

# Shamballs

## Game Design Document

### Concept:

Shamballs is a 3D, competitive, third person, multiplayer game aimed ages 5+. It has three different game modes. First is time trial mode, this is where a player can attempt to race through a level to get the best possible time. Secondly is race, where players race against each other on premade levels to finish first. The levels are created in a point to point format, there is one start point and one finish point. The second game mode is derby; this is where players will try to push opponents off a premade arena to be the last man standing.

A level editor will be available to create levels for each game mode. This will provide a quick and easy way of creating fun interactive levels.

### Game Mechanics, Rules and Features:

- Players will be able to pick up power ups, which can be used by the player to give them an advantage over the other players. The power ups will be in set locations on the maps'. Once a power up is collected by a player, it will not respawn.
- If a player goes out of bounds, then the player is killed.

Game mode specific:

#### Time Trial:

- If a player is killed, they will be reset back to the track after 2 seconds.

#### Race:

- Each player will spawn in a random pole position. A countdown timer of 3 seconds will countdown the start of the race. When the timer reaches 0, it will say "Go" and the players will be able to move, and race to the finish line or start battling.
- If a player killed, they will be reset back to the track after 2 seconds.

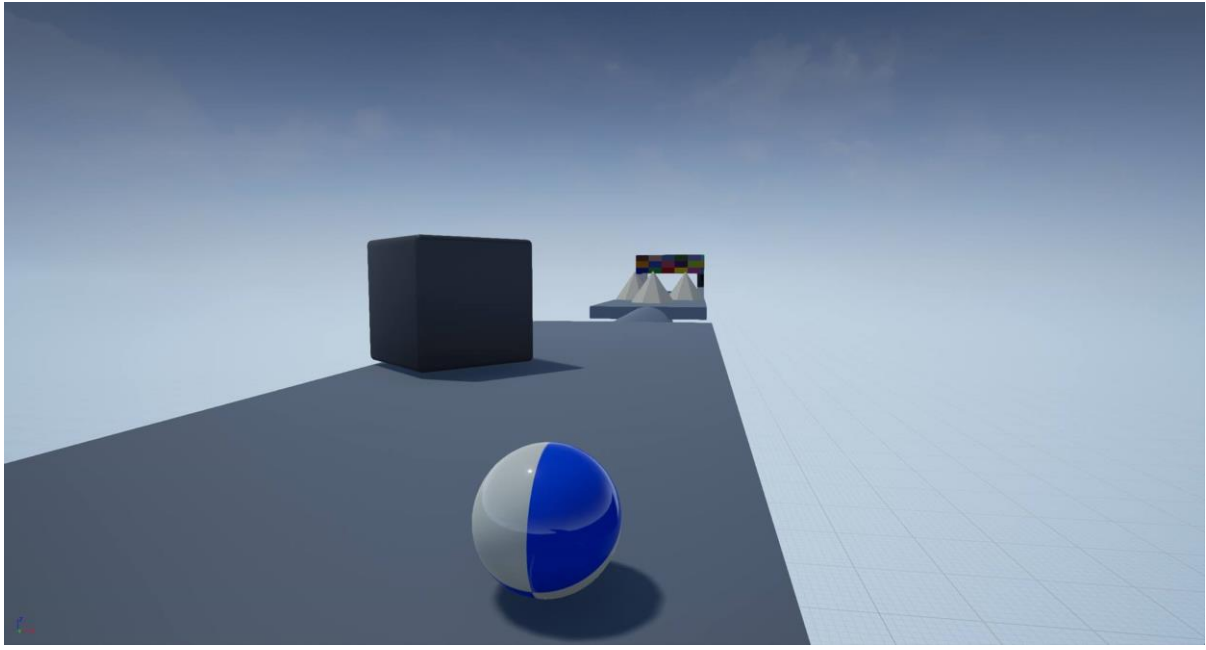
#### Derby:

- Players will be able to collide with each other. This will make each game challenging as they will be able to knock each other off, and get ahead.
- If a player is killed, then they are out and must spectate until there is only one player left.

## Key Algorithms:

- Collision detection (Using PhysX) for the following game elements:
  - Level geometry
  - Player entities
- Physics simulations (Using PhysX) for the follow elements:
  - Player entities
  - Particle systems
- Draw onscreen text (Using DirectWrite):
  - In-game leader board for current game to show player positions.
  - In-game timers/stop watches:
    - Countdown timer
    - Reset timers
    - Start to finish stopwatch
- Menu:
  - Main menu:
    - Time trial
      - Level select
    - Multiplayer
    - Level editor
      - New
      - Load
      - Save
    - Settings
      - Change name
      - Change ball
    - Quit
  - In-Game menu:
    - Resume
    - Reset (Not available in Derby)
    - Return to main menu
- Level editing:
  - File serializing
  - File parsing
- Raknet:
  - Replication

Concept:



Shamballs race in-game concept.

## Control Scheme:

### Gameplay:

#### Keyboard/Mouse:

<b>W:</b>	Moves the player forward.
<b>S:</b>	Moves the player backwards.
<b>A:</b>	Moves the player left.
<b>D:</b>	Moves the player right.
<b>Spacebar:</b>	Makes player jump.
<b>Shift:</b>	Activate power-up.
<b>Mouse movement:</b>	Change camera position.
<b>Escape:</b>	Open menu.

#### Controller(Xbox):

<b>A:</b>	Makes player jump.
<b>B:</b>	Activate power-up.
<b>L-Analog Stick:</b>	Move player – forward, backwards, left, right.
<b>R-Analog Stick:</b>	Change camera position.
<b>Start:</b>	Open menu.

### Menu:

#### Keyboard/Mouse:

<b>MouseLocation:</b>	Select menu item.
<b>LMouseButtonClick:</b>	Press current selection.
<b>Escape:</b>	Open/close menu.

#### Controller(Xbox):

<b>DPADUp/Down:</b>	Cycle vertical button set.
<b>DPADLeft/Right:</b>	Cycle horizontal button set.
<b>A:</b>	Select current selection.
<b>Start:</b>	Open/close menu.

Editor:

Keyboard/Mouse:

<b>W:</b>	Moves the camera forward.
<b>S:</b>	Moves the camera backwards.
<b>A:</b>	Moves the camera left.
<b>D:</b>	Moves the camera right.
<b>Spacebar:</b>	Makes the camera ascend.
<b>Control:</b>	Makes the camera descend.
<b>Shift:</b>	Makes the camera move faster.
<b>Mouse movement:</b>	Rotate camera pitch & yaw.
<b>Escape:</b>	Open menu.
<b>LMouseClicked:</b>	Place current selection.
<b>RMouseClicked:</b>	Remove target.
<b>T:</b>	Toggle snapping.
<b>MouseWheel:</b>	Entity placement distance.
<b>ArrowKey Up/Down:</b>	Change entity sub-type.
<b>ArrowKey Left/Right:</b>	Change entity type.

Xbox:

<b>RAnalogStick:</b>	Rotate camera pitch & yaw.
<b>LAnalogStick:</b>	Move camera forward/backward/strafe left/strafe right.
<b>RightBumper:</b>	Make camera ascend.
<b>LeftBumper:</b>	Make camera descend.
<b>LAnalogPress:</b>	Makes the camera move faster.
<b>Start:</b>	Open menu.
<b>A:</b>	Place current selection.
<b>B:</b>	Remove target.
<b>Y:</b>	Toggle snapping.
<b>LTrigger:</b>	Shorten placement distance.
<b>RTrigger:</b>	Extend placement distance.
<b>DPADLeft/Right:</b>	Change entity type.
<b>DPADUp/Down:</b>	Change entity sub-type.

## Required Assets:

### Textures:

- Player ball
- Opposition ball
- Ground
- Wall
- Power up
- Particles
- Skybox
- Menu

### Audio:

- Movement sound
- Jump sound
- Fall sound
- Impact sound
- Win sound
- Countdown sound
- Backing track music
- Menu press sound
- Menu navigate sound
- Power-up pick-up sound
- Power-up activated sound
- Power-up active sound

## Team Sign-off:

Sean:

*SChambers*

Marc:



Mathew:

*MBielby*