

We want to develop a laser projector that takes as input images from a camera and uses a scanning laser galvanometer to project its edges onto a wall. This system is composed of modules that obtain images from a camera, extracts its edges in a rasterized representation, and controls a galvanometer. To extract the edges, we will explore different filters (i.e. canny, sobel, etc) and use thresholding techniques on the images obtained from the camera. Ideally a scanning galvanometer system could work by rasterizing the image and turning the laser on and off at every pixel position. However, the scanning frequency may be too low and thus our images will not be persistent. This requires us to convert the edges into continuous contours using hardware-friendly implementations of the traveling salesman algorithm. However, such system will connect contours that are not necessarily be connected to each other. In many galovemeter systems, this is not addressed and consequently leads to the introduction of spurious edges. We can deal with this by introducing an additional mechanism to directly modulate the laser on and off so that we are not forced to draw these "annoying" connecting lines.