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Overview

We propose a web-based tool for creating synthetic music. Existing full-featured music creation tools are loaded with features, and often difficult to use. For musical hobbyists, like developers of Flash games who would like to create their own background music, our web application would offer a lightweight, accessible solution.

The vision is partially inspired by the 1992 video game Mario Paint. In both Mario Paint and our proposed application, users are presented with a music bar, onto which they can place notes to compose a song.
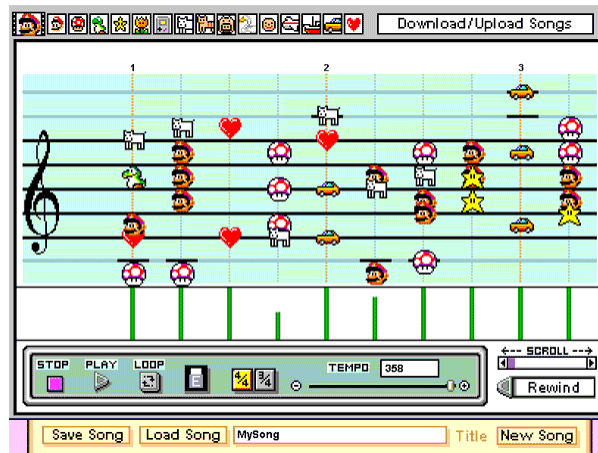
Mario Paint

The song the user composed can be played, saved, or loaded. By virtue of being on a server, rather than a 20-year old video game console, our application will be able to support exporting the song as a WAV file, which the client can then download.

Worth noting is the existing music tool at inudge.net. This Flash-based music sequencer provides a 16-step grid and several synthetic instruments, but its design doesn't lend itself well to creating full songs, nor does it support client-side saving.

inudge

Architecture

To get user input, we monitor mouse position and action. The jQuery library makes this a trivial task. The music bar itself is a JavaScript object -- when user input is received, the state of the music bar changes to reflect the action taken.

The playback of composed songs will utilize a timer and the x-coordinate of where the user placed the notes, as the horizontal displacement of notes is proportional to their temporal displacement.

Saving encompasses two features: (1) Server-side saving of the music bar's state, and (2) Client-side saving of a .WAV they composed. The first (and easier) feature will authenticate users and then use a relational database to store and retrieve states of the music bar. The second, challenging feature will involve concatenating .WAV files using SoX, a free sound processing utility.

Challenges

Beyond the technical challenges associated with learning new technologies, this project will require knowledge of music theory. If no engineers on the team are well versed in music theory, we can find a consultant from the UW School of Music to provide feedback before going too far into implementation.