CSCI 5551 - Intelligent Robotics Systems
Final Project Proposal (Baxter Bot Ross- The Joy of Painting)

Team
Alex Overman
Nadya Postolaki

Project Proposal
Have Baxter recreate a given image with a ‘pencil’ on ‘paper’.

Details
Use the Baxter robot to accept a given image which it will then vectorize and use the created mathematical formula to recreate the image by drawing it on paper. Baxter will need to position its end-effector along the paper to successfully “visualize” where the image will be drawn relative to Baxter.

Design & Engineering Process
Weeks 1 and 2 - Learn how to use ROS and how to operate Baxter.
Week 3 - Investigate and develop an algorithm for vectorizing the image.
Week 4 - Work through the transformations needed to follow along with any vector image on the paper.
Week 5 - Finalize the algorithm for vectorizing the image in a way that is palatable to the human eye, and a smooth method through which Baxter will recreate said image on paper.
Week 6 and 7 - Overflow and testing

Lab and Hardware Access
We will use ROS to simulate a Baxter robot, due to the COVID-19 pandemic.

Possible Issues and Solutions
We don’t know how precise Baxter can be, nor do we currently know how to manually, via Python, vectorize an image and develop a mathematical formula which will then be translated into movements that Baxter may smoothly carry out and follow. However, if the image is too difficult to vectorize, we can provide simpler/more abstract objects where vectors are easier to graph.