

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

Individual Report

Name: Li Tianchu

Group No: 6

Project Title: ARvatar

Contributions to the Project (1 page)

- Setting up Project, including Unity project initialization, database on Firebase, as well as required Unity plugins that needed for development.
- Setting up GitHub, created GitHub repository, gitignore, taught others how to use GitHub, updated GitHub README.
- Setting up project standards, such as code standard, and program architecture in Unity.
- Setting up build environment, including Unity build support, JDK, Android SDK, and Gradle, for building to Android platform.
- Created software engineering diagrams (Use case diagram, activity diagram and software infrastructure diagram) to model the requirements.
- Contributed to backend development, creating backend APIs for database operations in the App, mainly for the messaging function of the App.
- Contributed to frontend development, helped in developing UI transitions, calling API, displaying data at frontend UI.
- Contributed to fixing page layout, character animation and character lighting.
- Helping teammates to debug various aspects of the project, mainly on issues related to GitHub and database.
- Conducted QA testing to finish up the project, reported bugs and improvement areas in Trello.
- Debugging the App, helped fix many issues regarding visuals, logic, and user experience.
- Helped with report writing.

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: Engineering Knowledge

During the project, I learned about engineering by setting up the whole project environment. This included starting the Unity project and configuring the building environment. I also ensured the project followed the clean coding standards and had scalable structure within Unity. This ensured the project went smoothly in the development process, it also made me understand the importance of planning process in engineering projects.

Point2: Problem Analysis:

I analyzed the project by making UML diagrams, it helps showing how the software should work to allow others to have a better understanding of the requirements. When doing the project, I had to assist teammates in debugging. In the backend, I assisted in developing APIs to handle messages in the database. This required me to understand how databases work and solve problems to make things run smoothly. On the front end, I had to figure out issues with how the user interface looked and how data was displayed. Solving these challenges improved my problem-solving skills.

Point3: Design/Development of Solutions:

I went through the full process of literature review, brainstorming ideas, and executing ideas. I realized that a well-defined problem and innovative solution can be more important than the execution itself. This experience reinforced the importance of a design phase in the project life cycle and how it can affect the success of the project.

Point4: Individual and Team Work

I understood the importance of team collaboration for the project to be successful. I helped set up GitHub version control system for better team collaboration and code sharing. I also did QA testing on edge cases and reported those bugs on group Trello page, so that others know what should be solved. Also, I took the initiative in developing the AR Chat function which trained my ability of solving problems individually.

Point5: Communication

Talking with the team and making sure everyone knows the latest progress of the project is crucial. I actively communicated with others when I spotted bugs or places for improvements. The team and I also frequently update each other to reduce chances of merge conflicts. This experience made me understand how important it is to talk openly and clearly in a team.

Point6: Lifelong Learning

The project was a great chance for me to keep learning new things. Even though I already have experience working with Unity and C#, I learned to use new tools like useful Unity plugins (Dotween, ARCore) and Firebase services. I also understood how using modern tools can greatly improve development efficiency. This experience made me realize that in engineering, things are always changing, and I need to keep learning to understand new technologies.

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