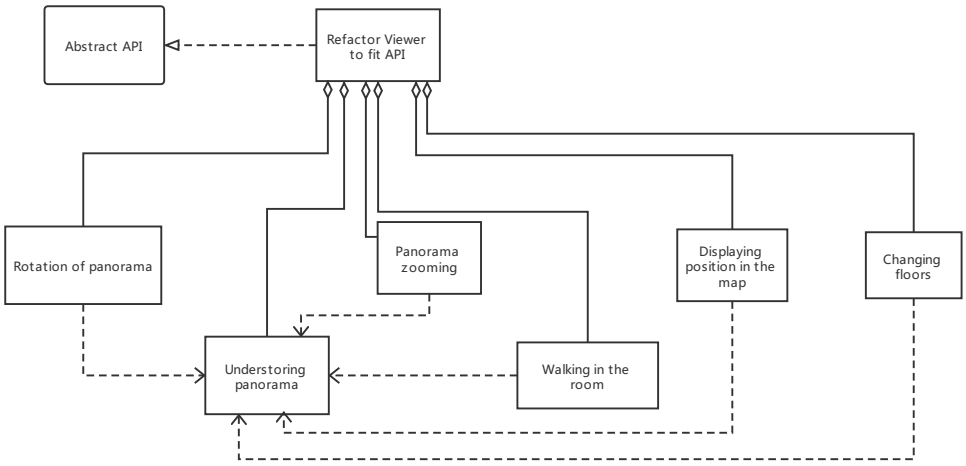
1.1 Runtime Components



In the front-end development process, JavaScript is the main programming language for the project, while a high-level 3D programming library - Three.js, is the main running framework of the project. Three.js renders Hyper Text Markup Language (HTML). The style and layout of the page is controlled by Cascading Style Sheets (CSS). Under the features of three.js, A WebGL-based Application Programming Interface (API) creates and displays 3D images. The development process of the project is implemented with GitHub, which helps Software Developer with version control, and GitHub also provides Kanban Board, which helps Product Owner with project management. The development environment of the project is Visual Studio Code, an integrated

development environment (IDE). The project is visualized through Live Server, so that the software can be used directly through the web browser.

1.2 Code Components



The software performs the following functionalities: the user can move around the room. At the same time, the user can zoom in or out of their field of view and also switch their field of view in 360 degrees, so the distortion of the panorama needs to be eliminated. Based on these, the user's location is displayed on the map of the current floor, and users can also select different floors to achieve the floor transformation. All these functionalities are refactored to fit the API and an abstract API is provided.

2. Technology Overview

2.1 Technology Stack

Component	**Technology/** **Tools**	**Version**
Version Control (SVC)	GitHub	-
Front end	JavaScript CSS HTML	
API	Three.js jQuery API	
IDE	Visual Studio Code	

2.2 Technology Summary

For the version control of our project, we use GitHub as it is a powerful tool that could merge and review the code with orderly steps and we could build the user stories of our future plans by using Kanban board to check and update the progress of our works.

The front-end development, we use basically JavaScript with HTML and CSS. In addition, we choose Visual Studio Code as our IDE, as it has more flexibilities for extensions. We also agree with using the Live Server, which is plugged in Visual Studio Code, it is an intuitive Server tool to visualize our HTML file for just only one click.

Three.js is being chosen as our JavaScript Library and API as it's a powerful tool for creating and displaying 3D objects as our goal is to build a 3D Viewer. It is based on WebGL, which is a well-known JavaScript API for interacting with 2D and 3D graphics with high performance and within compatible web browser.