

# DOOM and Duke: Save The World Game Design Document.

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## Concept

Narrative/Story

### **Characters**

DOOM Slayer

Duke Nukem

Dr. N.Crow

### **Short Story Overview**

Dr. N.Crow was working on a device that could open portal gates between dimensions but when activated an unexpected result was produced. Instead of a portal opening, the two dimensions merged together. The monsters and demons from both worlds are released and a battle on two fronts begins.

Amidst the chaos erupting on both Earth and Mars, two unlikely heroes team up to push back the forces of evil. The unstoppable Doom Slayer, a pure force of destruction and Duke Nukem, the vulgar American hero. The heroes clash at first but realise they must put aside their differences when told by the United World Organization (UWO) that the world is at stake. The UWO kept a secret base in space in case of extreme world emergencies.

The heroes are dispatched to various locations to not just defend and evacuate civilians but to investigate in search of answers for what really was the cause of the dimension merging. The fate of both worlds rests with Doom and Duke as they race against time to save the world!

### Level Atmosphere

It is crucial to capture the same retro feel in these levels and to do this, the levels must all be constructed in a way that utilizes the correct heights and textures to simulate both the Doom and Duke Nukem worlds.

Some other key points to cover:

- Quick and easy for players to relate to
- Keep combat feeling good and close to the original (with some twists)
- Lighting could be tricky within Unreal Engine
- The HUD should remain the same but some new modern UI additions could be refreshing
- Utilize the environment to indicate areas instead of the HUD - signs, lighting to highlight point of interest, powerups and more
- Audio should sound satisfying and the same as the original games
- Do not make asset reuse obvious and instead try spice up areas but mixing both Doom and Duke Nukem assets together
- Allow certain new sounds cues to switch pitches to avoid repetition
- Reward exploration

### Project Details

#### **Game Genre:**

First Person Shooter (FPS)

Local Multiplayer

Action

Adventure

### **Platform / Technologies:**

Windows PC

### **Target Audience:**

The target audience for this will be all fans of both the classic retro FPS genre and a little of the modern FPS genre. The aim is to incorporate the nostalgic feel of both the classic games whilst additionally adding in more modern features to draw in a wider audience.

### **Game History/Research**

Since the project is focused on fusing together two of the most iconic fps games it is important to get a short bit of history about both games.

During the 1990s, two games paved the way for first-person shooter (FPS) games to grow into what they are in recent times. Both games were different when it came to stories and other aspects of the game such as weapons, characters and much more. The core of both the games were still similar which is where the main question for this subject comes in, what happens when two worlds collide?

The first game was DOOM (1993), and this game was revolutionary with its engaging fast-paced gameplay, music and sound effects to match it and its ability to create a very captivating 3D environment for players. The game had its fair share of criticism and controversy due to the excessive amounts of violence, gore and demonic imagery throughout the game but still, to this day, the DOOM franchise continues to be a fan favourite. It was thanks to the release and reception of DOOM (1993) that assisted with the birth of the FPS genre, with many FPS games released in the coming years.



The second game was Duke Nukem 3D (1996), and this game was released 3 years after DOOM (1993). Similar to DOOM, Duke Nukem had great gameplay with various unique weapons, creative and unique levels that tied well with equipment found in the game and a protagonist that had a personality that stood out thanks to his one-liners and humour. Duke Nukem also had a lot of

criticism for its use of violence, but the game had some controversy due to the inclusion of pornographic content.



The goal of this project will be to investigate interesting ways of combining both DOOM (1993) and Duke Nukem 3D (1996) into a single game. A simple story with a large open level that has the players exploring and completing puzzles by utilizing each of their strengths and weaknesses. In the original DOOM (1993), players were unable to look up and down meaning that in this crossover game, DOOM Guy will be unable to fire at enemies above or below him. On the other hand, Duke Nukem will be able to look up and down meaning that the two players will have to work together and support each other to progress.



DOOM (1993) was a revolutionary game not just for what it did for the industry but for its game design and gameplay principles. The movement felt fluid in conjunction with the overall gameplay which helped add to the overall game feel and immersion. The weapons were well balanced and felt satisfying to use. Additionally, the way the ammo economy was designed meant there were more incentives to explore every aspect of each level to discover any hidden secrets with weapons or ammo stashed in them. A paper from Pinchbeck, D. (2013) conducts an examination on DOOM (1993). They mention various aspects of gameplay often felt rewarding, well-balanced and fluid. They continue to discuss how every part of the game was expertly made, from the total length of the game to how each environment was carefully designed and manipulated for the players experience. Whilst this paper provides supporting evidence to the previous statement made about the gameplay in DOOM (1993), the important take away would be that this paper proves to be vital for developing the prototype due to it mentioning every aspect that would be needed to replicate its fluid and engaging gameplay.

The paper talks further about the levels and how some complexity was created by adding some verticality to levels which would be through elevators and secret areas. This is an important source of information as it was key to investigate ways to create some complex and unique levels especially between the two different characters. Pinchbeck, D. (2013) continues to discuss about how some of

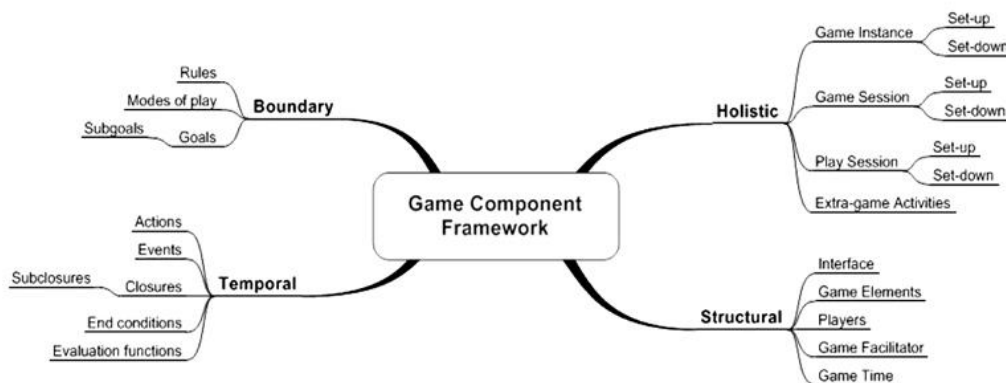
the enemies and floors were created to give players more a challenge in later levels since the player cannot look up and down.

Crotty, C (1997) talks about Duke Nukem 3D and how the character of Duke has access to powerful weapons that help add more emphasis on his humorous, violent and vulgar character. Additionally, they mention how a lot of the levels in Duke Nukem are filled with gags where Duke will even have humorous voice lines for the players. Finally, a lot of the games levels contain adult content such as strip clubs, adult bookstores and more but these aspects help compliment Duke Nukem’s vulgar character.

A paper by Swink (2009) discusses elements and ways to create good game feel. Whilst this paper may not be quite relevant in terms of retro fps games, it is still quite an important piece of literature as it can help provide more insight into what players might be looking for or even ways to improve Doom and Duke Nukem with modern game feel elements.

## Design

### Björk and Holopainen Model



#### Boundary

##### Rules:

- Doom Guy player will be able to move as they did in the original games so they will not be able to look up and down or jump. Duke Nukem will be able move the same as Doom Guy except he will be able to look in any direction and jump.
- Lighting must match the original environment.
- Player can see themselves in any mirrors or reflections in game. Additionally, they will mostly see the second player.
- The players can see all different perspectives of both them and the coop player.
- Only Duke Nukem will have a small inventory screen on the HUD.
- Only Doom guy will be able to use power ups.

##### Modes of play:

- Standard Story mode.

##### Goals and sub goals:

- World location exploration.
- Collecting new weapons.
- Defeating head-bosses.
- Solve puzzles to gain access to new areas.

- Talking to NPCs will provide some new narrative insights.

Holistic

**Game instance:**

- Setup – Drop player immediately into the game then provide more context near the end of the prologue.
- Set-down – Player is finished with the game; game will save and ready for next play session.
- Tension value – Handled by how the story is progressing.

**Play session:**

- Setup – Session starts with basic menu before allowing player to continue game or start new one.
- Set-down – Gameplay only stops when the player quits. Players progress is saved based on checkpoints, autosaves and manual saves.

**Extra-game activities:**

- Talking to NPCs will provide some new narrative insights.

Temporal

**Actions:**

- Walking.
- Sprinting.
- Collecting key items/objects.
- Solving puzzles.
- Shooting.
- Interacting.
- Opening doors.
- Reading notes.

**Events:**

- The game starts. Players must traverse through their areas back to meet each other on the space station.
- Players must work together to complete first puzzle before progressing to next area.
- Doom Guy must swim through the radioactive waters to activate a switch whilst Duke Nukem holds down the area.
- Final boss fight with hordes of enemies that must be slain.
- The game ends after boss defeat and final cutscene rolls.

**Closures:**

- Final cutscene ends that missions narrative but could set up for future story missions.

**End conditions and evaluation functions:**

- The boss is cleared.
- The player needs to use a key item in the specific area.
- The player interacts with certain objects.
- All puzzles must be completed.

Structural

**Interface:**

- Standard HUD from the original games.
- Included new modern UI such as dialogue pop ups.
- Standard WASD-mouse or gamepad support.

**Game elements:**

- Player characters – Doom Guy and Duke Nukem.
- Hallways with ledges - Create liminal space and options for both players to work together.
- Rooms – various different functions within them (enemies, items, weapons).
- Point of interest – acting as Landmarks for players to head back to.

**Players:**

- Slay through enemies and bosses
- Solve any puzzles.
- Explores the game world for more story points.
- Shown through their avatars and multiple perspectives.
- Collecting key items for further story progression.

**Game facilitator:**

- Game manager - Tracks player progress throughout the story missions.

Key Bindings & Actions

**Doom Guy:**

Key Binding	Action
Left Mouse Button / Right Trigger	Shoot
Spacebar / Gamepad South Button	Interact
Number Buttons (1,2,3) / DPAD	Switch to different weapons
W or S / L-stick vertical	Walk forward/backward
A or D / L-stick horizontal	Strafe left/right
Mouse x-axis / R-stick horizontal	Look left/right

**Duke Nukem:**

Key Binding	Action
Left Mouse Button / Right Trigger	Shoot
Spacebar / Gamepad South Button	Jump
E / Gamepad West Button	Interact
W or S / L-stick vertical	Walk forward/backward
A or D / L-stick horizontal	Strafe left/right
Mouse y-axis / R-stick vertical	Look up/down
Mouse x-axis / R-stick horizontal	Look left/right
Number Buttons (1,2,3) / DPAD	Switch Weapons

## Doom Items/Weapons

### Doom Items

Radiation Suit – Immunity to radioactive waters

Keycards – Allows the user to open the designated door with the correct Keycard

Ammo – Various ammo types to collect and refill Doom Guys weapons

Armour – Various armour types to collect and refill Doom Guys armour

Health – Collecting this will refill Doom Guys health

### Doom Weapons

Pistol, Shotgun, SuperShotgun, Chaingun, Rocket Launcher, Plasma Gun, BFG

## Duke Nukem Items/Weapons

### Duke Items

Ammo – Various ammo types to collect and refill Duke Nukems weapons

Armour – Various armour types to collect and refill Duke Nukems Guys armour

Health – Collecting this will refill Duke Nukems health

### Duke Nukem Weapons

Pistol, Shotgun

## World Design

### Game Map

The game map is split into 3 sections: Doom world, Duke world and the UWO space station. The Doom world will have a small arena-like starting room with a corner that has various health pots with a keycard. The keycard can be used to open a door that leads to a larger room with more enemies and a portal that leads to the space station.

The Duke world starts in a small room with some ammo collectables and a door that leads to a corridor with some enemies. The end of the corridor has a door that can be opened after interacting with a panel, in this room there will be an enemy and a portal that leads to the space station.

The space station is the main hub or landmark that the players will go back and forth from to collect ammo/any other consumables. Additionally, both the portals will allow the players to head into the different worlds again to fight back enemies in those worlds.

The Duke world also had a third room that leads to a breakable panel that reveals a lever and the super shotgun for Doom Guy. The lever will activate the portal in the previous room which will allow both players to go into the final boss room and face off with the final boss and its minions.

## Technical

### Optimisation

Since the project is developed for mid-spec computers, consideration should be taken to make the game run well at medium and high graphics settings as well as maximum, so that the audience may have a similar experience regardless. Meshes are to be batched together (combined) appropriately to reduce the number of draw calls (instruction of what to 'draw' and how it should be rendered) and actively optimize the project as it is developed.



## Project File Naming

Standard naming conventions are used throughout project files to make locating them easier. These can all be found here: <https://www.unrealdirective.com/resource/asset-naming-conventions#:~:text=What%20are%20the%20rules%20when,Material%2C%20T%20for%20Texture.>

Naming conventions will start with the Prefix followed by the name and any other additions that are required. Examples will be shown below.

**BP\_[NAME]** – Blueprints (BP\_Door)

**BPC\_[Name]** – Blueprint Components (BPC\_Stamina, BPC\_Inventory)

**BPI\_[Name]** – Blueprint Interfaces (BPI\_Interact, BPI\_Popup)

**ABP\_[NAME]** - Animation blueprints (ABP\_Player)

**SM\_[NAME]** - Static meshes (SM\_Crate, SM\_Keycard)

**SK\_[NAME]** - Skeletal meshes (SK\_Player)

**M\_[NAME]** - Materials (M\_Couch)

**SPR\_[NAME]** - Materials (SPR\_Player, SPR\_Shotgun, SPR\_Red\_Keycard)

**T\_[NAME]\_[TYPE]** – Textures followed by their types (T\_Door\_BaseColor, T\_Door\_Diffuse)

**SM\_[CATEGORY]** – Sound Class Mixes (SM\_MasterPlayer, SM\_MasterUI)

**SC\_[NAME]** – Sound Classes (SC\_Master)

**SCUE\_NAME** - Sound cues (SCUE\_DoorOpening, SCUE\_BoxBreak)

**P\_[NAME]** – Particles Systems (P\_Glow, P\_Shine)

**LS\_[NAME]** – Level Sequences (LS\_Intro, LS\_End)

**W\_[NAME]** – Widgets/UI (W\_Player, W\_PauseMenu)

**GM\_[NAME]** – Game mode (GM\_MainLevel)

**L\_[NAME]** – Game Levels. (L\_MainMenu, L\_Level1)

## Enemy AI

The enemy AI will go through different states based on what is happening:

- Patrol State
- Investigate State
- Chase and Attack State
- Death State

The detection is based on a visibility detection cone in front of the enemy. Once the enemy detects the player they will continuously chase and attack the player. The chase and attack state will only change if the player kills the enemy, gets far enough away from the enemy or if the enemy kills the player. The enemy will only investigate areas for a short while before going back to their patrol state.