

CELLVERSE – GAME DESIGN DOCUMENT (MMO Edition)

1. Game Overview

Title: Cellverse

Genre: MMO Multiplayer Arcade, Real-Time Competitive, .io-style Growth Game

Target Platforms: PC (Web/Desktop), Mobile (Future)

Session Length: Persistent MMO world with short play sessions

Target Audience: Casual, competitive, and MMO players

2. Core Concept

Cellverse is a massively multiplayer online (MMO) real-time arena game where hundreds to thousands of players coexist in a shared cellular ecosystem. Players grow by absorbing smaller entities while avoiding larger threats, emphasizing scalability, persistence, and competitive balance.

3. Core Gameplay Loop

Spawn as a cell → Consume food → Interact with other players → Use split and mass ejection mechanics → Grow dominance → On elimination, respawn without leaving the MMO world.

4. Player Mechanics

Movement: Cursor-based movement with speed inversely proportional to mass.

Absorption: Circular collision system with full mass conservation.

Cell Split: High-skill offensive and escape mechanic introducing risk–reward decisions.

Mass Ejection: Tactical mass usage for mobility, interaction, and future team mechanics.

5. World Design

Persistent MMO World: Always-online arena divided into scalable regions.

Food Particles: Procedurally generated growth resources distributed across the map.

Hazard Cells: Environmental regulators that fragment oversized cells to prevent domination.

6. MMO Networking & Backend Architecture

Backend powered by SpacetimeDB using a server-authoritative MMO architecture. The server handles physics simulation, collision resolution, persistence, scoring, and anti-cheat systems. Supports large-scale concurrency with seamless player join, leave, and region transitions.

7. Technology Stack

Game Engine: Unity

Backend Platform: SpacetimeDB

Networking Model: Server-authoritative MMO architecture

Deployment: Cloud-scaled infrastructure

8. Programming Languages & Technologies

Client-Side: C# (Unity)

Server-Side: C# (SpacetimeDB server logic)

Web & Tools: JavaScript / TypeScript

Database Layer: SpacetimeDB relational storage

9. Camera & UI

Dynamic camera zoom adapts based on player mass to maintain spatial awareness. MMO-specific UI elements include region indicators, population density cues, and real-time leaderboards.

10. Art Style

Minimalistic 2D visuals with smooth animation and high contrast. Visual clarity is prioritized to support high player density while remaining optimized for low-end devices.

11. Game Design Philosophy

Low barrier to entry, high skill ceiling, persistent MMO competition, and system-driven gameplay that rewards mastery over time.

12. Future Enhancements

Ranked MMO ladders, territory control systems, clans and social features, unique cell abilities, cosmetics, spectator mode, and full PC–Mobile cross-play.

13. Unique Identity

Cellverse blends the accessibility of classic .io games with true MMO persistence, powered by SpacetimeDB and a fully C#-driven development pipeline.