JUNK-PUNK TITAN: MASTER GAME DESIGN DOCUMENT (GDD)

Version: 3.0 (Comprehensive Production Specification)

Platform: Roblox

Genre: 3-Player Co-Op Survival Base-Builder / Tower Defense

Core Design Philosophy: Psychological tension via Loss Aversion, Zeigarnik Open-Loops, and Asymmetric Role Dependency.

1. EXECUTIVE SUMMARY & CORE GAME LOOP

Junk-Punk Titan is a cooperative, wave-based survival game where a team of up to three players must build, defend, and activate a massive mechanical behemoth (The Rust-Titan) in a wasteland. Enemies do not attack players; they steal the players' hard-earned buildings, forcing a frantic defense of their economic and defensive infrastructure.

The Macro Game Loop (Per Session):

1. **The Sandbox (Wave 1-3):** Manual scavenging, establishing basic walls and the first Drills.
2. **The Industrialization (Wave 4-8):** Automating the economy, specializing roles, defending against larger swarms.
3. **The Mega-Project (Wave 9+):** Pumping resources into the 4 Titan Stages, surviving Global Scrap Storms to farm rare Steel.
4. **The Climax (99% Stand):** A final 3-5 minute onslaught before activating the Titan and winning the session.

The Micro Game Loop (Moment-to-Moment):

1. **Prepare:** Read the wave countdown timer, place blueprint ghosts, construct defenses.
2. **Defend:** Repel Scrap Rats attempting to dismantle expensive buildings.
3. **Recover:** Chase fleeing thieves to recover stolen scrap, repair degrading Drills, and deposit scrap into the Titan Core.

2. THE PSYCHOLOGICAL PILLARS (BEHAVIORAL DESIGN)

Every feature must adhere to these three psychological triggers.

1. **Loss Aversion ("The Sting"):**
   - *Concept:* Humans feel the pain of losing something twice as powerfully as the joy of gaining it.

- *Implementation:* Enemies do not deal traditional "damage" (which feels abstract). They *physically unscrew and carry away* the player's buildings. The player must watch their Level 2 Turret be picked up and run off the map.
2. **The Zeigarnik Effect ("The Itch"):**
   - *Concept:* The human brain remembers uncompleted or interrupted tasks better than completed ones, creating a subconscious drive to finish them.
   - *Implementation:* Buildings are placed as semi-transparent "Ghosts" that linger until paid for. The Titan Core is a massive 4-stage skeleton always visible in the center of the map.
3. **Competence & Autonomy ("The Hydra"):**
   - *Concept:* Players must feel individually essential to the team's survival.
   - *Implementation:* Three rigidly defined roles with zero overlap. If a player tries to do another role's job, they fail. A team needs all three components (Economy, Defense, Gathering) to function.

3. THE "HYDRA" ASYMMETRIC CLASS SYSTEM

Players select a role via a UI prompt upon joining. Roles are locked for the duration of the session.

3.1 The Scrapper (The Gatherer & Courier)

- **Identity:** High-mobility, early-game carry, emergency thief-catcher.
- **Passive Stats:** Base Movement Speed x 1.4.
- **Core Loop:** Sprints across the map to collect loose scrap piles spawned by the environment. When the base is breached, the Scrapper is the only class fast enough to chase down a fleeing Scrap Rat that has stolen a building.

3.2 The Fixer (The Engineer & Economist)

- **Identity:** The backbone of the base. Plays a UI-heavy management sub-game.
- **Passive Stats:** Build/Deposit Speed x 1.5, Movement Speed x 0.9.
- **Exclusive Tool:** The Wrench.
- **Core Loop ("Pressure Hiss"):** Drills are the only automated source of income, but they degrade. The Fixer must equip the Wrench and interact with a degrading Drill to play a timed-hit mini-game.
   - *Success:* Instantly restores 40% Drill Stability and grants a 30-second "Overclock" (1.2x scrap yield).
   - *Failure:* The Drill "Clogs," completely halting scrap production for a 5-second penalty duration.

3.3 The Enforcer (The Defender)

- **Identity:** The heavy muscle. Pure combat focus.
- **Passive Stats:** Combat Damage x 1.5, Repair/Build Speed x 0.9.
- **Exclusive Tool:** The Rusty Shotgun. (Short range, high spread, high impact).

- **Core Loop:** The Enforcer ignores the economy. They stand at choke points and vaporize Scrap Rats before they can latch onto the Fixer's Drills.

3.4 The Legacy System (Anti-Quitter Safety Net)

- **Trigger:** The server constantly monitors the PeakPlayerCount. If a player disconnects, dropping the team below 3 active members, the Legacy System activates.
- **Effect:** Remaining players receive a hidden attribute buff: +25% Scrap Yield and +15% Interaction/Reload Speed. This prevents a guaranteed loss due to a random teammate leaving.

4. THE ECONOMY & INFRASTRUCTURE

4.1 Resource Types

1. **Scrap (Standard):** Used for all basic buildings and Titan Stages 1 & 2. Gained via loose map spawns, killing rats, and automated Drills. Stored in a globally shared "Team Bank".
2. **Storm-Hardened Steel (Premium):** Used exclusively for Titan Stages 3 & 4. Only spawns in the wasteland during the Global "Scrap Storm" event.

4.2 The Exponential Cost "Wall"

To force players out of the "Scrapper" phase and into the "Fixer/Drill" phase, building costs are not static. They scale exponentially based on the total number of that specific building type currently active on the map.

- **Formula:** Final Cost = Floor(BaseCost * (1.15 ^ ExistingCount))
- *Example:* A Turret's Base Cost is 100.
  - Turret #1 = 100 Scrap.
  - Turret #5 = 174 Scrap.
  - Turret #10 = 351 Scrap.

4.3 Building Catalog & Mechanics

Players select buildings via hotkeys (1, 2, 3). Placing a building snaps a semi-transparent, non-collidable "Ghost" to a grid. To materialize it, any player must approach the ghost and hold the interact button to pay the Scrap cost.

1. **Junk Wall (Base Cost: 30):** High HP, purely blocks pathfinding.
2. **Scrap Turret (Base Cost: 100):** Automated defense. Fires low-damage projectiles at the nearest enemy. Extremely high priority target for enemy thieves.
3. **Steam Drill (Base Cost: 250):** Automated economy.
   - *Generation:* Adds 15 Scrap to the Team Bank every 10 seconds.
   - *Degradation:* Starts at 100% Stability. Loses 1% Stability every 2 seconds.
   - *Efficiency Brackets:* * 100% - 80% Stability = Full Scrap Output.
     - 79% - 20% Stability = 50% Scrap Output.
     - 19% - 0% Stability = 0 Output. Emits thick black smoke VFX. Requires Wrench

repair.

5. THE ENEMY ECOSYSTEM (THE SWARM)

Enemies are classified as "Socket-Monkeys" or "Scrap Rats." They are small, hunched, mechanical scavengers.

5.1 AI State Machine & Targeting

Scrap Rats DO NOT attack players. Players are completely ignored by the AI pathfinding.

1. **Spawn State:** Rat spawns at map-edge burrow holes.
2. **Target Evaluation:** The AI scans the map for the most expensive completed building (Cost * CurrentHP). If no buildings exist, it targets the Titan Core.
3. **Pathfinding State:** Rat sprints to the target.
4. **Dismantle State (Theft):** Upon touching the building, the rat latches on and stops moving. A strict 8-second timer begins. A red "Near-Miss" progress bar appears above the building.
5. **Flee State (Flight):** If the 8-second timer completes:
   ○ The targeted building is instantly deleted from the world.
   ○ The Rat's movement speed multiplies by 1.2x.
   ○ A "Stolen Scrap Bundle" model appears on the Rat's back.
   ○ The Rat pathfinds to the nearest map-edge despawn hole. If it reaches the hole, the resource is permanently lost.

5.2 Kill Rewards & Recovery Loop

● **Standard Kill:** Killing a Rat in the Spawn, Pathfinding, or Dismantle state yields a small reward (2-5 Scrap) and a minor visual Loot Fountain.
● **Thief Kill (Recovery):** Killing a Rat in the Flee State triggers a massive Loot Fountain and drops a "Scrap Bundle" pickup. Running over this pickup refunds ~50% of the stolen building's original cost to the Team Bank.

5.3 Wave Dynamics & Scaling

● **Spawning Trigger:** Waves operate on a strict timer loop (e.g., every 60-120 seconds).
● **Base Scaling Formula:** Total Rats Spawned = 5 + (WaveNumber * 2).
● **Multiplayer Scaling:**
   ○ 1-3 Players: Total Rats * 1.0
   ○ 4 Players: Total Rats * 1.5
   ○ 5 Players: Total Rats * 2.0

6. GLOBAL EVENT: THE SCRAP STORM

Occurs periodically (every 10-15 minutes) to disrupt the base-defense routine and force map traversal.

6.1 Atmospheric Transition

The sky turns a dark, polluted brown. A dense fog limits visibility to a few meters. Heavy, howling wind audio overrides the ambient soundtrack.

6.2 The Tether Mechanic (Coordination Check)

- **The Threat:** During the storm, all unanchored player buildings slowly take "Wind Damage."
- **The Solution:** A mechanical "Tether Station" emerges from the ground near the base. It features 3 pressure pads. To "Anchor" the base and stop the damage, 3 players must stand on the pads simultaneously. (Scales dynamically: if only 2 players are in the server, only 2 pads are required).

6.3 The Foraging Phase

Once the base is anchored, players must venture out into the blinding storm. This is the ONLY time the highly coveted **Storm-Hardened Steel** spawns on the map. Scrappers must run out, find the glowing blue steel nodes in the fog, and return them before the storm ends.

7. OBJECTIVES, LOSS CONDITIONS & THE FINALE

7.1 The Heart of the Game: The Titan Chassis

The center of the map contains an immovable, massive skeletal structure: The Titan.

- It possesses an **Integrity Meter** (0-100%).
- It cannot be repaired via the Fixer's Wrench.
- If a Scrap Rat reaches the Titan, it begins "Core Dismantling," draining Integrity by 1% per second per rat.

7.2 The Death Spiral (Loss Conditions)

To prevent players from infinitely rebuilding with zero consequences, there are two strict failure states:

1. **The Scrap Tax (Player Death):** Players have health and can be killed by environmental hazards or specific boss-rat attacks. If a player dies, they respawn in 5 seconds, BUT the server instantly deducts **15% of the total shared Team Scrap Bank**. Death means economic collapse.
2. **Core Collapse (Game Over):** If Titan Integrity reaches 0%, a GlobalGameOver event fires. A "TITAN COLLAPSED" UI covers the screen, all buildings explode, and the server session wipes, resetting players to Wave 1 with 0 Scrap.

7.3 The Win Condition: The 4-Stage Mega-Project

Players must deposit massive amounts of Scrap and Storm-Steel into the Titan to complete its 4 stages. Completing a stage restores 25% of the Titan's Integrity.

1. **Stage 1: Chassis Stabilization** (Requires: High Scrap)
2. **Stage 2: Boiler & Steam Core** (Requires: High Scrap)
3. **Stage 3: The Harvester Claw** (Requires: Extreme Scrap, Moderate Steel)
4. **Stage 4: The Command Pit** (Requires: Extreme Scrap, High Steel)

7.4 The Climax: The 99% Final Stand

When Stage 4 reaches 99% completion, the normal game loop breaks.

- A permanent, unbreakable Scrap Storm engulfs the map.
- The Wave Timer disappears. An infinite, massive swarm of Elite Scrap Rats begins pouring from all burrow holes simultaneously.
- The players must survive this pure chaos for exactly 3 to 5 minutes as the Titan "Boots Up."
- **Victory State:** Once the hidden timer finishes, the Titan achieves 100%. A massive visual shockwave erupts from the Titan, instantly vaporizing all enemies on the map. A "VICTORY" screen rolls, displaying team stats (Scrap gathered, Rats killed, Buildings lost).

8. SENSORY FEEDBACK, UI, & "JUICE"

Visual and audio feedback is entirely decoupled from server logic to ensure seamless performance.

8.1 The HUD Layout

- **Top Center: * Scrap Bank:** Displays current Team Scrap with a gear icon. Pulses and briefly scales up when scrap is added. Floats a red "-X" when scrap is spent or taxed.
  - **Wave Timer:** Displays NEXT SWARM: 00:00. At 10 seconds remaining, the text turns Bright Red. At 5 seconds remaining, the text pulses (scales up and down) once per second to induce panic. When it hits 00:00, a low-frequency siren audio cue plays.
- **Bottom Center (Build Toolbar):** Displays slots 1, 2, and 3 for Wall, Turret, and Drill. Shows the *dynamically calculated* cost of the next building based on the exponential math.
- **Top Right:** Titan Integrity Bar and Stage Objectives.

8.2 World-Space UI & "Juice"

- **Loot Fountains:** When Scrap is generated (via kill or drop), 5-8 physical 3D gear models burst outward with an arc-trajectory (via Tweening), hit the ground, and then magnetically fly directly into the nearest player's chest, disappearing with a "ka-ching" sound.
- **Near-Miss Dismantle Bars:** A 3D BillboardGui hovers over any building currently being stolen by a Rat. It features a filling red progress bar.
  - *Fixer Synergy:* If the local player is a Fixer, this specific bar strobes with a thick, high-contrast yellow border, ensuring they see their economy being threatened from across the map.
- **Impact & Shake:** The Enforcer's shotgun triggers a localized camera CFrame shake. Successful Wrench repairs trigger a burst of white steam particles and a heavy anvil-strike audio cue.