IM3080 Design and Innovation Project (AY20xx/xx Semester x)
Individual Report

Name: Ke Yuyang

Group No: 6

Project Title: ARvatar

Contributions to the Project (1 page)

- Learned 3D modeling in Blender and provide 3D for avatar customization.
  - Such as Bracelet, Angel wings, Devil wings etc.
  - Learned how to apply textures, materials, and how to render it.
- Applied 3D animation on 3D models: waving and flapping of the devil wings.
- Applied 3D animation on Avatar models: Waving, laughing, thinking etc.
- Worked on fixing chat page layout:
  - Message bubble size. Avatar placement, Lighting of Avatar model in chat page
- Worked on friend request UI and debugging issues generated.
- Worked on helping with the transition of chat UI and the auto adjust function
- Worked on Avatar related emoji animation and help with entrance and standby mode Avatar animation.
- Worked on emoji menu to coherent with Avatar model.

- Worked AR function:
  - Learning how to apply AR to Unity and choose from AR foundation and other AR implementations to support the project
  - Generating 3D avatar model on to the AR scene.
  - Locate and detect the plane from AR camera
- - Setting up function to make Avatar model generate on the plane detected by AR camera and generate Avatar model when tapping
- - Generate different model of different user
- - Apply account name tag of different user to allocated AR Avatar model
- - Fixing and adjusting the lighting of Avatar
- - Displaying chat messenger and adjusting the position of the chat box and text message.
- Worked on prefab locate and displaying on the 3D avatar model.
- Help debugging the App, fix many issues regarding visuals, coding, and user experience.
- Help with Report writing.
- Worked on video demo of the chat function and the poster.

Reflection on Learning Outcome Attainment

Reflect on your experience during your project and the achievements you have relating to at least two of the points below:

(a) Engineering knowledge
(b) Problem Analysis
(c) Investigation
(d) Design/development of Solutions
(e) Modern Tool Usage
(f) The Engineer and Society
(g) Environment and Sustainability
(h) Ethics
(i) Individual and Team Work
(j) Communication
(k) Project Management and Finance
(l) Lifelong Learning

Point 1: State the area Problem Analysis:
Over the course of the project, I refined my problem analysis skills, particularly in the integration of 3D models and AR capabilities into our communication applications. The challenges posed by 3D modeling, animation, and AR integration necessitate a detailed approach to identify problems and devise effective solutions. This ability to analyze problems is crucial for ensuring the functional and aesthetic appeal of our applications, as well as identifying areas for future improvement and learning.

Point 2: Individual and Team Work
My participation in projects is characterized by individual effort and teamwork. On a personal level, I acquired and applied 3D modeling techniques in Blender, allowing for various character customization options. This serves as the foundation for integrating animation elements such as character movements and wing flapping, enhancing the overall user experience. As a team member, I actively contributed to solving UI issues, debugging, and aiding in the transition of chat and AR features. Assisting in writing reports and participating in presentations demonstrated effective team collaboration. In my opinion, we are all part of a whole. If there is a problem, we should not hesitate to seek help from others and support each other in our areas of expertise, aiming for a win-win situation. Additionally, timely communication within the team is essential when project details are unclear, and reporting completed tasks promptly is crucial to avoid redundant efforts and maintain efficiency.

Point 3: Lifelong Learning
The process of developing our communication app is a testament to my commitment to lifelong learning. Mastering 3D modeling in Blender, implementing AR capabilities in Unity, and addressing

various challenges in application development have expanded my technical abilities. The complexity of navigating debugging, adjusting lighting, and refining UI elements added a practical aspect to my learning journey. Adopting emerging technologies such as AR and 3D modeling has not only enriched my skills but also cultivated a culture of continuous learning that extends to my work on a Unity game project in another course. The experience gained in Unity and 3D modeling from this project contributes to my improvement in another course.

This project not only allowed me to acquire new knowledge but also provided a dynamic platform for continuous learning.