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December 6, 2017

Competitive Analysis

# Description of Planned Project

Vybe is a program that visualizes music or sound on the screen. The visualizer opens with the name of the program, and a menu- to select a song, play/pause the song and switch theme. The user can pick a song that is stored as an mp3 file in their directory to play. Then it will open a window with the logo and a spiral spinning in the middle. Clicking on the button “Play” at the bottom, will start the song and the visualizations. The visualizations involve spinning spirals, wheels, concentric circles, changing colors, and an equalizer in the background, each dependent on some aspect of the song– beat, pitch and onset. There are two different themes of visualizations to choose from– “classic” and “fun”.

# Evaluating Competition

**• Pulse (A previous 15-112 project)**

* Set playlist of songs
* Record Live option
* Has ability to input user’s song through Sound Cloud
* Equalizer in the background
* Has concentric circles of different circles around it emanating from the center
  + Also has small colorful circles coming out of the center.
* Colorful
* Audio analysis includes: beat energy, beat strength, pitch, amplitude.
* Signals being read: Fourier transformations
* Made it into a game
  + Two player game
  + Must tap the key when each ring from the center reaches the ring on the outside.

**• Skyline (A previous 15-112 project)**

* Allows the user to load any local music and visualize it.
* User makes the playlist and can upload any song of their choice.
* Goes through all the mp3 and wav files.
  + If mp3, converts it to wav format
* Visuals include columns resembling a skyline at the bottom and concentric rings of circles on top.
  + Is black and white.
  + Has different themes of visuals for beat detection
* The moving columns represent the frequencies of notes
* Fourier transform on the signal
* Has an equalizer.
* Audio analysis includes: beats and frequency

# Identify Comparison Dimensions

1. Audio analysis: Visualizer must take in beat (strength, energy, etc.) and pitch at least. Use Fourier transformations to read signals in buckets (Fourier transformations).
2. Visuals: Create compelling and complex visuals on screen (circles, rings, swirling patterns, etc.) Include an equalizer in the background. Include equalizers.
3. UI/UX: Have the user can interact in some way with the visualizer (convert it into a game or create different themes for the user to choose from).
4. Uploading songs/files: The user should be able to upload their songs from local files or the internet.
5. Recording Live: Have “on-the-fly” visualizing, speaking into the microphone and having the audio visualize in real time.

# Comparison Table

Fill out the table shown below with the features you identified in the section above.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Dimension 1** | **Dimension 2** | **Dimension 3** | **Dimension 4** | **Dimension 5** |
| Pulse | Yes | Yes | Yes | Yes | Yes |
| Skyline | Yes | Yes | Yes | Yes | No |

# Summary

From analyzing different versions of audio visualizations, all the programs have the basic goals of an audio visualization program– analyzing the beats and pitch of the song/audio file. All versions have compelling visuals and have an equalizer that is made by signal processing using Fourier transformations, and allow the user to upload their own songs via Internet or local files in the directory. Pulse, even added a live recording feature, which Skyline did not incorporate. So, taking all of this into account, features such as equalizer and the ability to interact with the visualizer. To be competitive with the existing versions, I must include an equalizer and a good UI/UX experience (i.e., allowing the user to interact with the visuals, or create different themes for visuals for the user to choose from) to my project. My visuals must be compelling and more advanced that the ordinary circle patterns. Adding physics principles to the visuals may be a good idea to make the visuals more complex. These advanced features would make my version of the program more unique and more interesting.