

# Individual Lab Report

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**Team E**

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## Individual Progress

It was necessary to update the planning scene this week in order to plan with the new mount. Part of my objective for this was to also make the mount easy to modify so that when we use other temporary mount or the final mount, it would be easy to make the change.

I took the measurements of the new mount and made an stl file to put into the simulation. Then I performed some simple math to determine the xyz rpy parameters for the mounts placement. Figure 1 shows some of the measurements and math that was performed.

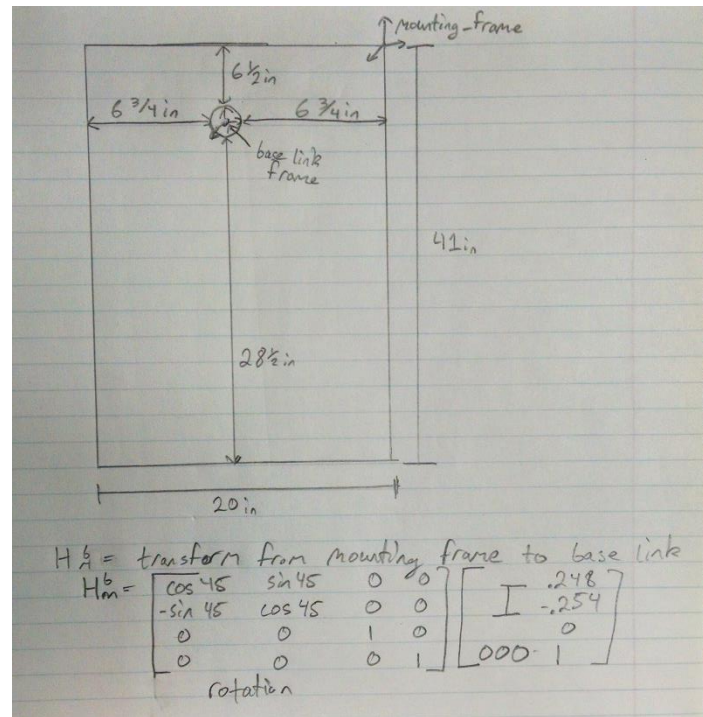


Figure 1. Measurements for the new mount.

I then used the old code for dynamically publishing frames as a template for publishing the mount frame. I had to write a publishing node and a config file, then add these files to the setup environment launch file and the cmake file respectively. I was then able to verify that the base is mobile and that it can be planned with. Figure 2 and Figure 3 show the new base and the based after it has been moved respectively.

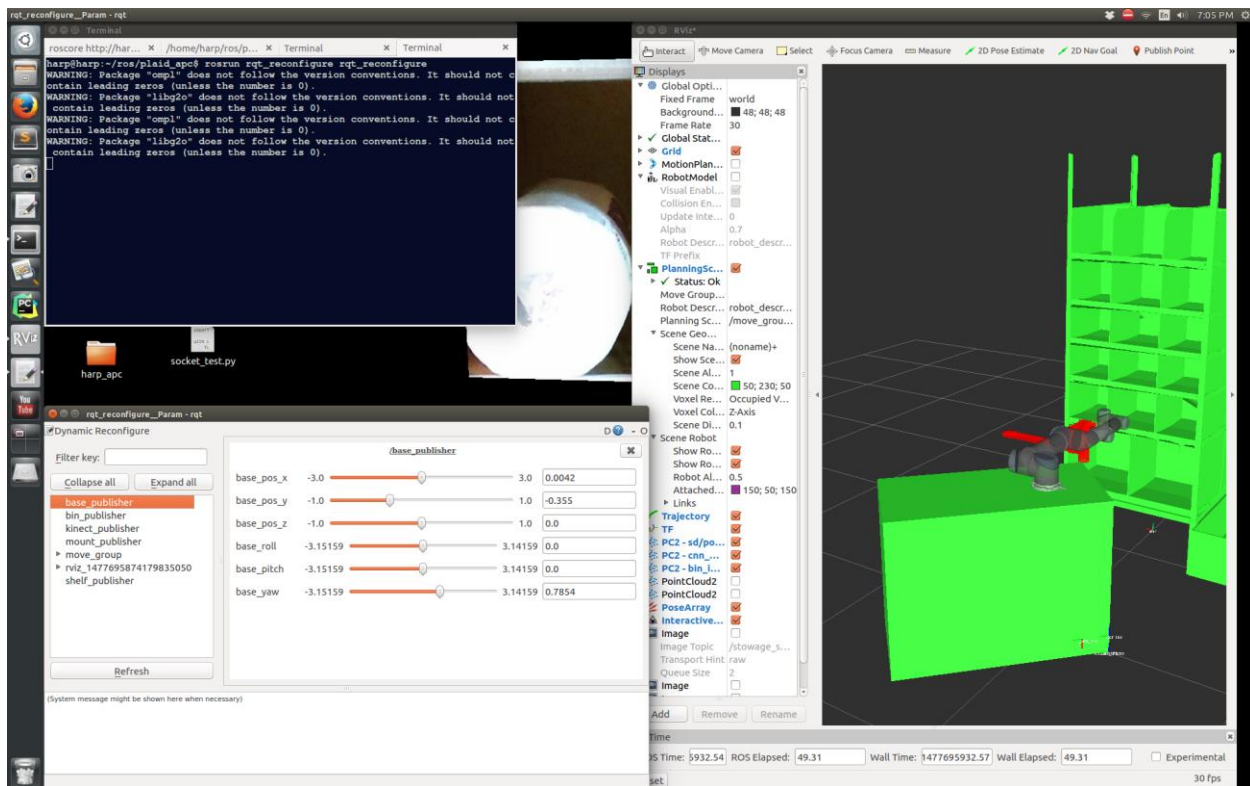


Figure 2. The mount in the standard position.

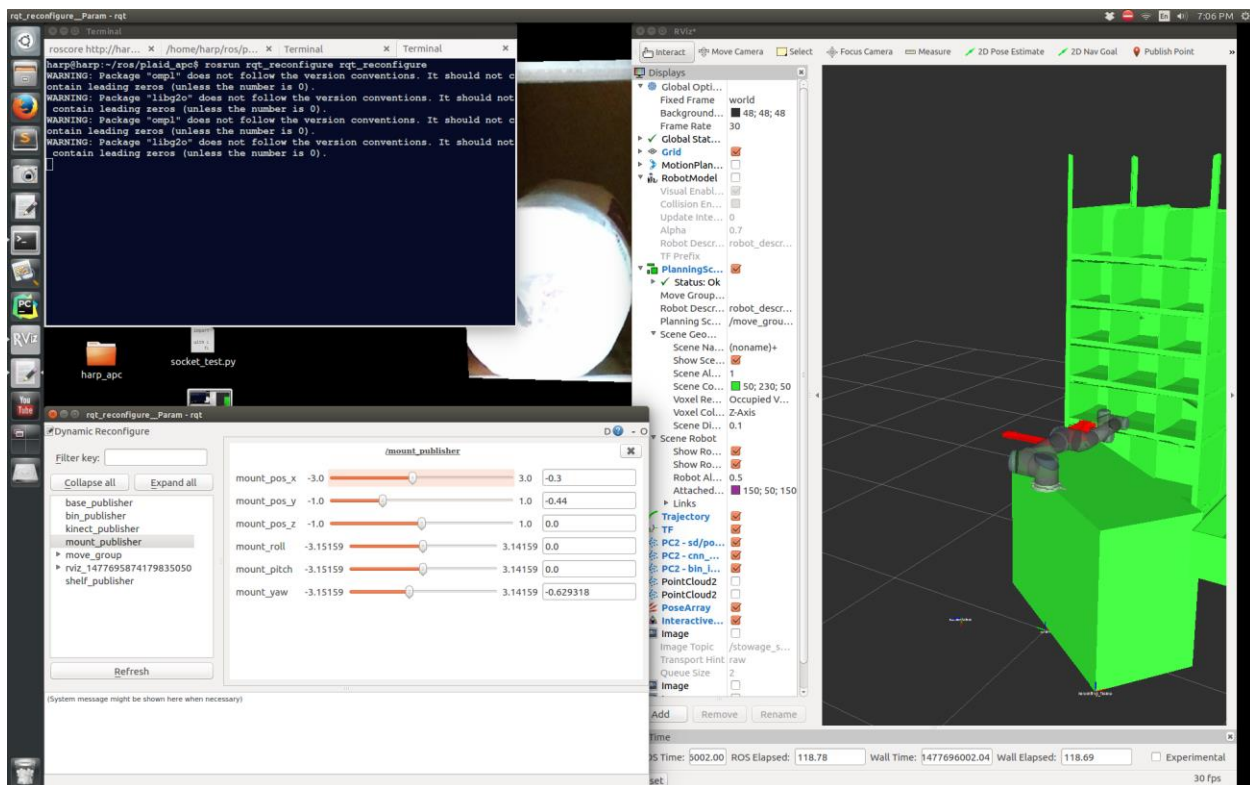


Figure 3. The mount after its frame has been dynamically reconfigured.

## Challenges

When I tried to use the stl file in ros I got some strange error about not being able to parse the file. I searched online for a while and found that solidworks inserts the word “solid” into the beginning of stl files, so I had to get rid of it. There is a terminal command to do this via some strange byte level modifications to the file. This is documented in the github commit for `plaid_apc`.

I also had some minor issue understanding how frames are published in our planning scene, but some help from Alex cleared that up in a few minutes. He explained that the frames are assigned in the `move_arm_server.cpp` file, and I was able to figure it out from there.

## Teamwork

This week I worked with Leo to verify that the new `plaid_apc` repo is functional. Leo used me as a guinea pig to find issues with the repo then debugged the issues with my feedback. The issues were minor. After those issues were resolved, I was able to integrate my recent changes and launch the setup environment in full.

## Future Plans

Next week I will be working with Jin to take some images with the Kinect and Real Sense and in the process flesh out the planning interface with Leo. This will be the foundation for how other nodes interact with planning so the hope is to make something robust and elegant.

In the further future I will be integrating the additional DOF's into the planner, with some guidance from Andrew. I also intend to start making the E-graph in a couple of weeks. It is likely that the E-graph will have to change as new hardware is integrated (the UR10 or modifications to the base), but Andrew assures me that the methods to gather the needed points and trajectories should transfer over smoothly.