6.111 Final Project Abstract

Spherical Persistence of Vision Display

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For our final project we are planning to develop an FPGA-controlled persistence of vision display, similar to something like this: https://youtu.be/2hASOre63Nk. The concept behind the display is that by spinning a single strip of lights at high speed and precisely controlling which LEDs are lit at any given position, we can take advantage of the eye's slow response time to create the illusion of a continuous display. One unique feature of our proposal is that we plan to design the geometry of our spinner so that the LED strip is bent in a semicircular arc spinning about one of its endpoints, creating the illusion that our images are being projected around a sphere. As a base goal, we're hoping to have this device be able to display images stored in memory. We have a lot of ideas for how to expand this to various stretch goals, which will be fleshed out in our proposal. Some of our ideas as of now include expanding from one strip to multiple for higher resolution, support for storing/displaying animations, and some sort of live control of what's being displayed.