

Synesthetic Soundspace (XR – p5.js Immersive Experience)

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Overview

This project reimagines the Week 8 data visualization and sonification assignment as an immersive XR experience. Built in **p5.js** and **p5.sound**, *Synesthetic Soundspace* transforms Spotify's audio features into a virtual environment where users explore sound and emotion through color, motion, and tone. Each song becomes a floating circle whose height represents *danceability*, size reflects *energy*, and color encodes *valence* (mood). Clicking a circle triggers a tone mapped to the song's data, merging visualization and sonification into a multisensory interface that extends beyond the traditional desktop screen.

Tools & Libraries

- 1 p5.js – for canvas drawing and interactivity
- 2 p5.sound – for tone generation and audio envelopes
- 3 JSON datasets: week8_spotify_audio_features.json and viva_la_vida.json HTML /
- 4 CSS / Bootstrap 5 – for layout and styling

Concept & Design

Synesthetic Soundspace extends the original Spotify visualization into a digital sculpture that operates as a form of virtual reality. Instead of static 2D data, the piece creates an ambient, living system where circles drift in space, respond to interaction, and emit sound when touched. The combination of p5.js's WEBGL mode and real audio data creates a minimalist but expressive virtual landscape — a visualization you can listen to.

Reflection

This project explores how data can serve as a bridge between sensory modalities. By transforming numerical music features into visual and sonic form, the sketch challenges the limits of standard interfaces. The user does not click menus or read charts; they navigate an abstract, immersive soundspace. This approach embodies the idea of "interfaces beyond the desktop" — where computation becomes an artistic medium for perception rather than a tool for control.

Summary

A **p5.js** immersive XR environment that visualizes and sonifies Spotify-style audio features. Each song's energy, danceability, and valence form a living, interactive sound sculpture. The piece demonstrates how digital data can become tangible through sound and motion, turning ordinary analytics into an experiential interface.