**"Growth Bounce: A SensoryNeural Adventure"**

**I would like to call it Sensori, you can give suggestions**

**Genre:** Neuroinclusive Adaptive Platformer / Rhythm-Based Therapy Game

**Target Audience:** Neurodivergent children (ages 4–12) with sensory processing disorders, autism, or motor skill challenges.

**1. Core Concept**

**Objective:** Guide a character through a calming, adaptive trampoline-jumping experience that fosters motor skills, emotional regulation, and confidence. The game rewards progress with "growth" (aging the character) and customizable collectibles, all while adapting to the child’s sensory needs via AI and IoT integration.

**Key Themes:**

* **Safety & Predictability:** A stress-free environment where failure is reframed as a learning opportunity.
* **Growth & Empowerment:** The character evolves from infancy to adolescence, mirroring developmental milestones.
* **Personalization:** Tailored sensory inputs (colors, sounds, difficulty) to suit individual needs.

**2. Narrative & Worldbuilding**

**Setting:** A serene, floating archipelago called **"The Skies of Calm"** with zones like:

* **Skyhaven Sanctuary:** A starting zone with soft clouds, gentle breezes, and pastel colors.
* **Luminary Forest:** Glowing trees that pulse rhythmically, helping players anticipate trampoline changes.
* **Starlight Workshop:** A customizable room where collected toys are displayed.

**Story:**  
A guardian (the player) protects a **"Star Child"** (a customizable baby character) as they grow by bouncing on magical trampolines suspended in the sky. The trampolines are portals to developmental milestones, but "Void Holes" threaten to disrupt the journey. By rescuing the Star Child and collecting "Luminous Toys," the guardian helps them grow while exploring a calming, evolving world.

**3. Gameplay Mechanics**

**Core Mechanics**

1. **Trampoline Dynamics**
   * The trampoline surface shifts rhythmically, creating **safe zones** (glowing patches) and **Void Holes**.
   * **Hole Patterns:** AI generates patterns based on the child’s skill level (e.g., slow spirals for beginners, faster grids for advanced players).
   * **Rescue Mechanic:** Tap/swipe to guide the Star Child toward safe zones. Holding a button creates a temporary "safety bubble" (limited uses per round).
2. **Growth Progression**
   * Each successful jump fills a **Growth Meter**. When full, the Star Child ages (baby → toddler → child → teen).
   * New abilities unlock with age (e.g., toddlers can double-jump, teens can dash).
3. **Collectibles & Customization**
   * **Luminous Toys:** Earned by completing levels or achieving streaks. Toys vary in sensory traits (e.g., glowing, spinning, soft sounds).
   * **Starlight Workshop:** A safe space to arrange toys, with options to adjust lighting, sound, and textures.
4. **Sensory Customization**
   * Players (or caregivers) pre-set or let AI choose:
     + **Color Modes:** Pastel, High Contrast, Monochrome, or Dynamic (adapts to time of day).
     + **Soundscapes:** Nature sounds, melodic chimes, or muted effects.
     + **Haptic Feedback:** Optional vibrations for actions (e.g., rescues, collectibles).

**4. AI & IoT Integration**

**Adaptive Difficulty System**

* **Stress Detection:** IoT wearables (e.g., Fitbit for Kids) monitor heart rate and motion. If stress is detected:
  + Game slows down.
  + Void Holes shrink or disappear.
  + Soothing voiceover says, "Let’s take a breath!"
* **Predictive Analytics:** AI learns which patterns (e.g., fast flashes, loud sounds) trigger discomfort and avoids them.

**Personalized Rewards**

* **Toy Recommendations:** AI suggests toys based on play history (e.g., a child who collects stuffed animals unlocks more plush-themed items).
* **Growth Paths:** Data analytics highlight motor skill progress (e.g., reaction time improvements) to inform caregiver reports.

**Caregiver Dashboard**

* **Features:**
  + Progress tracking (milestones achieved, stress triggers logged).
  + Customization overrides (e.g., lock specific soundscapes).
  + Tips for real-world activities based on in-game performance.

**5. Technical Specifications**

* **Engine:** Unity (supports cross-platform play on tablets, IoT devices, and motion sensors).
* **Input Methods:** Touchscreen, motion controls (via IoT trampoline mats), or adaptive controllers.
* **IoT Integration:** Sync with wearables (heart rate monitors) and smart lighting (Philips Hue) to adjust room ambiance.
* **AI Tools:** Python-based ML models (TensorFlow) for pattern generation and stress prediction.
* **Data Security:** HIPAA-compliant storage for child profiles and caregiver reports.

**6. Art & Sound Design**

**Visual Style**

* **Neuroinclusive Aesthetics:**
  + **Low-Saturation Mode:** Soft edges, minimalistic textures.
  + **High-Contrast Mode:** Bold outlines, glowing elements.
  + Avoids rapid flashes or overstimulating patterns.
* **Character Design:**
  + Star Child: Gender-neutral, customizable skin tones, and adaptive expressions (e.g., smiles when calm).

**Sound Design**

* **Adaptive Soundscapes:**
  + Calm Mode: Piano melodies, wind chimes.
  + Energized Mode: Gentle percussion beats.
  + Mute Option: Visual cues replace sounds (e.g., floating particles pulse to indicate actions).

**7. Accessibility Features**

* **Speed Adjustment:** Slider to slow down/speed up trampoline rotation.
* **Input Customization:** Remap controls for one-handed play or eye-tracking devices.
* **Text-to-Speech:** Narrates instructions and rewards.

**8. Example Play Session**

1. **Setup:** A child selects "Pastel Mode" and "Nature Sounds." IoT sensors detect a slightly elevated heart rate.
2. **Level 1:** Trampoline rotates slowly. Void Holes pulse gently to a rhythm. The child swipes to guide the Star Child, earning a "Glow Bunny" toy.
3. **Stress Detected:** Heart rate spikes due to a sudden hole expansion. AI triggers slow-motion mode and dims colors.
4. **Reward:** The child places the Glow Bunny in their Starlight Workshop, adjusting its size and glow intensity.
5. **Growth:** The Star Child becomes a toddler, unlocking a double-jump ability for the next level.

**9. Development Phases**

1. **Phase 1 (Prototype):**
   * Build core trampoline mechanics with basic AI pattern generation.
   * Test with neurodivergent children for sensory feedback.
2. **Phase 2 (IoT Integration):**
   * Connect wearable stress sensors and trampoline mats.
   * Develop caregiver dashboard.
3. **Phase 3 (Polish):**
   * Add customizable art/sound options.
   * Finalize ML models for personalization.

**10. Success Metrics**

* **Engagement:** Time spent in-game without stress triggers.
* **Developmental Progress:** Caregiver-reported improvements in motor skills or emotional regulation.
* **Accessibility:** High ratings from neurodivergent testers on sensory comfort.