ECE 4704 Project 2

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Introduction and Author’s Note

So the chances are 50/50 that either you’re Dr. Williams or Sarah Maxseiner. If you’re Dr. Williams, congratulations – you already know what’s up. If you’re Sarah, chances are, you probably don’t have nearly as much information as to how I had made plans to do Project 2, so let me explain what’s going on.

Because of how I’m not the biggest fan of MatLAB or Mathematica, for Project 2, rather than designing a traditional robot and deriving its forward and inverse mechanical properties by hand or with one of the aforementioned tools, I wrote my own robot simulator from scratch in C++.

I began with the Simple Directmedia Layer library (SDL), which allows me to create a window into which I can write text and draw lines. From this point, I built the rendering and coordinate transformation logic myself. I have to say, the results aren’t perfect, but I’m immensely proud of what I have produced, and I hope you enjoy reading and seeing these results as much as I enjoyed producing them.

This project is divided into three distinct parts. The first part is the flashy video – you can watch it either from the video I’ve uploaded on Canvas, or you can watch it in YouTube at the following link:

(Link)

The second part is this report. You should probably read this report after watching the video – it’s good to have a brief understanding of what my program is capable of before I get into specifics of how I computed everything.

The final part of this project is, well, the code! I’ve uploaded a zip of the Visual Studio solution of this project, and I have also uploaded this solution to GitHub. Currently, the Github link I’ve created is private. I have sent invitations to both of you, under the emails [rywilli1@vt.edu] and [sarahbm9@vt.edu], meaning you’ll have to accept the invite link below:

<https://github.com/mzhong99/LaserRobotSimulator/invitations>

I need to note that this project probably will not compile for you out of the box – if it does, color me surprised. You will need to install the Simple Directmedia