# Conceptual Game Design Document:

**Game Concept: "Pixelbound" *(Working Title)***

**Genre:** Top-down survival roguelite  
**Core Loop:** Survive endless waves of enemies, collect dropped “pixels” to grow stronger — but growing larger makes you slower and easier to hit.  
**Goal:** Survive as long as possible and climb the high-score leaderboard.

**Core Gameplay Mechanics**

**1. Player Movement & Combat**

* **Movement:** Standard WASD or arrow key controls.
* **Shooting:**
  + Option A: Twin-stick style — aim with mouse, shoot automatically or via click.
  + Option B: Auto-attack nearest enemy Vampire Survivors-style.
* **Stats Affected by Pixel Growth:**
  + **Damage Output ↑** – More pixels = stronger attacks.
  + **Hitbox Size ↑** – Larger = easier to hit.
  + **Movement Speed ↓** – Bigger = slower.
  + **Knockback Resistance ↑** – Larger size gives better stability.

**2. Enemy Waves & Scaling**

* **Endless Horde System:**
  + Spawns start small but ramp up every 30–45 seconds.
  + Different enemy “tiers” appear as time goes on.
* **Enemy Types:**
  + **Grunts:** Fast, weak melee enemies.
  + **Shooters:** Slower but fire projectiles.
  + **Chargers:** Rush the player aggressively.
  + **Mini-Bosses:** Spawn occasionally, drop **huge pixel chunks**.
* **Scaling Mechanic:**  
  The longer you survive, the faster and stronger the horde gets.

**3. Pixel Growth System *(Core Gimmick)***

* Every enemy drops **pixels** when defeated.
* Collecting pixels:
  + **Increases size gradually** (visual scaling of player sprite).
  + Buffs damage, knockback resistance, or firing rate.
  + Reduces speed and increases vulnerability due to bigger hitbox.
* Adds a **risk-reward loop**:  
  *“Do I grab every pixel and become powerful but slow… or avoid them and stay fast but weak?”*

**4. Power-Ups & Meta Progression**

* **Temporary Power-Ups:** Spawn randomly:
  + Speed boost.
  + Pixel shield (blocks one hit).
  + Pixel magnet (pulls all pixels nearby).
* **Meta Upgrades (optional if time):**  
  Between runs, let the player spend earned “cores” to upgrade starting stats.
* If time is short, you can skip meta-progression and keep it arcade-style.

**5. UI & Feedback Systems**

* **HUD:**
  + Pixel count.
  + Health bar.
  + Time survived.
* **Effects to Make it “Juicy”:**
  + Particle bursts when picking up pixels.
  + Screen shake on damage.
  + Dynamic camera zoom: zooms out slightly as you grow bigger.
  + Enemy death pops and trails.

**Art & Style**

* **Top-Down Pixel Art:**
  + Stick to **16x16** or **24x24** sprites for player/enemies.
  + Simple color palette — focus on **readability**, not detail.
* **Scaling Player Sprite:**  
  Since the player grows, you can either:
  + Actually scale the sprite with Godot’s transform.
  + Swap between 3–4 pre-drawn size stages for more control.
* **Particle Effects:**  
  Pixels exploding, fading, and being absorbed = high visual payoff for little dev time.