

Project Proposal: ViewTube

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1 Overview

The goal of this project is to build a hardware interface for software to display NYC Subway data in real-time.

2 Design Components

- User-space library: this component fetches NYC Subway data from the MTA's public web APIs and passes it to the FPGA via a driver interface.
- Kernel-mode driver: this component is a Linux kernel module that provides a virtual file interface to software in order to interact with the hardware.
- Hardware: the FPGA will be responsible for tracking time and positions of trains and using this information to drive a VGA display and display the subway system on a map with real-time data. Further, the FPGA will respond to a keyboard interface that will allow a user to select a specific track, change track, view all trains, and provide smooth rendering of trains as they move along stations in real time.

As a reach goal, the project will add a smoothly animated zoom-in and zoom-out feature.