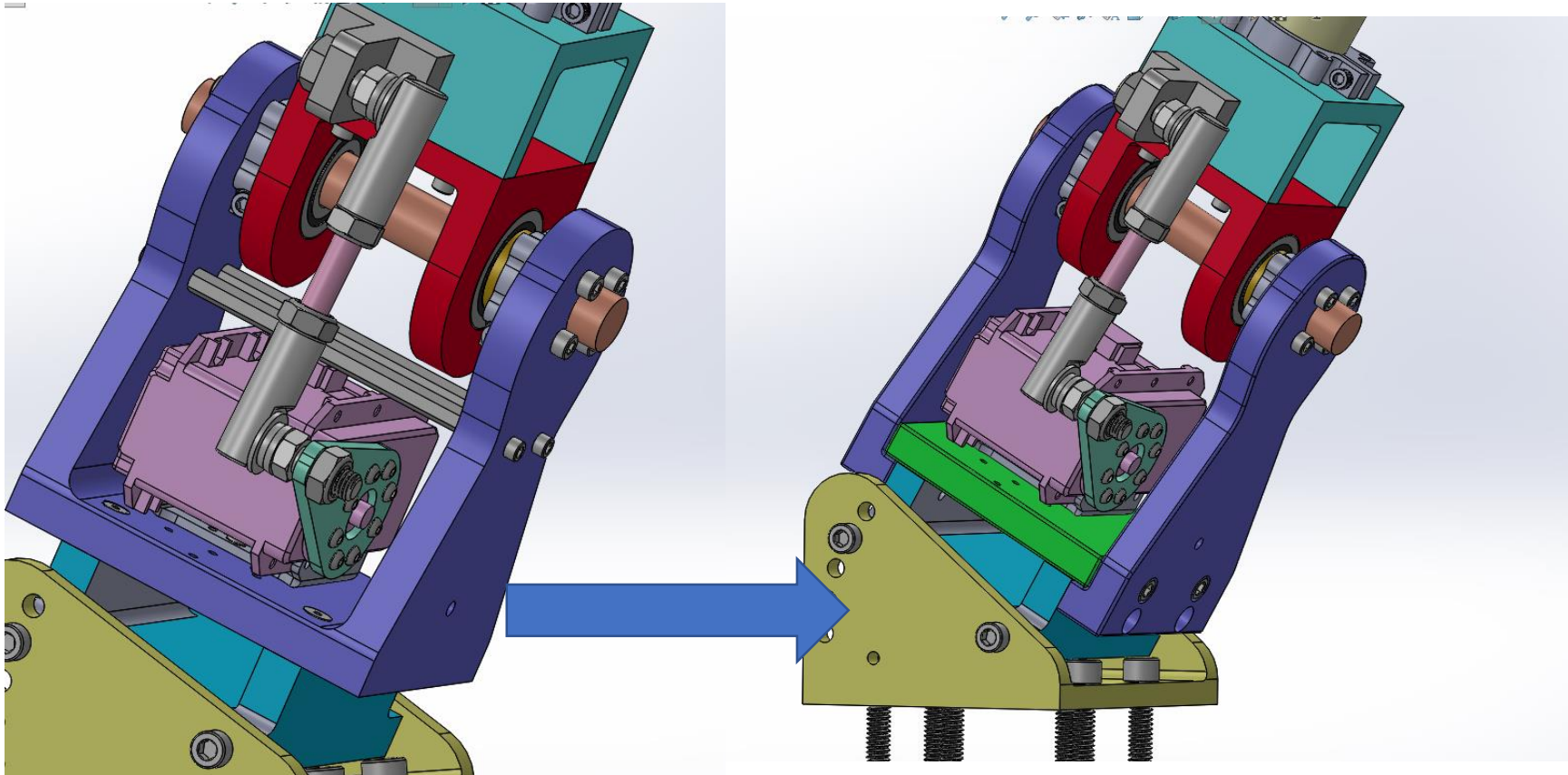


Head Tilt and Turn Design Changes

Status: in review for final details/tolerancing

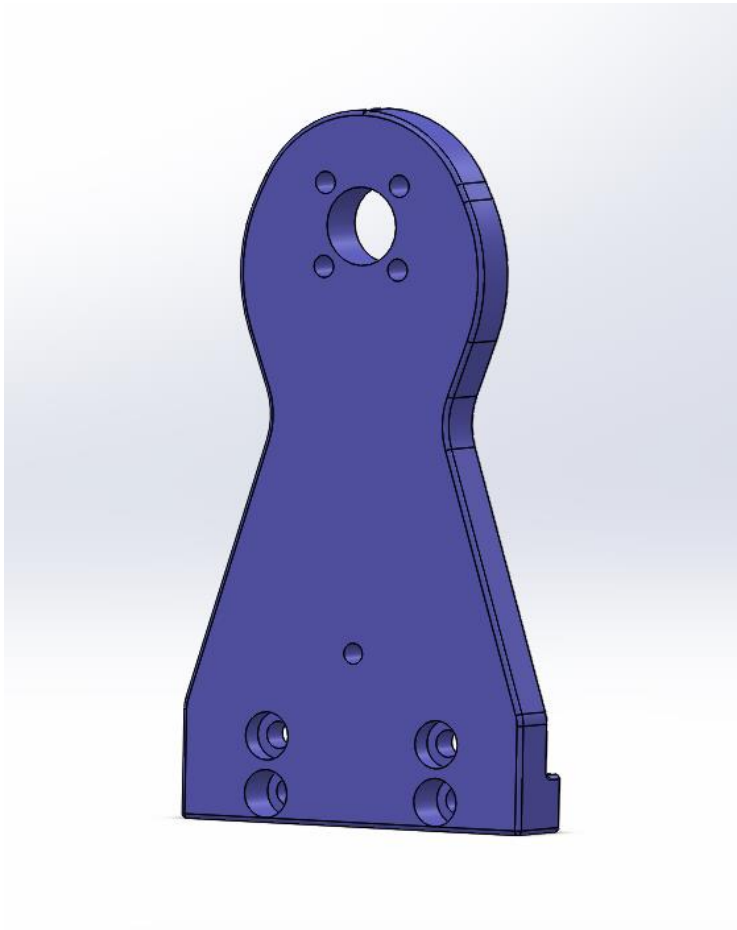
Head Tilt Redesign



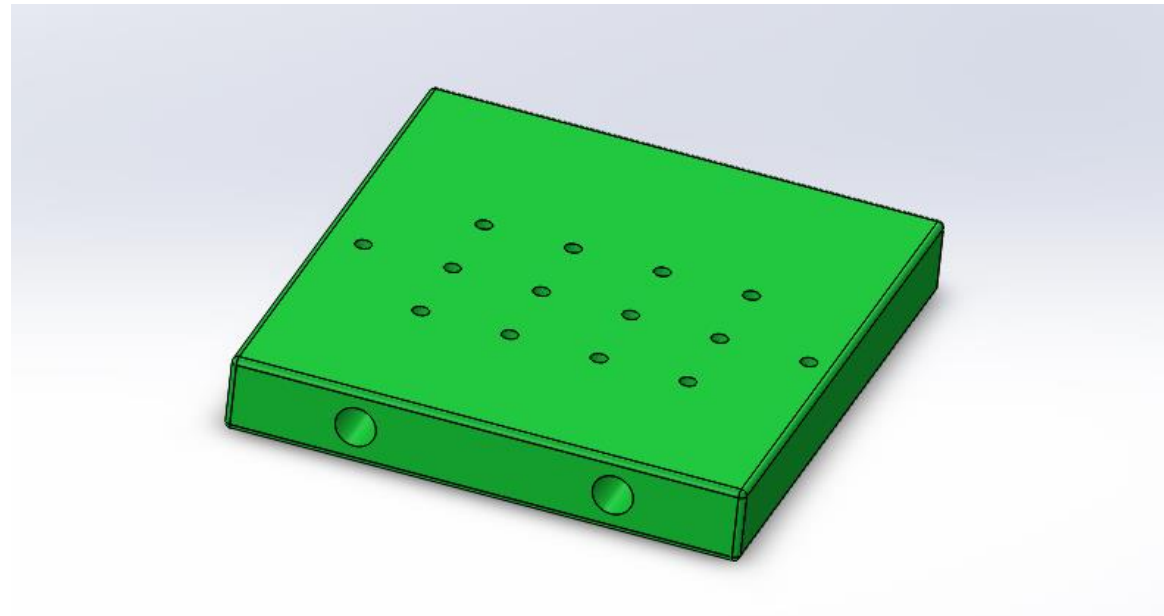
- Solves design issue of assembling head tilt function
- Allows access to motor easily without having to take everything apart

Total cost for head tilt redesign changes: \$567.33

New Protolabs Parts

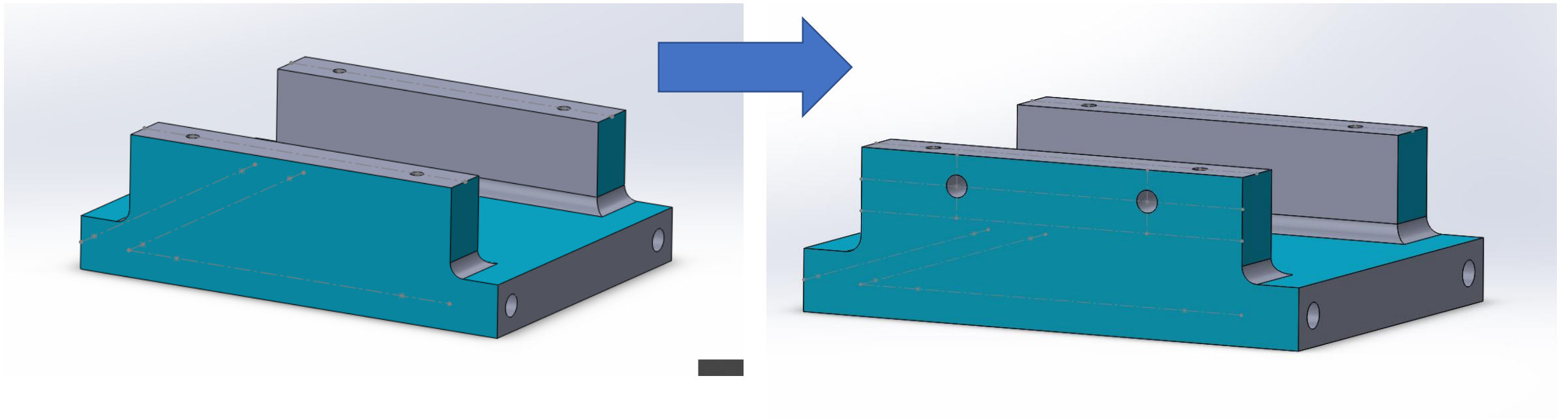


- 2x purple pieces (\$185.83 per part)
- 1x green piece (\$195.67)



To be modified by CMU machinist

- Only adding four tapped holes to existing piece, otherwise Protolabs cost is \$246.79 for new part

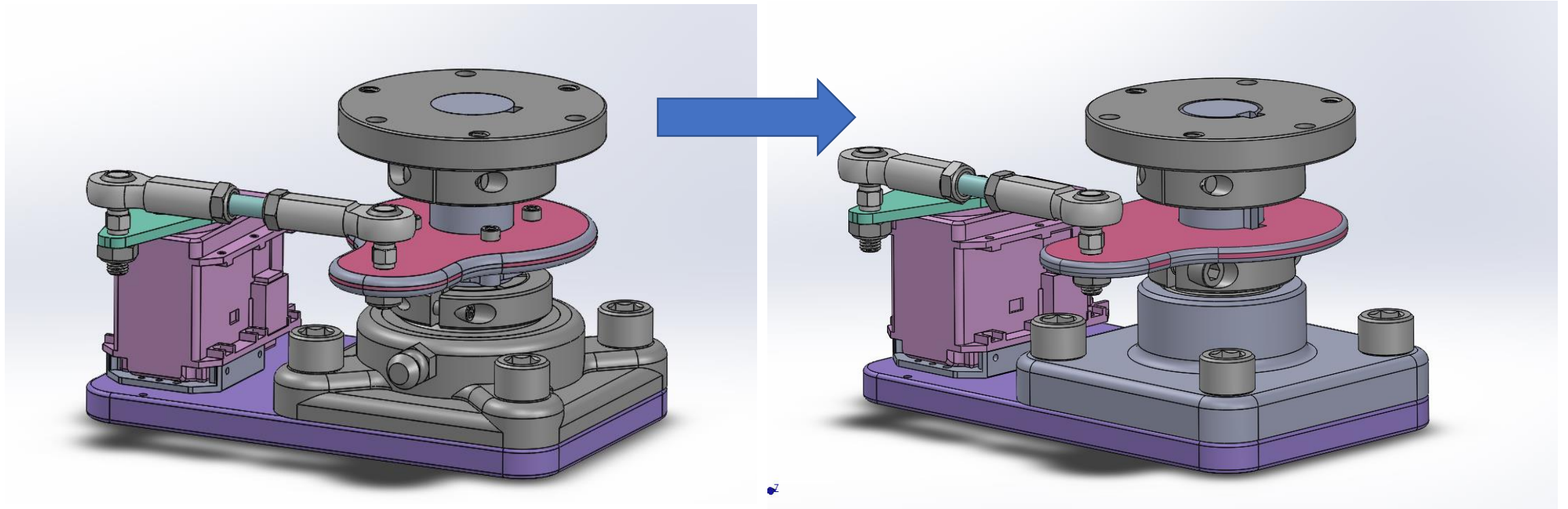


Hardware needed

- 8x 8-32, 1/2" long socket head cap screws (already in inventory)

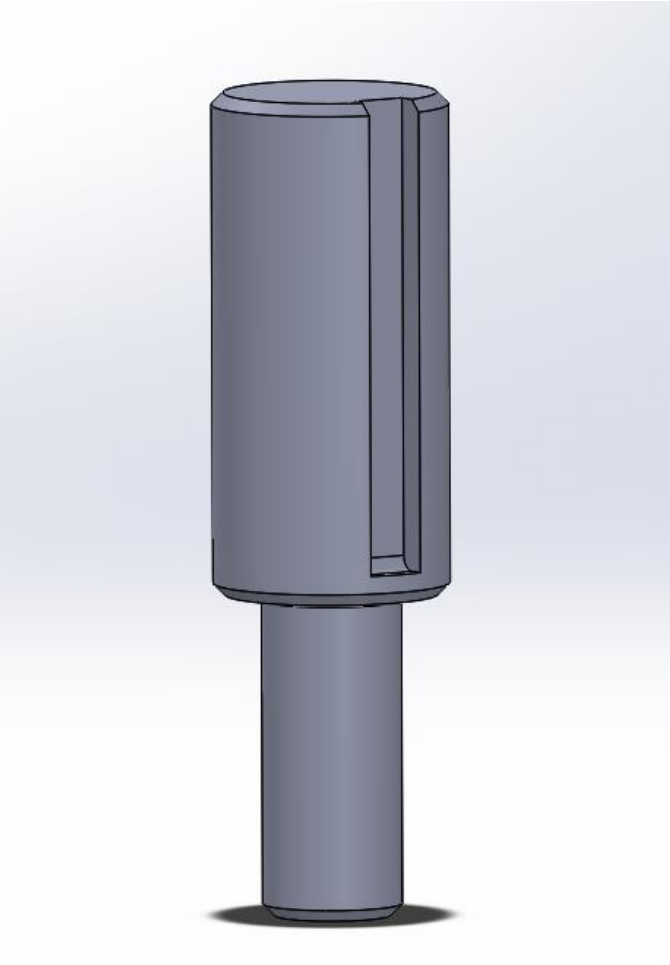
Head Turn Redesign

Total cost for head turn redesign changes: \$594.62

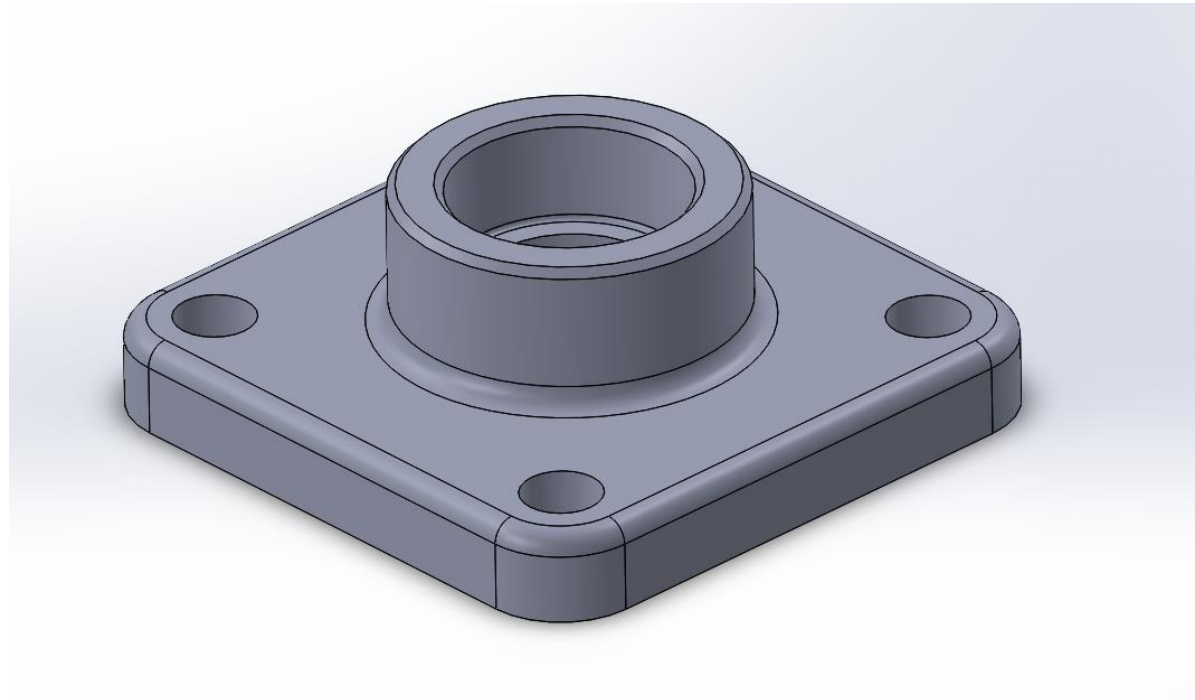


- Fixes both issues of bearing popping out of housing, and parts rotating about shaft due to resistance of foam. **McMaster Carr will refund us for bearing if we send it back (will save us \$108)

New Protolabs Parts

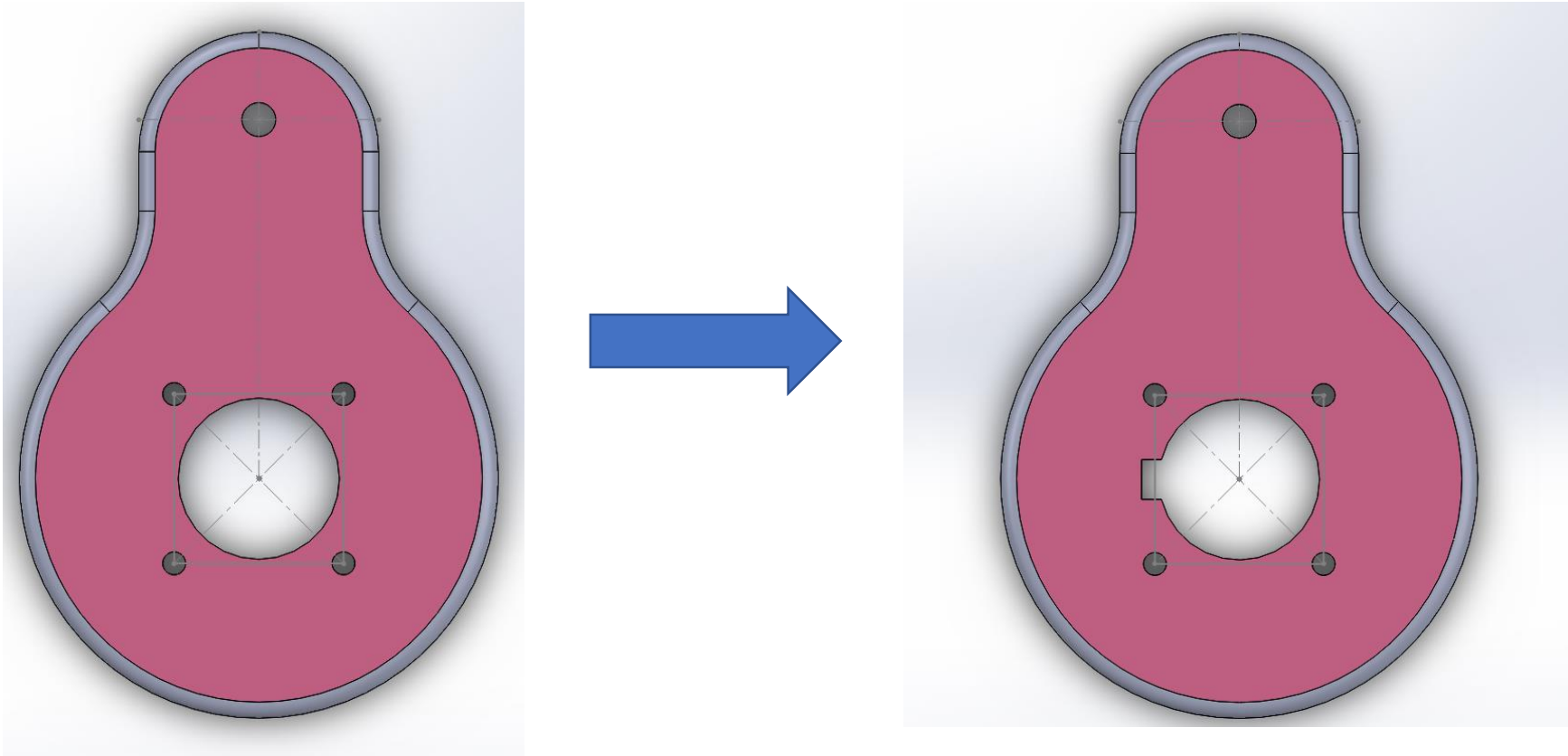


- 1x shaft (\$127.68)
- 1x bearing mount (\$298.09)



To be modified by CMU machinist

- Only needs keyway added, otherwise Protolabs cost is \$173.78



Hardware needed from McMaster Carr

- 4x 7/16"-20, 3/4" long socket head cap screws [\$6.71 for the pack]
 - 92196A685
- 1x stainless steel shaft collar for 1" diameter shaft [\$33.86]
 - 3329K15
- 2x double sealed angular contact bearings [\$63.40 per bearing]
 - 8828T313
- 1x zinc-plated key stock (dimensions, 1/4"x1/4") [\$1.48 for 12" length]
 - 98491A136