Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 1

# SPACE GUARDIANS

## INDEX

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 2

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | **3**

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | **4**

## INTRODUCTION

This paper is designed to be a comprehensive overview of the Space Guardians project. The document will describe the game to offer a complete view of how we expect the game to look in its final state and the systems it will utilise including use cases.

As this is a development paper some of the proposed ideas contained herein may be subject to change, overhauled or completely removed from the final project as required. This document simply acts as a concept document from which we will base our development milestones.

The Space Guardians project was developed in Unity 3D, written in C# and implements various artwork and assets from independent and in-house artists.

The Space Guardians concept was drafted by John K Marcos and later realized and implemented by its sole-developer and games designer, Gareth James. The lore and characters are the work of Mark Gonzales and Alaine Salas. The artwork and animations are provided by Thanh Bui, visual effects by Gabriel Aguiar, and 3D models provided by Kervin Marcos.

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Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | **5**

# SPACE GUARDIANS OVERVIEW

Space Guardians was originally designed to be a vertical scrolling shooter like many you've seen before like Everwing, Galaxy Attack, and Star Defender however after much deliberation we decided to re-think our design.  We agreed that adding other elements to the game such as an inventory system, multiple control types, and I think more prominently, changing the top down camera angle, we coined the term "hybrid space shooter" to describe our game.

Space Guardians implements some of the most popular elements from a range of game genres with the aim of being a strategic, skill-based space shooter with combined RPG, MOBA, and ARCADE elements.

Space Guardians is designed primarily for mobile devices and tablets however there will also be desktop (pc/laptop) and console versions (Xbox / Playstation / Nintendo) and the games multiplayer services is cross-platform compatible.

## CONTROLS

The controls systems are inherited from the typical first and third person shooter titles you might be familiar with such as Call of Duty, Apex Legends, and Fortnite.  To make these suitable for our game we locked the Y axis so that the game is played on the XZ axis.  You use the on screen controls for mobile devices / tablets to manoeuvre around the world, or the mouse + keyboard / gamepad for the desktop and consoles.

## CAMERAS

The camera system consists of 2 cameras. The main camera which follows the player situated slightly behind and above the player (0,60,-20) at present. The second camera is the GUI camera which is persistent and handles the preview of the GUI overlay and the menu system. There may be a third added to handle the cutscenes / in-game enemy communications, event graphics, alerts + adverts (if implemented).

## BACKGROUND

The game background uses a combination of animated 3D assets, skybox, and particle systems.  The player will have the option of disabling certain elements of the background such as the particle systems and post processing effects such as bloom, for those suffering graphical issues like frame drops / stuttering.

Animated graphical events occur from time to time in the game, such as the arrival of a galactic destroyer vessel (which can't be attacked). This helps add another layer of visual depth to the game. Similar events or moments in the game such as approaching planets, boss incoming alerts and warping will use this same background.

## SOUND

There are 3 main types of sound in Space Guardians.

## AMBIENCE
Ambient sounds will be used to set the tone of the scene giving the player a more immersive experience.

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | **6**

TRIGGERED

Triggered sounds are based on location. They are used to emphasize what's happening in that zone. For example, entering a colder zone or a volcanic zone would trigger sounds like explosions, solar winds, or the formation of ice on glass.

ACTIVE

Sounds like weapons, spaceship thrusters, damage taken etc will be the most common source of sound and are an example of active sounds. Triggered when the player actively does something or receives interaction from other entities or objects in the world.

SOUNDTRACKS

Space Guardians has a selection of soundtracks from different genres. Ready for the Friday feeling? Drop the channel on your space radio to our Electronic Dance Music station. Wanna blow things to bits while embracing serenity? Flick that channel over to our Euphoria channel. More of a metal head and feel like bending some steel while bending your ear to some sweet licks and riffs? Tune in to our Metal Head station and turn that baby up to **11**!

The radio system will host a list of tracks that will change based on events that happen in real time within the game. If we're about to encounter a boss, you should expect the track to pick up a whole lot. Set the mood and wreck that dude.

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | **7**

# GAME MODES

## WORLDS

Worlds in Space Guardians are our way of separating the skill range of our players.  Like systems in many MOBAs to date, the idea of our worlds is to separate our BRONZE players from our DIAMONDS.  Although we don't currently plan to adopt the (Bronze, Silver, Gold, Platinum, Diamond) systems that many people may be familiar with, we will have similar systems in the form of WORLDS and SECTORS.  Perhaps we'll stick with the colour system itself but would like to step away from the typical MOBA naming convention.

Each world will follow a tier structure of its own called a SECTOR, representing each division as they would be known in a MOBA like league of legends.  Division 4, 3, 2, 1; all would follow a similar "promotion" system.  Once you're ready for promotion your next 3 matches will be monitored. Win 2 of 3 to be promoted to the next division (or Sector as we will call it in Space Guardians).  Sector 1 qualifiers will play 5 games, 3 wins and you're off to the next planet to challenge those suckers to the death!

Worlds and Sectors are used in PvP modes only.

## TERRITORY

Territory is another system that we hope to bring to Space Guardians.   Territory will be set regions of space within the Defverse (The Universe) that will be controlled by a specific Country, Guild or Faction.  Competitivity is what will drive our game and what better way to do that than to have your Country, Guild or Faction hold territory if for nothing more than bragging rights, right?  There may be further benefits of territorial control including tax rates, extra monetary reward or unique NFTs to celebrate your victories!  Likely related to Clan vs Clan battles.

## HIGH SCORE

High Score game mode is how Space Guardians was initially designed.   A simple vertical shooter with the ability to "peow peow" your way to the top of the leader boards and bag yourself some digital goodies and some token.   Of course, this is the bread and butter of the game however there will be far more to do inside the game than just hold that top spot.  This is just the system that will populate our leader boards and determine our Galactic Captains from our wannabe Space Cadets.

## LEAGUES

The league system is separated into several divisions.  The league that the player is placed into will be determined by the global position that player holds in the total PvE rankings.  Only players that have played a minimum of 20 games and that have attained a minimum profile rank (to be determined) will be allocated a league division placement.

Players in the top 40% of the global league will be eligible for rewards based on the allocated league prize pool, of which, those who are higher in the league will receive better rewards.   This resets every season.  Every season will last 8 weeks with a 2-week preparation period for the following season.  Rewards earned will be paid once the appropriate anti-cheat and account checks have been made to ensure no foul play.

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 8

If we detect cheaters or a breach of terms occurs while playing our game such as intentional manipulation of files and data, the player will have their NFTs marked VOID. This will be reflected on all secondary marketplaces using a void flag which indicates that those NFTs will be restricted from being used to access ANY rewards systems within DEFVERSE including leagues, lotteries, tournaments, PFR events etc. All utility within the game will also be forfeited. The only value the card will retain is its aesthetic / collectorship value.

STORY MODE

Story mode is another planned integration into the game however it is likely going to be implemented a little later in the development pipeline, estimated 9-12 months or more. We aim to prioritise the high scores system before we add any meaty story driven content. This will likely come in a later update accompanied by other RPG elements.

ARENA (PvP)

Arena PvP will be added in the earlier stages of the project. Allowing players to 1 vs 1 each other or even battle each other Clan vs Clan. A ranked system will be implemented alongside this update where rewards will be offered for top performers.

SURVIVAL

Survival mode pits our space-fighting hero against endless hordes of enemy minions that grow in strength over time. Strategically position and fortify yourself. Scour and salvage what you can from the surrounding area by collecting important power ups, collect space canisters, and retrieve vital maintenance parts. Restore essential base defence systems to help you fend off the hordes for as long as you can. You are the last defence against the alien forces, your fate is sealed. Death is certain. How long can you survive as the last of the colony you protect are evacuated. Save as many as you can. Die with honour. Your name shall be carved in history by those whom you saved as you valiantly fight with every breath.

*Game mode suggested by community member: **Absalom** (Defverse Discord). Designed by Gareth James. Thank you for your suggestion, Absalom.*

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | **9**

## MONETIZATION AND PAYMENT SYSTEMS

The payments system will be integrated into the Defverse Platform eventually but in the early days players will either pay by card using services like Stripe, Paypal, GCash and CashApp or using Crypto Wallets managed through platforms like Binance, Coinbase and more.

FIAT CURRENCY USE

FIAT currency will be used for more of the RPG elements of the game (that will be added a later date), purchase of some in-game vanity purchases, in-game currency options for those who do not have crypto assets and probably the most common reason; to buy the Battle Pass.   The Battle Pass will be a bi-monthly purchase where you can earn a set of assets that are given based on achieved milestones.  There will also be items unique to the seasonal battle passes and they will also be "game specific".  This means that the assets, icons, auras, titles etc will be for use within the Space Guardians title ONLY.  Different to that of those purchased from our Collectors NFTs which may have use in other games hosted within Defverse.

CRYPTO CURRENCY USE

Cryptocurrency, namely the BUSD, BNB and DVERSE tokens will be used to purchase our cards primarily but may also be used to pay for services within the game and platform such a Guild/Clan specific functionality, scholarship management, upgrades, fusion and more.

IN-GAME CURRENCY USE

There will also be an in-game currency specific to game you're playing.  Space Guardians will use this system as a way of handling progression rewards within Story Mode.   This currency will be used to buy temporary boosts, ship modifications (in the Story Mode only) and other benefits.  These boosts / upgrades are NOT transferable to the other modes of the game.

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 10

## NFT INTEGRATION

The various NFT types that we use within Space Guardians will be detected via the owner's wallet address.  This wallet must be synced with an account held on Defverse which will likely have to include a valid GMAIL address or Facebook account link.  The requirement of 2 Factor Authentication to access our Play For Rewards system may also be implemented.  (To be decided)

**PLATFORM NFT**

*Main utility is the ability to **PLAY FOR REWARD** and grants monetary reward from tournaments, leader board placement and lottery entries.*

- Level of card defines the amount of reward you gain from the rewards pool (20% per star up to a maximum of 100% - 5-star Founders cards)

**SPACESHIP NFT**

*Related to BASE ship stats, resistances, weaknesses (will have the biggest single impact on in-game strength).  Will also include a varied number of slots for weapons and utility NFTs.*  Faction specific bonuses when paired with other faction-based cards like character cards, utility cards collectors' cards and more.

Factional differences may determine variations of ship stats.  For example, khover may have 60% ship HP and 40% shields VS fairy which may have 30% ship HP and 70% shields as standard.

**EXAMPLE**
Base stats will have a **20% random range modifier** between the minimum/maximum amount of BASE HP (Hull) and SHIELD values that can be attained on any SHIP card which is generated upon creation of the NFT after purchase.

For example:

Let's say we discover a Khover Ship which has a 60/40 - HP/Shield base ratio.   Stats would look something like this.

**Based on a 1 Star Ship NFT with a 1,000 point base and a 20% random draw bonus range**

| CARD RARITY | SHIP HP | SHIP SHIELDS | RARITY BASE BONUS % | MIN/MAX STAT POINT POTENTIAL |
|---|---|---|---|---|
| 1 STAR | 600 – 720 | 400 – 480 | NONE | 1000 – 1200 |
| 2 STARS | 750 – 900 | 500 – 600 | + 25% | 1250 – 1500 |
| 3 STARS | 900 – 1080 | 600 – 720 | + 50% | 1500 – 1800 |
| 4 STARS | 1200 – 1440 | 800 – 960 | + 100% | 2000 – 2400 |
| 5 STARS | 1500 - 1800 | 1200 – 1440 | + 125% | 2250 - 2700 |

Random resistances stats, example:

- 1 random resistance stat @ 5-10% dmg reduction

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 11

- 1 improved resistance stat @ 10-15% **AND** 1 elemental **weakness** stat 10-5% (1 star-5 star respectively)

There will be a different number of weapon slots on the card according to its star level.  These slots allow you to equip custom weapons which can be found by buying our Weapon NFTs.

| CARD RARITY | NUMBER OF WEAPON SLOTS | NUMBER OF UTILITY SLOTS |
|---|---|---|
| 1 STAR | 2 Slots | 1 Slot |
| 2 STARS | 2-3 Slots | 2 Slots |
| 3 STARS | 3-4 Slots | 2-3 Slots |
| 4 STARS | 4-5 Slots | 3 Slots |
| 5 STARS | 4-5 Slots | 3-4 Slots |

The spaceship base stats are not fully achieved until you reach level 100 on that specific NFT which can only be levelled within the game.   Each type of NFT and its progression are independent of one another meaning the character NFT you equip, the spaceship NFT you use, and the weapon and utility NFTs are all subject to individual levels of experience.   You gain experience by playing the game and using the materials that drop from the enemies to level up the ship.   The maximum level is 100 for ALL NFTs.

**WEAPONS NFT**

*The weapons NFT can be levelled within the game by collecting upgrade materials that drop from the mobs in the game.   The number of weapons you can equip is defined by the number of mount points on your ship which can be found on the spaceship NFT.   If you're using the default (Free to Play) ship then this will be 2 weapon slots and 1 utility slot.*

The upgrade system and materials required to upgrade are as follows:

| UPGRADE LEVEL | STAR RARITY REQUIRED | RESOURCE RARITY | CRAFTED PARTS REQUIRED | EVOLUTION CRYSTAL TIER |
|---|---|---|---|---|
| 1 – 20 | 1 STAR | COMMON | NO | TIER 1 |
| 21 – 40 | 1 STAR | UNCOMMON | YES | TIER 1 |
| 41 – 60 | 1 STAR | RARE | YES | TIER 2 |
| 61 – 80 | 2-3 STAR | EPIC | YES | TIER 3 |
| 81 – 100 | 4-5 STAR | LEGENDARY | YES | TIER 4 |

*There are a variety of different weapon types with several different elemental affinities.   Weapon types are listed below:*

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 12

- Auto-Cannons
- Blasters
- Plasma / Pulse Turrets
- Rail Guns
- Rocket Launchers
- Micro Missile Systems
- Beam Weapons
- Lasers

Weapons will require an available Weapon Slot on your Spaceship and enough power to based on your ships Core Power stat to be able to power it.   The power requirement will be indicated on the Weapons NFT along with various other stats such as damage type, fire mode, fire rate, damage, crit chance, crit damage modifier and more.

## UTILITY NFT

*More focused on perks and upgrades to your ships and its arsenal including damage and defence modifiers including:*

- Shield Regeneration (+SHIELD RECOVERY)
- Shield Strength (+MAX SHIELD)
- Hull Hardeners (+DEFENCE and +HP)
- Repair Kits (+HP Recovery (Hull))
- Ship Speed (Ship Agility + Boosts)
- Bullet Modifiers (+DMG and Elemental Attributes)
- Shield Modifiers (+DEF and Elemental Attributes)
- Companions (Looters, CC, Last Stand, Luck Rates, Exp Boosters)

## COLLECTORS NFT

*Specifically vanity related rewards in game and on the platform including:*

- Titles
- Auras
- Icons
- Emblems
- Accolades / Badges
- Themes (Borders, Frames, Fonts and more)
- Vanity Items

## CHAMPION NFT

*Cannot be purchased.  These are rewards given to our tournament winners, lottery winners and those who dominate the leader boards each season.  Rewards include:*

- Champion Titles
- Champion Auras

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | **13**

- PvP Accolades
- Vanity Items
- Uniquely Identifiable Avatars and other cosmetic goodies
- Merchandise Discounts + Freebies

# IMPLEMENTATION OF PLAY FOR REWARDS SYSTEM

## LEAGUES AND LEADER BOARDS

Each season of Space Guardians (as dictated by the Battle Pass release dates) will last approximately 60 days.   Our aim is to release the Battle Pass at the same time we release the next edition of our Character NFTs.   When the new season begins, all leader boards will be reset and the tier of your world for the new season will be dependent upon the results of your previous seasons standing.

In Space Guardians the PvE system hosts several leagues, and each league has its own leader board. The league you are assigned is dependent upon your performance in the previous season.  Each league will match large groups of players with similar skills calculated from high score data.  If a player is recognised as an exceptional player within his current league, they may be offered promotion into the next league.  The incentive to join a higher league is a better prize pool.  Scores will not be carried over and you cannot be promoted to another league if there are less than 7 days remaining in the current season.

PvP in Space Guardians has a slightly different system.  A series of qualifying matches will be played and the results taken into consideration when placing a player into a specific world and sector.  Each world contains 4 sectors which act as divisions that you must climb before you can attempt qualification into another world.  You may be assigned to another world upon beginning a new season based upon your success rate in the last season.  We will take great care in assignment of these positions to ensure people don't intentionally try to manipulate the league they start in. Intentional stat manipulation may lead to permanent disqualification from all future Play-For-Reward systems.

## TOURNAMENTS

The tournament system will be one of the core rewards systems within Space Guardians and is available for ANY investor who owns a character NFT.  Tournaments will be held monthly initially but may be more frequent as popularity increases.  The rewards gained from tournaments will include a variety of monetary and vanity rewards.

Tournament registration will be activated via the in-game menu and will begin at the advertised time.  Participants will be prompted to enter the tournament lobby where they will then be placed into a recorded session, and they will begin their challenge. Scores, game data, video, and screenshots will be sent to the server for verification and anti-cheat checks, and upon validation, be recorded in the tournament charts.

The top 8 players from the tournament leader board will be placed into a "Single Elimination Tournament" where they will be randomly selected to play against each other 1 vs 1 through Quarter Finals, Semi Final and eventually The Grand Final. The winner will be crowned champion, but rewards may be staggered across the top 'x' number of positions.

**EXAMPLE**

500 people register for tournament. TOP 8 in leader board progress to play-offs. Reward pool of $1000 BUSD. 8 prizes will be awarded as follows:

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 14

**Prize Allocation**

**WINNER:** 40% $400

**RUNNER UP (2nd place):** 20% $200

**SEMI FINALISTS (3rd + 4th place):** 10% each $200 ($100 each)

**QUARTER FINALISTS (5th- 8th place):** 5% each $200 ($50 each)

Space Guardians also taps into the Defverse platforms lottery system.  Although it is not specifically designed for this game, it's important to point out that having a Character NFT will automatically enter you into the monthly lotteries and even the millionaire lottery which occurs every 90 days* for 4 star and Founders Edition Character NFT card holders.

TRIGGERS EVENTS (Fundraisers)

Throughout the year there may be other opportunities to gain rewards through what we call "Triggered Events" or what other people may refer to as fundraisers.  These events are specifically designed to raise funds for various causes such as charities, disaster relief and other one-time events where we will host tournaments, mini leagues, king of the hill, last man standing and a variety of other mini events to help raise funds for these causes.   These will be optional, will NOT require a Character NFT to participate in however you will be required to donate to participate in the event.

SEASONAL EVENTS

Seasonal events will also be another system which will have a unique set of rewards and collectibles up for grabs related to the season we're in.  Halloween, Christmas, and Easter being just a couple of common examples.

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e  | 15

# GAME PLAY

ENEMY, AMMUNITION AND ELEMENTAL TYPES

Space Guardians has several enemy types, ammunition types, and elemental affinities typically found in RPG games.  These include but are not limited to:

**Enemy Types**

- **Minions**
  Typical trash mobs.  Cannon-fodder
- **Elites**
  More tanked-up versions of the trash mob - with a little attitude
- **Mini Bosses**
  The first real strategic mob in the game with multiple mechanics
- **Bosses**
  These guys are the real deal.  Multiple advanced mechanics, one-shot abilities, downing a boss should be considered a "big deal" – victory won't come easy
- **The Undefeatable**
  These entities cannot be destroyed / beaten.  These will include enemies like Galactic Destroyer Ships, Super Carriers (alien transport ships), Planetary Weapons, Space Clouds, Wormholes / Blackholes and more

**Weapons by Ammunition Type**

Ammo type does not modify the damage of the projectile.  Ammo type simply determines what ammunition must be purchased/crafted to use weapons that do not have unlimited ammo supplies.

- **Kinetic**
  Railguns and cannons
- **Energy**
  Blasters, Plasma, and beam weapons
- **Explosive**
  Rocket and grenade launchers
- **Magnetic**
  Ion, EMP, and Lasers

**Elemental / Damage Types**

Elemental type affects the damage of the projectile.

- **Fire**
  Damage over time and system impairment
- **Ice**
  Slows and freezes
- **Earth**
  Crushing damage (may permanently damage hull hp?), system incapacity, screen shake?

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 16

- **Storm**
  System disables and impairment
- **Acid**
  Weak against shields, significant damage on hull
- **Void**
  No weaknesses, can phase momentarily to prevent ALL damage
- **Dark**
  Various conditional effects, uses the same system as light, moments of extreme power followed by moments of significant weakness especially against Light.
- **Light**
  Blinds, stuns and disables systems.  Same systems as dark, moments of extreme power followed by moments of significant weakness especially against Dark

## WAVES vs ZONES

Space Guardians implements two types of spawn systems within the game.  Waves and zones.  Waves are what you would typically expect from an arcade style vertical shooter, where zones are adopted from the RPG genre.  When you start the game there will be very clear zones that have entities grouped based upon their power level.  Using these systems allows the player to strategically approach each zone when they feel ready to challenge it based upon their strength, weapons, and elemental affinity.

Waves will be spawned at various intervals, and they will increase in difficulty over time throughout the game.  Waves are specifically implemented to ensure the player does not idle for too long and enforces a need to progress consistently to avoid becoming overwhelmed and outgunned vs standard mobs.

## FACTIONAL WAR ZONES

Throughout Defverse factional wars rage between the NPC races.  You will occasionally encounter these events which will have a very influential effect on the game.  Flying the wrong kind of ship, sporting the wrong colours, even using signature weapons recognised by the warring factions will attract negative attention and you could find yourself in a world of trouble if you attract the attention of an enemy armada.

## DYNAMIC EVENTS

To add further depth and variety to Space Guardians you will likely become familiar with several dynamic events that will occur randomly as you play.   These are not hardcoded in the AI and will be spawned completely at random.  You could find yourself surrounded by a fleet of unknown enemy.  Wormholes may appear that will whisk you off to an alternate universe temporarily.  Blackholes that aim to suck you into an abyss of the unknown likely causing an unpleasant and instantaneous death.  These are but a few examples.

## TIMED EVENTS

Timed events will vary in form but will generally exist to facilitate events like galactic scale battles, large factional boss fights and events.  Seasonal and fundraising activities are another likely use for these events.

## POWER UPS

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 17

Space Guardians has 2 types of power up systems.  The first, the Utility NFT card system which will offer several bonuses which are applied upon selecting them in your inventory before you begin a session or start a new game.  These power ups are persistent for as long as you have it selected on the pre-screen and require the card to remain in your wallet for the entire session.  It's important to note that any NFT used to grant bonuses within the game CANNOT be traded for 24 hours after the use of it has been concluded.   Using a SHIP, UTILITY or COSMETIC (Collectors Cards) NFT will lock that card for 24 hours to prevent swapping abuse between accounts.

The second power up system are simply temporary, short-term bonuses that are gained while playing which will drop from enemies or be emitted from a static source within the game session to allow you to coordinate your attacks and strategically plan the next step of your battle plan.

WEAPON SELECT + IN-PLAY BONUSES

During gameplay there will be several types of buffs, bonuses and weapon swap tokens which can be collected / earned while fighting.   These buffs are temporary and for that session only.  A very important mechanic, our **Weapon Token** mechanic will randomly choose a card from the weapon NFTs you own and the crafted items you have in your weapon pool.  There will be a minimum of 10 weapons in the pool and when you pick up the token in space one of these weapons will be randomly granted to the player.  The player will then have to choose a weapon slot from the pop-up display and the weapon will begin to fire.   These drops may be permanent or time limited power ups.

If the player does not own the minimum number of weapons to be pooled, crafted or NFT owned (recommended minimum of 10), then the game will automatically populate the empty slots with various random weapons.  These weapons will be significantly less effective than their crafted/NFT counterparts.  The player may use perishable items gained through the battle pass, store, and other events to re-roll the random weapon offered.  This will be limited to 1-3 attempts per WEAPON SELECT bonus box drop.

ULTIMATE ABILITIES

There will come a time when your standard weapons just won't cut it.  Damage checks which require huge bursts of damage to pass a specific wipe mechanism may need more than just the arsenal you have equipped at that time.  Ultimate abilities will be introduced to handle these situations.  These abilities will be on significant cooldown timers and will likely be used only once or twice per game.  Varying in utility and damage type, it will be at the discretion of the player where and when to utilize these attacks and will very likely be "make or break" when they are eventually brought into play.

SHIP EVOLUTION

The evolution stage is a parameter that determines what bonuses the ship receives.   Evolution stage will be determined by various factors.   Maximum evolution stage is determined by the rarity of the SPACESHIP NFT used in PFR (Play-For-Rewards) mode.

- COMMON – Maximum Evolution Stage:          STAGE 1
- UNCOMMON – Maximum Evolution Stage:      STAGE 2
- RARE – Maximum Evolution Stage:              STAGE 3
- LEGENDARY – Maximum Evolution Stage:      STAGE 4

Evolution may be triggered in some of the following ways:

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | **18**

EVOLUTION TRIGGER EXAMPLES

- Player survives long periods of time in combat without sustaining significant damage
- Player collects power ups that spawn during gameplay
- Completing randomly generated tasks during gameplay, examples may include:
  - RAMPAGE – Kill 'x' number of enemies within a certain time limit
  - ASSASINATION – Kill a specified enemy within a time limit
  - COORDINATED CARNAGE – Kill the following enemies in order
  - EVASIVE MANUOEVRES – Take ZERO damage over the next 'x' number of seconds

Evolution bonuses are lost (or decrease substantially) after taking heavy damage

EVOLUTION BONUS EXAMPLES

- EVOLUTION STAGE 1 – Slight glow.  +25% damage, hp, shields and resistances
- EVOLUTION STAGE 2 – Moderate glow.  +50% damage, hp, shields and resistances
- EVOLUTION STAGE 3 – Prominent multicolour glow.  +75% damage, hp, shields and resistances
- EVOLUTION STAGE 4 – Super prominent glow and sparkles.  +100% damage, hp, shields and resistances

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 19

# SOCIAL SYSTEMS

## GUILD AND CLANS

Space Guardians has its own type of social community systems aside from the guild system that is offered within the Defverse platform. Guilds act as the global social grouping system where users can share their achievements, trophies, and progression of all games within the Defverse. Users will also be able to show off their collection of NFTs, manage their scholarships and so much more.

Space Guardians implements a clan system where players can recruit likeminded friends to battle off against other clans within the Space Guardians game itself. Any tournaments that occur within the Space Guardians game will recognise clan affiliation and there will be awards and rewards based upon completion and victory within them.

## COMPETITIVE GAME MODES

There are several competitive modes that are available in Space Guardians that will be used to indicate supremacy among clans, some examples of which include:

- Tournaments
  Clan vs clan and 1 vs 1 tournaments that will separate the strong from the weak.
- King of the Hill
  Clans will compete against several other clans to maintain dominance over an objective during the game. The clan who holds the objective at the end of the game takes the victory.
- Last Man Standing
  Multiple clans enter the same game with the aim of being the last man standing. Choose to defend 1 player, play stealthy and rat out the last spot by watching the other clans destroy each other, or show clear dominance and go all-out attack to claim victory.
- One True Hero
  The stats of the clan are given to one individual to represent their clan in the ultimate battle. Battles may be formed on a 1-vs-1 basis or in a Free-For-All style showdown where multiple clans battle off their finest champions empowered by their clan strength to prove their might in battle and claim dominion over all other clans. This mode may be instrumental in the territory control implementation which will be added to the game later.

## SQUADS (E-Sports)

Space Guardians offers the ability for players to unite and form competitive squads. Squads will be able to challenge each other in arena style events. Space Guardians does not restrict itself to the traditional player vs player arena style but also includes NPC battles and objectives to add another layer of content to this exciting game mode.

## SCHOLARSHIPS

One of the most anticipated systems in the Space Guardians game is our scholarship system. Scholarships will be game-specific and therefore are initially handled within the game that you wish to recruit a scholar. Managers and scholars will be able to source each other from within the game menus. Managers specifically will be able to check out leader boards and apply to each prospective scholar directly from the interface for a small fee.

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 20

Once a scholar and manager have been paired, they will be presented with a screen that dictates the contract terms and expectations.  This will be super simplified to encapsulate basic expectations and rewards.  The scholar and the manager will decide the term of the agreement, the compensation (split), and the base requirements such as daily activity.  The pay-out of any rewards earned by the scholar will be automatically paid to the respective parties based upon the agreed terms.  There will be a small fee to facilitate this service and will be taken equally from the scholar and the manager.

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 21

# RPG ELEMENTS

Later in the development timeline, Space Guardians will implement more and more elements that would typically be found in an RPG (Role Playing Game).  These elements will heavily support the development of the Story Mode where we hope to really work on our lore and give our players a chance to immerse themselves in the world of Neko Sekai and understand their role in the defence of it.  Some of the systems are self-explanatory.  Listed below are some of the example systems and their use case in Space Guardians.

EXPERIENCE

Typically, the system that will reflect the progression of a player in this game mode.  As players progress though the story they'll unlock abilities, weapons, and other systems that will help determine the speed at which the player will continue to progress, and which will control the pace of the story.

LOOT

As expected in a typical RPG the loot system will be the core source of income alongside the quest/mission systems.  Loot dropped within the game will be used specifically for the Story Mode version however there may be some events where the collection of a set of items, shards or other objects will be used to facilitate a free NFT giveaway or something similar.

COMPANIONS

Companions will be used across ALL game modes and will be essentially power-ups to your ship that you can attain with in-game currency, Collectors Editions NFT cards or from systems such as the Battle Pass.   Companions will offer a variety of bonuses / buffs that will be highly sought after.

NON NFT RELATED COLLECTIBLES (In-Game Collections)

It's important to note that the companions and collection rewards that are awarded in-game will not have equal stats to those gained through Collectors Editions NFT cards.  These cards will have their own stats and may be traded.  Buffs, companions, promotional items earned in game cannot be traded or transferred.  This is to help maintain value for our Collector's Edition NFT holders.

TROPHIES AND TITLES

There will be a variety of trophies and titles awarded from different game modes within Space Guardians.  These will be usable in all game modes to represent achievements made in the various game modes and may include specific bonuses for wearing such titles or having earned specific trophies.

FACTIONAL REPUTATION SYSTEMS

This system will likely be implemented specifically in Story Mode.   This will be used as a progression parameter and likely have some sort of Story Mode rewards system attached to it relating to vanity items such as skins, sounds, titles, and trophies.

MISSIONS

What is an RPG system without missions?   As you would expect, there will be a story driven by the mission system.  This will narrate the story essentially and introduce you to some significant characters within Neko Sekai.   You will learn all about their traits, their lives, their dreams, and their

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 22

woes through a complexed set of story driven missions that will immerse you in the comprehensive lore system we have developed.

STORYBOARD, CUT SCENES AND CINEMATICS

Our lore reaches beyond the Space Guardians game and is a project within a project.  Through the development of our lore, we hope to expand the story of the Nekonians and the introduction of the first world of Neko Sekai and take our players on an adventure.  There are already plans to write a series of small books / comics based on the lore we have which will likely lead into the creation of small cutscenes and later, high quality 3D rendered cinematics.

MATERIALS AND MUNITIONS CRAFTING

Space Guardians systems currently operate on and "unlimited ammo" style gaming experience which is essentially what is expected of an arcade style shooter.  However, that being said; there are no limitations to where we might take the project, especially within Story Mode, we can see systems like material collection, farming and munitions crafting being an integral part of our game design.  This might eventually become a system we choose to implement in the other game modes which will add further depth to the existing game design.  Being mindful of what is needed as you prepare to set that new "high score" may be what separates the best from the rest.  Something we will pay more attention to as we get further into development.

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | **23**

# NETWORKING

As with any online game the importance of a solid network and network architecture are of paramount importance.  Online games come with a myriad of issues to consider from security to maintenance and general support.

### SERVER CLIENT

Like many online games which include fast paced action and player vs player battles we will be working with a client / server topology.  The server(s) will be used to initially confirm account identity, confirm assets owned by the connected wallet and therefore enable the ability for the platform to cross-check the accessible items within Space Guardians and other games on the Defverse platform.

### LAG

Latency (or lag) is always an issue when playing online games, especially those that require interaction or have a competitive element against other players.   Through a series of techniques such as client prediction, server reconciliation, and interpolation we can offer a near "real-time" experience to our players.  However, to prevent significant issues latency will have to be restricted a maximum of 250-300ms.  Beyond this, the game would likely become unplayable.

The high score system helps us avoid issues of PvP (player vs player) latency difference as we simply register the game session IDs and the scores that are generated from the client's current session are transmitted during gameplay.  The update frequency can be lowered slightly to provide less stress on the client and the server but still offer a level of data security needed to deter cheaters.

### CLIENT-SIDE PREDICTION, SERVER RECONCILIATION AND INTERPOLATION

Latency can ruin a game but using methods such as client-side prediction and server reconciliation can really turn the tables and make a somewhat unplayable experience far more enjoyable.  Space Guardians uses both techniques alongside interpolation to help smooth out movement and anticipate real-time impacts based on time stamps sent by clients to the server.

Client-side prediction plays a crucial role by ensuring smooth movement from the player while the server uses reconciliation to send slightly delayed data from other clients to the player.

The clients then all interpolate that movement data to help make other players movement look natural and smooth.  This helps to make the game less laggy and more responsive.  Although there is a trade-off on the damage received and slight impact latency it's the best all-round option to ensure an optimal multiplayer gaming experience.

### MMO CAPABILITIES

Using the architecture and the techniques listed above it's very possible that Space Guardians might transcend into the MMO game space.   Although this seems rather ambitious at this stage in development, the systems we intend to build will help facilitate this migration should we ever choose to step into the realm of Massively Multiplayer Online development.  To infinity and beyond, right?

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | **24**

## SECURITY AND ANTI CHEAT MEASURES

It's no surprise to hear that there are always players out there who aim to cheat the system and falsify their achievements. It's just a fact that game developers must deal with. The main issue being just how easy it is to manipulate client-side data.

Our utilization of various cheat detection methods and anti-cheat stagers that we incorporate will allow us to process checks on both the client and the server in real time. The connection that persists between both client and server during the active session will be monitored also. More information follows on some of the specific countermeasures that will be implemented within Space Guardians. This is not an exhaustive list of methods that will be used.

### GAMEPLAY COUNTERMEASURES

Cheaters may aim to edit base variables such as HP, SPEED, DAMAGE and various other parameters that are used by the game to regulate and enforce the games rulesets. Some of the basic methods used by Space Guardians (among others) will be the use of encryption on vital parameters which will make it far more difficult to manipulate these variables to create speed hacks, God mode and unlimited rewards / experience etc.

### SERVER COUNTERMEASURES

Another set of countermeasures are checks that are made by the server throughout the game. The server can at any time request a snapshot of the parameters being used by the client and can compare them against the bonuses that should be available given the players account information, inventory and NFT assets. Any irregularities can then be flagged and investigated. Further checks will help decide the type and severity of the issue and immediate action will be taken to remedy or prevent future abuse by this player.

### ANALYTICAL OBSERVATIONS

Data can always be manipulated. However, through simulation it is quite easy for our anti-cheat system determine the highest scores achievable over 'x' amount of time. Furthermore, using timestamps and data snapshots alongside screenshots and short video clips we can quickly and efficiently collect visual and data logs from suspicious players and use AI analysis to determine if the player has genuinely achieved the score they submit (real-time or otherwise). Space Guardians also incorporates a "Prove It" system which basically connects to a client's session and monitors their next few sessions where real-time data is collected directly from the client and the full sessions is recorded and uploaded directly for moderation after the session ends.

Failure to successfully provide this data (or intentional revocation of this ability) will result in expulsion from the Play For Rewards system indefinitely and all assets on the account will be marked accordingly losing the ability to trade them in the future.

### 3rd PARTY ANTI CHEAT SERVICES

There are some significant players in the gaming industry that offer high quality anti-cheat services. Space Guardians will likely pursue the incorporation of such services should the need arise. Anti-cheat systems such as Easy Anti-Cheat, PunkBuster, BattlEye, nProtect GameGuard, Xigncode3 and more are among the list of companies that offer triple A anti-cheat services.

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 25

PENALTIES

DEFVERSE does not tolerate cheaters. Anyone found to be in breach of the Terms and Conditions of service will have their permission to access our games and possibly platform; immediately revoked. There are a comprehensive set of countermeasures put in place to detect cheaters and your investment and assets may be marked as UNTRADEABLE or VOID if you are caught intentionally attempting to defraud, corrupt, cheat or abuse bugs in our games / platform.

TWO FACTOR AUTHENTICATION

Space Guardians will likely require all participants of the PFR (Play For Reward) systems to have 2FA enabled on your device and/or linked account. This is to ensure account security but also enforce accountability.

GOOGLE AND FACEBOOK INTEGRATION

As part of the sign-up process the Space Guardians game will use the Defverse platform to handle account information and wallet connections. The game will use the appropriate data to record and handle your achievements, progress, participation, and rewards pay-outs. You CANNOT be paid to a different wallet or account unless you are a scholar. If you are a scholar, you will also need your own account with the aforementioned information.

Space Guardians Whitepaper v1.0.1 written by Gareth James, June 2022.

P a g e | 26

# ADDITIONAL FEATURES

SPACE RANKS

Space Guardians will have a rank system which will essentially represent your time spent within the game and the progress you've made playing it.   An experience system as discussed in the RPG section of this document will be used to determine progression and the rank that you have attained. This may be shown in your profile in Space Guardians.  Later functionality may include access to specific accolades, trophies, and rewards to represent your achievements.

SPACE STATIONS

Although not specifically designed for Space Guardians the concept of space stations to be used by registered guilds within Defverse can be used and viewed within the planetary maps system.  This will allow guilds to represent themselves visually in Defverse.  They will be able to utilise various guild functions such as recruitment, promotion and community tools used to create their unique identity within Defverse.

Space stations are likely to be added later in the development timeline.

GUILD SUPPORT (Special Attacks / Abilities)

What use is a guild if it doesn't come with perks right?  The inclusion of guild support abilities, whether it be an orbital cannon of doom, or a shield to save your ass during a prolonged boss fight; will be added to Space Guardians later in the development timeline too.  These abilities will likely be on very high cooldowns but may be instrumental in your success or ability to defeat a boss which may otherwise be impossible given your current firepower and/or defences.

UI Customisation and Reskinning

The ability to customise your own UI which is visible only to you on the client side will be an extra addition to the project later down the line.   Reskinning and player designed themes may also be considered and added to a platform marketplace where you can trade your designs amongst each other.  Maybe even make a little coin from it too, why not?