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Team 4: Planetary Disassembler

Purpose

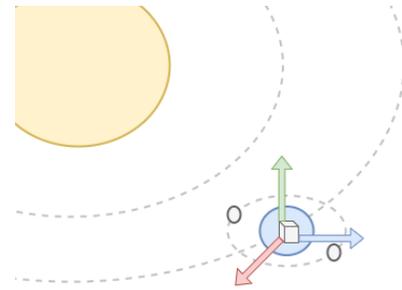
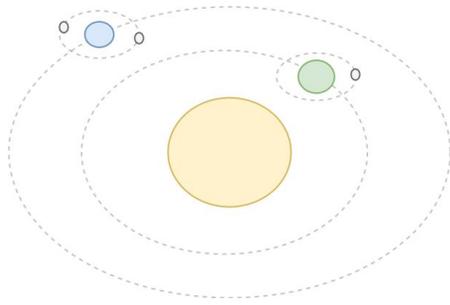
We are building a game where the user controls a spaceship, the Planetary Disassembler. The goal is to use the Planetary Disassembler laser beam to convert all the planets in the solar system into asteroids to achieve a high score.

There are two game phases: a setup phase (1st) and a play phase (2nd). The setup phase allows for planets and moons to be resized. The play phase is when the user starts converting planets into asteroids.

Timeline

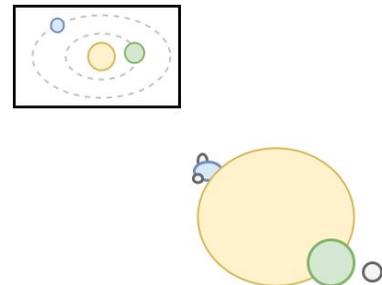
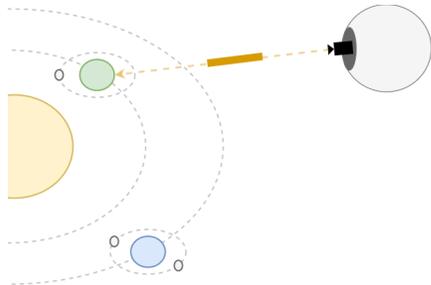
Date	Milestones Complete
Nov 19	<ul style="list-style-type: none">● SceneNode<ul style="list-style-type: none">○ Needs to detect collisions in addition to calculating position.● SceneNodeController<ul style="list-style-type: none">○ Maintains a list of current SceneNodes.○ Invokes DetectCollision(Transform collider) on all SceneNodes each frame.
Nov 23	<ul style="list-style-type: none">● GameController<ul style="list-style-type: none">○ Transitions between game phases.○ Keep track of score.● Unity Scene<ul style="list-style-type: none">○ All celestial objects○ Cameras set up○ Celestial object shaders○ Skybox
Nov 30	<ul style="list-style-type: none">● PlanetaryDisassemblerController<ul style="list-style-type: none">○ Launches disassembler ray.○ Controls and manipulates main camera view (Planetary Disassembler's looking direction)○ Rotate and reposition
Dec 7	<ul style="list-style-type: none">● Port to VR (If time permits)
Dec 12	Turn in project

SceneNode Hierarchy & Direct Manipulation



- Solar system is SceneNode hierarchy (planets around sun, moons around planets)
- Directly manipulate size of planets and moon
- Adjust positioning and rotation of planets and moons

Two Views / Camera Manipulation / Object Interaction / Leaf Nodes



- Disassembler launches disassembly beam that turns planets and moons (the leaf nodes in the hierarchy) into asteroids
- Main camera attached to “front” of Planetary Disassembler (the ship)
- Change disassembly beam’s path by manipulating main camera’s direction
- 2nd camera is mini map of solar hierarchy in top-down view
- Able to reposition view inside 2nd camera’s viewport
- Random comet (outside of hierarchy) also interacts with moon by also disassembling them

Illumination & Texture

- The solar system’s star will be illuminated
- The planets will be textured

UI

- Scale planets and moons by mouse drag
- Possibly to be done with Vive (if time permits)

Phases

Users will be given a chance to edit the solar system before playing the game. The larger the planets and moons, the less points the user will receive for disassembling these objects. Once the user has set the solar system’s scale, they begin the timed game phase. In this phase, the user is timed on how long it takes them to disassemble the entire solar system. Their score is a function of the scale of the solar system and their time.