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IMGD4000 – D'07  
Project 4 Revised Game Plan

### **The Development Team**

Isaac Chanin      [chanin@wpi.edu](mailto:chanin@wpi.edu)  
Steve Olivieri    [steve86@wpi.edu](mailto:steve86@wpi.edu)

### **Working Game Name**

Shape Wars: Attack of the 10<sup>th</sup> Grade Geometry

### **Game Summary**

*Shape Wars: Attack of the 10<sup>th</sup> Grade Geometry* is an exciting, innovative action-adventure game. Players take control of avatars that can shift into many different shapes, bestowing upon them powerful abilities that help them overcome their foes and progress toward the goal. They must compete with other players that are attempting to complete the same goal while simultaneously thwarting each other with a variety of tactics.

Each world provides a unique challenge consisting of varying terrain, rocks, steep inclines, and other obstacles that players must overcome to reach the end of the world. Secret ares and special rewards await intrepid players who manage to reach them.

Players start out as the circle. While this shape allows them to travel quickly, players will quickly find that they need other shapes to progress. Triangles can overcome rocky terrain and are useful for attacking other players. Pentagons have limited mobility, but are the only shape that can defeat the fearsome triangles. Lastly, players will find a semicircle shape that allows them to overcome difficult sections of the world. However, the semicircle provides minimal defense so players must be wary of the viscous triangles and pentagons.

### **Features:**

- Minimalistic control interface
- Competitive multi-player action
- Dynamically loaded graphics that consume minimal memory
- Infinitely large worlds

- Retro-style 2D graphics
- Physics-oriented game-play
- Threaded server and client to take advantage of multiple CPUs

### **Implementation**

*Shape Wars* is written in the C programming language using the SDL and OpenGL libraries. Revision control is handled by Subversion (SVN). A website and the source code for *Shape Wars* can be found at

<http://trac.aestas.mooo.com/trac/shapewars/wiki>. All artwork is original.

### **Technical Focus**

One technical focus of *Shape Wars* is networking. The game server allows multiple players to connect (up to 255) and remains active once a game has ended. The server is responsible for storing the game state and calculating all future positions for avatars. As such, cheating can be prevented entirely. At the same time, the *Shape Wars* server uses a minimal amount of bandwidth.

A second technical focus is the graphics engine, which we developed from scratch using only the OpenGL and SDL libraries. The engine dynamically loads backgrounds and uses a very small amount of video memory. As such, even older graphics card can run *Shape Wars*. All textures are in the PNG format so alpha transparency is easy to use. Since everything is loaded on demand, worlds can be infinitely large and textures can be infinitely complex.