

## Project 1 Report

### Team Members:

Zachariah Stratton  
Pablo Vielma Jr.  
Russell Pier  
Shaun Fattig

### Member task allocation:

Interface creation, layout & report - Zachariah Stratton  
Arm links & rotation - Pablo Vielma Jr.  
Website, color picker and continuous movement - Russell Pier  
Bug fixing & paint function - Shaun Fattig

### Project Website:

<http://people.tamu.edu/~russell.pier/csce452/robots.html>

### Project description:

For this project we decided to use JavaFX as some of our members had experience working with it before and it seemed like a good option to have an easily manipulated interface that we could move from system to system without much difficulty. We attempted to follow the guidelines as closely as we possibly could, making certain the arms and axis of our robot were the right pixel length, as well as designing the interface to be similar to the simulation presented in the instructions.

We used `getTransforms().add(new Rotate(1, x, y))` to rotate our links from origin  $x$  and  $y$ . Essentially it works like applying a translation before doing a rotation. Because these changes are permanent to each frame, when they are applied, rotating a lower link causes some misalignment issues; this is due to different links having different frames, and thus, different interpretations of the same coordinates. To fix this, we applied the transformation function to a temporary new link within the button instance, rotated that, and used `Point2D's localToParent` function to determine where the rotated coordinates are in the world. Then we applied those coordinates to the permanent links.

### Difficulties experienced:

The main difficulties that we encountered were in the process of gaining the updated coordinates to use to make sure our arms stayed connected after movement. Eventually we were able to retrieve them, as the default get functions for our arm objects did not update in real time due to limitations with JavaFX.

## Interface:

