Sleep Fright

Game Design

Version 2.00

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**1. Introduction**

This document specifies a design for the gameplay of a game with the provisional title “Sleep Fright”. It has been in development since 11/29/2018 and began as an extension to Unity’s [Survival Shooter Tutorial](https://unity3d.com/learn/tutorials/s/survival-shooter-tutorial).

* 1. **Scope**

This document is intended to be read by programmers, artists and producers involved in the design, implementation and testing of Sleep Fright.

**2. Target System**

Sleep Fright will be produced for the following platforms: Windows PCs and Macs. This document is primarily concerned with the PC version. The game will be available through digital download only. It will not be graphics-intensive so that low-spec systems can run it easily.

**3. Development System**

Sleep Fright will use the Unity Engine as an overhead. It will be developed using Unity version 2018.2.14f1 and Visual Studio 2017.

**4. Specification**

**4.1 Concept**

The aim of Sleep Fright is to produce a fun, addictive, and smooth survival shooter game which utilizes simple graphics. It will not have a story mode but will feature endless wave modes and a high-scoring mode. The story mode was dropped due to time constraints.

**4.2 Game Structure**

There will be only one map which will be large enough to be sufficiently detailed, but small enough that the player can experience everything in the level. By limiting the scope of the map, players can become familiar with the layout and locations of enemy spawn points and power up spots. The idea of multiple maps was scrapped due to time constraints.

**4.3 Players**

The PC game will be playable by one player on a local machine. There will be no online component to the game, it is single player only. Players can only play as the main character, the little kid named Angus.

**4.4 Action**

Players will be able to move in 3D space and they can not jump in most cases, a low gravity powerup was looked into however. Angus will spawn with his primary weapon, his gun, and can purchase grenades or pick up dropped upgrades from killed enemies throughout the map. Once a picked up powerup runs out of ammo or expires, Angus’ weapon resets back to normal. There will also be a health pickup somewhere on the map and will be the only method of healing in the game. Upon death, the camera will fade to a game over screen and the player can choose to try again.

**4.4.1 Pickups**

* Health
  + One location on the map, purchased with 100 points
  + Adds 50 health to Angus
* Minigun
  + Random chance to drop from a killed Hellephant
  + Random chance to drop somewhere on the map
  + Will expire if not picked up in 10 seconds
  + Triples the gun’s rate of fire for 10 seconds
* Sniper
  + Random chance to drop from Hellephant
  + Random chance to drop somewhere on the map
  + Gun shoots 50% slower, does 100 damage and goes through enemies / terrain for 10 seconds
  + Will expire if not picked up in 10 seconds
* Slomo
  + Random chance to drop from Hellephant
  + Random chance to drop somewhere on the map
  + Enemies are frozen in place for 10 seconds
  + Will expire if not picked up in 10 seconds
* Grenades
  + One location on the map, can be purchased with 300 points
  + Explodes for 100 damage after a few seconds
  + Can only carry one at a time
  + Enemies will chase the grenade

**4.5 Objective**

The objective of the game will vary depending on the game type.

**4.5.1 Endless Wave Mode**

There is no way to “win” this mode, players will keep playing the game until they die. Upon death, the player will be shown how many waves they successfully completed. The first wave will be the easiest, and waves will continually progress in difficulty by spawning roughly 75% more enemies with each wave. There is a 5 second break between waves.

**4.5.2 High Scoring Mode**

There are no waves in this mode, enemies are just constantly spawned at a steady rate. Players will have a total score that can only go up. Their current points (which they can spend to buy powerups) will be on the other side of screen. After killing an enemy, the score and the points will be incremented by the same amount.

**4.6 Graphics**

The map and everything in it will be viewed in a 3rd person view for the entire time. The camera will be orthographic for each map.

**4.6.1 Objects**

* Player -- will be represented by an animated boy named Angus and is always carrying his gun with his gun. This character was included in the tutorial this game is based on.
* Enemies – The enemies will be the three distinct enemies from the tutorial, the Zombunny, the Zombear, and the Hellephant
* Pickups – prefabs will be made by myself using simple 3D shapes and materials or taken from the Unity Asset Store.
* Map – the map was included in the tutorial while I added powerup spawn points and other locations

**4.6.2 HUD**

* Health – located in the bottom left corner
* Grenades – located in the bottom right corner
* Points – located at the top of the screen
* Wave # or Score – located at the top right of the screen

**4.6.3 Popups**

* Pressing escape will bring up a menu with options to resume or quit to the main menu

**5. Gameplay**

**5.1 Landscape**

The map consists of a square grid, assorted objects to both hurt and help the player depending on how they are corralling enemies. The landscape is fixed and can’t be edited by players. A level will be the same for each game mode.

**5.2 Controls**

* ‘w’ – move forward
* ‘s’ – move backward
* ‘a’ – move left
* ‘d’ – move right
* ‘left mouse button’ – shoot
* ‘right mouse button’ – throw grenade
* ‘mouse’ – aim

**5.3 Physics**

Gravity will be used in this game, simulated by Unity’s Rigidbody component. The grenades will basically be the only thing affected by gravity.

**5.4 Enemies**

* Zombunny – easiest enemy type, identified by the light blue neon glow, 100 health and does 10 damage with each attack
* Zombear – second hardest enemy, identified by the purple neon glow, 100 health and does 15 damage per attack
* Hellephant – hardest enemy type, identified by the yellow neon glow, 450 health and does 50 damage per attack

**6. Front End**

**6.1 Menus**

* Main Menu – The menu will ask the player to play an endless wave mode, or high scoring mode. For both the high scoring and endless modes the player will be taken immediately into the game.
* In-Game Menu – Two options: Resume or Quit where quit will take them to the main menu

**6.2 Endgame Screen**

Once the game is over, there will be a pop up screen that displays the score, or final wave if playing one of those modes. The game over screen will prompt the user to either quit to the main menu or quit the game entirely

**7. Development Tools**

**7.1 Editor**

The editor used for Sleep Fright will be the Unity Engine, which allows assets to be placed, rotated, and edited in the environment easily. Each map and menu will be a separate scene.

**8. Time**

Official Start Date : November 29, 2018

Complete Game Design : December 2, 2018

Milestone 1 – Alpha : December 4, 2018

End of Project : December 13, 2018

Sleep Fright should be considered a large-scale and complex game for several reasons. First, it is the most polished and professional-looking game I have created this semester by using Assets from the Unity Store or making my own. It also incorporates many tools that were talked about in our group presentations. Different types of lighting were used throughout the project, best seen in the point lights attached to each enemy that gives them a neon glow across the map. Sprites are used in the floating powerups. There are multiple animations in the game as well for the player, enemies, and game over screen. Gravity is also in effect for grenades and enemies. Both game modes get progressively more difficult as time goes on because of the amount of enemies being spawned. Navigation and pathfinding is also present in the enemies. The game also features a main menu and an end game screen. The grenade model was created by myself using Fusion 360. The main menu subsystem, explosion effects, icons, map, and player / enemy models were taken from the Asset Store. GitHub’s Issues and Project Boards were also used for this project. All of this combined with the game being completely bug free (I’m 99% sure) makes this a high-level and advanced game.