

## 6.111 Project Proposal

Rhian Chavez & Miles Johnson

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We plan on implementing FPGA based control of multiple strips of lights which react to music in an aesthetically pleasing way. This will be done by using a piezo electric microphone inputting analog audio data into the ADC on the DDR. This data will then be fed into multiple signal processing units which, among others, analyze the spectrum and search for significant beats. This data will then be translated into brightness and color information for many I2C programmed LED strips which will vibrantly display music in a visual manner. Our initial implementation will simply involve displaying the fourier transform in a clear way which changes with the music. Possible extensions of this project include playing the music from the FPGA concurrently, adding additional functionality such like beat detection, and interacting with various more complex sound and light systems.