

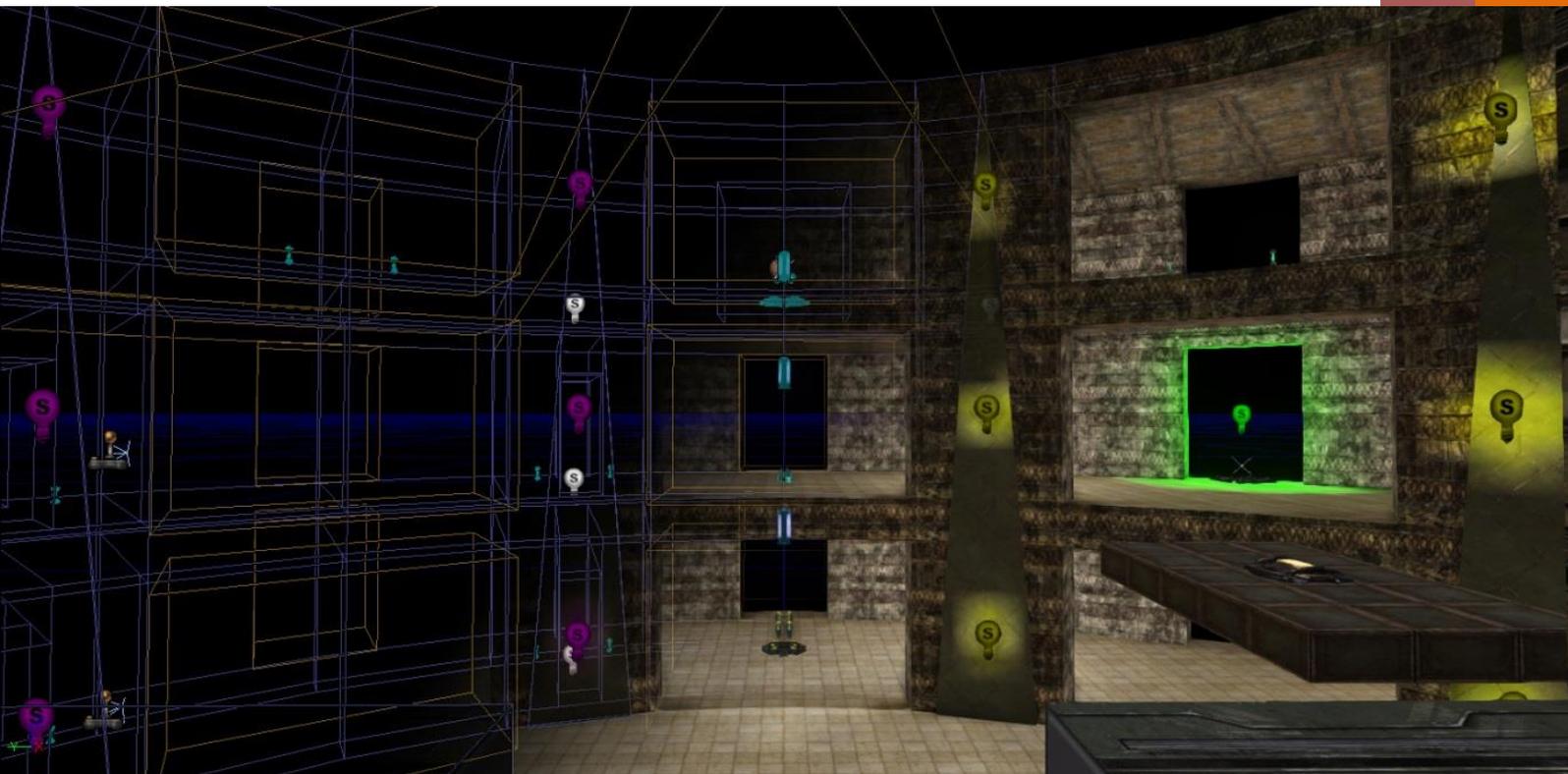
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**Solo project**  
**Workload:** 200+  
**Engine:** Unreal Development Kit 3

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# Design Document: World Builder Deathmatch level

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*Disclaimer: This document is an excerpt, components not considered valuable enough were omitted.*



## Pre-Production

The Death Match map was made as part of an assignment. We were required to choose a theme based on visual reference (Or a detailed written format) and develop a map based on the theme with 4-6 players access, within a space of 4096\*4096 units.

For this map I decided to work with Magrathea, the world-building planet from *Hitchhiker's Guide to the Galaxy*, as it allowed me to put two unlikely location next to one another. The factory creates planets by forming large slabs and then combining prefabricated parts unto a frame.

### Themes:

Possible locations to explore included:

- Volcanic terrain in combination with icy terrain below
- The Coliseum
- The Louvre
- The Leaning Tower of Pisa
- The Arc de Triumph
- Easter Island
- Norwegian fjords
- Dolmens / Stonehenge
- The Big Ben (Mid-construction)

Sketches were made combining two or three of these themes, often with space-age platforms for the crews to work on to connect the elements.

### UDK Kit:

Working with the standard UDK kit, I only had access to:

- Link Gun
- Rocket Launcher
- Shock Rifle
- Healthpacks (Varying sizes)
- Armour (Varying sizes)
- Damage upgrades
- Helicopter-esque gunship
- Hovercraft-esque mobile weapons platform
- Jump-pads
- Teleporters
- Attack speed upgrades

Vehicles were decided against, while 4096\*4096 units is large enough to run the hovercraft through, it requires most of the level to be built around.

### General Layout:

Varying combinations were sketched out in various compositions. Out of these came three promising versions that I boxed out simplistically in UDK:

1. The Big Ben combined with Norwegian Fjords, allowing for bridges and height differences
2. Easter Island and Dolmens with caverns
3. The tower of Pisa combined with Dolmens

Once all three were boxed, I chose for the third option, but have come to realise that, with some alterations, the first option may have yielded an interesting map with an increase in verticality and a

faster pace of gameplay, should the two have a bridge, jump-pads and teleporters adequately placed to bridge the distances height-wise and length-wise.

The Easter Island theme would have been difficult to perform well, while the statues can easily form repeating obstacles, it would require a lot of space to relate to the iconic visuals of Easter Island statues.

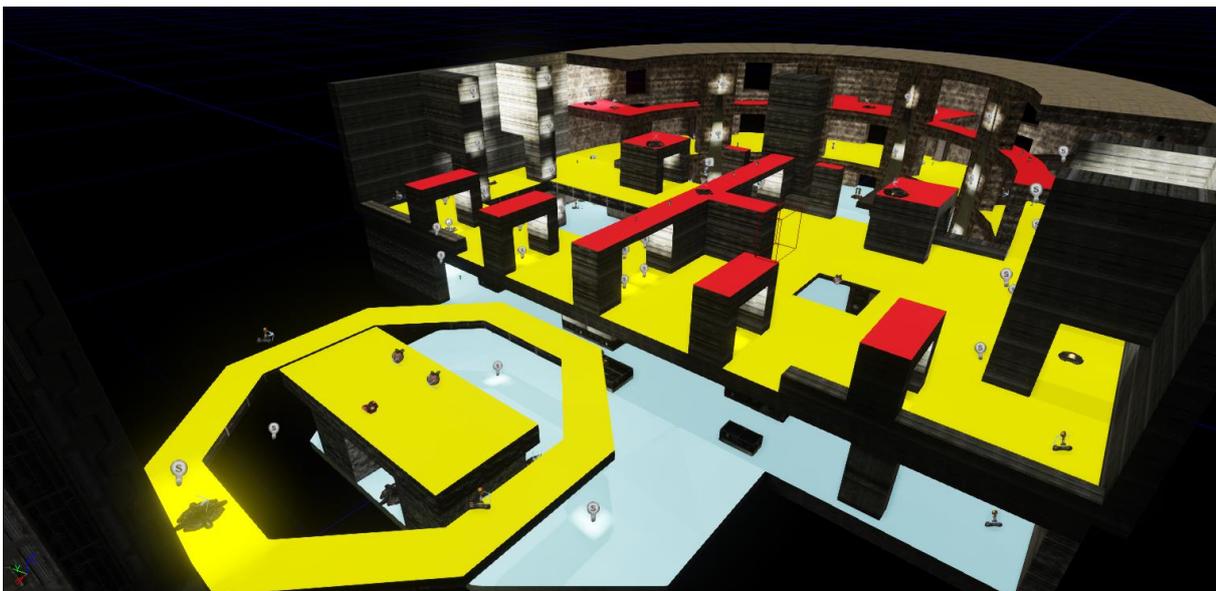
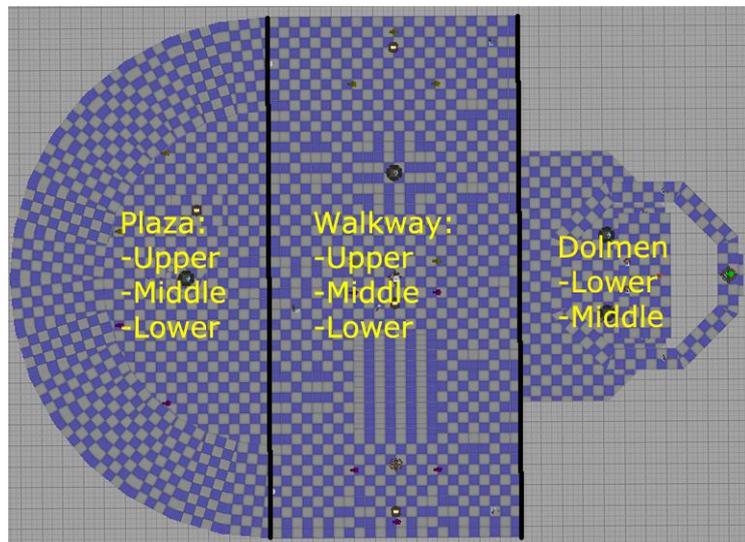
The third combination, Pisa with Dolmens, worked well. But I found myself following the tower out too much. Instead I replaced it with an Italian-styled plaza and continued with this combination.

## Design:

The map was divided into three sections:

- The three-story Plaza.
- The two-story Walkway with extended pillars to form a third floor
- The dolmen, which only held two stories total.

I determined early on that the plaza would consist of three levels, each level more vulnerable to attack and harder to navigate.



A view from the dolmen, with the plaza in the far back.

Red indicates second floor, yellow indicates ground floor, cyan indicates ground floor

## Overall:

The walkway between the Dolmen and the Plaza would consist of three levels as well, continuing the arc from the plaza with a reward in the dead centre of the map, exposed from all sides and requiring skilled manoeuvring to approach.

The Dolmen would only consist of two levels, and be a means of escape through a teleporter and jump-pads from firefights.

The ground floor of the map poses for cover and recovery. This area has the most cover, decent weaponry and upgrades placements.

The first floor is for intermediate players, with the primary upgrades scattered across all three areas.

The second floor is for advanced players, where some of the heaviest equipment can be found, but the player is exposed whilst traversing between points, and can easily fall down to lower floors.

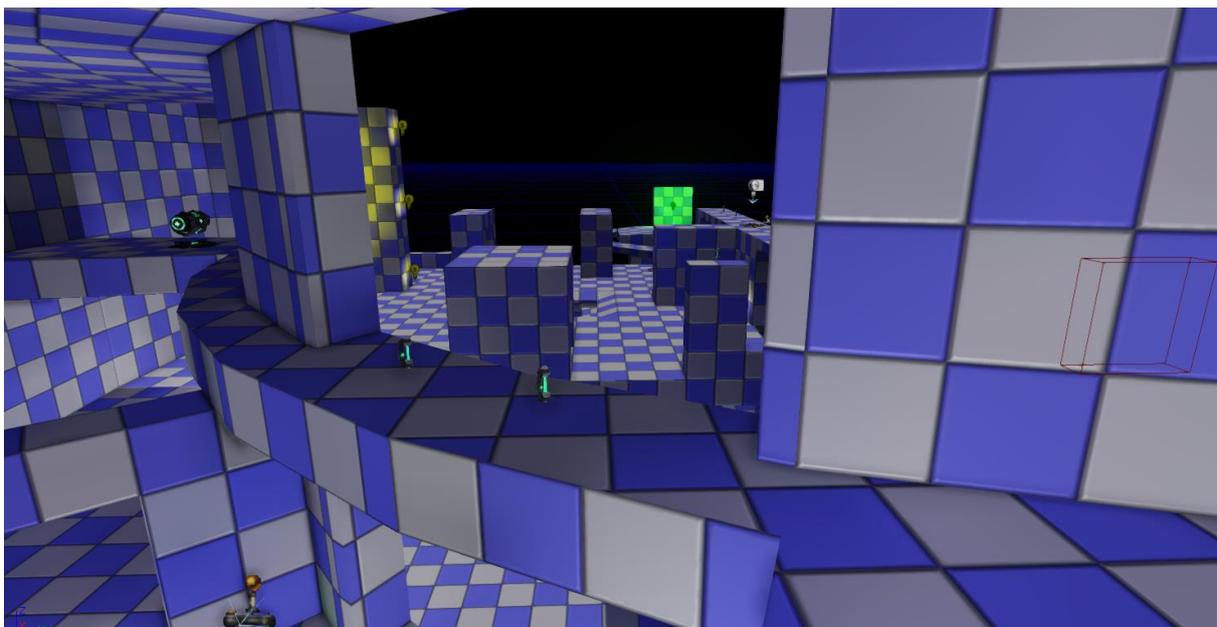
## Plaza:

When building the plaza I initially built half a cylinder that was suspended by pillars and with floors dividing each level.

After initial playtesting I decided that higher levels needed lower ceilings and narrow portals to allow splash-damage to have a higher chance of impacting these players.

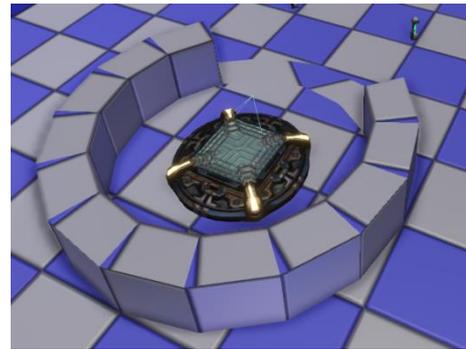
Floors were also largely removed between the first and second floor, leaving only a rim closest to the square to make it easier for players to fall down, intend to jump down or to be shot from below.

Later, additional surfaces were added to increase the chance of splash-damage on higher floors and portals that cover the passageways on the first floor were heightened, allowing skilled players to jump unto them and back unto the rim to avoid fire.



An interior shot of the Plaza's third floor, with the dolmen in the far back (Green)

A jump-pad in the centre of the square was added as the main method of reaching the coveted rocket launcher on the third floor, with a raised barrier to suggest what direction the player is flung towards. The only other method to reach the third floor is a teleporter located on the ground floor of the walkway.



### **Walkway:**

The walkway has changed over various iterations. It began as two flat planes with holes cut out to form deadly pits, but as players would too often fall into the pits during firefights I removed one and replaced the other with a staircase to increase player mobility. The holes on the first floor were also drastically reduced to prevent players from ambushing others on lower ground and so the ground floor of the walkway became a haven for players attempting to avoid rocket-launchers fired from the third floor.

The ground floor had added barriers to allow players to ambush one another and to force focus on horizontal firefights, with only a jump-pad and a staircase to add vertical gameplay.



The ground floor of the walkway, as seen from the dolmen's mouth. Armour on a pedestal directly in front, stairs on the left, a jump pad is visible just above the lower-right blue light.

Meanwhile the first floor was modified to be an open battlefield that could receive and return fire to all other sections. Small archways defend players from two directions and allow skilled players on the second floor to jump to a weapon's upgrade on the centre of the map. A divider with two doors was added in the middle to add 'privacy', so that two players engaged in a fight had fewer enemies to focus on at a given point., but could still be ambushed.



The first floor of the walkway, arches are indicated with blue lights. The broad wall in the middle functions as the divider. Nimble players can jump across the ceilings for power-ups and high ground.

### **Dolmen:**

The dolmen began three times larger than it is now and mimicked the shape of Stonehenge. Though as players focused combat on the other two sections I actively decided to shrink the size of the ground around the section and removed the ability to walk around the back.

Instead, the dolmen became a site for players to retreat to. Jump-pads bring the players to the top of the dolmen and the green teleporter brings the player to the opposite side of the map, on the first floor of the plaza.

Its ring, formerly part of Stonehenge, was shrunk and maintained as a construction plateau that extended from the walkway. Its thickness was adjusted several times to allow for a good jump that still allows players to slide past to lower levels.

### **Item Placement & Flow:**

There are two major loops in the level for players to take.

The powerful weapons loop runs across the second floor, starting at a rocket launcher inside the plaza's third floor, including +100 health and leading to a damage upgrade. The player can break this loop with the green teleporter to walk the second floor for more rocket packs and take the red teleporter back to the third floor of the plaza. During this manoeuvre, the player is an exposed target with minimum cover, lots of objects to cause splash-damage and no guarantee that the player can carry both rocket-launchers. In addition, the player can barely pick up any armour. The collecting player also has fewer clear shots down, as players can use cover more effectively.

The armour loop runs across the first floor, with an occasional run up the staircase inside the walkway for a rocket launcher. The player rarely runs past health-pick-ups but is also frequently in heavily covered areas. The player can easily disengage from combat through various routes.

Most players are seen taking the former route, putting much time in preparing for a fight to then face heavily armoured opponents that – for their lack of skill – put up a fair match.

### **Future iterations:**

- During the building of this map I had not yet learned effective means of resource placement and so haven't based my placement on statistics. Newer versions would have their items placed according to more precise calculations instead of playtesting and reasoning alone.
- I would investigate more methods to get players on the ground floor in the plaza, as most people neglect the thigh armour available.
- I would improve the jumps, as some are a little too hard to manage.
- I would include bot navigation points, as they are now likely to get stuck at the teleporter and fail to perform routes on the third floor.