

Void Knights –Updated GDD

1. Game Overview

Write a brief overview of Void Knights. What's the core fantasy, who is the player, and what is the game world like?

It's an Open World Space Opera a massive First- and Third-person game with elements of space exploration. Almost completely realistic combat with near full Newtonian physics and realistic behavior from projectiles in the vacuum of space. With two Superpowers the United Earth Federation and the Constellation Empire wanting to take control of the Luyten 726-8 system a System with 2 main sequence K class stars one Luyten 726-8-B orbiting Luyten 726-8-A from a distance of a 1200 light seconds. Around Luyten 726-8-B passionately called the Old Yellow One by the local's orbits an Earthlike planet named Tunneler's Fortune at a distance of 500 light seconds well in the habitable zone of its parent star. With the radius of 6300 kilometers. It's a green and blue wonderland resource rich. 60 percent of water and 40 percent land on the surface. It has one Megapolis called Arlando's Bay a city size of 25 km² engulfing a beautiful bay surrounded by hills. A futuristic trade center bordering Cyberpunk but still held back by some tradition. Crime is generally low because the generally good lifestyle of it's citizens under the UEF. This is where our player character is born. Around the planet orbits a Star yard a massive space station that connects Tunneler's Fortune to the rest of the Star system.

2. Game Genre and Mode

Example: 3D Space Sim | Singleplayer | First/Third Person | Exploration | RPG Elements

3. Core Mechanics

- Space travel with realistic movement (thrust-based, no friction)

Players natural state is being on Foot. The player is naturally in First person mode

- If player is on foot in first person and the player looks up with mouse the Camera moves up.
- If player is on foot in first person and the player looks down with mouse the Camera moves down.
- If player is on foot in first person and the player looks left with mouse the Camera moves left.

- If player is on foot in first person and the player looks right with mouse the Camera moves right.

If player is on foot

- If the player is on foot and presses W the character walks forward
- If the player is on foot and presses S the character walks backward
- If the player is on foot and presses A the character walks left
- If the player is on foot and presses D the character walks right

If the player is on foot and presses Left Shift and W the character starts running with the speed of 5 m/s

A ships speed is measured in meters/second m/s for short.

Every ship has a Center of Gravity at the center of the ship. Movement of the mouse is calculated from that point.

- If player is in a spaceship in first person and the player looks up with mouse the ships nose starts to go up.
- If player is in a spaceship in first person and the player looks down with mouse the ships nose starts to go down.
- If player is in a spaceship in first person and the player looks left with mouse the ships nose starts to go left.
- If player is in a spaceship in first person and the player looks right with mouse the ships nose starts to go right.

If player is in a spaceship in first person or in third person mode Calculated from the ships Center of gravity.

- If the player is in a ship it can go up by pressing Spacebar
- If the player ship in a ship it can go down by pressing Left Control
- If the player is in a ship, it can accelerate forward by holding down W releasing W will result in the ship slowing down to 0 m/s
- If the player is in a ship, it can accelerate backward by holding down S. Can counteract forward movement for faster stopping time. Releasing S will result in the ship slowing down to 0 m/s
- If the player is in a ship, it can roll right by pressing E
- If the player is in a ship, ti can roll left by pressing Q

If player presses F5 button form keyboard the viewpoint switches to a point not closer than 10 meters to the closest texture and not further than 200 meters away from the player character. The player can move the camera around up, down, left, and right freely on orbit of the character if the camera wont glitch into a texture.

Player may leave third person mode with pressing F5 again.

- Tactical Map fleet control

When Player is on foot or in a spaceship pressing M on the keyboard brings up the Star Map and the Tactical map. The Tactical map is accessible by clicking a button named Tactical Map next to the Star Map at the top center of the screen. Or seamlessly integrated if possible.

- Ship customization (before/after purchase)

Any kind or class of ships will have Livery and Internal customizations by internal I mean Cargo Weapons Shields and Engines. Later Extra Customization options could be sold to the players.

- Seamless planetary landing and bombardment

- Able to land on any planet anywhere and scan area for resource hot spot or land in Cities and other (Military/Industry) installations.
- If player is in war with the controlling faction of a ground settlement an option comes up to bombard said settlement from a Cruiser or above or in a Fleet to Destroy or land and Capture while System Security (AI or players if MP) Responds to the attack.

- FTL travel (Gen 2+ ships)

Gen One ships don't have the technology in them to travel between stars instantly. They take an extended time starting from 5 minutes for example. BUT for gameplay reasons traveling between planets in a star system is still fast but slower than other Generations to infancies to progression. Gen One ships have a lot of armor and generally a spall or an umbrella shape.

- Modular colony/fleet building by player

After gathering the necessary funds players have the ability to buy "Space" or Land on a planet from the local superpower where players have the ability to build their own settlement's.

- City – To trade and recruit crew on ships from. Only one allowed.
- Mine/Industrial Centre – Mine Ore Gather resources to build ships from in Starports.
- Military Base – To enforce a claim to an area of space or a planet needs to be destroyed to remove claim.
- Starports/Starports - The ultimate flex of wealth generally builds from pre-example templates but can be made whatever your heart and wallet desires.

4. Physics and Movement

Describe movement style (Elite Dangerous-like), speed limits, acceleration, fuel use, etc.

Realistic yet arcade Exactly like Elite Dangerous but support for larger ships and a larger scale combat system.

Traveling between planets is done real time with Gen 1 Ships having a speed cap of 250C (pending testing) and Gen 2 and 3 will have the ability to go as fast as they want by continuous acceleration of not affected by gravity or not emergency stopped by the player or by getting too close to an object.

Traveling between stars is as simple as going to the map by pressing M and zooming out then selecting the star you want to go to then after selection and alignment button press then animation while the next star system loads.

5. Economy System

Each Starport and Starport has its own resources, ships, and prices. Include import/export logic if applicable.

Starports: More Agriculture Population and Trade Centered space stations. Massive Usually Coriolis stations but there have been other designs where gravity inside is achieved by other means. Heavily Guarded but if you feel like killing millions have a crack at it :D

Starports: Where Ships are built and most of the High-tech industry happens. Large Industrial rings and Every kind of Ship fab and Heavy/High-tech industry your miner heart desires.

6. Factions

1. United Earth Front – Democratic, controls Sol, Alpha Centauri, etc.

Democratic Nations of earth after one banner and one parliament. Basically what left after the Olympic games and Libertatum wars of 2148

General Welfare industrialism Equality, Democracy, Bureaucracy and a massive Volunteer Navy would summarize it best. Mainly focusing on production of goods and the improvement of life standards of its citizens. Has around 10-12 billion people living in it.

2. Constellation Empire – Feudal, controls Sirius, Wolf 359, etc.

An autocratic Star spanning Empire formed after in year 2148 all the democratic and autocratic nations of earth came together and finally came to an agreement to not let World War III break out and destroy Earth. They will hold a no bars hold Olympic games where the winners would get to keep Earth. This was lost by the autocratic states lost and one after the other some with some convincing left earth to colonize other Star Systems. After many internal wars and coups and trickery the current ruling family came out on top and established the Constellation Empire. Mostly Agricultural with a state sponsored high tech side and the largest army and most beautiful ships humanity ever saw. Other than that, there's only negatives to this society.

3. Player-created faction (optional): Whatever the players make it to be.

7. Ships, Classes

- Industrial: Miner, Transporter, Barges (S/M/L/XL)
- Military: Starfighter, Frigate, Destroyer, Cruiser, Battleship, Carrier, Dreadnought
- Generational Tech (Gen 1 to Gen 3: FTL & Shields progression)

S M L XL still applies to Military ships too.

S being fighters and small miners and transporters,

M being Frigates and Destroyers and M class Miners and Transporters.

L being Cruisers and Battleships, Carriers and say it with me L class Miners and Transporters

XL The Largest of them all being Dreadnoughts and Barges Barges being able to Supply ships build installations and run minening operations

There is no ship/Space station interiors needed. Only an entry point that leads to an elevator that brings the player to the cockpit of the ship. Or The players space of a

Space Station. In future Updates we might expand on this with additional rooms in larger ships and Stations. Saves a lot of computing power not having to render.

8. Combat Systems

- Thermal weapons: Strong vs shields
- Kinetic: Weak vs shields, strong vs hull
- Explosive: Strong vs unarmored, torpedoes can harm shields
- Superpenetrators: Bypass shields, massive damage
- Shield modifiers: % damage types, resistance bonuses

-In ship Player can lock onto a target after locking on player has the opportunity to issue command to squadron on num,1,2,3,4,5,6,7,8,9, or engage the ship alone aiming is don't trough aim indicator's and gimballed turret's or have to turret set to automatic aim but with a limited range. Lock on weaponry will have counter measures. Against Rocked barrages and Torpedoes 20mm PDC s and against accurate Kinetic fire Shield and Maneuvering is a counter. IF POSSIBLE implement a system where PVP and PVE could happen over long distances without all the projectiles causing lag.

Possible Optimal Engagement distances between ships:

Fighters: less than 1Km

Frigate's, Destroyers :1-5 KM

Cruisers, Battleships 5-10 KM

Dreadnoughts 10-12 KM

Carriers as long as the Fighter has fuel and ammo, but a lone fighter is nothing alone.

-Weaponry

Thermal: Concentrated wave of microwave radiation, light and other tech humbug released against enemies in a beam or in Pulses (Projectiles) specifically made for quickly disabling shields with thermally overloading with them. Not Great against armor though.

Explosive: Upon impact detonates and heavily damages soft parts in armor has a chance to shatter cockpit windows when shields are down. Moderate damage against armored parts.

Thermonuclear Warhead: Only Carried by Starfighters and only 1 Massive Explosion Disables Shields until recharged. Needs a better way to be implemented.

Kinetic: Massive or fast hunks of metal weak against shields the bigger the slower the smaller the faster. But does good damage against Soft and Heavy armor.

Super penetrator: Overwhelmingly large or Fast projectile that has a good 20% chance to bypass shields does massive damage against armor.

9. Planetary Interaction

- Procedural planets/gas giants/rings

The easier to load on the players pc with planets the better but we have to find the ideal balance between quality and performance.

Gas Giants are not approachable but mineable for valuable gases. Needs its own Equipment and Specialized ships.

- Surface travel without loading screen

The only loading I want in my game is between star systems and when the player has left a planet or an astronomical body to a point where LOD and Garbage Collection can start to clear unused assets and load in need to used ones. Needs a clear quick and effective way to be implemented.

10. Colony and Expansion

Player can purchase or colonize space (e.g., Luyten 726-8). Build ports, yards, cities, military bases.

Players controlled area will show in a green circle. For other It could either be Red Enemy Blue Friendly and Gray Neutral.

Player may only control an area if said area is either Purchased from a superpower or colonized/forcibly occupied by a player who build a Military Installation in the area.

Enemy area in Red if player attempts to pass through System Authority will be notified and act accordingly to threat level.

For example, system authority won't perceive you as much of a threat in a Mining/Civilian ship. But may act in force if you rock up in a fleet armed to the teeth.

11. Tactical Map Features

- Direct units via map
- Plan FTL routes
- Strategic vision of systems and fleets

-The ability to control ships on the tactical map and give orders to them in a drop-down menu.

-The ability to affect build and manage your installations through the tactical map.

12. UI/HUD

- Minimalist HUD (oxygen, injury, jetpack fuel only) and a simple dot in the center of the screen and E or F to “interact” when player is looking at something interactable
- Lock-on info: distance, target data in the top right corner with every relevant info on the enemy ship.
- Speed displayed as km/s and MM/s and C/s alias lightspeed in a central display on the middle lower part of the display with every relevant information of the ship piloted.

Orbital lines and a gizmo that shows where you are headed and how much time left to arrival. 7 SECOND RULE

13. Sound Design

-Needs enough background music subtle but present to not be just complete silence.

- Need one for general existing when the player is not doing much.
- Need one when player is taking off and flying off.
- Need one in combat.
- Need one when player is in his own territory managing his assets

- Engines should be meaty robust reverberating especially in asthenosphere and have a wind up when player goes from 0 to a 100 with engine power.

-Guns well let's break reality here to and go with the rule of cool Big 1500mm Cannon go BOOM!

14. Programming Details

- Engine: Unreal Engine 5
- Language: C++
- Tools: Modules/Plugins, Blueprint integration, Component-based architecture
- Self-made Assets. Buying from, the UE asset store if it's seriously helping development.

15. Extra Systems (optional for prototype)

- Personal Inventory
- AI factions expansion

- Politics/diplomacy
 - Missions and narrative arcs
 - Multiplayer
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