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Project Gunball

A fun, multiplayer gun game

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1. Game Overview

1.1. Game Concept

The concept at the heart of this project is “What if *Psyonix’* hit game, Rocket League, had guns?”. Project Gunball will feature two teams of characters, two goals and one ball. Each character is equipped with weapons that they can use to control the ball’s trajectory. The team at the end of the match with the most scores wins.

1.2. Genre

The game is a Third Person Shooter/Party game that takes inspiration from team-focused games such as Rocket League, Team Fortress 2 and the Splatoon series.

1.3. Target Audience

For our project, we are aiming to have a general appeal that attracts everyone, similar to games such as Fall Guys, Fortnite and Splatoon. We will also add a level of depth and competitiveness to attract a more dedicated player base that will stick to the game and give it longevity (similar to tf2 and cs:go).

In short, we want to create a Third Person Shooter/Party game that has the general appeal of Rocket League crossed with a bit of Team Fortress 2’s competitive depth.

1.4. Game Flow Summary – How does the player move through the game. Both through the framing interface and the game itself.

The menu interface will be a simple one where the players use the arrows and wasd buttons to navigate it. They will be able to go through either the settings or start a new game.

Movement in gunball follows traditional 3D shooter’s movement. Moving with the WASD/Arrow keys and jumping with the space bar. The player will be able to aim and shoot using the mouse and its buttons. The added twist to our game is that, using certain weapons, the player can propel themselves by shooting an explosion on the ground and timing their jumps. This is a technique that will add more depth and practice to the game, as the player will need to time their movement and sacrifice their health to execute the move.

The player also has the option to catch the ball and move with it in their possession. However, they would be unable to shoot with the ball in their hands, making them defenseless and limiting their movement. When a player is eliminated in this state, they immediately drop the ball in place, leaving another player to shoot or steal it again.

While the ball is caught, the player has the option of passing it to a teammate, where it will start homing in on the target once thrown, or throwing away the ball, possibly to score a goal.

A tentative mechanic we are thinking of implementing is a rolling/sliding move as a dodge mechanic, to further expand on the game's movement.

1.5. Look and Feel – What is the basic look and feel of the game? What is the visual style?

We have not chosen a visual style to the game as we wish to make it follow the gameplay. The feel of the game will be a traditional shooter-style game in an arena, but with a more casual and “party” feel to it.

2. Gameplay and Mechanics

2.1. Gameplay

Project Gunball is going to be an arena/level based game where the player chooses a level at the start of the game and completes the level by winning/losing the match. All levels will be unlocked at the start so, aside from completing the levels, there is no traditional progression system in the game.

Levels are structured like a game arena with goals for each team as well as spawn points where the members of each team start the game in and respawn in when they are knocked out. The huge ball will spawn in the middle of the arena to be fair for each team.

The goal for the players is to bring the ball from its starting point all the way to the enemy's goal. To do this, the characters can use their guns to aim and shoot at the ball, which will apply force to it and send it flying in a direction. To accomplish their goal, the player will have to use various movement abilities at their disposal, such as jumping, running, sliding and even rocket jumping.

The optimal gameplan to adopt for each player will highly depend on the character they choose as well as the arena they play in. Each character will have a different default gun that will change the rate, trajection, range and other properties of their shot. They will also have access to different special abilities.

Each arena will have different platform, layout, obstacles and goal positions that will change the way the player has to transport the ball and organize themselves.

All the while, players have to worry about enemies that might try to shoot the ball further away from their goal or even try to shoot and eliminate the player, putting them in a cooldown respawn. The player can return fire and try to eliminate the enemy first, but that will leave the ball defenseless and open for any player to steal. This type of frantic decision making and engaging chaotic gameplay is what you can expect from Project Gunball

2.2. Mechanics

– What are the rules to the game, both implicit and explicit. This is the model of the universe that the game works under. Think of it as a simulation of a world, how do all the pieces interact? This actually can be a very large section.

Physics – How does the physical universe work?
Unless physics-altering special abilities are activated or on-map power-ups are picked up, semi-realistic, predictable physics will be applied.

Movement in the game
The WASD would be used to move forward, left, backwards and right respectively. The spacebar would be used to jump. Mouse1 button (left-click) would be the main attack button, and the Mouse2 button (right-click) would be the alternate attack button. The Mouse3 button (scroll-wheel) would be to use the special ability of your character.

Objects – how to pick them up and move them

To pick up items, just walk over/near said item and within a certain range, the player will automatically pick up the item. If an item is held, to use said item, which is most likely an ability that you have picked up, q would have to be pressed. If the ball was picked up, Mouse1 would be used to throw it far as it has locked your main attack ability and Mouse2 would be used to lob it closer as it has also locked alternate attack.

Actions, including whatever switches and buttons are used, interacting with objects, and what means of communication are used

The game will not be centered around item/map interaction apart from the ball and other players (or AI). Communication will be limited to gameplay.

Combat – If there is combat or even conflict, how is this specifically modeled?

Combat will be modeled around the use of weapons and abilities with the goal of intercepting the ball before it reaches your goal or intercepting it and bringing it to the opponent's goal. Shooting an enemy to kill them and make them drop the ball is possible, or using abilities such as a slow orb to slow the enemy down to put them at a disadvantage.

Economy – What is the economy of the game? How does it work?

Economy will not be part of the game as no item will resemble monetary value.

Screen Flow -- A graphical description of how each screen is related to every other and a description of the purpose of each screen.

The menu page will allow the user to be welcomed to the game and decide to join game(character selection) or exit the game entirely. Character selection will follow the menu page once the user decides to join a game. This can either lead you back to the menu or into the the lobby. The lobby is the screen that follows the character selection. From this point on, there will be no return. It is a waiting area while the game (arena) loads. The arena is the actual game scene where the gameplay is in effect. Once the game is over, the user is lead to the scoreboard (end-game screen). The end-game screen will allow you to view stats at the end of the game and will allow you to either join a new game through character selection, or through the lobby if you want to keep this character. The main menu is also accessible through this screen.

2.3. Game Options

For the settings, we intend to have an option to allow the player to change their aim and camera sensitivity. This will just change the speed at which their crosshair and camera travels when the player moves their mouse. With this option, players will be able to change the parameters of the game to match their preferences and play style.

2.4. Replaying and Saving

Our game will be level-based and will automatically save when a level is completed. When the player finishes a level, he will be brought back to the main menu where he can select another level or replay the same level. There will be no way for the user to save mid game, all the saving will be automatic.

2.5. Cheats and Easter Eggs

References to other media in map skyboxes, eg: Stargate reference in the distance on a desert map.

3. Story, Setting and Character

Our game will focus on the gameplay aspect up front and will have a very minimalistic story. The game worlds are being chosen and designed based on what serves the gameplay most, not the story. As for levels, we will have a variety of arenas where the matches take place. We will focus on the functionality and diversity of the arenas first and the world's design later.

4. Levels

Each level should include a synopsis, the required introductory material (and how it is provided), the objectives, and the details of what happens in the level. Depending on the game, this may include the physical description of the map, the critical path that the player needs to take, and what encounters are important or incidental.

Levels in this game do not have a traditional progression system and goals the player has to complete to progress. Levels are more akin to arenas, where the player is pitted against enemies and have to end the level with more points than the enemy team. Levels will have one of two end conditions: maximum score points reached or time has run out.

Levels will have varying layouts, amount of platforms, amount of players and end condition. We will include an optional tutorial level where the players are introduced to the controls of the game and can practice the game's system by themselves.

5. Interface

5.1. Visual System.

During matches, the player will be able to see their health bar, their current ammo count, the scoreboard and the time counter.

The game is played from a third person "over the head" perspective.

5.2. Control System

Movement

- W = Move Forward
- S = Move Backwards
- A = Strafe Left
- D = Strafe Right
- Space = Jump
- Move in a direction ~> Quickly move in another direction + Jump = Dodge-Slide

Combat

- M1 (armed) = Attack / Fire
- M2 (armed) = Alternate Attack / Melee
- M3 (armed) = Special Ability
- Q = Use Item

Ball Play

- M1 (ball) = Throw / Pass (Straight)
- M2 (ball) = Lob / Pass (Overhead)

5.3. Audio, music, sound effects

As we do not have a professional sound designer in our team, we have opted to use royalty free music and asset sound effects that Unity offers to complete this project. We will aim to use energetic and somewhat whimsical music to portray the level of fun and excitement the game has.

We will also use satisfying sound effects in the game to give the players positive feedback, all while avoiding sound effects that could end up becoming annoying.

5.4. Help System

Project Gunball will have a tutorial level. This level will be short and optional because we do not want to disinterest or force players to do a level they do not wish to do. This tutorial level will include small pointers on how to play the game as well as game mechanics.

6. Artificial Intelligence

6.1. Opponent and Enemy AI – The active opponent that plays against the game player and therefore requires strategic decision making

The main focus of the game is towards being a multiplayer game where two teams fight to score the ball in order to win the game. But if multiplayer cannot be added we will resort to AI, which will act in place of players. There will be both friendly AI and enemy AI which will shoot the team and try to score the ball into the net.

6.2. Non-combat and Friendly Characters

There will be some friendly AI implemented in the game as well, this AI will be very passive without any sort of combat associated with it. They will be there to either aid the terrain or distract players.

6.3. Support AI -- Player and Collision Detection, Pathfinding

The way the AI will work is as follows, they will have a path in which will be randomly generated for them to follow in order to increase the chance to which they can spot the player. Once the player has been spotted the AI mode will switch from pathfinding to pursuit mode meaning they will chase the player and if to say the AI hits the wall they will relocate themselves to center themselves in the path in order to continue either the pathfinding or pursuit of the player.

7. Technical

7.1. Target Hardware

Because of our approach of making a deep game that can be enjoyed by everyone, we will design our game so it can run well even on low settings. The arenas are fairly small and are rarely cluttered, the player count will be below average (between 3 to 5 players per team) and the models and environments will have very minimalistic details.

As for development software tools, the team plans on using Unity as its main development software, but we are open to using more assets if the needs arise.

7.2. Development hardware and software, including Game Engine

The game engine that will be used throughout the project will be Unity. The other software required for development will be a Windows OS, due to the game being available on that Operating System only, as well as certain applications for communication and editing documents: Discord, Google Docs and Github.

As for those interested in playing the game, all they would need is a computer with the Windows OS.

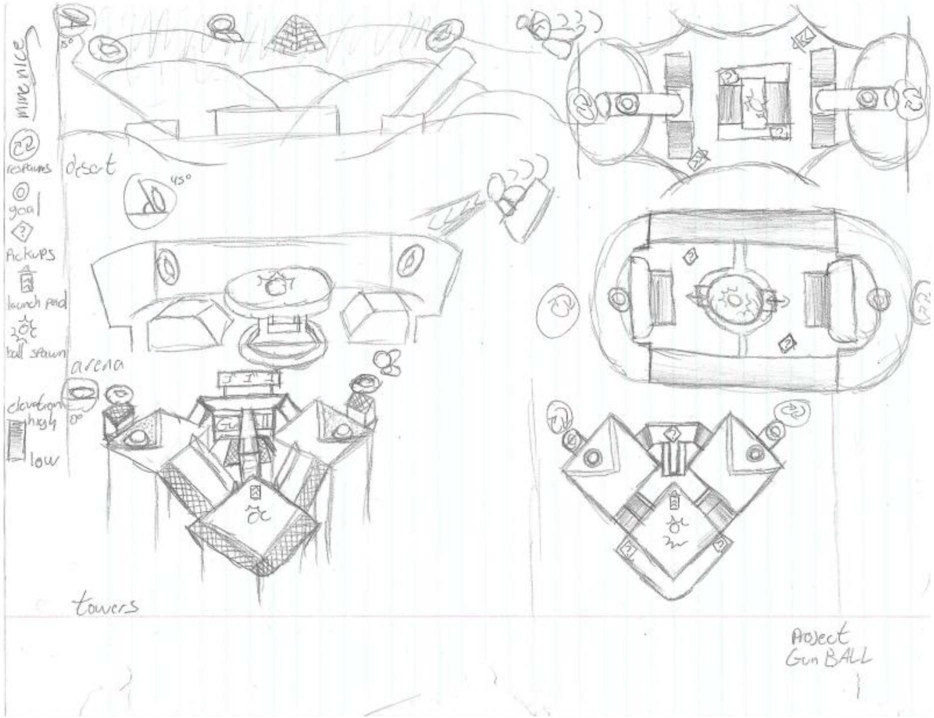
7.3. Network requirements

If the team manages to complete multiplayer, we will need to be able to make our own LAN. Otherwise, the only network requirements are internet connection, whether it be via Wi-Fi or Ethernet.

8. Game Art – Key assets, how they are being developed. Intended style.

As we wish to follow the "fashion follows function" design philosophy, we will refrain from determining a visual style until after the core of play becomes tangible. When the basic gameplay of our project is set in stone, the project's design language will be decided at once, wherence game assets will likely be procured from free online resources. (eg. Sketchfab…)
Game levels will be designed by us, in which we will follow traditional arena shooter mapping philosophy (three lane - two battlements format), then modeled either in-engine or using external tools such as Blender.

(Preliminary arena layout sketch)


mine nice
respawns
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15°
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arena
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towers
Project
Gun BALL