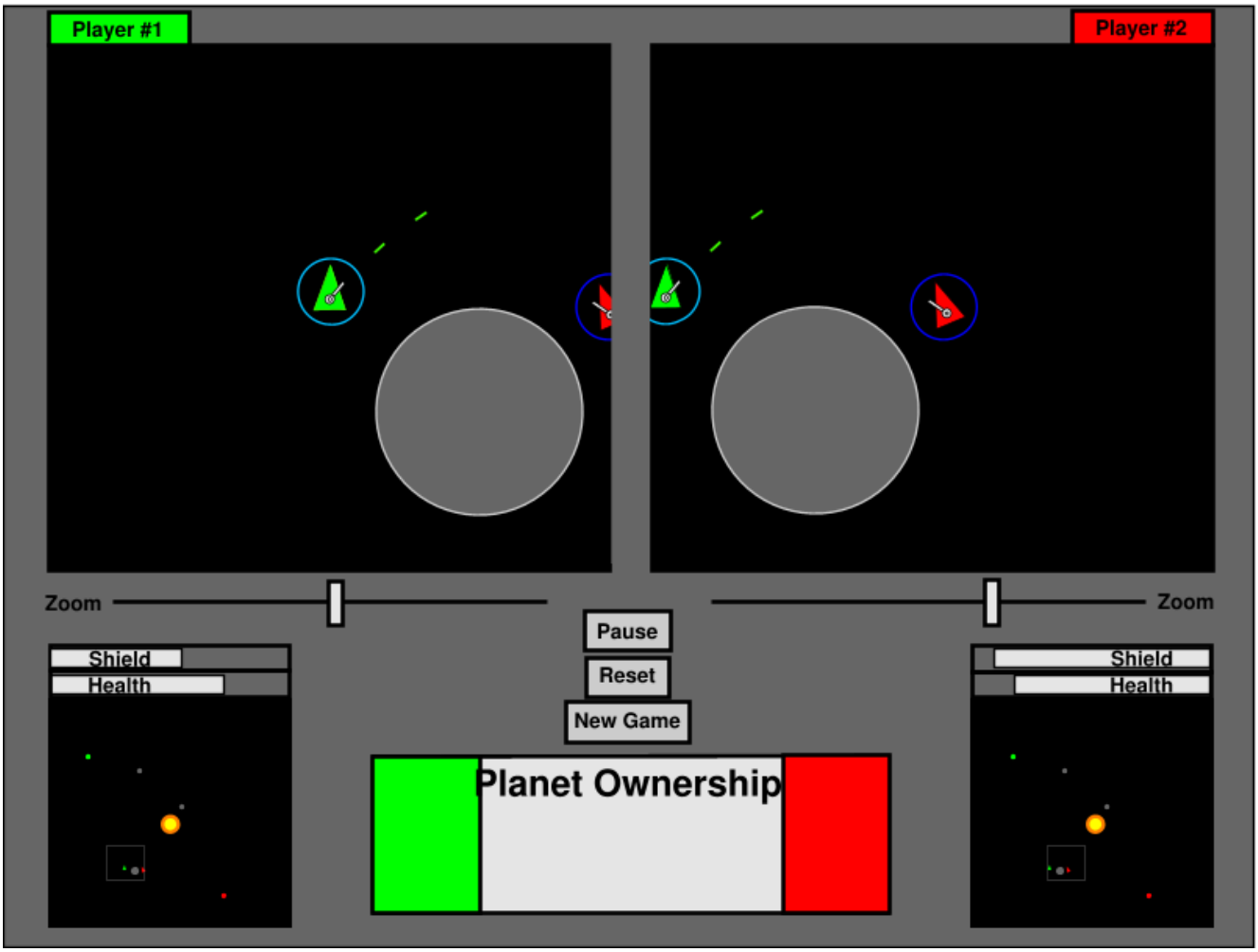
Final Project Specification – CSS 450

Allan Ortiz

Chris Ross

Figure 1: Speculative Screenshot



Summary

We propose to create a 2-player game based in outer-space. Each player's goal is to eliminate their opponent from the solar system. A player is eliminated when that player has no remaining planets and their hero ship is destroyed.

Defenseless planets join the player's team when they are landed on by the player. When a planet belongs to a team, it slowly generates resources, which are depicted by a progress bar on the planet. Once the progress bar reaches complete, the planet manufactures a defense, such as a shield, an orbital station, or a patrol ship.

If the hero ship is destroyed, a new hero ship will be produced in the place of the next planetary defense. In the interim, the player will pilot a tiny, invincible, escape pod. To gain control of a newly generated hero ship, the player must collide the escape pod with the new hero ship.

Each planet possesses a random power-up. The team that controls the planet's hero ship will have the upgrade. Upgrades are things such as the following: increased thrust, increased turn rate, increased firing rate, stronger shields, regenerating health, wingman pods, etc.

Technical Constraints

1. Hero Object
    a) We plan to support *n* hero objects, with only 2 being linked to the keyboard controls. This allows for the possibility of an AI player, network play, or more than 2 players squeezed onto a keyboard.
2. Supporting Objects
    a) Orbital Stations: Bases which orbit a planet and provide defense against opposing teams.
    b) Asteroids: Asteroids will be both spawned at world generation time and during gameplay.
3. Constantly/Predefined Animation
    a) The hero's shield will have a constantly flickering circular shield animation. Upon being hit, the shield will fluctuate in size.
4. Object Positioning
    a) The players are in control of their respective hero ships. During the period in-between which the player's hero ship has been destroyed and the hero ship is regenerated, the player controls a tiny, invincible escape pod.
5. Object Visibility
    a) The large views always show a centered view of their respective hero ships.
    b) The views scroll as the hero ships move around the solar system.
    c) When a hero ship leaves the bounds of the solar system, it is pushed back into bounds.
6. Object Motion
    a) The sun in the middle of the solar system is stationary.
7. Object Interaction
    a) All objects interact with each other.
8. Semantic of Application
    a) The goal of the game is to eliminate the opposing players' teams.
9. Audio Support
    a) Sound of weapon firing
    b) Sound of shield taking damage
    c) Sound of ship taking damage
10. Displays for User
    a) Large view: centered around the hero's ship, view can be zoomed

b) Small view: zoomed out to display the entire world, clicking or dragging the mouse in the window pans the large view

11. Suspend/Resume/Reset/New Game
    a) Suspend: pause the action
    b) Resume: resume the action
    c) Reset: resets the world to its initial parameters
    d) New Game: starts a new game, after allowing the user to define the world generation parameters
12. Player's Interaction with Hero Ship
    a) Ship Controls
        - rotate
        - thrust
        - reverse thrust
    b) Cannon Controls
        - rotate
        - fire
13. Hero Ship's / Supporting Objects Interactions
    a) All objects in the world will interact with each other
    b) Projectile-Projectile collisions result in the destruction of both projectiles
    c) Projectile-Object collisions result in damage being applied to the object and the destruction of the projectile.
    d) Object-Object collision result in damage being applied to both objects.
    e) Some objects have shields, which absorb damage which would have been directed toward the object. Shields can possibly cover a larger area than the object might.
    f) Many supporting objects belong to a specific player's team. If these objects are capable of attacking, they will attack opposing player's objects.
    g) The star at the center of the solar system is stationary.
    h) Planets maintain a very slow orbit around the star.
    i) Orbital Stations maintain a slow orbit around their parent planets.