

Gold and Glory

**Fantastic Four © 2014**

Created in Experimental Game Design, Fall 2014

at Rensselaer Polytechnic Institute

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*Gold and Glory* is a bullet hell with a cooperative twist inspired by the Touhou series and *Ikaruga*. Two players control members of a ragtag mercenary squad seeking fame and fortune wherever they please. At any given time, one player is the Attacker and the other the Defender while the enemies fly onto the screen and shoot. The Attacker returns fire while the Defender utilizes his/her shields to absorb bullets and provide the Attacker with a path of least resistance. The Defender can toggle between two shield colors to absorb bullets of matching color. For every bullet the Defender’s shield absorbs, he/she gains ammo. Players can swap roles at any time, letting the former Defender utilize their stockpile of ammo as the new Attacker and letting the former Attacker build up their own ammo as the new Defender. This creates a powerful dynamic between the two players in which they must synergize their characters’ unique mechanics and specials to survive and destroy everything in their path. *Gold and Glory* is built in Unity with a pixel art style.

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# **Game Philosophy**

### **Philosophical point #1: The WHY FACTOR: Why create this game? Why would someone want to play it?**

We wanted to make a game with relatively simple and straightforward gameplay that still encouraged highly skilled play. Shoot-‘em ups (commonly referred to as “Shmups”) have a natural sense of skill progression - the relatively simpler task of increasing difficulty by adjusting stats like bullet speed, firing rate, and the number of enemies allowed us to focus attention on characters and bosses. These are the features that enhance the game’s replayability and the feeling of satisfaction upon beating a level.

All of the ideas we came up with when brainstorming featured multiplayer, but we wanted to separate ourselves from the competitive fray and try for a more pure, cooperative experience where players are rewarded for teamwork more than individual skill. A large part of our design process has been iterations on how to make multiplayer rewarding and encouraging players to work together and think as a team.

*Gold and Glory* drifts closer to the days of arcade games from a gameplay perspective. Players will first attempt to simply beat the game, from which point they will start working on getting higher scores now that they’re more comfortable with the game. Additionally, the different playable characters each have their own playstyles that players can experiment with and practice. With many different character combinations (including using two of the same character), players will be discovering their favorites and challenging themselves with other combinations.

### **Philosophical point #2: Immediate and Long Term Projected Socio-Cultural Project Impact**

In both the short and long term, we are addressing absences in contemporary gamer culture. In the short term, we want to raise awareness of the potential of cooperative gameplay. While games such as *Call of Duty* and *League of Legends* leave no question that competitive multiplayer is in no danger of extinction, even the games with stronger cooperative elements like *Super Smash Bros. for WiiU* and *Dark Souls 2* tend to use it as a secondary feature at most; the main focus of the gameplay still being individual skill. *Gold and Glory* aspires to utilize the potential camaraderie and catharsis of team play to remind players why working as a team is its own reward.

In the long term, we want to encourage players to remember that in a time before AAA titles and decade-long series, there were one-shot arcade games that had simple and clear mechanics while maintaining depth of gameplay. We also want to demonstrate that it is entirely plausible for a new generation to use games not just to demonstrate dominance or overcome overwhelming odds, but to bond and work together.

### **Philosophical point #3: Predecessor or previous games/ distinctive factors in this genre**

In the realm of games with cooperative elements, I mentioned *Super Smash Bros. for WiiU* and *Dark Souls 2*. Of these examples, *Smash Bros.* is probably the stronger example since the game can be played player vs. enemy. Our game shares with *Smash Bros.* in that there are a variety of pre-designed characters for the player to choose from and the dynamics of a team are based on which of those two characters are brought into play. However, our game does not engage in any of the customization that one finds in that title, or *Dark Souls 2* for that matter.

In terms of shoot ‘em ups, specifically bullet hells, the most well-known examples are from the *Touhou* series, although our game is perhaps closer to *Ikaruga* in terms of the bullet absorption system. In *Ikaruga*, the player could attack and toggle their polarity to absorb one kind of bullet but not the other. *Gold and Glory* shares with both of these games giving players individual scores with points being awarded for more difficult tasks (staying closer to the top of the screen and grabbing collectables). At the end of the day though, in this game it’s the team score (a combination of the individual scores) that counts as the high score.

For arcade games, probably the two closest relatives are *Galaga* and *Space Invaders*. Neither game is multiplayer, though *Galaga* in particular shares in the difficulty of dodging enemies and taking down targets.

Distinctive factors in the genre that our game touches on are primarily high score, a large numbers of enemies with distinctive and flashy bullet patterns, and bosses with multiple phases.

### **Philosophical point #4: Target Audience**

Our target audience is hardcore gamers or arcade gamers- those who don’t necessarily play for the achievements or the flashy graphics, but for the thrill of defeating a difficult foe or clearing a particularly intense map. Furthermore, since the game is based on local multiplayer, this is not something a single person can pick up and play when bored. The experience here is more akin to a couple of friends taking turns and playing for a while to pass the time; analogous to the arcade experience with onlookers clamoring around the screen to share in the collective experience.

# **Game Overview**

### **What is the game?**

*Gold and Glory* is a two player bullet hell that takes a unique cast of four off-beat characters and hurls them against a multitude of opponents, over the course of three levels and their respective bosses.

### **Why create this game?**

We wanted to make a cooperative game that had gameplay depth and was accessible for anyone willing to take the time to get better at the game. In addition, we wanted to make something that hailed back to the days of the older arcade games, whose focus was on replay and learning the game rather than item accumulation or skill trees. Though we have a retro experience in mind, we saw room to afford players the benefits of more recent developments in technology and gameplay. This marrying of elements would not only create a game that others would want to play, but one everyone on the team wanted to experience as well!

### **Where does the game take place?**

The game takes place in an unnamed fantasy universe, where mages, monsters, and ordinary folk struggle to coexist. Specifically, our game features a large estate called Fog Manse owned by an elemental mage who has called together a counsel of monsters with the plan of revealing the weak points of a magical barrier protecting a large mage city.

### **What do the players do?**

The players battle a multitude of monsters firing a large volume of projectiles. One player servers as the Attacker, while the other plays as the Defender. The Attacker can shoot until he/she runs out of ammo. The Defender has a shield with one of two polarities which can transmute enemy bullets of matching polarity into ammo that can be used when the Defender becomes the Attacker. The Defender can swap their shield’s polarity at any given time. The two players can also swap roles at any time.

### **How many characters are involved?**

There are four protagonists and three bosses, with a multitude of nameless minions with varying attributes.

**What is the main focus?**

The initial objective is to clear each level and win the game; the secondary objective is to get the highest score possible. We don’t expect that players who don’t have significant experience with this game mode will be able to beat any of the levels on the first try. Initially, a large part of the game for the players will be learning the levels and enemy patterns as well as developing strategies with their favorite character combinations, whereas later they will be figuring out how to optimize their play to get the highest score.

# **Design History**

This document began in early October of 2014 as the team brainstormed and deliberated over design principles, addressed a large number of gameplay issues, and came up with a schedule to make sure that the game would be ready on time.

Using this Design History section, you as the reader can get a picture into how our design and development processes went and where we made decisions. For us as developers, the Design History is a useful referendum about the decisions we’ve made and a convenient tool to make sure that any finalized thoughts are kept safe and visible in case there are questions or concerns.

Version 1.10 added in the philosophy, game over view, and schedule sections.

Version 1.11 modified frame of production and timeline to make them more viable

Version 1.12 modified frame of production and timeline a third time to make them more representative of the skills involved

Version 2.0 added in basic character and enemy information

Version 2.1 renamed Wizard Mansion to Fog Manse

Version 3.0 added in rendering information

Version 3.1 added in further rendering information based on new understanding of the relationship between 2D and 3D Unity

Version 4.0 added in some more specific numbers in terms of number of types of enemies and their properties

Version 4.1 added in specific mechanics for Boss 1

Version 4.2 added in specific mechanics for Boss 2

Version 4.3 added in specific mechanics for Boss 3

Version 4.4 added in changes to Boss 3 based on revisiting the Lightning premise

Version 5.0 added information about the game engine, as it became more finalized

Version 5.1 added specific information about Enemy and Spawn as they became more powerful as a result of increased need

Version 6.0 added in musical sound. After contact with Johnathan Reed and our first sample, we had a better understanding for potential sound-related scope.

Version 6.1 added in representatives from our BFXR sound database that we’re using for this game.

Version 7.0 added in further musical sounds, based on what John sent us.

Version 7.1 added in objects based on the now-present functionality of coins.

Version 7.2 added in final numbers confirming that there are in fact 4 playable characters and 26 enemy types and 3 fully operational bosses as well as 3 levels that move comfortably in a game loop.

# **Frame of Production (per Syllabus)**

**10/1:** GDD with Frame of Production, Schedule, & Outline of Individual Responsibilities and Deadlines

**10/8:** Updated GDD with Game Overview Sheet, Refined Storyboard, 5 citations of games/websites/reading/literature/film that have influenced the game

**10/15:** Evidence of Progress, Definitive Schedule, Refined Game Overview Sheet & Image, Philosophical Question section

**10/22:** Evidence of Progress in line with blocked out schedule

**10/29:** Playtesting plans due, Three Week Trajectory

**11/5:** Playtesting Summary results and recommendations, Printed Project Posters

**11/12**: High quality edited HD 1920x1080 H264 mp4 video promotional trailer

**11/19:** Informal reviews

THANKSGIVING

**12/3:** End of the road

# **Schedule/Responsibilities**

**Peregrin:** Protagonist/HUD/UI Code

**Dustin:** AI Code

**Alex:** Protagonist/Boss Art/Stage 1 Minion art

**Reginald:** Background/Stage 2 & 3 Minion art/Sound

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Peregrin** | **Alex** | **Dustin** | **Reginald** |
| **Oct 8** | Punch Knight start | Punch Knight | Movement patterns for minions | Level 1  Background |
| **Oct 15** | Punch Knight finish | Dragon Sitter | Rain and Sprinkler Bullet Patterns | Level 1 Boss Background  HUD v1.0 |
| **Oct 22** | Dragon Sitter start | Stage 1 Enemies | Boss 1 | Level 2  Background |
| **Oct 29** | Dragon Sitter finish | Stage 1 Boss | Boss 2 start | Level 2 Boss  Background |
| **Nov 5** | Coins,  Animations,  Tutorial | Tinker | Boss 2 finish | Level 3  Background  Character select |
| **Nov 12** | Tinker start | “Mirror Mage” | Boss 3 start | Level 3 Boss  Background  Title screen |
| **Nov 19** | Tinker Finish | Boss 2 | Boss 3 finish | Level 2 Enemies |
| **Nov 26** | Mirror Mage start | Boss 3 | Debugging/  Stretch room | Level 3 Enemies |
| **Dec 3** | Mirror Mage Finish | Last minute stuff | Debugging/  Stretch room | Last minute fine-tuning |

# 

# **Feature Set**

## General Features

Linear story/game play

Two player co-op

Offbeat fantasy world

2D graphics

Bullet hell

## Multiplayer Features

Two players

Local (same computer)

Two sides of the screen correspond to two players

## Gameplay

Two players, one in attack mode and one in defense mode

The player in attack mode can shoot bullets and use his/her character specific special ability

The player in defense mode can absorb enemy bullets that have the same affinity as his/her shield, and swap the shield affinity to make sure that his shield matches the affinity of the incoming bullets.

Destroyed enemies drop coins, which either player can pick up to get experience points. Players can level up three times with each level granting increased damage and/or a character specific perk.

There are three levels to the game, each with a boss. These levels are designed to go from easy to medium to hard, with bosses that go from medium to hard to expert.

# **The Game World**

## Overview

*Gold and Glory* takes place in an unnamed fantasy world where magic and technology, mages and monsters, struggle to coexist. Our players, a mercenary group in desperate need of funds, have committed themselves to a last ditch attack on Fog Manse, the estate belonging to a particularly violent and wealthy consortium of mages. Both players engage the enemy as one of four characters, shooting up enemies, shielding their comrade, and collecting coins to power up.

## The Physical World

### **Overview**

Overall, the physical world that the players experience is the estate of Fog Manse, the stronghold of the Elemental Mage. The estate is surrounded by a barren forest with a ruinous courtyard leading up to the dilapidated, yet magically held-together Fog Manse.

### **Key Locations**

The key locations include the forest path leading to Fog Manse, the courtyard of Fog Manse, and the interior of Fog Manse.

### **Scale**

The arcade style of the game coupled with the relatively small resolution lets the game have a relatively small scale. Each area is made distinct with different backgrounds with a level of detail that will not detract from the core gameplay experience. This is due to the volume of gameplay elements that will be on the screen and the need to fit everything and still have the game be playable. With these points in mind, everything is large enough to be recognizable.

### **Objects**

There are coins that players can pick up to earn power ups. Enemies populate the levels for players to shoot at. Both enemies and players will be firing bullets of varying types at each other. Exclusive to the third boss are unblockable projectiles that players must avoid entirely rather than absorb with a shield.

### **Time**

Waves of enemies in each level will spawn based on the time elapsed during that level.

## Rendering System

### **Overview**

Our game is rendered in a top down format using a camera which watches the faces of 3D objects in its viewport. The objects in the game (i.e. bullets, players, and enemies) are rendered as textures on the 3D objects.

### **2D/3D Rendering**

The game will use Unity’s 2D rendering system, which places textures on the face of a 3D object facing towards the camera.

## Camera

### **Overview**

The camera is top-down, so it is at the center of the canvas and moved back in the Z direction about 10 units. The camera never moves - all movement in the game is other objects. For example, the background scrolling might make it look like the camera is moving, but that is only a visual effect.

## Game Engine

### **Overview**

Our game engine works with passing time to generate enemies. Starting with a character select screen and going into game and level transitions, a manager in the background monitors enemies, player stats, and the presence of bosses to determine background and HUD display. Each player has an identical script that monitors their current stats and a specific script based on which character they showed. Enemies are largely homogenous, with all sharing the same scripts but different prefabs having different specific stats like speed or health.

### **HUD and Background Generation**

There is a script attached to our camera that generates all the HUD materials. It also is responsible for notifying other scripts, specifically that responsible for backgrounds and that responsible for enemy spawning, when it is appropriate to take an action.

### **Player Information**

Each player has two scripts, a script that is identical for both and a script that is individual to the character. You might think of these scripts as the brain and the hands - the stats script is responsible for monitoring inputs, health, speed, and a number of other relevant variables. Meanwhile, the character script is notified when it is time to perform actions such as attacking or swapping shield affinity and handles the character-specific relevant tasks.

### **Collision Detection**

Depending on the nature of the object, our game generally speaking uses box colliders or rendering bounds. Enemies and their bullets and player characters use box colliders specifically sized and located to make the player feel more comfortable. Meanwhile, bosses use render bounds to make them a little easier to hit and player bullets use render bounds considering they come in all different shapes and sizes.

# The World Layout

## **Overview**

The player’s view of the world is composed of three linear regions. The first region is the desolate forest, where the players begin learning the mechanics, take on low level enemies, and face the boss known as the Slime Mage. The second region is the courtyard, where the player takes his skills to the next level and fights higher difficulty opponents, as well as taking on the Gargoyle. The third region is the inside of the manse, where the player will face the highest intensity of bullets and the most durable enemies, with the game culminating in an epic three phase battle against the Elemental Mage.

## **Level 1**

Level 1 is the desolate forest, where we can find all manner of low level enemies. These enemies generally have simple movement and firing patterns and there aren’t many of them at a time. Traverse and fight across the rocks, shrubs, and dirt until you come across the infamous cheap mercenary Slime Mage. This boss will summon a barrage of slimes to take you on in addition to its own set own fearsome attack, a cascading walls of bullets.

## **Level 2**

Level 2 is the courtyard, where fog drifts across cobblestone and enemies are more frequent and dangerous. Begin your venture into the foggy grounds and fight your way through larger and more powerful waves of opponents, including some more complicated movement patterns and shooting patterns as well as new color variations. Level 2 concludes with the Gargoyle, loyal and fierce protector of the estate, who will try his best to ram you down when he’s not trying to shoot you in the face.

## **Level 3**

Level 3 is inside Fog Manse, where the strongest, fastest, toughest enemies are preparing for your approach. Face wave after wave of intensive resistance from the widest array of opponents yet, including some very tricky movement and shooting patterns. This final level features the culmination of the entire game, the three phase Elemental Mage. Damaging him will cause him to change from fire magic to ice magic and finally to lightning magic. The closer you are to victory, the steeper the challenge as each elemental change brings an increase in difficulty! Only players who exercise great synergy and a steady hand will be able to best this boss.

# Game Characters

## **Overview**

There are four playable characters: the Punch Knight, the Dragon Sitter, the Tinker, and the Mirror Mage. Each character has an entirely unique play style, with highly varied skill sets and specials. One of our biggest goals in creating the game was to have personable and engaging characters so that the players could pick any character they feel attuned to.

## **Creating a Character**

When we were first creating the characters, we took several factors into account. For one, we wanted to make the game in the fantasy genre, which generally means warriors, monsters, and mages. But we also wanted to venture outside that cliché and make something fun. Drawing inspiration from two games best known for their offbeat characters, *Borderlands* and *Team Fortress 2*, we created a diverse cast of characters in appearance and personality. These factors greatly contributed to developing their play style and vice-versa.

## **Enemies and Monsters**

As referred to above, there are nine types of minions and three bosses. These minions are divided into three categories: bat, whisp, and slime. Within each of these categories are three colors, each of which enemy has varying stats which include health, fire rate, etc. All beginner level enemies start off red and blue, reflecting the red and blue bullets they will respectively shoot. Intermediate enemies are brown and purple, with all brown enemies firing red bullets and all purple ones firing blue. The hard enemies are black and white and fire red and blue bullets respectively. As the game progresses in difficulty, the visual connection between characters fades and the player must learn to recognize different characters and be prepared for their attacks.

# User Interface

## **Overview**

The primary user interface is the character selection screen, in which the players pick their characters in a format similar to that of popular games like *League of Legends* or *Super Smash Bros*. The game canvas interface involves using the two relevant Xbox controllers, one for each player, to navigate the game. When the game ends, the player is shown a screen with their score and then returned to character select, and the loop begins once more.

## **User Interface Detail #1**

Character select is formatted similarly to *League* or *Super Smash Bros.* There are icons available for each character and the players click on a character’s portrait to see an expanded information set from which they can use to make a decision. Once both players have selected a character, the game can begin.

## **User Interface Detail #2**

After the game, the players are presented with a score screen for a few seconds before returning to the title screen. The focus shouldn’t be on the score exactly, but on the achievement, so high score isn’t shown and the focus is on the return to the title screen, and the continuation of the activity.

# Musical Scores and Sound Effects

## **Overview**

We have four pieces of music that we play throughout the game. In addition, we have a set of sound effects that include attacking, enemies being destroyed, and swapping.

## **3D Sound**

We’re not using 3D sound because it wasn’t necessary and sounded on in a 2D environment like we had here.

## **2D Sound**

We have four songs (Character Select, Main Theme, Fantasy, and Evil). The first is self-evident, playing during title and character select. Main Theme plays in Level 1, Fantasy in Level 2, and Main Theme again in Level 3, with Evil during boss fights. Additionally, we have sound effects for picking up coins, swapping roles, powering-up, attacking, and enemies exploding.

## **Sound Design**

Ideally, sound design is going to be working together with visual responsiveness to create an effective system of feedback that enables the player to feel in control and understand what is going on at any given time.

# Multiplayer Game

## **Overview**

Two players share a PC monitor, each on an Xbox controller, and play together to defeat the enemy. The goal is to optimize their cooperative experience.

## **Max Players**

Only two players can play at a time.

## **Customization**

Each player can pick one of four characters, making for eight potential set ups. This allows for diversity of gameplay and experience.

## **Persistence**

No, that would have caused a ton of chaos given the number of enemies shooting and dying and the same thing occurring to the player. We also made the group decision to avoid the sense of progression through repetition. We reward our player through score, skill, and fun, rather than handing them achievements or items to saturate their experience.

## **Saving and Loading**

There is no loading or saving because we felt it was out of scope to cover effectively. Especially as we neared the end of the project, it became quite transparent that that simply wasn’t high enough on the list of priorities to be covered at that time.

# Character Rendering

## **Overview**

Characters are pixel art, animated as a texture on a single face of a 3D object. They are rendered onto a background to make them clearly visible and distinct.

## **Character Rendering Detail #1**

Animations are generally divided between different states and different affinities: for example, the shields for the characters change color when they change affinity and Tinker’s gadgets change color based on which attack mode it is in.

# World Editing

## **Overview**

The world editor is in several parts depending on what you’re trying to change. GUI Manager handles almost all of the HUD and interface, including title screen and character select. The spawn script is responsible for all minion waves and their timings, with Enemy script responsible for their bullet patterns and movement patterns. Lastly, PlayerStats determines the stats for each character.

## **World Editing Detail #1**

GUI Manager monitors modes. For example, if mode is zero, we’re at the title screen. If mode is two, we’re in gameplay. We can use it to determine what icons show up, what the HUD looks like in game, and what numbers and variables are displayed.

## **World Editing Detail #2**

The Spawn and Enemy scripts work together to make the waves work. There are four bullet patterns and 22 movement patterns. Each enemy can pick between the two affinities for what it shoots and there are nine different enemies with varying damages, speeds, and health.