# OpenSpaceSim

We are aiming for a highly controlled simulation of an orbital re-entry event for a space shuttle. The video below resembles our vision.

<http://www.youtube.com/watch?v=-Iw1W-0ehoY>

# Use Case

1) User starts application.

2) User varies parameters.

3) User starts the simulation.

4) User watches shuttle from orbital re-entry to landing or crashing.

*Notes*:

The camera should follow the shuttle and be placed just in front and above the object.

The camera should either look towards Earth’s surface or be rotatable by user controls.

# Components

## Models/Textures

1) Space shuttle or spaceship

2) Earth

3) Backdrop

## Effects

1) Particle effects showing shuttle’s interaction with atmosphere (fiery)

2) Thrusters effects

3) Lighting of space shuttle exterior

4) Shuttle exploding

## Physics

1) Gravity

2) Air resistance differential

3) Torque/rotation of shuttle

4) Rocket equation (mass-impulse-velocity relationship)