GLADMOOR

Technical Design Document Version 0.1 May 14th, 2009

[Player Character]

Detailed Specs:

The player controls an undead Lych. Max Hit Points: 500 Max Magic: 1000 // Max Thermal Energy: 5000 Btus Magic Replenish Rate: 1 unit per 2 frames (should be a medium rate of regeneration) // Initial Thermal Energy: ~500 Btus Mass: 500 units (5 units => 1 pound) Walk Speed: 3 px / frame? (Prototype this out) Jump Height: ~120px (normal jump) (Prototype this out)

Additional Details:

***Optional Feature**: When the Lych is standing in a dark area, the magic replenish rate will double to 1 unit per frame. This would require us to define "dark areas".

[Player Special Abilities]

Heat Injection

Behavior Description: When the player presses the "A" button, the player spends their existing *thermal energy points* and a small amount of *magic points* puts thermal beads out into the world. If the player has no thermal energy points remaining, or has no magic energy left, they can't use this ability. The thermal energy is represented by a spread pattern of small light orange beads (~3-5px particles) which spawn at the players *targeting cursor* location.

The heat beads will collide with an object and raise the temperature of the object. Each bead has 1 unit of thermal energy (BTUs). The number of beads required to heat a target object by 1 degree Celsius is dependent on the mass of the target object. An object with mass of 100 units would take 10 beads to raise by 1 degree. An object with mass of 1000 would take 100 beads to raise by 1 degree. The exact numbers can be changed to fit game playability. Magic Point Cost: 1 Beads emitted per frame: 5 Angular Spread: ~5-10 degrees (narrow beam) Initial Speed: .25 frames/second (quite slow!) (moves 225px over particle lifetime) Art Style: Could be either a small orange ball or a very small flame particle (flame thrower look?). Decay Time: 900 frames (about 15 seconds @ 60 fps) Special Notes: **Not affected by gravity** **Is affected by wind**

Strategies:

-Stand next to an object and spawn heat beads onto it. Use this to raise the temperature of an in-game object. In-game object will change states at different temperatures. -Combine with Wind Blast ability to create a fire ball. Hold down the thermal energy spell. The heat beads will "clump" together to form a larger heat bead. When you're satisfied with the power/intensity of the fireball, power up a wind blast and send it flying at your target!

For a Future Version:

Heat Absorption

Behavior Description: This ability has the opposite effect from the *Heat Injection* spell. If the player targets an object which contains thermal energy and uses this ability on it, they will suck/vacuum thermal beads towards them. This will increase the current amount of thermal energy being held by the player and decrease the thermal energy held by the object.

Optional Polish: The movement of the heat beads can be polished to look like this if we have time (arrows indicate vector direction). The heat balls are just chaser objects which chase the center of the player:



This Version:

Wind Blast



Description:

The wind blast is a spell which launches a blast of wind in the direction of the targeting cursor. The moment that the player presses the button to create the wind blast,

an expanding Arc 1 begins going in the direction of the target. As long as the player holds down the wind blast button, the wind blast continues to be created. When the player releases the button, Arc 2 gets created. Arc 2 will also travel in the same direction as Arc 1. Any objects caught within the area of the two arcs will be pushed by the wind in the direction of the wind blast (The math could get complicated).

The power of the wind blast is going to depend on the length of time which the wind spell is held down. The wind blast spell will last for about 2-3 seconds (play test the actual ideal time). The wind blast spell will end when Arc 2 reaches Arc 1. The speed of arc 2 will increase as the spell grows longer so that Arc 2 always reaches arc 1 in the target time.

Particle objects caught within the wind blast will have their velocities changed.

Power Jump: If the direction of travel for the wind blast is between 247.5 degrees and 292.5 degrees (in blue), then the player will be pushed in the opposite direction (in red). The strength of the push is dependent on the strength of the wind blast.



Optionally easier implementation version:

Instead of an arc, we could use a rectangle. The math would be easier and the desired effect wouldn't be much different from the arc.

[Game World Objects]

Lych Character Trees Flowers Clouds Ponds Rock Ledges Rocks

[Temperature System]

[Particle System]

Water Particles

Fire & Smoke Particles

Flower Particles

Glitter Particles

[Particle Clumping System]

Snow Clumping

Snow particles with a velocity of zero and colliding with another snow particle or snow clump will join that snow particle/clump.

Water Clumping

Water which has no velocity will clump with other water particles/clumps.

Cloud Clumping

The behavior of each steam particle will be independent, so clouds probably won't clump. I have to test out the CPU load of this.

Fire Clumping

Fire particles which are close together will clump to form a larger fire particle. This is designed to let the player "create" fireballs which grow in size as they add more fire to it. [Physics]

Gravity

Thermal Energy

Collision Detection

[Game Play Mechanics]

[User Interface & Controls]

This is the targeting system for spells. Another Left/right control device will move the angle up or down. Casting a spell will cause the spell go in the Target Angle direction. The large red circle shown below will not be visible in the game. But, the small red circle can be some sort of graphic to let the player know what direction they're going to cast in. If the angle of the targeting cursor is on the right side of the flip point, then the character faces to the right; likewise for the left side.

