
PRD: Musical Kasina Feature

Feature Overview

The Musical Kasina is a single, music-synced meditation object that can operate in either “Breath Mode” (orb expands/contracts with user breath) or “Visual Mode” (orb remains steady), with dynamic background visuals responsive to the currently playing Spotify track. The user can toggle between Breath and Visual Mode at any time during their meditation session.

User Stories

1. **As a user**, I want to experience a single musical kasina where I can either let the orb remain still or have it move with my breath, so I can personalize my meditation experience.
2. **As a user**, I want the background to reflect the rhythm and mood of my music, so I feel immersed in a contemplative, music-driven visual environment.
3. **As a user**, I want to easily toggle between Breath and Visual Mode, so I can switch styles mid-session without interruption.
4. **As a user**, I want the experience to be beautiful, calming, and focused on the orb, with all other visual effects supporting—not distracting from—the main object.

Functional Requirements

1. Mode Toggle

- Provide a visible toggle labeled **“Breath Mode”** (On/Off or with a simple switch).
- When “Breath Mode” is ON:
    - The orb expands/contracts in real time with the user’s breath data (from a connected sensor or other supported input).
- When OFF:

    - The orb remains steady, with no size or shape changes.

2. Spotify Integration

- User must be able to connect their Spotify Premium account and select a playlist or track.

- On playback, fetch track metadata, audio features, and audio analysis (beat times, sections, mood/energy).

3. Visual Design

Orb (Central Object)

- Centered on screen.

- Animates ONLY with breath (if Breath Mode is ON).

- Never animates in Visual Mode (unless light, continuous glow for presence—optional).

- Always maintains visual prominence.

- Continues to be expandable with mouse/trackpad, just like in both Visual and Breath mode.

Background

- **Beat Response:**

    - On each detected beat (from Spotify Audio Analysis), trigger a soft, radial ripple or wave that radiates out from the orb's center, fading as it reaches the screen's edge.

- **Mood/Energy Response:**

    - Background color palette and intensity shift smoothly in real time with Spotify's track valence (mood) and energy data.

    - Example: Low valence = blue/violet; high valence = peach/gold; high energy = more saturated/brighter.

- **Section Changes:**
    - When a new musical section starts (e.g., verse, chorus), fade background colors or introduce subtle new visual motifs.
- **All background effects must remain subtle and not visually overpower the orb.**

4. Session Flow

1. User enters the Musical Kasina screen.
2. User connects Spotify and starts playback.
3. The orb and background appear; “Breath Mode” toggle is visible and can be switched at any time.
4. Visuals respond to music as described.
5. Session ends when music stops, or user exits.

5. Responsiveness & Accessibility

- Design must work on all major desktop Chrome-based browsers (Chrome, Edge, Brave, Opera).
- Include way to connect Spotify Premium & the Vernier respiration belt–borrow from what we’ve already created from the Breath mode.
- All UI elements (toggle, track info, controls) should be unobtrusive and not detract from the Kasina, just like in Visual and Breath modes.

Non-Functional Requirements

- Code should be modular, supporting addition of future visual effects or kasina modes.
- Visuals should maintain a frame rate of 30 FPS or higher for smooth experience.

- Audio analysis API calls must be cached where possible to minimize rate limits and loading times.
- Maintain separation between music/breath data and visual logic for clean code structure.

Acceptance Criteria

- The orb always remains visually prominent and undistracted by background.
- Background visuals pulse/ripple on each beat, change color with mood/energy, and transition smoothly at section changes.
- “Breath Mode” toggle works in real time, instantly switching orb behavior.
- Spotify integration allows for real-time, seamless music-driven visuals.
- UI works on all major desktop Chrome-based browsers.
- Users can switch between Breath and Visual Mode without reloading or losing their place.

Copy and Tagline for UI

> “Breathe with the music—or let the music alone color your awareness.”

References / Inspirations

- Spotify Web Playback SDK and Web API documentation.