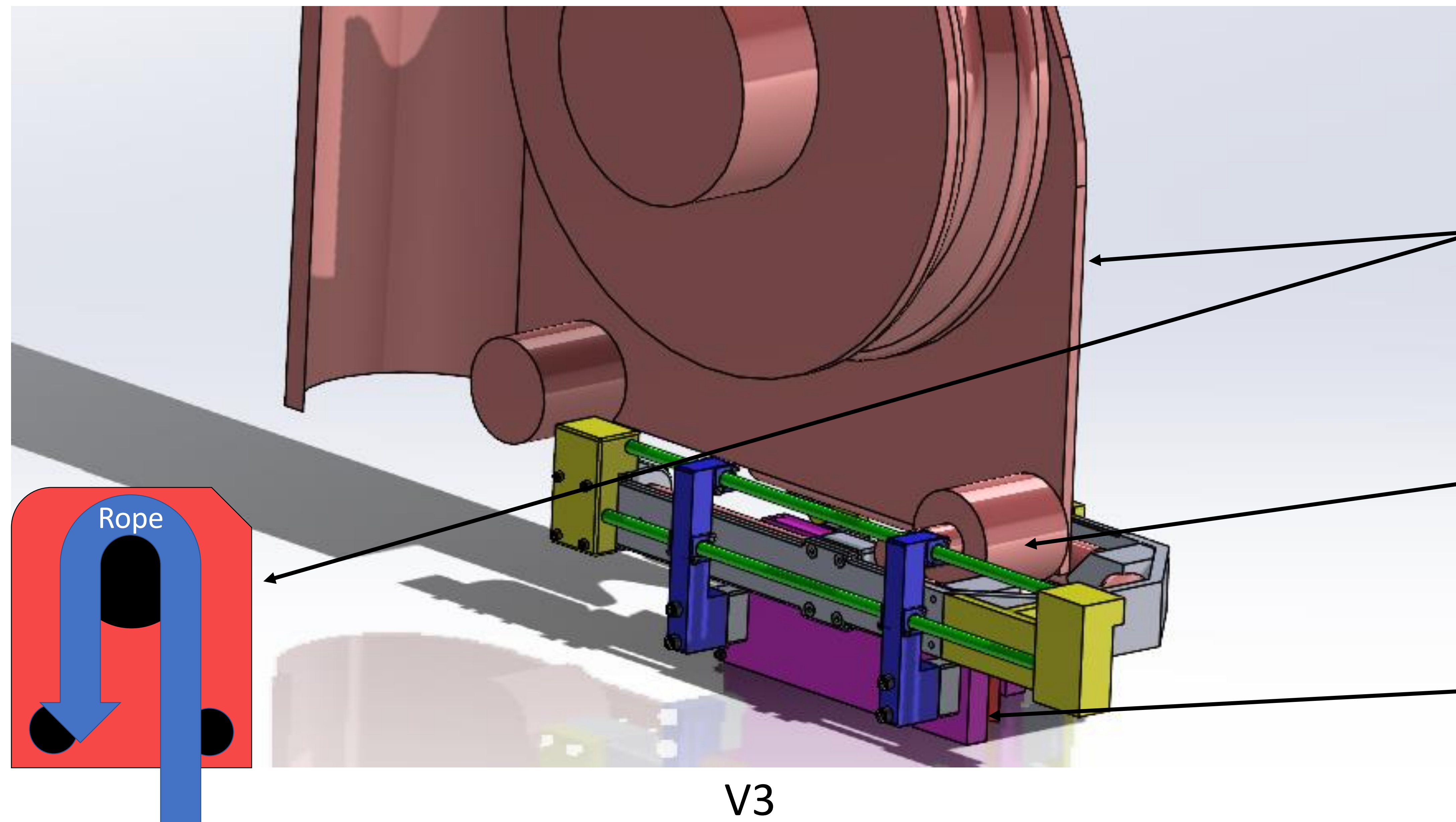


# Brush Mount for Biofouling and Water Removal on Commercial Crabbing Lines

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## Design Problems and Purpose:

One Issue commercial crabbers deal with is biofouling of their lines and slippery decks. This project aims to address those two issues by introducing a brush system to the market that cleans crab pot lines as they are pulled up. This system must be easy to install, strong enough to withstand the line leaning on one side while the ship rocks, and have brushes that can move away from the pulley in the event of a tangled line. It will be designed to fit many crab blocks, but will begin with Marco brand blocks.



## Main Components:

**Crab block:** The red assembly  
Marco brand crab block will be used as the basis for this product, but will only be the starting point.

**Linear shafts:** Green shafts  
Chosen since they will be able to work with Delrin bushings. The blue brush mount attachment points and purple brush mounts will slide along these.

**Brush mounts:** Purple rectangles  
Made to fit a variety of small broom heads so that brushes may be easily replaced.

V1/V2

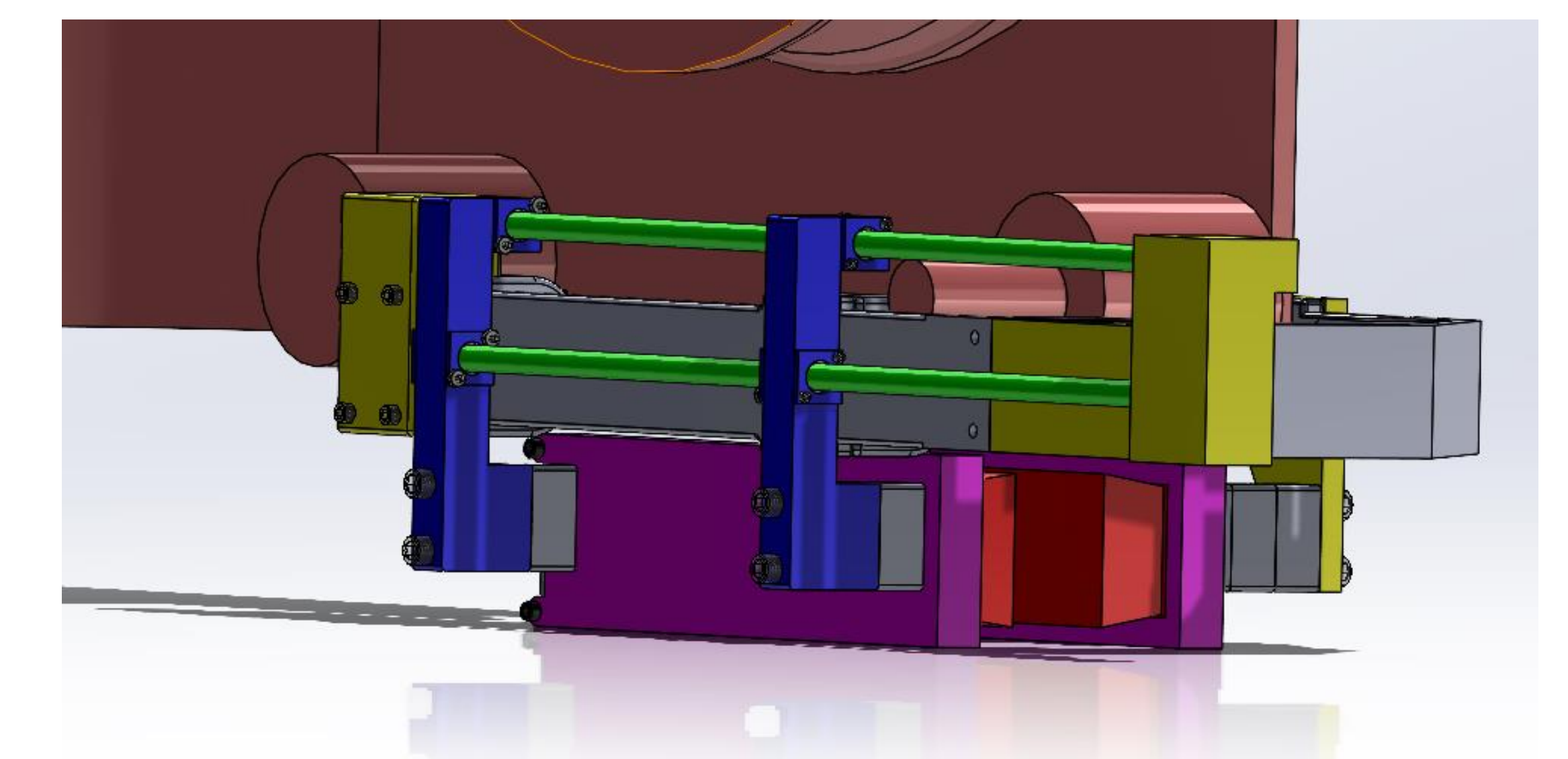
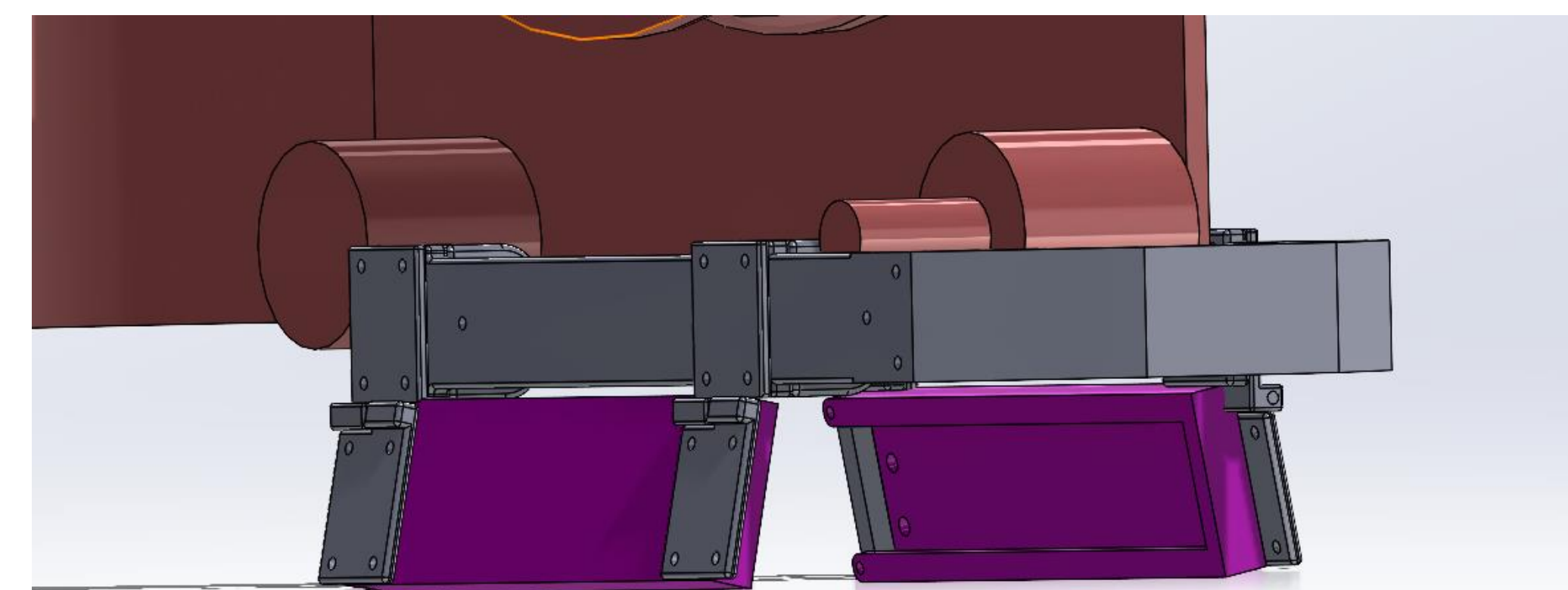
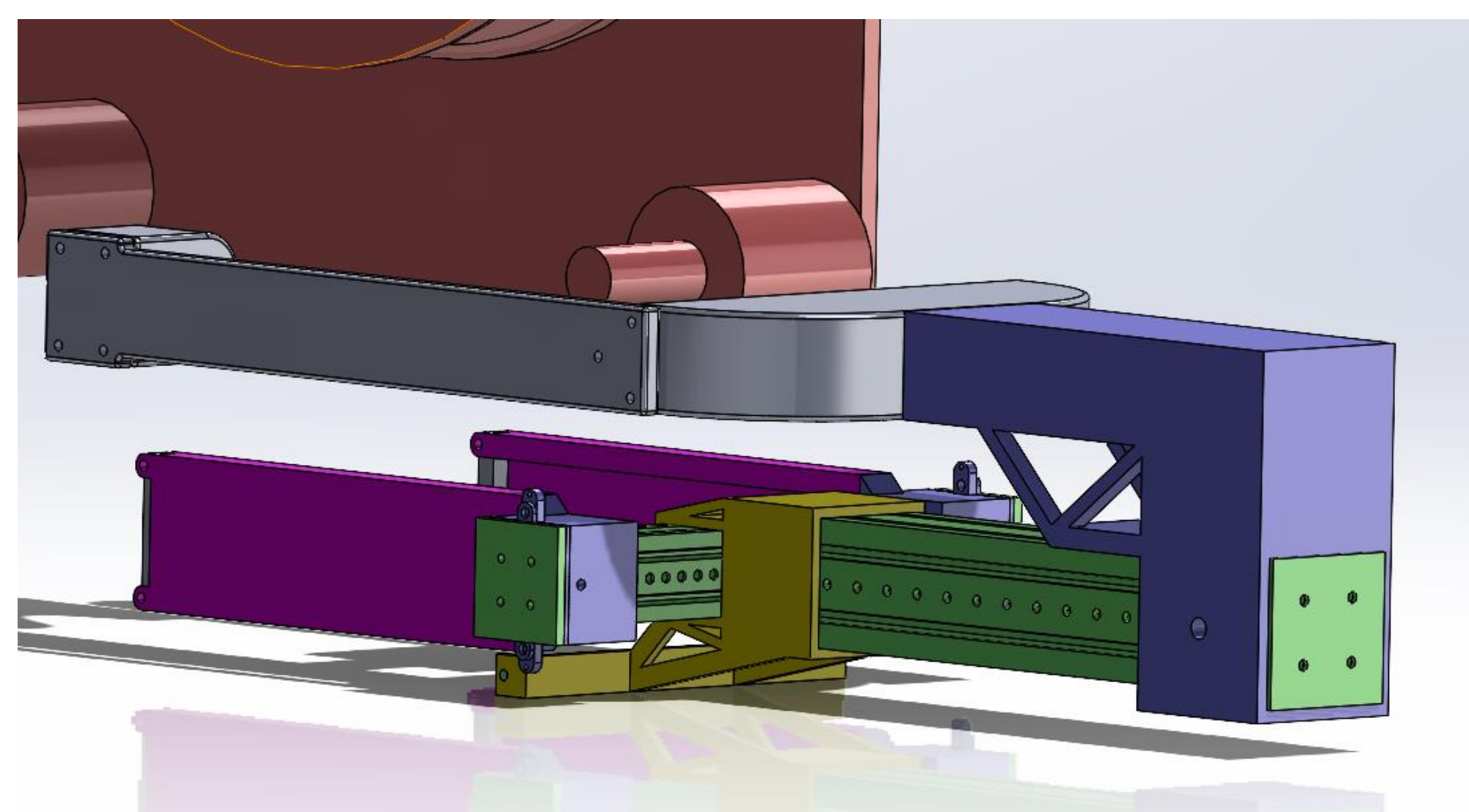
V3

V4/V5

- Most expensive and complex design.
- Two sliding mechanisms gave this design great adjustability and the ability to completely retract from the block
- Long arm necessary for movement makes this design bulky if designed for the necessary loads.

- Most inexpensive and simple to produce
- Hinged mechanism brings brushes to and from the line
- Hinges get rid of any sliding mechanism for moving the brushes
- Limited movement
- Design would get in the way of tangled line OR be too small for the brushes to properly engage the line

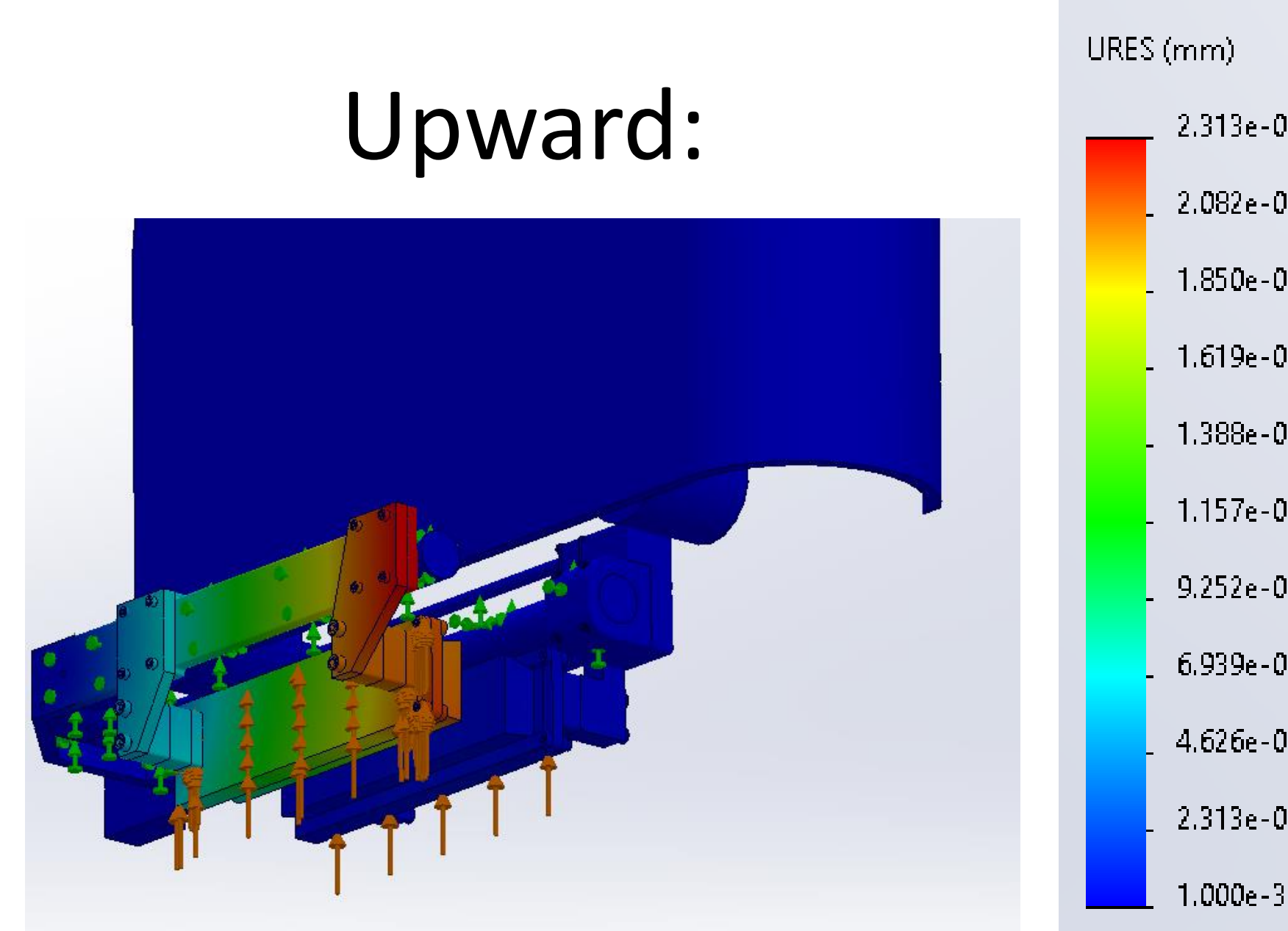
- Combines the sliding aspect of V2 with the simplicity of V3
- Rear brush remains stationary
- Less adjustable than V2 and V3
- More inexpensive to produce, lighter, and stronger than V2



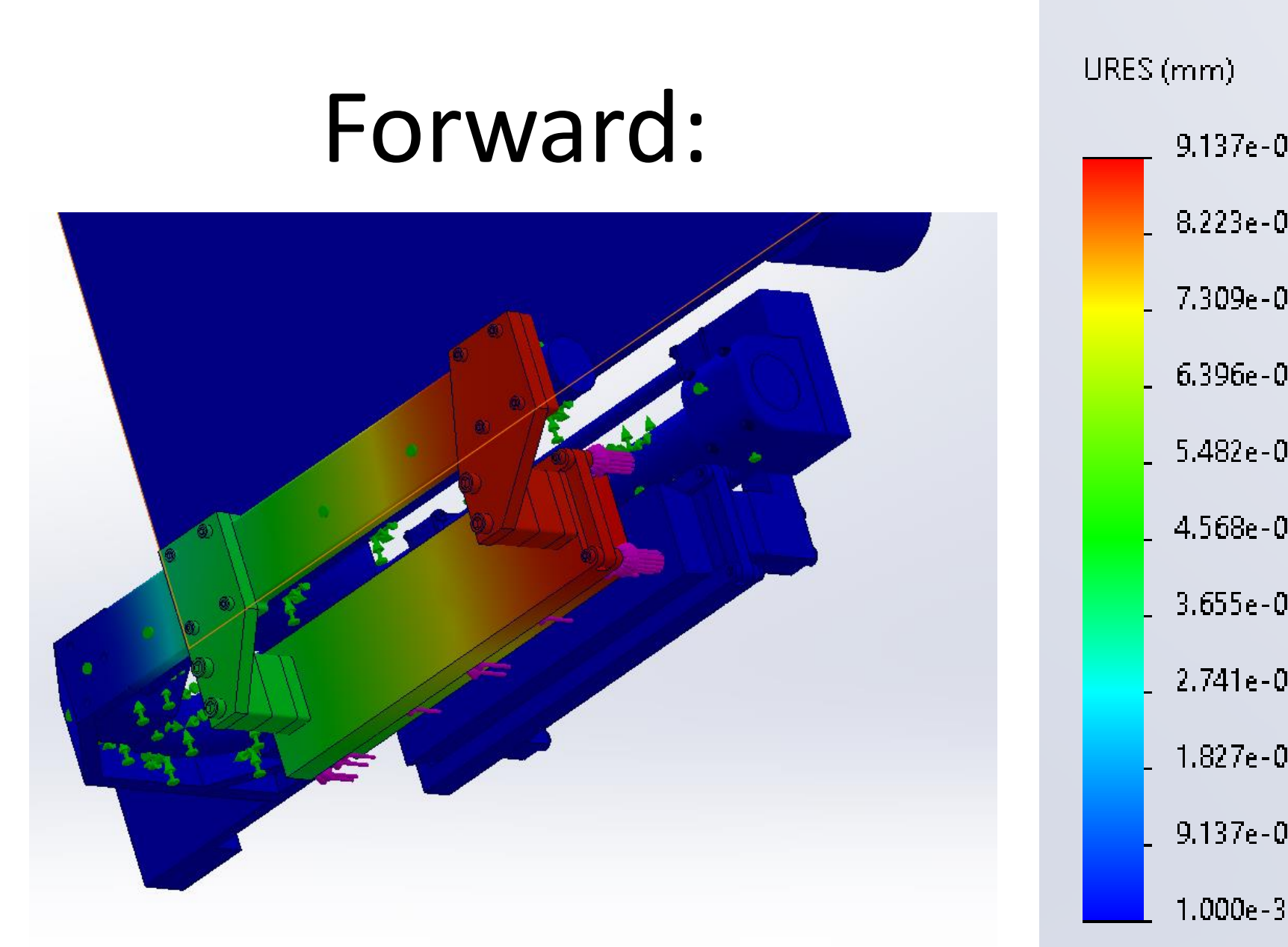
## Simulations of Line Cleaner V5:

These simulations illustrate deformation of the line cleaner first with a 600 pound force going up. This shows us what may happen if a tangle hits the brushes. The last two show an 800 pound force acting to either side, as when the line leans on one brush as the boat rocks. The crab block is fixed in these simulations.

Upward:



Forward:



Backward:

