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Major Project One – Report

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*Github repo:*

https://github.com/JonMorales22/MajorProject2

*\*Note: Master branch has project to be graded*

*Game Operation:*

This game is a 3D implementation of the arcade classic *Asteroids*. Player starts with 3 lives and has a force field with 100 health. The player also has the ability to fire missiles at the asteroids/alien. The player wins after destroying all asteroids in the scene. Coming into contact with an enemy (Alien ship), an enemy projectile, or a hazard (Asteroids) deals 20 damage to the player’s force field. If the player takes damage while the force field is at 0, the player loses a life.

Consumables/Projectiles

* **1up** – increases amount of lives by 1. Every time an asteroid is destroyed, it has a 10% chance of spawning this item at the location where it was destroyed. The Alien Ship spawns this item every time it’s destroyed.
* **Normal/Homing Missiles** – Player has unlimited normal missiles and 5 homing missiles.

Hazards/Enemies:

* **Large Asteroids** – One of the 2 types of asteroids, it spawns little asteroids when destroyed.
* **Small Asteroid ­**
* **Alien Ship –** Alien ship that orbits around the origin. Further behavior is described in the “Special Features” portion.

Controls:

* **Mouse** – controls the player’s pitch and yaw
* **Left/Right Arrow Keys** – adjusts player’s roll
* **Left Mouse Button –** Fires a missile from player’s bore sight
* **Right Mouse Button –** Opens/closes the “Homing Missile Information Box”
* **Space Bar** – Locks onto whatever the target the player is aiming at. The crosshair will turn red to signify a target is acquired. The next shot fired will seek out the target provided that the player has homing missiles remaining in their arsenal.
* **Escape** – Quits level and takes player to high scores screen, which prompts the player to input their initials provided that they make the cut and their score is greater than 0.

*Special Features:*

* **Alien Ship –** 
  + 3 states: EVADE, CHASE, and ORBIT.
  + Starts out in the ORBIT state, where it will rotate about the origin and occasionally fires (every 20 seconds) a laser beam at an area around the player’s current position
  + Enters the EVADE state if player approaches too close. It will then move away from the player until it reaches a certain distance, and then resumes the ORBIT state
  + Enters the CHASE state when player ventures too far away from the ship. It then moves towards the player’s current position until it reaches a certain distance, then it resumes the ORBIT state.
* **Camera Shake Script –** shakes the camera when player collides with an object, gets hit with a projectile, or is near an explosion. When a collision occurs with either a projectile or asteroid, the camera shakes at a default value. However if it shakes due to an explosion, the extent of the shake is proportional to the player’s distance to the explosion
* **Homing Missiles –** If a player locks onto a target and has homing missiles remaining in arsenal, it fires a missile that tracks down the target. It destroys itself after 5 seconds if it does not find the target.
* **Asteroid Explosive Force –**When a large asteroid is destroyed, it instantiates two smaller asteroids on a random point on a sphere around its center and applies an explosive force to any object nearby within a certain radius.

*Disclosure:*

**Models/Materials/Textures/ETC:**

**\*All from Unity Asset Store unless noted**

* + *Asteroid – Turbo Squid*
    - *http://www.turbosquid.com/3d-models/asteroid-space-planet-3ds-free/616773*
  + *Missle Model – Turbo Squid*
    - [*http://www.turbosquid.com/3d-models/free-missile-3d-model/595524*](http://www.turbosquid.com/3d-models/free-missile-3d-model/595524)
  + *Alien Ship –* UAV Trident 1.0 by Jaroslav Grafskiy
  + *Sky Box –* Purple Space Nebula Skybox v1.0 by TL Multimedia
  + *1up Ship Model* - Galactic Heroes Cartoon Spaceship by Funky FingerProductions
  + *Particle Render Materials –* Unity Standard Assets
  + *Asteroid Textures -* Natural Tiling Textures byTerramorph Workshop
  + *Galaxy Background (Intro/High Score) –* 
    - *http://phandroid.s3.amazonaws.com/wp-content/uploads/2015/02/galaxy-wallpaper-1.jpg*
  + *Crosshair Sprite –* Clipart Panda
    - *http://www.clipartpanda.com/clipart\_images/crosshairs-clip-art-6743132*

**Sounds:**

**\*All sounds from freesound.org**

*- One Up Sound*

*https://www.freesound.org/people/jivatma07/sounds/76234/*

*- Explosion*

*https://www.freesound.org/people/cydon/sounds/268557/*

*LaserCannon*

*https://www.freesound.org/people/MickBoere/sounds/188304/*

*LaserImpact*

*Can’t find URL*

*- Crash*

*https://www.freesound.org/people/sandyrb/sounds/95078/*

*Missle Fire*

*Can’t find URL*

*- Thrusters*

*https://www.freesound.org/people/Quaker540/sounds/214456/*