

Music Synthesizer and Visualizer

6.111 Project Abstract

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We propose to build a digital audio synthesizer which simultaneously displays a visualization of the sound being produced. The system will take an external analog audio input, overlay an audio stream generated by the user via a computer keyboard, and apply filtering effects as desired. The synthesizer will feature a variety of filters and effects along with a standard library of tones that the user can select from. This library can be manually calibrated by the user to specific musical tones to ensure a pleasant harmonic blend with the inputted audio. The visualization will be displayed on a computer monitor and will depend on the pitch and rhythm of the outputted audio stream as a whole. The final product is intended to be a user-friendly and fun musical instrument which allows people with limited musical knowledge to “play along” with or improvise on top of musical tracks of their choice, while enjoying an entertaining visual display.