

CS 4332 Spring 2022

Term Project Final Report

Team Nimble: Christopher Vo, Evan McCauley, Reyhan Ali

Team Info

The team consists of three members. The members are Evan McCauley, Reyhan Ali, and Christopher Vo, with Chris acting as team leader. Reyhan was tasked with making a rough draft of the stage. Chris was tasked with making certain scripts that governed the game, like the gun mechanics and the point tracker, while also creating the final stage. Evan was tasked with creating the scripts for the zero-gravity movement, local asteroid attractors, and the opponent AI.

Timeline

- Week 1 (February 1 - 6)
 - Getting familiar with working in Unity
 - Finding assets for player models, guns, items, etc.
- Week 2 (February 7 - 13)
 - Decided to move to making some certain assets ourselves and taking some from the internet.
 - Created concept sketches of how the gravity would simulate and potential models for the stage and character models
 - Continued to search for assets like gun models and item models
 - Started writing the script for basic character movement
- Week 3 (February 14 - 20)
 - Continued to write scripts for gravity simulation and character movement.
 - Started working on rough draft of the stage and character models
- Week 4 (February 21 - 27)
 - Continued to write scripts for gravity simulation and work on rough draft of stage and character models
 - Finished writing a rough draft script for basic character movement
 - Started writing script for gun mechanics
- Week 5/6 (February 28 – March 11)
 - Finished writing a rough draft of the gun mechanics script and gravity simulation
 - Continued to work on asset, character, and stage models
- Week 7 (March 21 – 27)
 - Chris began work on timer and point script
 - Evan began work on zero gravity movement
- Week 8 (March 28 – April 3)
 - Continued work on scripts
 - Chris tuned the gun mechanics to include a model and display the UI
 - Evan began work on the AI script for the opponents

- Week 9 (April 4 – 10)
 - Chris finished the timer and point script
 - Chris began work on health bar script
 - Evan continued his work
- Week 10 (April 11 – 17)
 - Chris finished health bar script and put together the UI system/Game management system
 - Chris created start and end screen
 - Evan finalized zero gravity movement
- Week 11 (April 18 – 24)
 - Encountered a problem in the zero gravity
 - Reyhan finished a rough draft of stage
 - Chris finalized the stage
- Week 12 (April 25 – end)
 - Fixed zero gravity problems
 - Implemented the opponent AI
 - Put everything together for the final product

Production Details

- Features included:
 - Health-bar script: Of course, our game will include a health bar mechanic, where a player will take damage and lose health when they collide with an opponent. This script will track the health of the player and display the health. For this, the script will have the player's health be at 100% and will decrease whenever it detects a collision between the player and opponent.
 - Timer: To not drag out the rounds of each game for too long, a timer was included. The timer will count down from 90 seconds to zero. Once the timer hits zero, the game will reset and distribute points depending on the health of the player and opponents.
 - Point tracker: If a player wins a round, the player will gain a point. This script will keep track of the points and will end the game if a player wins or loses three rounds.
 - Displaying weapon ammo and other information on the UI: At the start of each round, the amount of ammo, health left, timer, and points will show on the player screen. Reloading will increase the amount of ammo in the clip of the gun.
 - AI Opponent: Three opponents will spawn and search for the player to eliminate. The AI opponents will chase after the player and try to eliminate the player.
- Features not included:
 - Items: This feature was to include an item feature that include a grapple hook and a rocket launcher. However, due to time constraints and difficulties from other features, we were not able to implement this feature.
 - Secondary gun: This feature would allow the player to switch between two guns, but difficulties in the gun script and the lack of resources didn't allow us to implement this feature in time.

Game Description

The concept of our game is a 1 vs. 3 first person shooter that takes place in an asteroid-based low gravity environment. We want to put more of an emphasis on the low gravity environment because other first-person shooters might exhibit semi-gravity environments, but

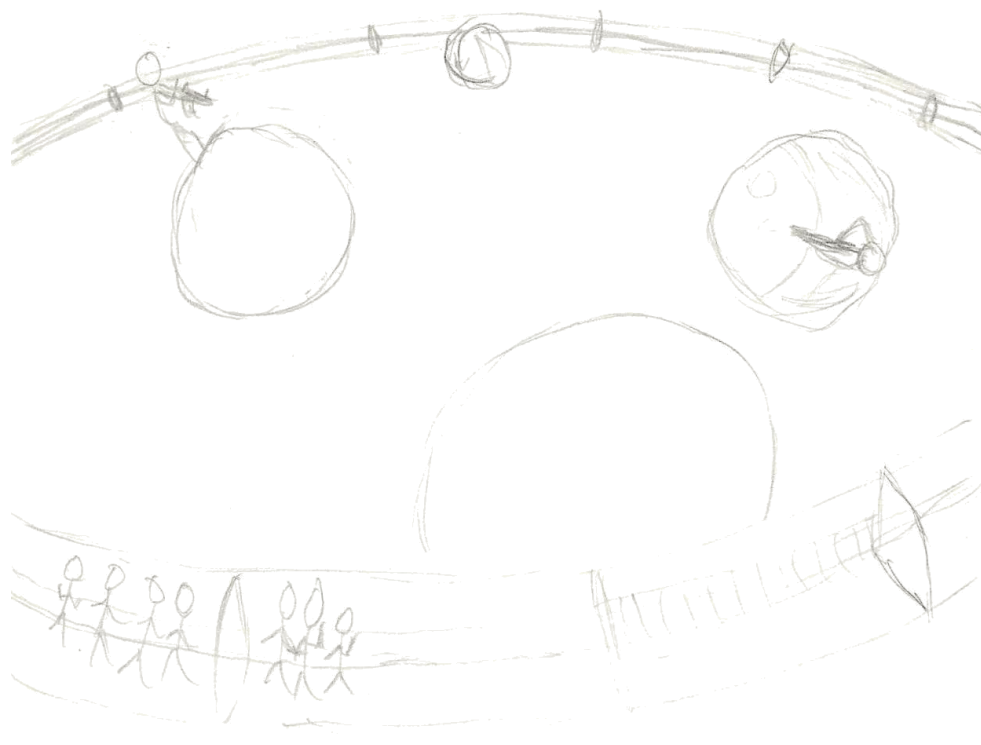
our game will have entirely dynamic gravity that will change as the asteroids move. If your character jumps in one direction, that character will continue to fly along a semi-orbital path until it returns to the original asteroid or lands on a different one. Our game will take inspiration from traditional first-person shooters while also incorporating certain aspects from Borderlands.

The battle will take place in an arena with the player starting on one side and three opponents on the other. Along with the platforms, asteroids will be placed in between the players for each player to float and land on. As mentioned before, each asteroid will have their own gravity field, so when players float close enough to the asteroids, they will slowly be pulled to the surface and provide cover. Players will need to navigate through the asteroid field and eliminate the opponents. While in the air, players can spin their bodies around to orient themselves in different directions.

Once players spawn on either platform, players will be equipped with one gun, an automatic rifle. Players will use this equipped gun to eliminate the other players and gain a point.

The objective of the battle is to eliminate the opponents within a limited time frame, a minute and a half by default. The game will be a best of three. Each time a player eliminates all their opponents, the player will gain a score. Once a player reaches three wins, the game will end. If the players cannot eliminate each other within the time limit, whoever has more health will gain the point. If both players have the same health, neither player will gain the point and it will move to the next round.

Concept Sketches



Screenshots

