

Game Engine Proposal

By Cedric Wienold,
California Polytechnic University,
San Luis Obispo, CA

Advised by Dr. Michael Haungs

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1 Introduction

1.1 Motivation

Much of the work behind creating a game is building an infrastructure upon which it can operate. The window, graphics backend, sound, and rudimentary game logic all take excessive time to create, detracting from the original vision of the game. My motivation for creating this game engine is to eliminate this infrastructure requirement and allow programmers to get straight to programming their visions.

1.2 Description

This game engine will be built using C++. Ideally, the end product will be a dynamic library, which will allow further development by other programmers in the future. Game programmers would link this into their products and use the provided functions to build their games.

2 Game Engine

The API that the programmer will be exposed to will be thoroughly documented. Available functions include the following:

- Initializing and shutting down the engine
- Creating and destroying the game window
- Creating and destroying visual objects
- Creating and destroying sounds
- Forming rudimentary game logic
- Creating an interface to hardware for input
- Creating a platform allowing networked communications between clients

3 Design

The design of the game engine will be similar to the following, with changes allowable, with the consent of the advisor, in the interest of ease of programming and extensibility.

3.1 Class Draft

- GameEngine
 - GameWindow
 - GameObject
 - * VisibleGameObject
 - * LogicalGameObject
 - GameSound
 - GameNetwork
 - GameInput

4 Implementation

The game engine will be implemented using C++. To maintain cross-platform compatibility, SDL will be used as the backend of the game functions.

5 Evaluation

A complete project, receiving a passing grade by the Advisor of at minimum a C, is made up of completion of the Documentation, a Game Engine, and a Demo to prove its Functionality.

The first quarter of the senior project will be devoted to documentation of the game engine. I will create documentation describing what the game engine includes and how to use it.

The second quarter will involved implementing the game engine as the documentation has stated, and making any changes to the documentation that are required. A demo will also be created.

6 Related Work

There is no shortage of 2-d and 3-d game engines and tutorials available to study from. To name a few:

- ClanLib Game Engine
- Source Engine
- Game Programming Wiki's SDL Tutorials

7 Background Research

Many open source engines provide documentation fromo which I draw design inspiration.

8 Future Work

This game engine will have an easily pluggable interface, which a future program may use to extend functionality. For example, artificial intelligence modules may be added at the programmer's will. As this will be a completely open source project, programmers may redesign any piece of it at will for the given needs.

8.1 Conclusion

It is my hope that this project will help many programmers bring to light their visions for new games quickly and easily. Using SDL and other suitable libraries, programmers should be able to create games for any platform.