Space War – Final Project Report – CSS 450

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User Manual

One day, after you and your sibling have been arguing much too much over who's turn it is to take out the trash, your parents send you out to the alternative solar system to battle it out. Your parents will enjoy the peace and quiet, and hopefully you will win the ultimate battle and not have to take out the trash this time.

The alternate solar system is populated by a bunch of random planets. Each planet happens to have a large landing pad which can facilitate extra-planetary landings. To defeat your sibling, you must claim all of the planets to be your own.

Ship Control:

	Player 1	Player 2
Forward	W	Numpad 8
Reverse	S	Numpad 5
Turn Left	A	Numpad 4
Turn Right	D	Numpad 6
Thrusters	J	Page Down
Laser	Spacebar	Delete
Cannon	K	End
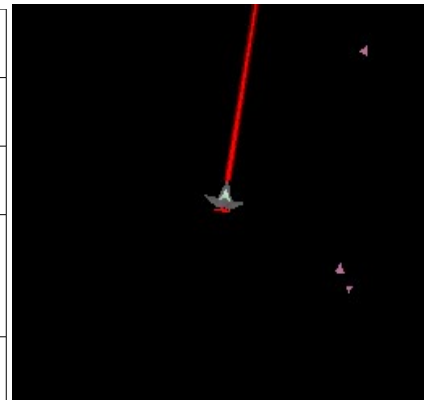
Claiming Planets:

Planets are claimed by descending on the landing pad. Once you have landed on a planet, you must wait around for a while to claim it. After a short period of time, a flag with extend out of the center of the planet, with your color on it. When the flag is fully extended, you know that the planet is yours, and you can busy yourself with capturing the rest of the planets.
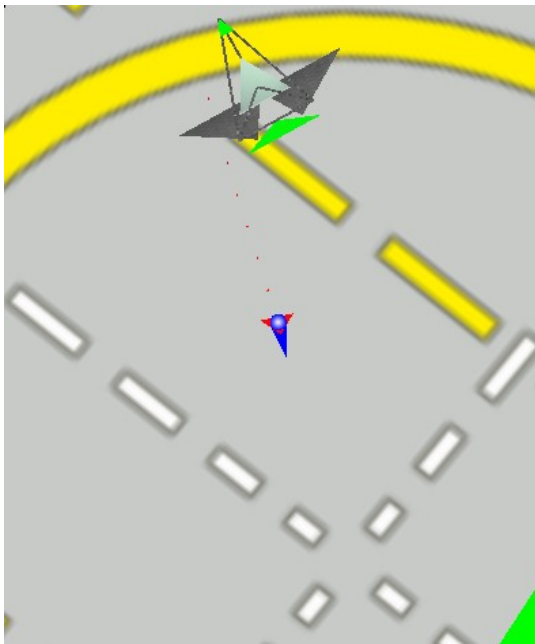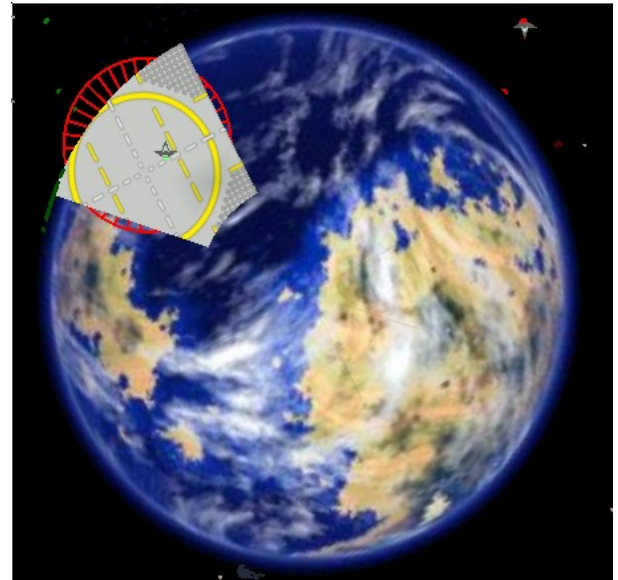

Regenerating:

If, by chance, your sibling has managed to destroy your ship, never fear: all you have to do is dock your escape pod on one of your planets. The kind inhabitants will be so happy that you put a flag on their planet that they will build you a new ship for free!
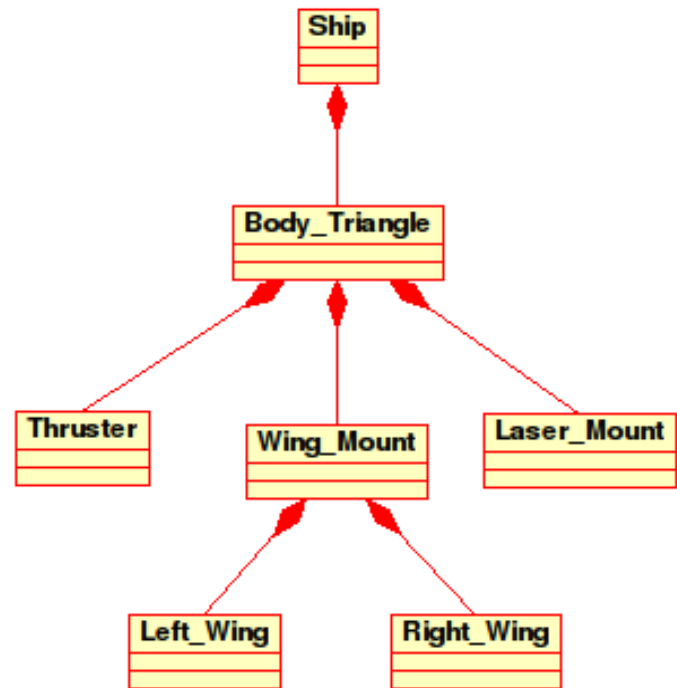
Winning the Game:

There are two possible ways to win:

1. You must stop fighting with your sibling and agree that you are both winners. This means that you must both do the dishes....
2. You must capture all of your opponent's planets and destroy their ship.

Design of Ship Object
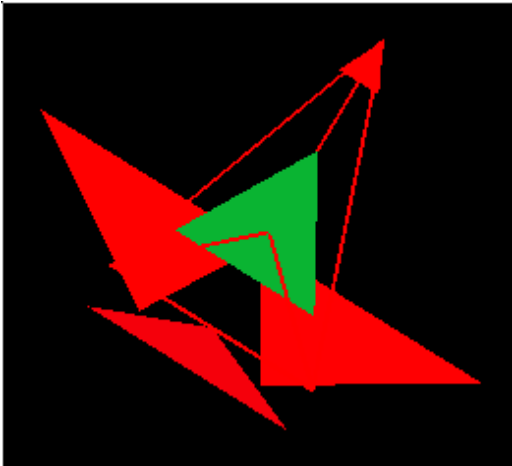
1. Ship

    1. Body_Triangle

        1. Thruster

        2. Wing_Mount

            1. Left_Wing

            2. Right_Wing

        3. Laser_Mount

(Not portrayed: Ship is a child of Entity, which is a child of SceneNode)

Evaluation of our System

Bugs

– When docked at a planet, the weapons can fire. The preferred behavior would be to disable them.

– Sometimes the escape pod gets stuck on unowned or opponent planets' landing pads.

– The view gets slightly jerky when at a high zoom level.

Limitations

– Many of the items in *Future Development* were intended for the final release, but got cut due to an

overly ambitious development schedule.

– The game isn't much fun with only one player, since the second player simply crashes into a planet and blows up.

– Keyboard control is slightly problematic, in that sometimes certain combinations of keys prevent any further presses from being registered.

Future Development

– AI for the ships

– Weapon systems built on planets

– Powerups

– Shields

– Texture mapping for background

– Gamepad support

– Other entities in the solar system

– Network play would be excellent

Interesting Features

– cross platform (Java!)

– recursive subdivision of all geometry to generate accurate high level of detail bounds

– a software transformation stack

– caching of bounds (to address slowness issues due to software transform stack)

– background starfield contains up to 100,000 vertices