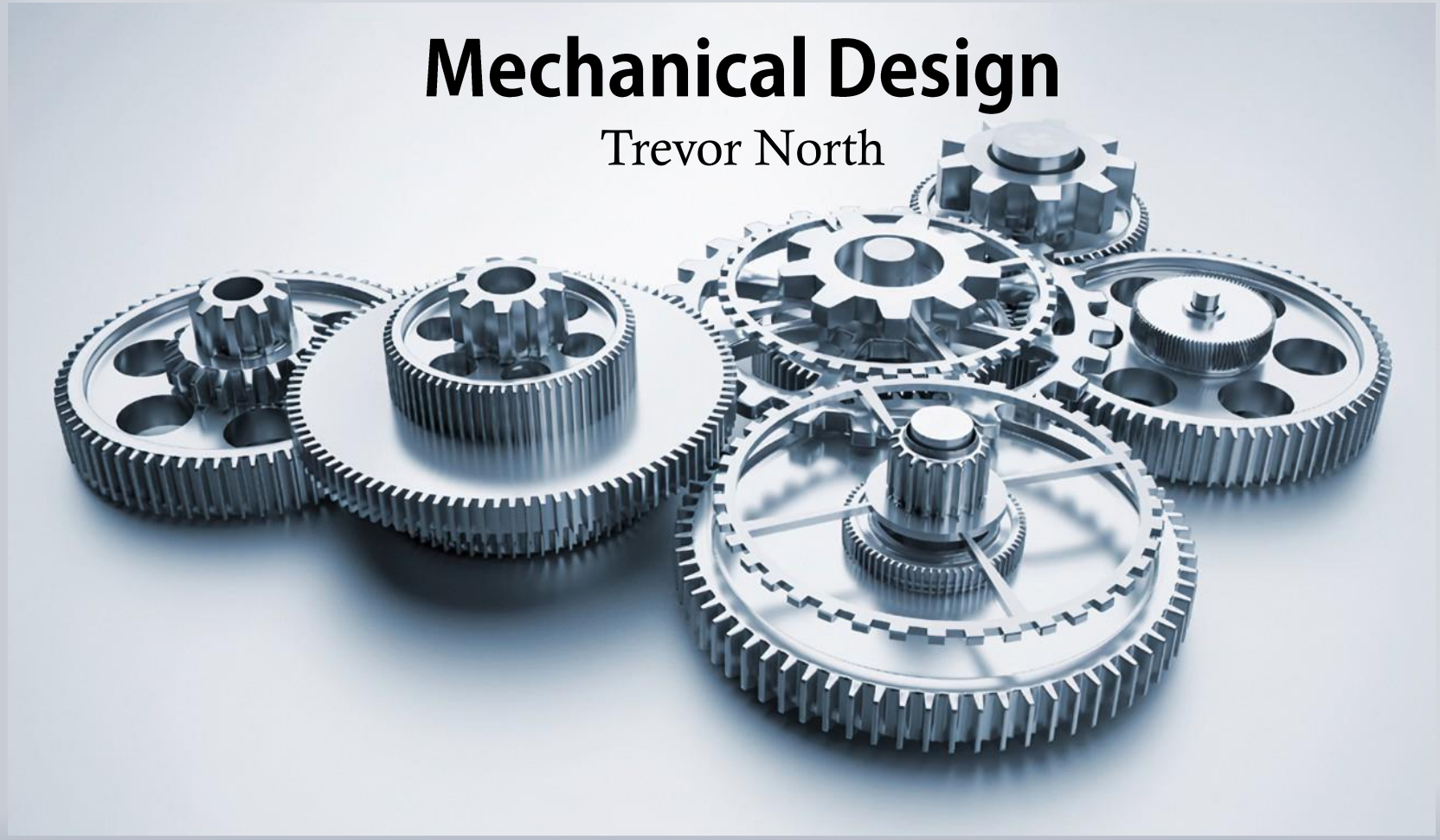
Mechanical Design

Trevor North



Kansas City Lego WW1 Memorial

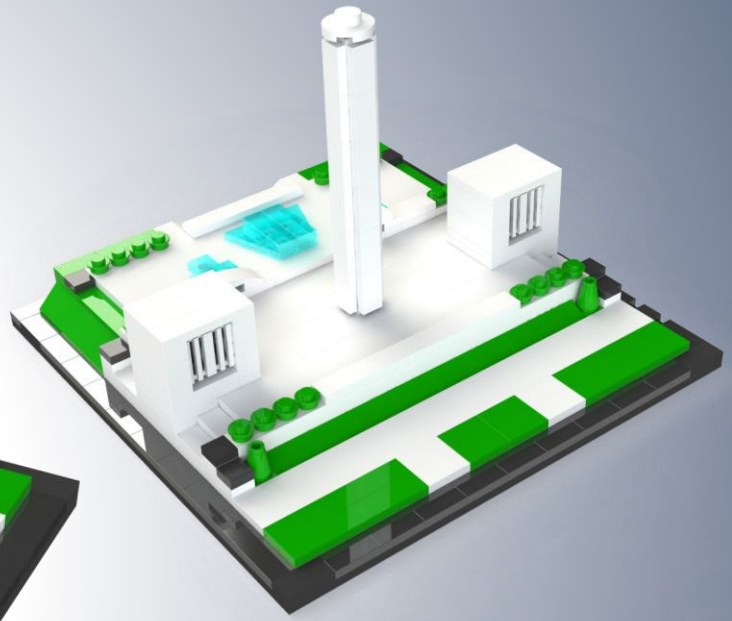
- The goal was to create a Set for the LEGO company, modeled after a real building

Design Constraints:

- Only use existing Lego parts
- Pieces scaled to exact lego sizes
- Popular enough to be bought

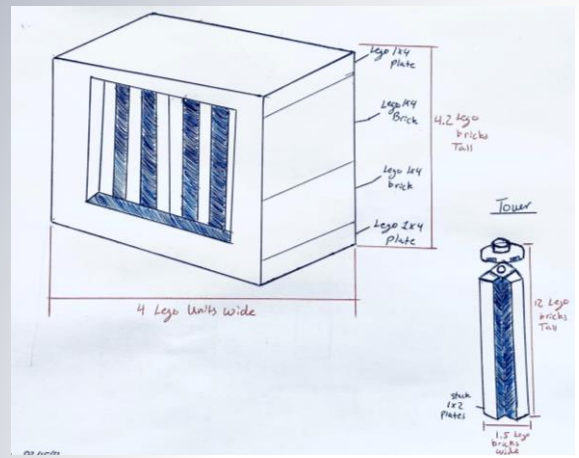
  by 15,000 people

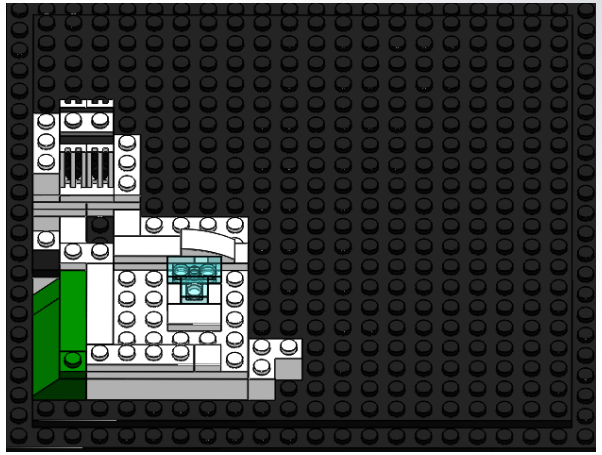
402 Total Pieces

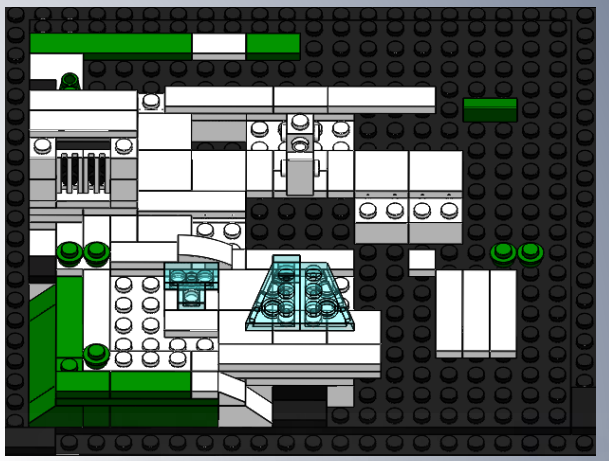


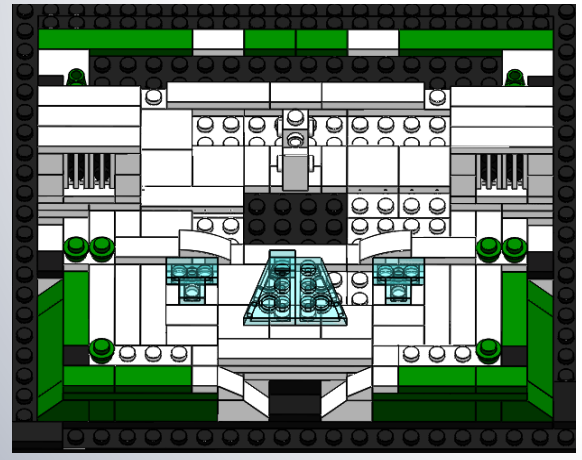
Project Evolution

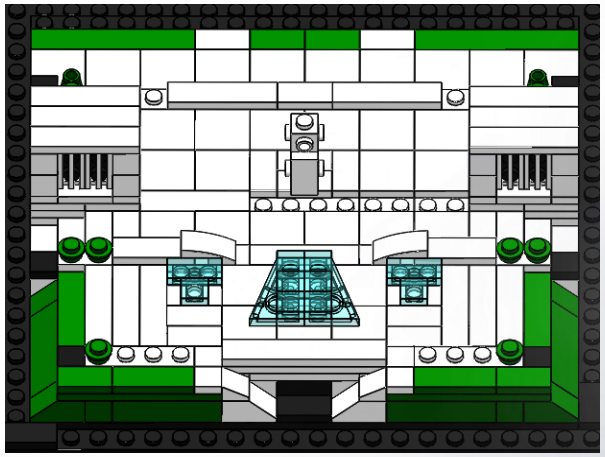
- 50 Lego pieces modeled by design table

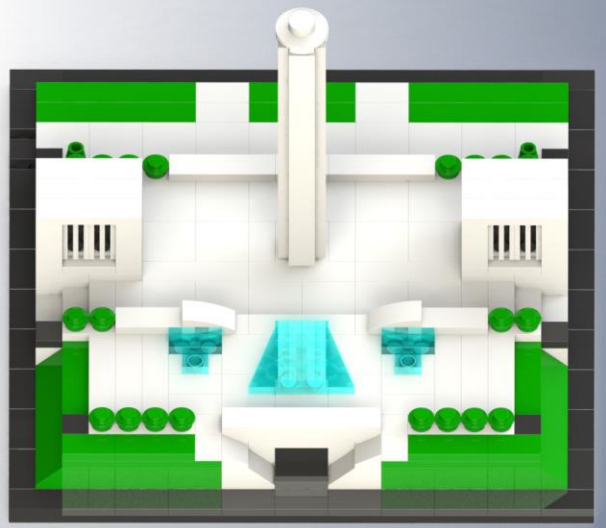






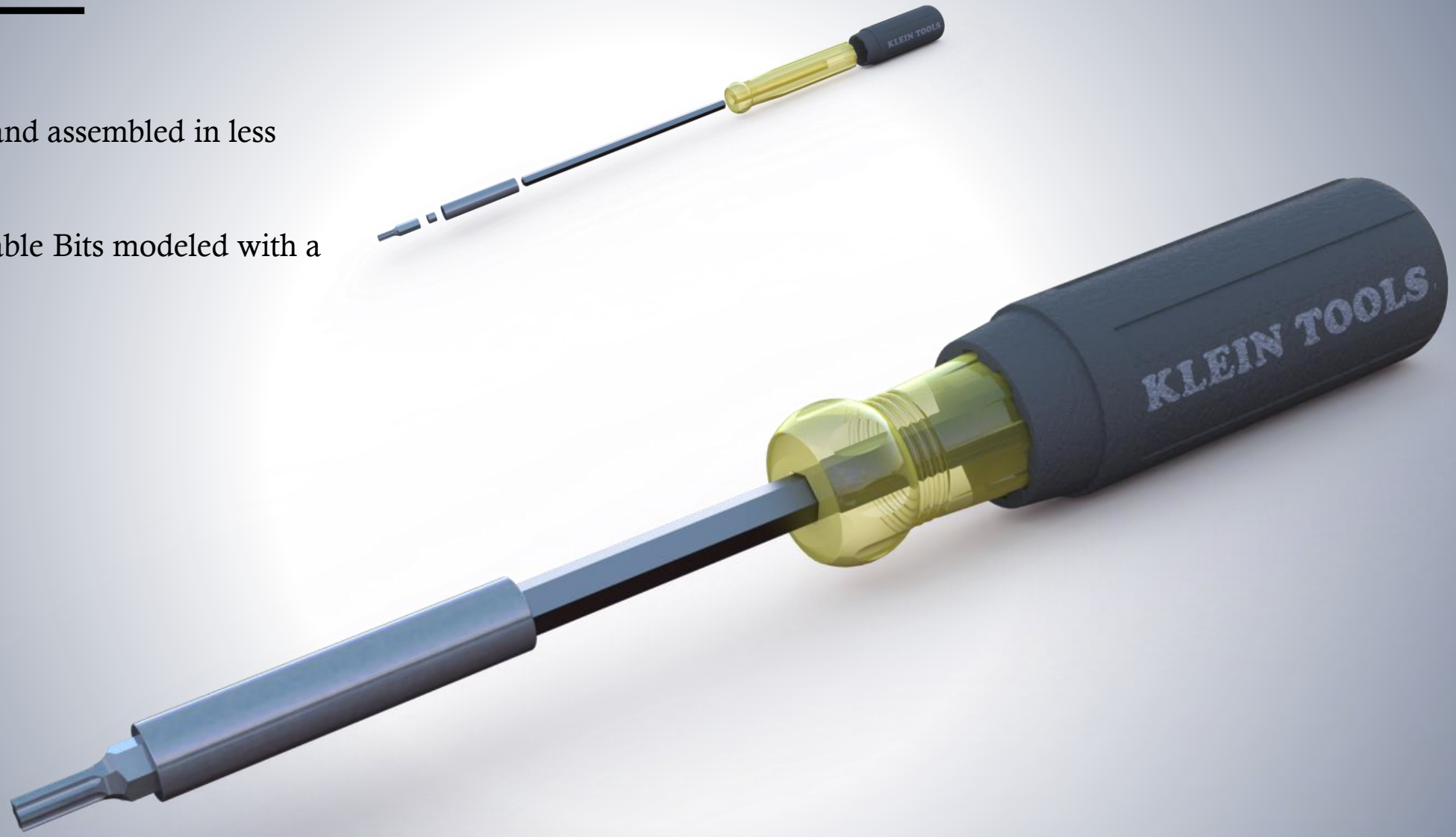






Klein Tools 11 in 1 Screwdriver

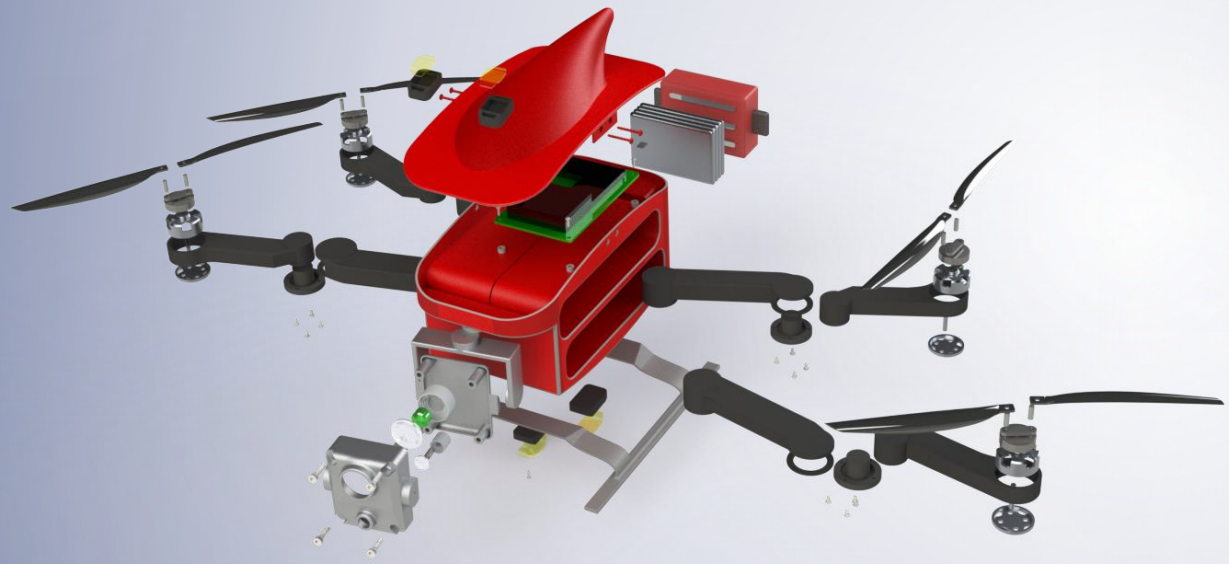
- 6 Total Parts
- Parts made and assembled in less than 3 hours
- Interchangeable Bits modeled with a design table.



DRONE PROJECT

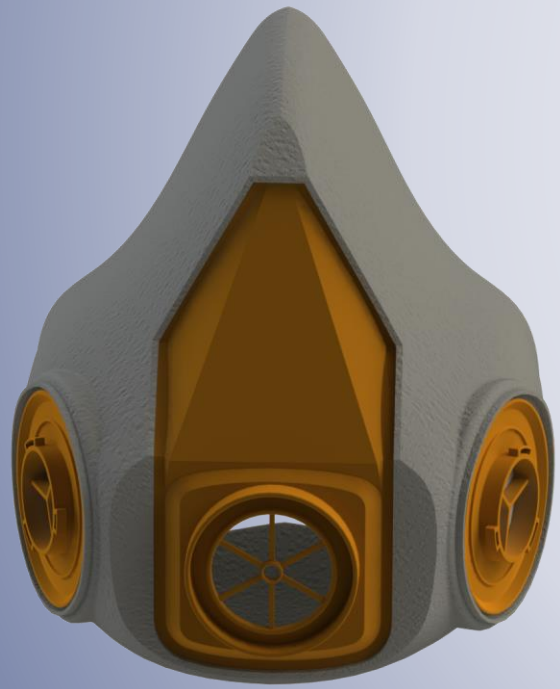
Trevor North: Main Body, Top Shell, Battery Pack, Landing Feet
Garrett Briggs: Motors, Camera
Dean Fitzpatrick: Arms, Propellors

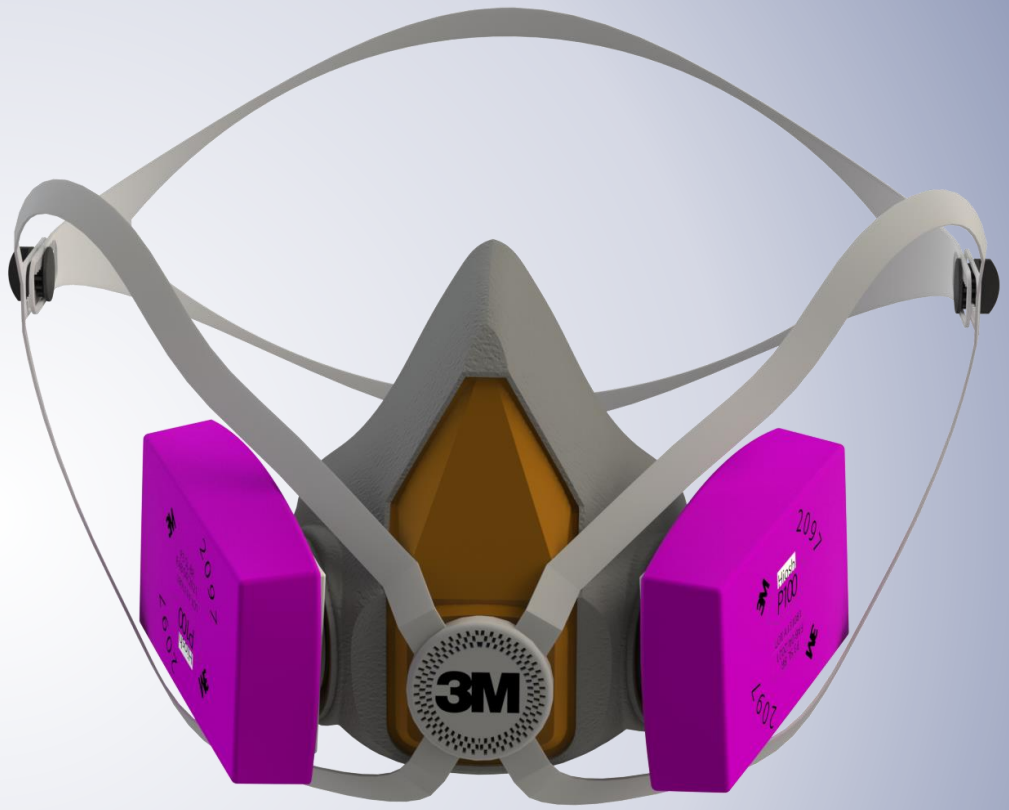
- Team Project with the goal to build and assembly a drone to aid in search and rescue operations



3M-HALF MASK RESPIRATOR

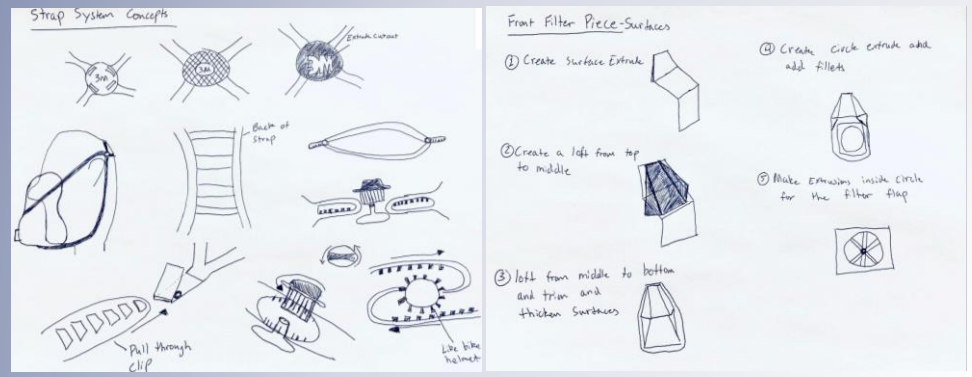
Project Goal was to choose a product and make a Next Generation Version. Includes making both changes to the design as well as to the aesthetics. Parts Required to be designed for Injection Molding Manufacturing.

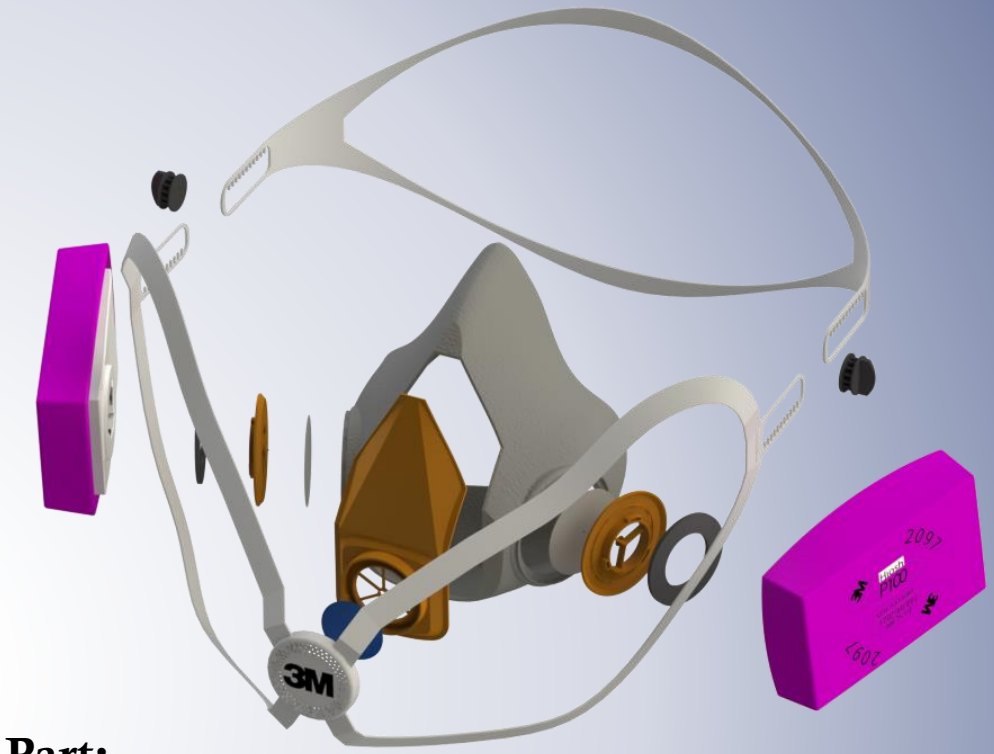




CAD Modeling

Sketches:



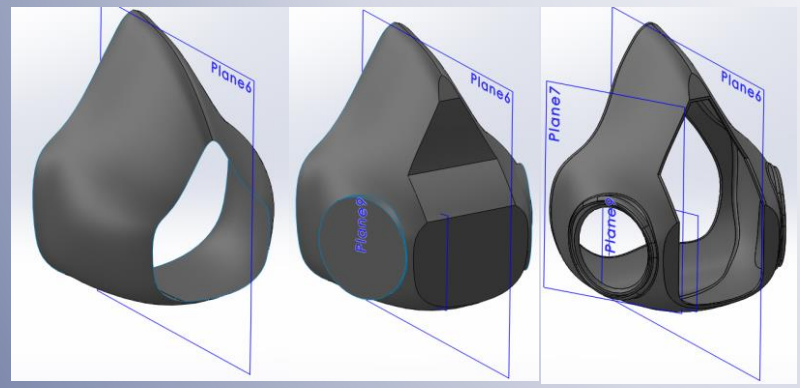


Strategies:

1) Surface loft between two sketches.

2) Planes placed at angles, surfaces extruded, and cuts made.

3) Surfaces knitted, thickened, and extrude cuts used.

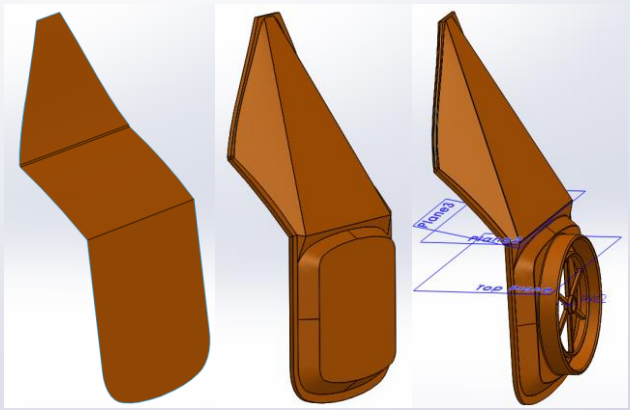


Master Modeled Part:

1) Surfaces used from Main Body of Mask

1) Surfaces lofted to angled planes.

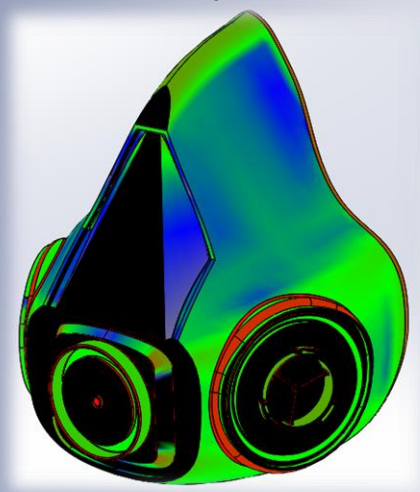
1) Surfaces thickened, extruded circle body.



Trevor North |04 Apr 19th

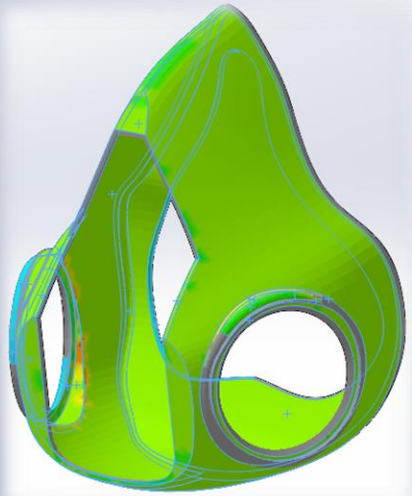
Analysis & Drawings

Curvature Analysis

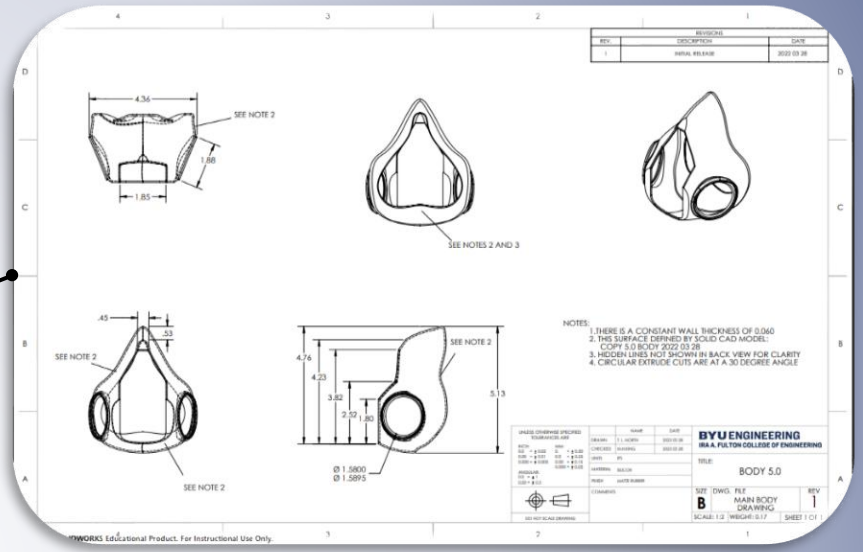


Zebra Stripe Analysis for structural consistency

Thickness Analysis



Engineering Drawings for Mask Body



Bill of Materials with Exploded View