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6.111 Final Project Abstract
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FPGA Camera-Controlled Traffic Lights

In many countries, main road traffic lights are controlled with a fixed-time control system. During rush hour when people are heading to work or returning home, traffic is at maximum capacity and this often results in traffic jams.

The aim of this project is to create a traffic light system which is autonomously controlled by the density of cars at road intersections. We will use a camera to take an image of the intersection and send the information to the FPGA. The image will be processed and based on the number of cars on each section of the street, the FPGA will modify the colors of the lights appropriately. This approach will allocate effective time between road users during peak and off-peak cycles.

Extensions of this project include blaring a siren if a car crosses a red light or using pedestrian push-to-walk buttons.

