

STATEMENT REGARDING THE GOAL OF THE PROJECT

The goal of this project has two components. On the technical level, the goal is to create a 3D mobile game on the android platform using a game engine. The game will be using Google Cardboard as an interactive device. Research should be completed using game engines, the mobile platform, real-time rendering, and game design. The research component will focus on comparing and contrasting the writing of a non-game application and the writing of a game application.

The major technical goal of this project is to create a novel integration that requires the use of various tools related to mobile game development. This project requires an in depth knowledge and skills from different branches of computer science and other related fields to game design. One of the goals of this project is to have different software and hardware programs like game engines, graphics tools, VR mode converters, smartphones, accelerometer, and Google Cardboard to work together in a cohesive manner.

Throughout the process of this project, similarities and differences between writing a non-game application and game applications should be noted. In the project thesis, a section shall be devoted to discussing these differences and similarities. Attention shall be paid to in particular the comparison between game engines and non-game development environments, unique adaptations to mobile hardware, and attention to user experience.

KEY READINGS

- *Real-Time Rendering Second Edition* by Tomas Akenine-Moller and Eric Haines.
- *Autodesk Maya 2016 Basics Guide* by Kelly L. Murdock.
- Online tutorials for using game engines. The game engine to be used for development is to be tried and determined.
- Online tutorials for using the phone accelerometer on Android platform.

COMMUNICATION

Meeting with Timothy Richards, the Committee Chair shall occur once a week for a half hour. The expectations of these meetings are to report progress, discuss solutions to problems, make changes to the project plan if needed, and become aware of any difficulties. The expected commitment of work towards will be ten hours per week between meetings.

SPECIALIZED TRAINING

No specialized training is needed.

METHODOLOGY

In principle, the artistic designing and modeling will precede the programming, so it may provide data and testing later on in the project. This method will be applied repeatedly on small-scale projects until the most desirable programming tools are found or acquired. This process can be summarized by: creating simple 3D objects while learning the selected programming tools and testing the effects on a phone. If the programming tool is not desirable, it shall no longer be used, and the objects shall be adjusted, and by creating more objects to have a larger sample on a larger scale while repeating the testing may create desirable results.

Once a viable prototype has been developed for mass audiences, the play-testing shall be conducted to ensure the game is user-friendly. Testers' feedback shall be analyzed during each round of testing and will be used as reference for any changes and improvements.

A journal will be kept for writing the final thesis and also to assist in the creative process. Every step will be recorded in the journal and will include the following: the tools and methods used, what they will be used for, the reasoning behind the choices, the intended results, the actual results, and a following analysis. This will ensure that every decision will be justified and the journal shall act as a formal record for future decision making regarding this project.

TIMELINE

- Before the end of the "Withdrawal Period," a small 3D scene shall be made rendered.
- The second committee member will be identified and approached by the end of the "Withdrawal Period."
- The draft of the "499T/P Honors Project Contract" form with affiliated Honors Project Proposal will be finished before December.
- By the end of the semester:
 - Basic 3D models such as the buildings and cars will be finished
 - Game UI design will be finished
 - Map and level designs are completed
 - Bi-weekly reports in the form of a journal, on research and work, will be submitted