

# UnincrediBall GDD Excerpt

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Below is an excerpt from the GDD my team and I created for our final project at VFS, "UnincrediBall". It outlines the design process the game underwent, especially with reference to our Core Pillars and Mechanics.

### 1) Pillars

#### No Down Time

This is by far the biggest and most important philosophy for UnincrediBall as there is always something for players to do every moment of the game. Players who play UnincrediBall never feel like they are impeded from playing the game while the ball is in play. Therefore to execute on this philosophy there is no death, hard crowd control, or in-game cutscenes. By taking all of these elements out of the game it ensures that players are always able to move wherever they want whenever they want, allowing for a large amount of player freedom and choice. However, to keep combat more interesting there will be knockbacks and forces applied to players.

#### Classes Inform Roles

UnincrediBall features three unique character classes, "Attacker", "Support", and "Tank", with each character having an ability kit that is designed to inform players of the role they play within a team. Internally each class has its own strengths and weaknesses, this comes from each character's statistics that give them a unique play style. For example, characters from the "Tank" class have high resistance, and pack a punch, but they are much slower and require players to anticipate their opponent's moves. Overall, by having these different classes we are able to create an overarching system that allows players to easily learn each character, while at the same time opening up a large amount of dynamics for the player to experiment with.

#### Pitch & Play

As a development team, from the beginning we realized the main outcome of making our project is to learn and use it as a portfolio piece on Pitch & Play night. Taking this into account, we have catered all of our decisions to who will be playing the game this night, and what the atmosphere will be. Through this we came up with several considerations, for example not all of the people playing the game that night will be gamers. We made sure to have as low of a skill floor as possible while maintaining a high skill ceiling for those with more experience playing games. We thus used Pitch & Play as a pillar to greatly help us create a fun and cohesive experience for as many players as possible the night of Pitch & Play.

## 2) Arena Design

The playing field of UnincrediBall is designed to host a 3 v 3 match where not only are players encouraged to play their role while communicating with each other, but are also motivated to learn how to best use their character in any situation. Having inherently fast paced and chaotic gameplay, one of the key considerations kept behind the design of the arena was for it to allow players to visualise their individual as well as team plays, while being intimate enough for players to interact with each other in their wacky and explosive ways at the same time.

### The Capsule Collider

The Capsule Collider, shown below, is specifically designed to host the fast paced gameplay of UnincrediBall. Its elongated shape, with curved sides allows for the ball to always stay in motion.

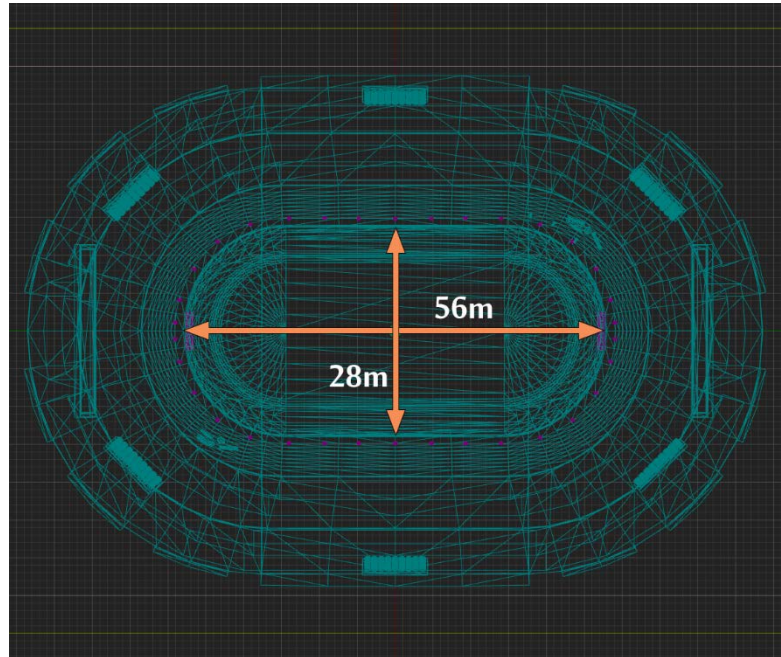


### Design Considerations:

1. The arena is shaped to always keep the players and the ball on the move. An example of this being curved sides which the ball can roll up and down. The playable area is generally kept open to allow for unrestricted player interaction and movement, keeping in midfield line with the “No Down Time” philosophy.
2. The arena is divided in two halves with demarcations for center field as well as each side's goal zone. This gives a good visual representation of Attack (Attacker), Defense (Tank), and Midfield (Support) zones which are also the three hero classes. This allows players to get a sense of where their heroes are positioned best, helping them get used to their characters, following the “Classes Inform Roles” pillar.
3. As the game is highly geared towards “Pitch & Play”, the arena is simple and inviting to each hero's unique abilities encouraging and allowing them to interact and experiment with what they can personally do instead of having to think about other elements.

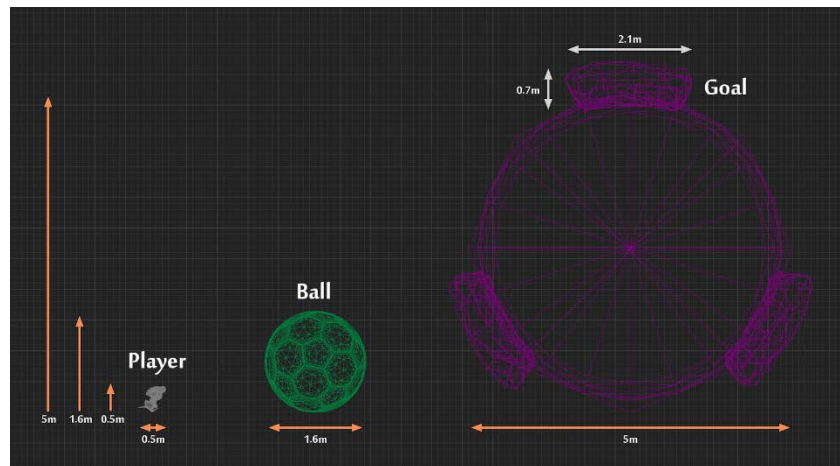
## Scale

The Capsule Collider is moderate in size, allowing for teamwork and communication as well as intimate battles over the ball. It spans 56 meters (length) by 28 meters (width) by 11 meters (height), which is between the size of basketball arenas (which are approximately 29 meters by 15 meters), and football/soccer fields (which are approximately 90 meters by 45 meters). The image below displays the scale of all the objects within the arena compared to the scale of the player.



## Arena Backstory

Shark Mask rips a valley off of the ground and hoists it high above the clouds, which is then bewitched by Storm Bat to float on its own and be surrounded by a shield that keeps players and the ball within. Seating for audience surrounds the arena where many spectators whose lives revolve around enjoying the modern sport of UnincrediBall can be found.



## Day & Night

Matches in The Capsule Collider take place during the night, with a crowded stadium around it to cheer the heroes on.

## Weather

Built on a giant floating rock, the Capsule Collider usually hosts matches when the skies are calm and open in order for everyone to be able to enjoy the match. Peaceful weather not only helps keep the arena steady and smooth, but also ensures that the audience stands are safe and secure.



### 3) Gameplay Mechanics

#### Ball Overview

The ball that the heroes of UnincrediBall play with, is a character in its own right. There is no direct ball control in the game, with the ball being manipulated using an entirely physics based system. Heroes can thus run into the ball and collide with it to move it around. Additionally, they can also use their light, or heavy attacks to interact with the ball in shared as well as unique ways.

#### Scoring Points

The main objective of UnincrediBall is to put the ball in the opponent team's goal to score a point as seen in the image below (1). Each time this is done the scoring team gains one point (2). This simple and conventional method is to allow players to get used to the system right off the bat so that players can focus more on learning and synergizing the character abilities. On scoring the ball, everyone is notified on who scored the goal as the ball position resets to center field amid fanfare and fireworks (3). In the center the ball re-materializes over a couple of seconds allowing players to reset their positions and interact with each other.



## Sudden Death

If the normal time of the game ends with both teams having the same score, the game enters Sudden Death mode (1), where the next team to score a goal wins it all. During this, the timer begins to increment up from zero, showing how long Sudden Death has lasted for, increasing the intensity as time goes on. Additionally, at the 45 second mark during Sudden Death, players are notified that a second ball is incoming (2), which spawns in when the Sudden Death timer reaches the one minute mark (3). The image below displays this process.



## Player Knockback On Touching A Goal

If a Player collides with any goal, they are knocked back towards the center of the field. This has not implication on the score.

## 4) Hero Mechanics

In UnincrediBall, each player chooses one hero from a roster of wacky reject superheroes and uses their set of abilities to win the game, by being the side with the most goals scored. Each hero has some shared abilities such as movement and light attacks, as well as a couple of unique ones that sets them apart and makes them their super self.



## Maneuver through the Arena

The basic way each hero maneuvers around the arena is similar to all heroes. These are as follow:

### Run

Using the *Left Thumbstick (LS)* on an *XBox controller*, or *WASD* on the *keyboard* allows players to run around the field. Each individual hero has their own base run speed which is displayed on the table to the right.

Character Name	Run Speed	Jump Force	Jump Hold Time
Backfire	10500	7000	0.4
BPM	12000	7000	0.3
Bagman	9000	6000	1.1
Sunny	9250	6750	0.7
Big Matt	7500	5250	1
Rubber Girl	8500	6500	0.65

Units in Unreal Units (uu)

### Jump/Pressure Sensitive Jump

Each hero has access to a pressure sensitive jump. Pressing the *A Button (XBox)*, or *Space Bar (Keyboard)* allows the hero to jump, though they are required to be grounded in order to do so with some exceptions. Holding down the respective controls allows heroes to reach and travel even higher with their jump by applying extra force for some time before they reach their capacity. Values for the jump are unique to each hero as can be seen in the table above. The image below displays a normal jump (1) compared to a pressure sensitive jump (2).



## Quick Fall

While in the air, heroes have the ability to perform a Quick Fall (1). Players can do this by pressing the *Left Trigger (XBox)*, or *Left Ctrl Key (Keyboard)* to make their hero quickly propel towards the ground. Additionally upon landing using Quick Fall, a small radial force is projected from the character (2) which knocks all players and the ball away (3). As the name suggests Quick Fall can only be casted by the hero while falling down. The image below displays this ability.



## Control Camera

Players can control the camera using the *Right Thumbstick (RS)* on an *XBox controller*, or the *Mouse* to look around the arena. This allows them to aim their abilities and attacks as well as get a better overview of the state of the field. Each player has a reticle on their HUD which gives feedback as to the direction they are looking in, and where their abilities will be casted towards.

## Taunts

Each hero has their own set of taunts which players can play by pressing *Up, Down, Left, or Right on the D-Pad (XBox)*, or *1, 2, 3, 4 Character Keys (Keyboard)*. This plays out one of the heroes many taunt animations, which can be cancelled any time by the players carrying out another action.

## Hero Abilities

### Overview

Each hero in UnincrediBall has multiple ways of interacting with each other as well as with the ball and the arena, which is shortly mentioned in greater detail per hero in the next couple of sections. Their most basic means of interacting with each other as well as with the ball is their Light Attack. Each hero's Light Attack is similar in that it applies a force to objects it collides with upon pressing the *Right Bumper (XBox)* or the *Left Mouse Button (Keyboard)*, however the animation or way they apply this force is themed differently with respect to each hero. The image below depicts how the Light Attacks of all the Heroes will function with the animation playing as the hero attacks (1) and the impact happening with the feedback if the hit connects (2).



On top of the Light Attack, each hero also has a unique active ability that sets them apart and gives them their reject superhero identity. This is their Heavy Attack, which is a more personalized way of interaction pertaining to the powers of each hero. The Heavy Attack can be cast by pressing the *Right Trigger (XBox)* or the *Right Mouse Button (Keyboard)*. Additionally, each hero also has a unique under the hood passive ability which allows them their own personal advantages on the field. It is an internal aspect of the hero which they excel in compared to the other heroes on the roster. Their passive synergizes with the rest of their abilities and rounds out each hero's personalities and character fantasies.

All these abilities are mentioned below with respect to each of the primary heroes in the game, along with images to help visualise how they work in the game.





## BackFire (Attacker):

BackFire functions as the Assassin in the roster, using his speed and dexterity to impact the playing field. When needed, he can also pack a punch that can propel himself as well as others great distances. His low cooldown quick abilities allow him to react on the fly and smoothly get to places that others cannot. His mobility can help him not just in scoring goals from unique angles, but also in flexibly protecting his own goal by easily accessing hard to reach places, making him not just a threat for the opponent team but at times also a savior for his own.

### Passive: Double Jump

After making his initial jump, BackFire's mobility allows him to press Jump once again to perform a double jump. The jump count is reset once BackFire hits the ground again.

### Light: Lock And Load

On pressing Light Attack, BackFire punches forwards with his two fists, "Lock" and "Load" towards the target reticle, hitting and knocking back the FIRST object on the reticle they collide with that falls within his **Light Attack Distance (2.1 m)**, applying a knockback with **18500 Forward Force** and **3500 Upward Force**. This ability's cooldown is based on the animation.

### Heavy: BackFire Blast (Bottom)

On pressing Heavy Attack, BackFire fires his reverse gun head propelling himself forwards with super speed for **0.7 seconds**, applying **65000 force** to the ball on contact. Any players collided with are slightly displaced. This ability has a **4 second** cooldown.





## Bagman (Support):

Bagman, is the Disruptor on the team. His abilities are geared towards sticking to objects, be they other players or the ball, and stopping them from going where they are intending to head towards. His passive, "News Flies", also allows him to stay in the air for a longer time enabling him to aim and position better for his heavy attack. Bagman's innate skill in going against the system make him a force to be reckoned with on any part of the field, though he shines most at midfield from where he can effect the game in all directions, thus making him one of the most dynamic characters in the game and a definite benefit to have around on your team.

### Passive: News Flies

While in the air, Bagman can press and hold Jump get more air time by gliding. Bagman also naturally has greater air control compared to other heroes. This ability has no cooldown.

### Light: Old Faithful

On pressing Light Attack, Bagman takes out a rotten banana from the bag on his head and swipes it towards the target reticle, hitting and knocking back the FIRST object on the reticle it collides with that falls within his **Light Attack Distance (2.2 m)**, applying a knockback with **15500 Forward Force** and **3500 Upward Force**. This ability's cooldown is based on the animation.

### Heavy: Grappling Gum (Bottom)

On casting his Special Attack, Bagman shoots out a gum on a string that can stick to objects and pull them towards the location of Bagman at the moment of impact with **100000 Force**. This ability has a **7 second** cooldown.





### BPM (Attacker):

The ever present phenomenon, BPM is the sustain that keeps her team always in motion. She can affect the entire playing field from great distances as she spins and shoots high impact record disks which reward her greatly if she can land them. Always moving to the beat of the music pumping through her headphones and hovering around on her hoverboard, BPM is the fastest character on the roster. Challenging to control, BPM's fast paced gameplay make it possible for her to deftly control the entire field at her will and keep the pressure up for her opponents making BPM the lifeforce of her team.

#### Passive: Speed of Sound

BPM is the fastest hero on the field and is thus able to quickly change her position on the fly, making her quite effective across the land. She also has very low ground friction allowing her to weave around opponents and keep her momentum.

#### Light: Headbang

On pressing Light Attack, BPM slams her headphone reinforced head down in front of her towards the target reticle, hitting and knocking back the FIRST object on the reticle it collides with that falls within her *Light Attack Distance (2.0 m)*, applying a knockback with *17000 Forward Force* and *3000 Upward Force*. This ability's cooldown is based on the animation.

#### Heavy: Jockey (Bottom)

On Heavy Attack, BPM spins and shoots out one of her record discs which keeps flying until it collides with a solid object. If the record disc collides with a player or the ball it applies a *36000 force* knockback to that object. However if the disc collides with the ground or the wall it ricochets off of them up to two times, destroying itself on the third hit. This ability has a *6 second* cooldown.







## Sunny (Support):

Ever the bright light on the team, Sunny's main goal in the game is to support her team and create plays for them to capitalise on. Her abilities also allow her to prevent opponents from making successful plays, thus opening up room for her friends to shine even more. Sun-Flower, her Heavy Attack, is pivotal in this regard as its flexibility of affecting every object in the game from a distance makes it crucial for her to use correctly in order to maximise her influence on the field. She can thus set up the ball in optimal spots for her teammates to shove in the goal, as well as disrupt opponents trying to get to the ball. Her abilities allow her to stay back and support, as well as lead the charge making her a highly important member of the team.

### Passive: Extensive Stem

Because of her sunflower Sunny has a very long Light Attack range, allowing her to keep the ball away and interact with it when her Sun-Flower beam is off cooldown. This ability has no cooldown.

### Light: Smell This

On pressing Light Attack, Sunny swipes her giant fake sunflower towards the target reticle, hitting and knocking back the FIRST object on the reticle it collides with that falls within her *Light Attack Distance (3.0 m)*, applying a knockback with *14500 Forward Force* and *4000 Upward Force*. This ability's cooldown is based on the animation.

### Heavy: Sun-Flower (Bottom)

On Heavy Attack, Sunny shoots out a beam *750 units wide* and *1.75 meters long* in front of her for *2 seconds* from her Sunflower. The beam cannot pass through solid objects and continues until it collides with one. Sunny can also freely move and turn while it fires. On colliding with a player or the ball, the beam applies a constant *35000 force* to the object pushing it away from Sunny and blocking their movement input. This ability has a *13 second* cooldown.





### Big Matt (Tank):

Grumpy and grouchy, Big Matt is the personification of the word “Hot Head” on the field. Not the fastest hero in the roster, he makes up for his comparatively slower pace through his abilities and attacks which not only have great zone control but are also highly explosive and impactful. Big Matt is a true bouncer, good at not only keeping players and the ball out of a particular area, but also within it if the need arises. A natural at defending the goal, his ability to protect as well as push forward makes him very useful on the counter attack as well making him an integral part of any team.

#### Passive: You Shall Not Pass

Beefy Big Matt has a lot of raw strength, thus his Light Attacks naturally hit really hard sending anything he hits flying away. This ability has no cooldown.

#### Light: Deep Fry

On pressing Light Attack, Big Matt slashes his huge french fry sword towards the target reticle, hitting and knocking back the FIRST object on the reticle it collides with that falls within his *Light Attack Distance (2.3 m)*, applying a knockback with *21000 Forward Force* and *6000 Upward Force*. This ability’s cooldown is based on the animation.

#### Heavy: Fence Fries (Bottom)

On Heavy Attack, Big Matt summons a giant wall made out of french fries in front of him, blocking objects from going through for *6 seconds*. If a ball collides with this wall, it is knocked away with *6500 force* knockback. Big Matt can move and turn around with this shield up. This ability has a *15 second* cooldown.





## Rubber Girl (Tank):

Always making others bounce up and around, Rubber Girl is impossible to hold down. Her heavy emphasises her strengths even more, as she grows colossally knocking back anyone who comes into contact with her as well as making her Light Attack super charged and long ranged granting her great zone control. Adept at defending her Goal, Rubber Girl is great at positioning herself in her normal form to maximise her giant form's effects, making her importance felt in every corner of the field. Her tactical ability set combined with her bouncy nature thus make her a formidable adversary as well as a sturdy friend for any team to have.

### Passive: Bounce Back

Rubber Girl has rubber bands for armor. Rubber Girl applies a stronger force to the ball upon colliding with it compared to other heroes. This ability has no cooldown.

### Light: Rubber Whip

On pressing Light Attack, Rubber Girl flicks one of her rubbery hair braids towards the target reticle, hitting and knocking back the FIRST object on the reticle it collides with that falls within her *Light Attack Distance (2.4 m)*, applying a knockback with *17000 Forward Force* and *4500 Upward Force*. This ability's cooldown is based on the animation.

### Heavy: The Rubber Giant (Bottom)

On casting her Heavy Attack, Rubber Girl grows as she scales up to *6 times* her size, maintaining that for *4 seconds*, gaining a longer and more powerful Light Attack, as well as a greater knockback force on the ball each time she collides with it. Rubber Girl's movement speed is reduced to *4000* for this duration. This ability has a *10 second* cooldown.

