Abstract

Introduction and Rationale

The purpose of the project, detailed bellow, is to conduct research into the most efficient and highest fidelity way of creating procedurally created planets, that are also a realistic scale. The finished product should allow for the fast generation of scale detailed, randomly generated 3d planets. These planets will have features such as: multiple biomes, level of detail system, terrain manipulation, oceans and procedurally textured surfaces.

Literature Review

Aims and Objectives

* Create a 3D planet procedural generation system
  + Components
    - Generating initial sphere mesh
      * UV sphere
      * Normalized cube
      * Specified cube
      * Icosahedron
    - Biomes
    - Realistic scale
      * Elite dangerous = 1:1
      * Star citizen = 1:6
    - LOD system
    - High detail
    - Multithreaded generation
    - Terrain manipulation
    - Ocean support
    - Efficiently store the data for the planet
* Allow for persistency
  + Store game states of all individual components
  + Deal with movement and dynamic objects

Methodology

Project Plan