

## **Self-Evaluation Report**

### **Introduction**

This report is written to display all the works and contribution I did in this computing group project about AR VR Car Parts Simulation Assignment in TeamKuitBois. Our project aim for this assignment is to create detailed 3D models to aid with professionals in the field, while also helping students to have an immersive learning experience. We are expected to delivered detailed and accurate 3D models for this assignment to better understand the car system.

Below, I will describe all my contributions in this project and also skills and difficulties I faced in this assignment. I will also rate quality of each stages and provide suggestions and improvements for future projects we can make.

### **Role**

I am tasked on being the technical lead for this project in the group. I need to make sure several important aspects for the assignment to run smoothly and successfully. Firstly, maintaining all the repositories in GitHub is a must for this assignment to avoid any conflicts on the commits. Appropriate branches and comments have been made for each commit and we have uploaded each stages of the progress to the GitHub repositories.

Besides that, I am also tasked to import all the 3D models to Unity for further modifying of 3D models. Unity is vital for the creation of UI of the system, design, environment, etc. I am also able to create scripts in Unity to control the behavior of the models in the simulation.

## **Contribution**

### **Integrating and Modifying 3D Models in Unity**

#### **1. Model Importing:**

- Ensure that the models are in a compatible format for Unity (such as FBX, OBJ, or BLEND).
- Use Unity's asset import pipeline to bring 3D models into your project. Adjust import settings to optimize performance, such as mesh compression, texture size, and rig simplification.

#### **2. Scene Management:**

- Organize your scenes and assets logically within Unity's Project window. This helps in managing large projects and makes it easier for team members to find and work on different parts of the project.
- Utilize Layers and Tags to manage object visibility and selection during runtime or while editing.

#### **3. Modifying Models:**

- Use Unity's tools or external 3D software if further modifications to models are necessary. Make sure any changes are re-imported and updated in Unity.
- Maintain a consistent scale, orientation, and pivot points across models to avoid issues in the game environment.

#### **4. UI and Environment Design:**

- Design UI elements within Unity using the Canvas system. Ensure UI scales correctly across different resolutions by using Canvas Scaler.
- Build immersive environments by carefully placing models, lights, and other environmental elements. Use Unity's Terrain tools or third-party assets for enhanced landscapes.

## Report

In the report I am tasked with several parts. The first part I am tasked along with Lim Hon Sheang is Introduction. I need to explain the purpose of this assignment and what solutions could our product provide in the real-life scenario. Furthermore, we also introduce about the company that aids us in the project as we represent them and the university too.

The next part I am tasked with is Risk Assessment. There are several parts I need to focus on in risk assessment, which are risk assessment tables, risk register, real-life cases and their solution methods. In risk assessment, I have to rate the likelihood impact for each category like time consuming, reputational and stakeholder risk, hardware compatibility and lack of resource. For each risk, I also provided explanations and reasons why I rate them as they are. Next, Risk Register is also vital for the project for risk management. With risk register, I can accurately rate the priority level of each categories so we know which part we should focus on in the assignment. There are 5 risk descriptions, unable to complete models on time, hardware unable to support 3D models, misunderstanding during communication with company, 3D models file not save and lost and lacks 3D models resources. For all of these scenarios, I have provided real-life cases of each event happening and methods on how they solve the issue so we know how to respond if any of these events happens.

Client management is also vital in this project. We need to maintain frequent communication between client to update on the progress and avoid any unnecessary delays in the project. There are several communication channels we use to regularly update our progress and also a weekly team meeting of groups along with several in-person meetings.

I also created the User Story. For User Story, I need to explain each stages of our project so user understand the purpose and how to use the product correctly by showing the UI and screenshots in the report.

Other than that, I have also created the Use Case Diagram and Sequence Diagram Flowchart for the assignment. Use Case Diagram are created to illustrate our entire systems and define the important parts for each stage, while Sequence Diagram Flowchart is created to understand the requirements for new system or to document existing processes in the project.

Lastly, In Unity, I have also included screenshots of vital parts of the progress in the report. I am required to create an asset folder which includes materials, scripts, scenes, animation, engine controller and platform in the asset package. Materials are used to create colors and texture for every model while scripts can create a behavior for each of the buttons or models. Scenes are created to amplify the environment, making the scene good looking. Animation & Engine controller on the other hand transition the model and control the logic of each animated 3D models. Lastly, platform is created for displaying the model on it.

### **What I have learnt**

- This is the first time I used Unity for 3D models modification and scripting so it is a fun experience for me.
- I have learnt to work with the team together and communicate better as a team to maintain a better GitHub repo for this project.

### **Challenges**

- Research about functions inside Unity have been problematic but fun for me as it is my first using the application. YouTube and many other internet resources have been used to solve this problem.
- In-person meetings with our client is also hard as both parties time crashes and in some cases we are forced to cancel the meeting due to emergencies.