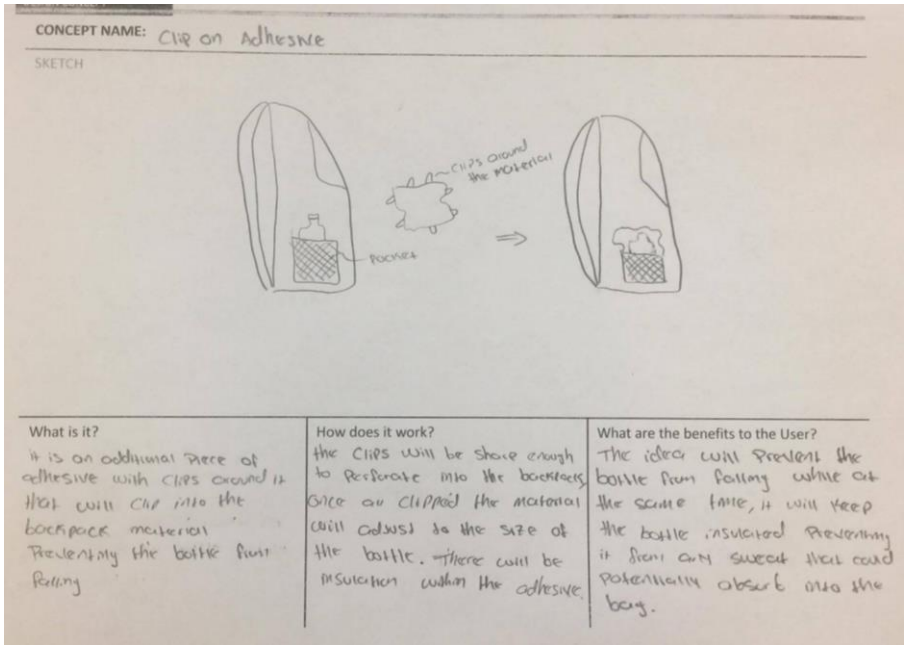
Bottle Trap Project

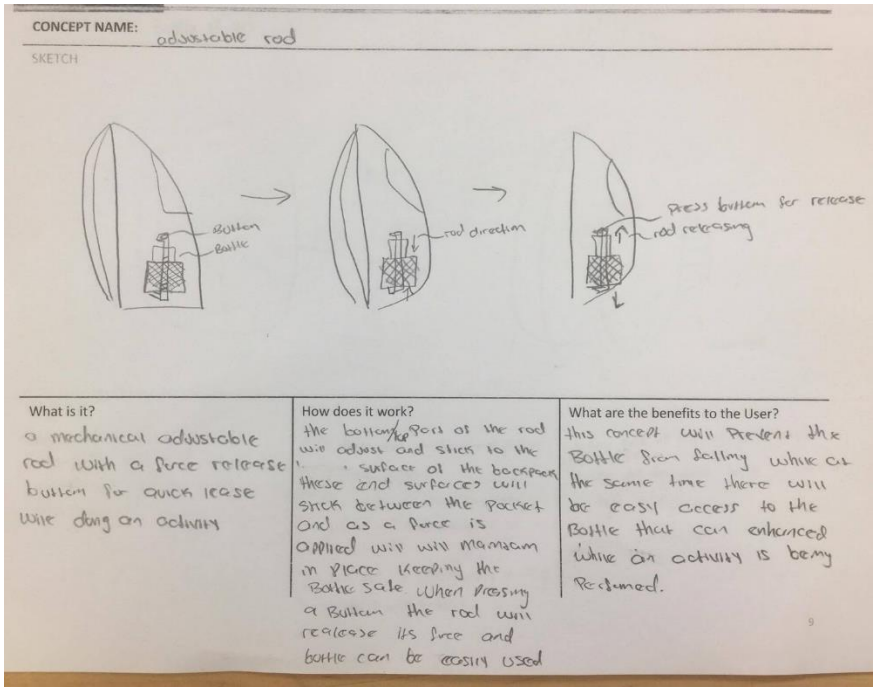
Purpose: To create a bottle holder accessory for backpacks that is hassle free, will prevent bottles from falling out of side pockets while moving, and freedom to carry bottles of varying shapes and sizes.

<u>Concept Drawings</u>

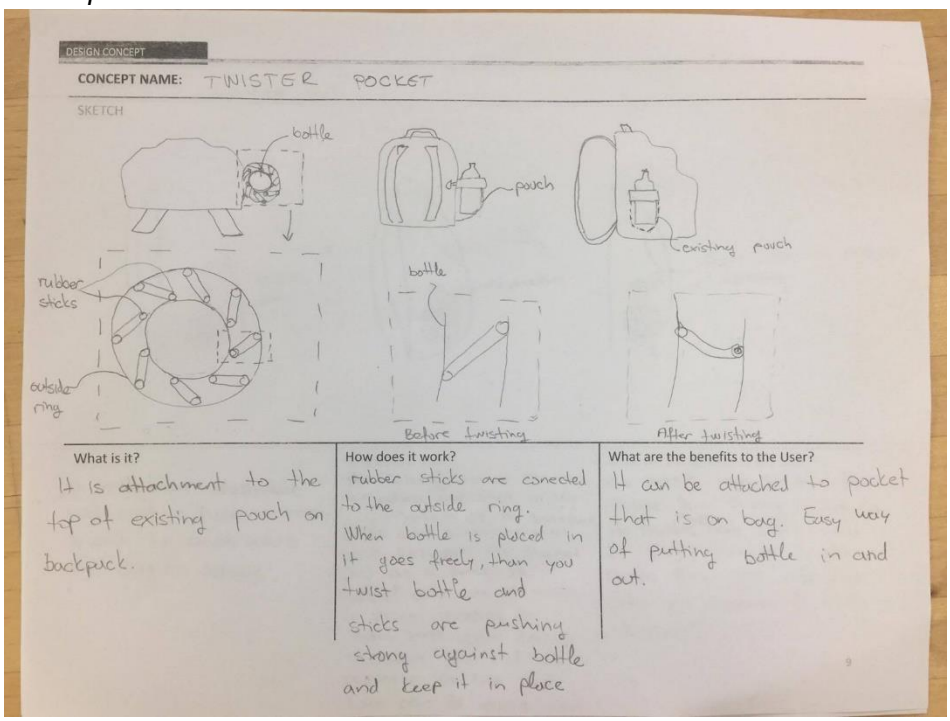
Concept 1: Clip on Adhesive



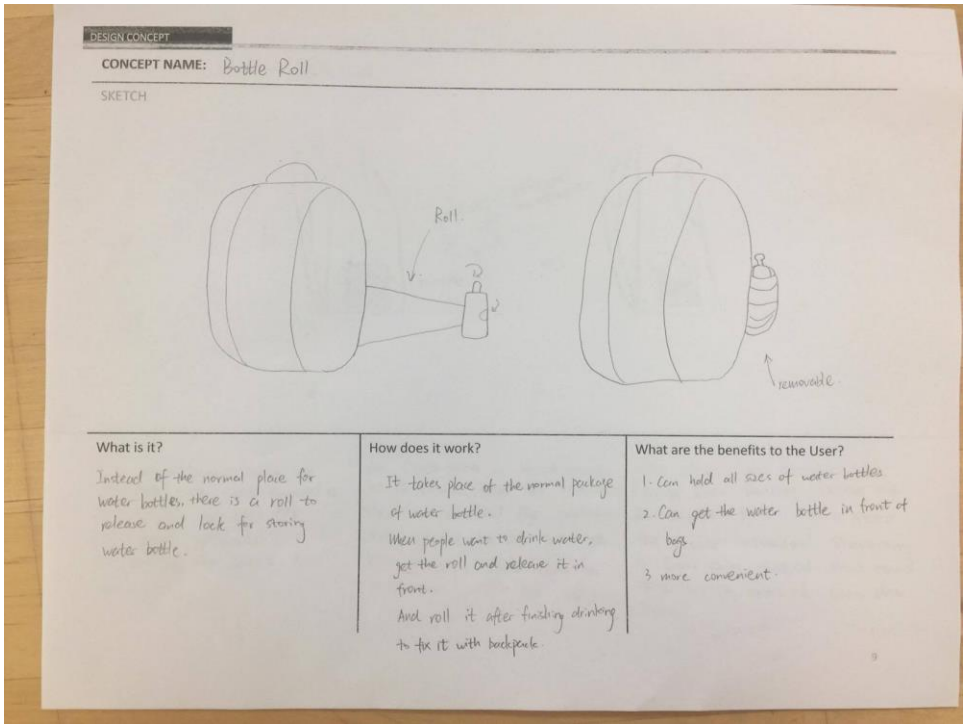
Concept 2: Adjustable Rod



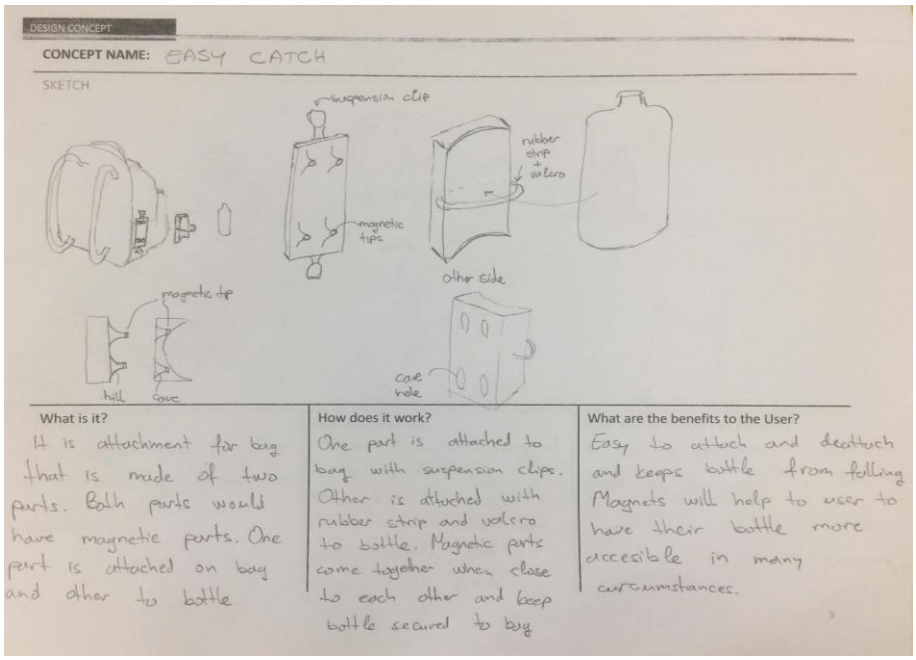
Concept 3: Twister Pocket



Concept 4: Bottle Roll



Concept 5: Easy Catch (Selected concept)

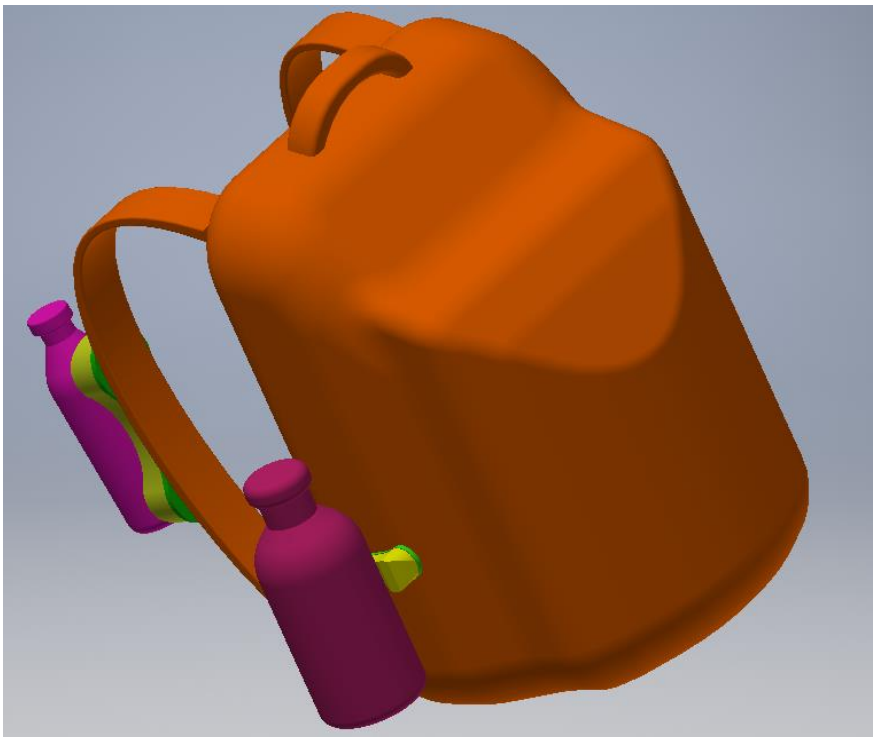


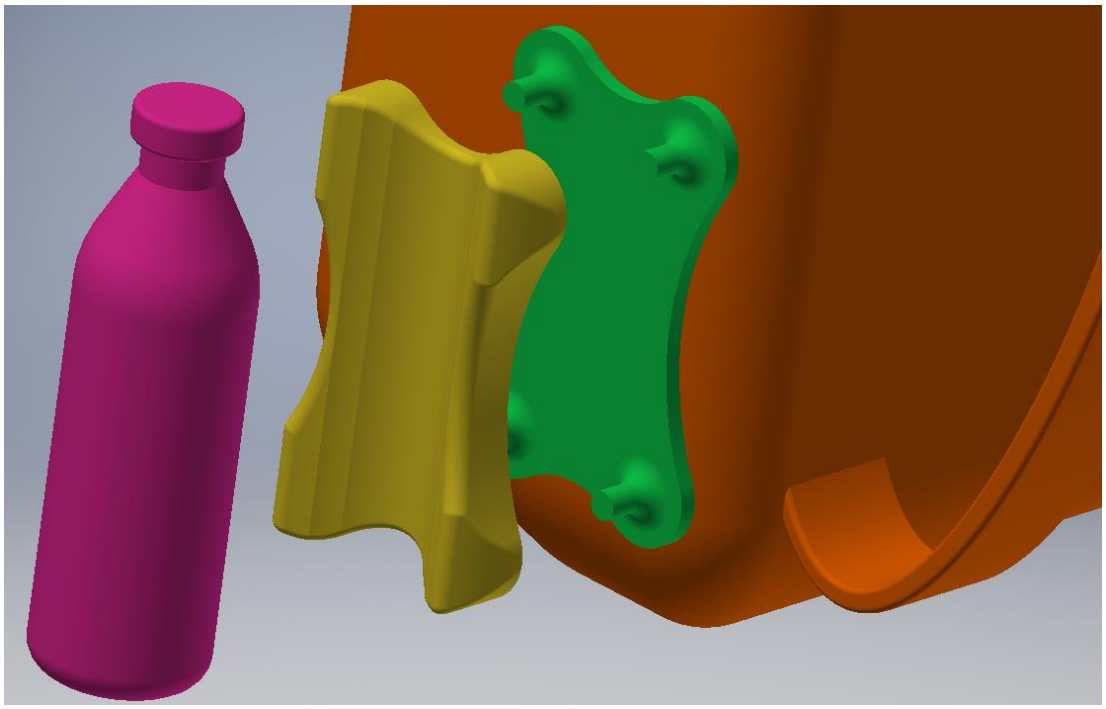
Prototyping

Our group decided to go forward with the concept I generated (Concept 5) so I took on the task of creating the CAD model (images below). I made a backpack model in CAD in order to get a better perspective of how the prototype would look. As seen in the drawings, the concept and prototype evolved.

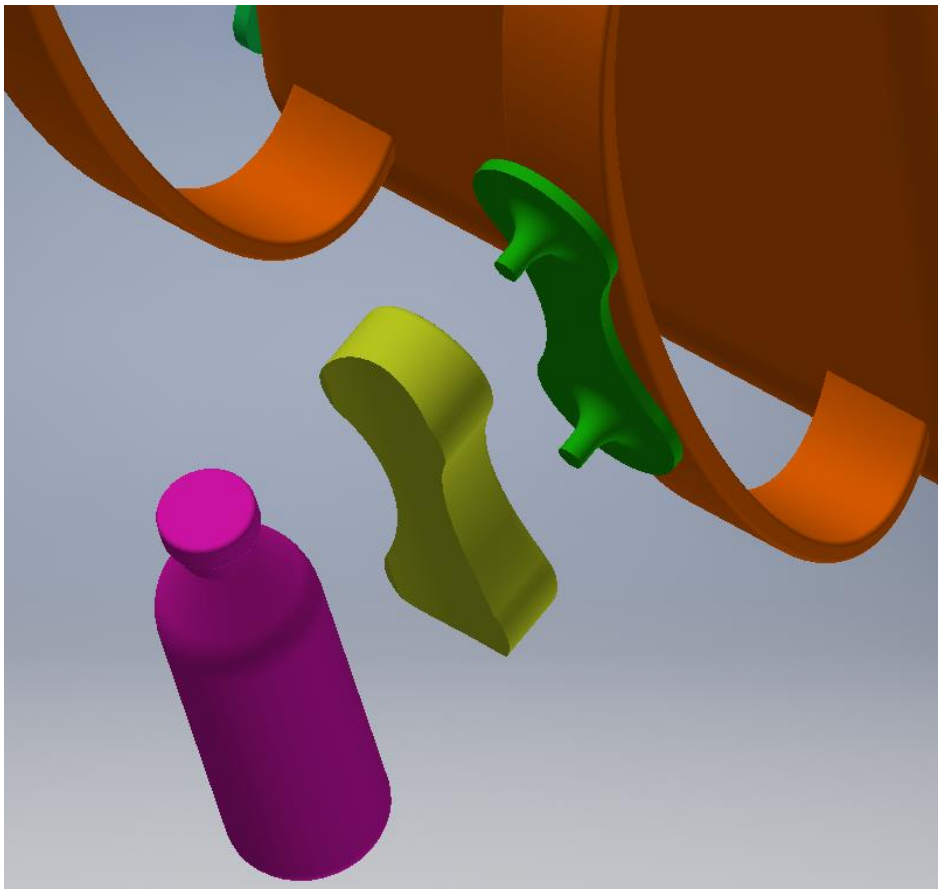
For the bottle strap, we decided to use rubber grip and industrial strength velcro. Originally, we used a metal rod (as seen in the CAD images), we later moved on to a part that was 3D printed (the orange “box” in the CAD images above). For the bag attachment we would use acrylic board that was cut with a laser cutter and heavy-duty suspension clips. The use of magnets on the acrylic board and 3D printed box parts helped “click” the bottle into place. After clicking into place, you could twist the bottle into the metal clips on the acrylic board in order to keep the bottle secure and stable.

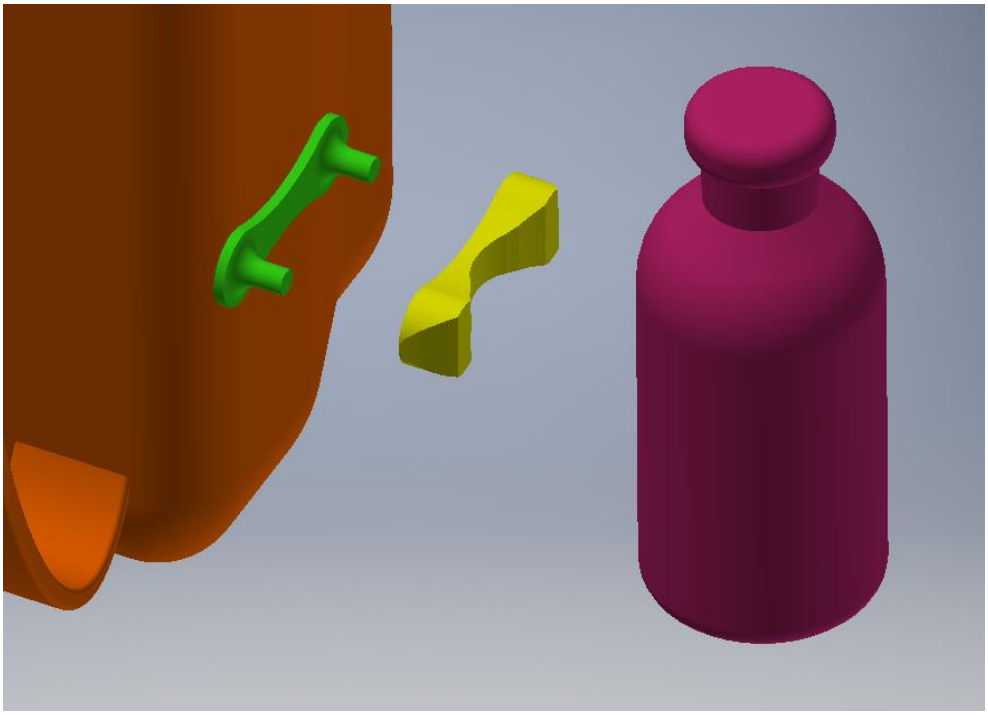
First CAD Design



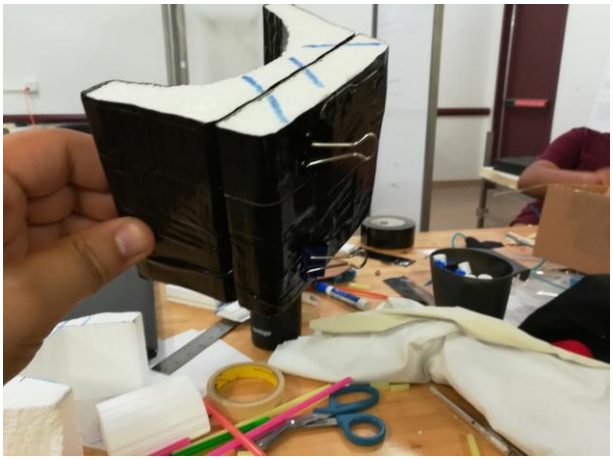


First CAD Design Continued



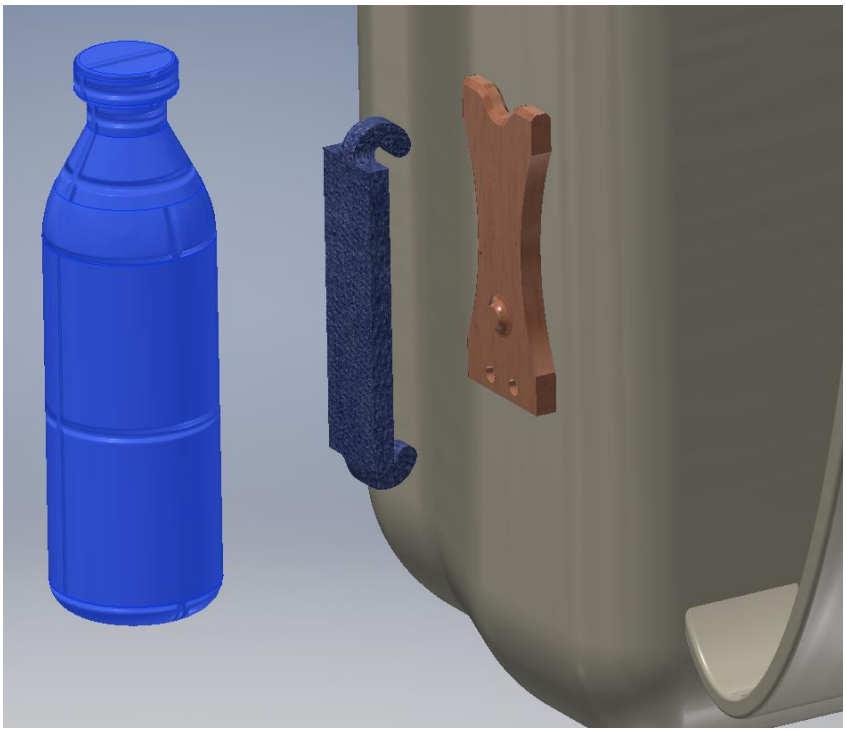


First CAD Design Prototype

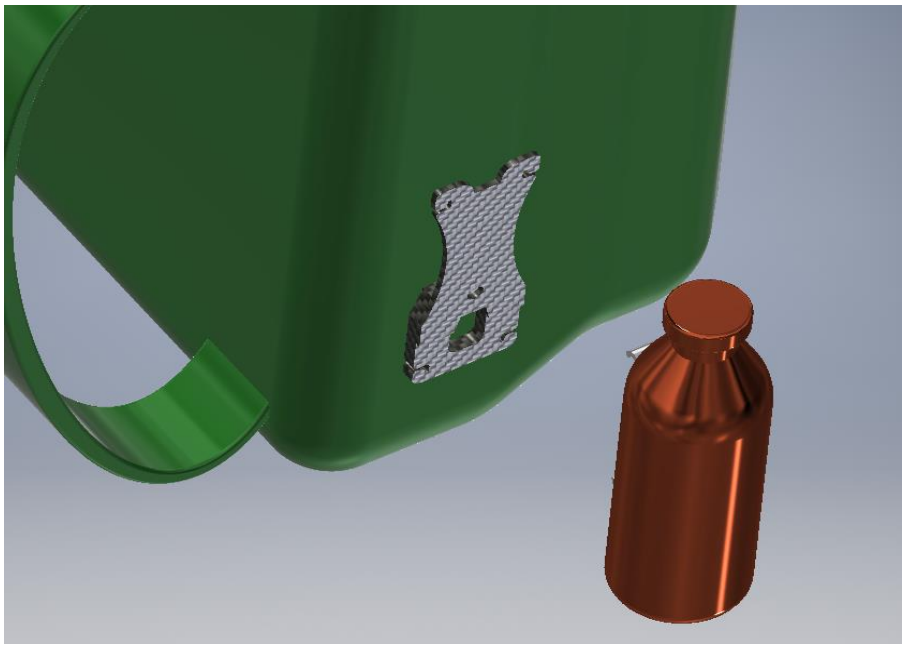


Second CAD Design

Second CAD Design Continued



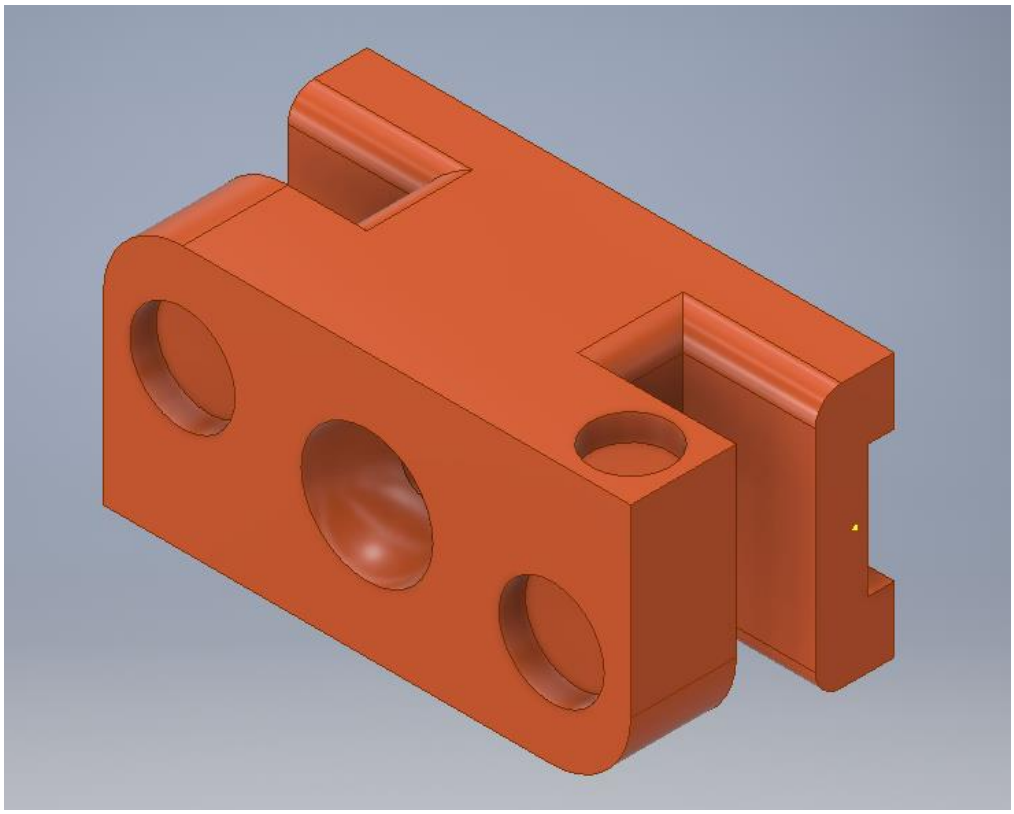
Second CAD Design Continued

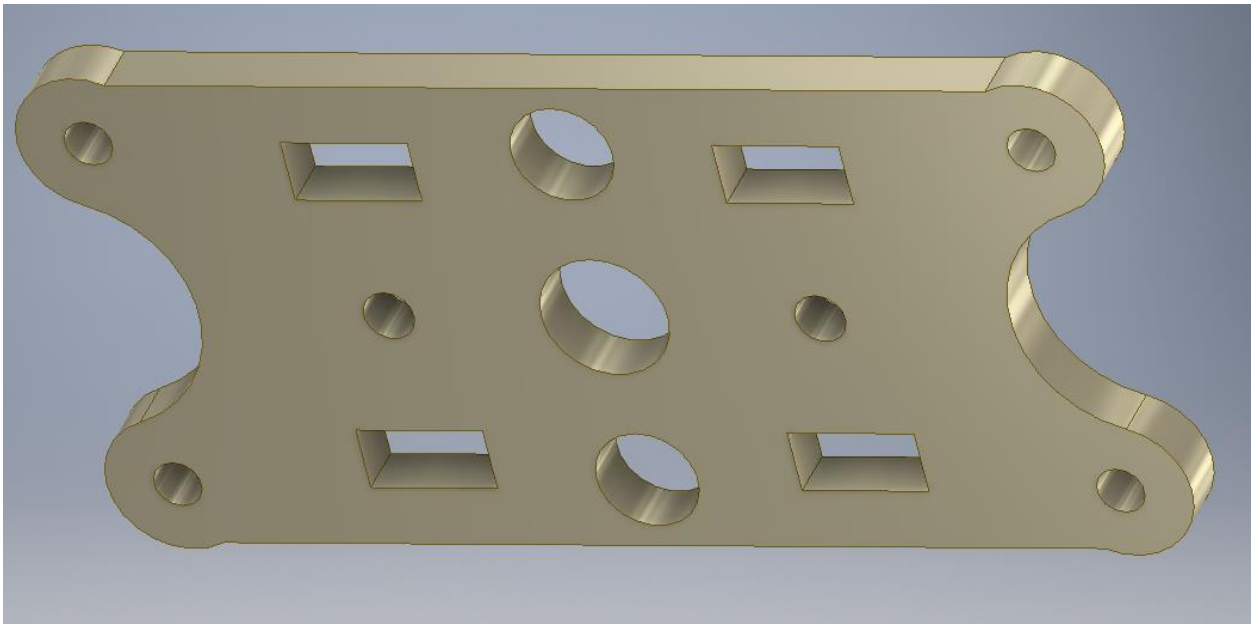


Second CAD Design Prototype

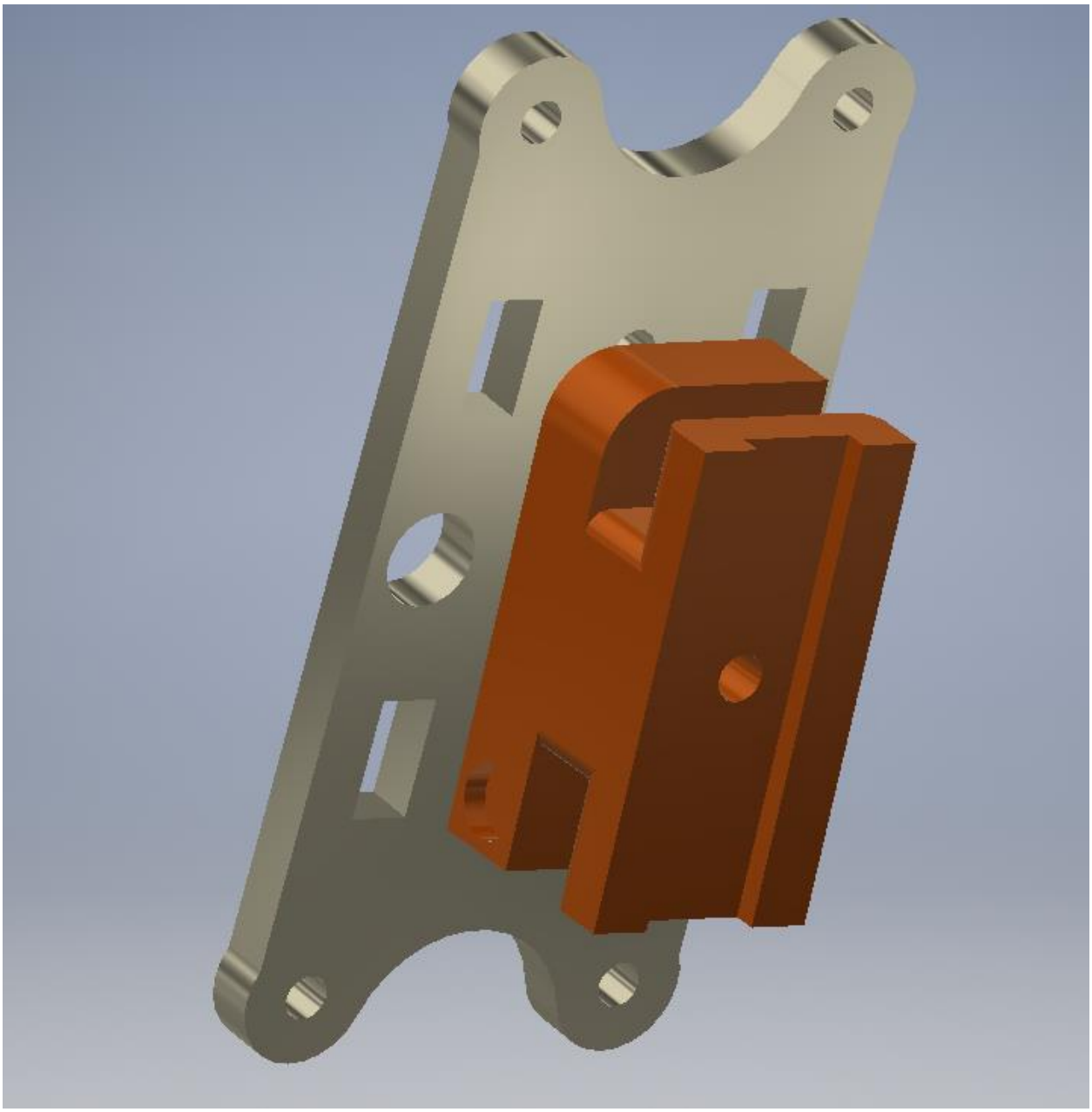
Second CAD Design Prototype Continued

Final CAD Design

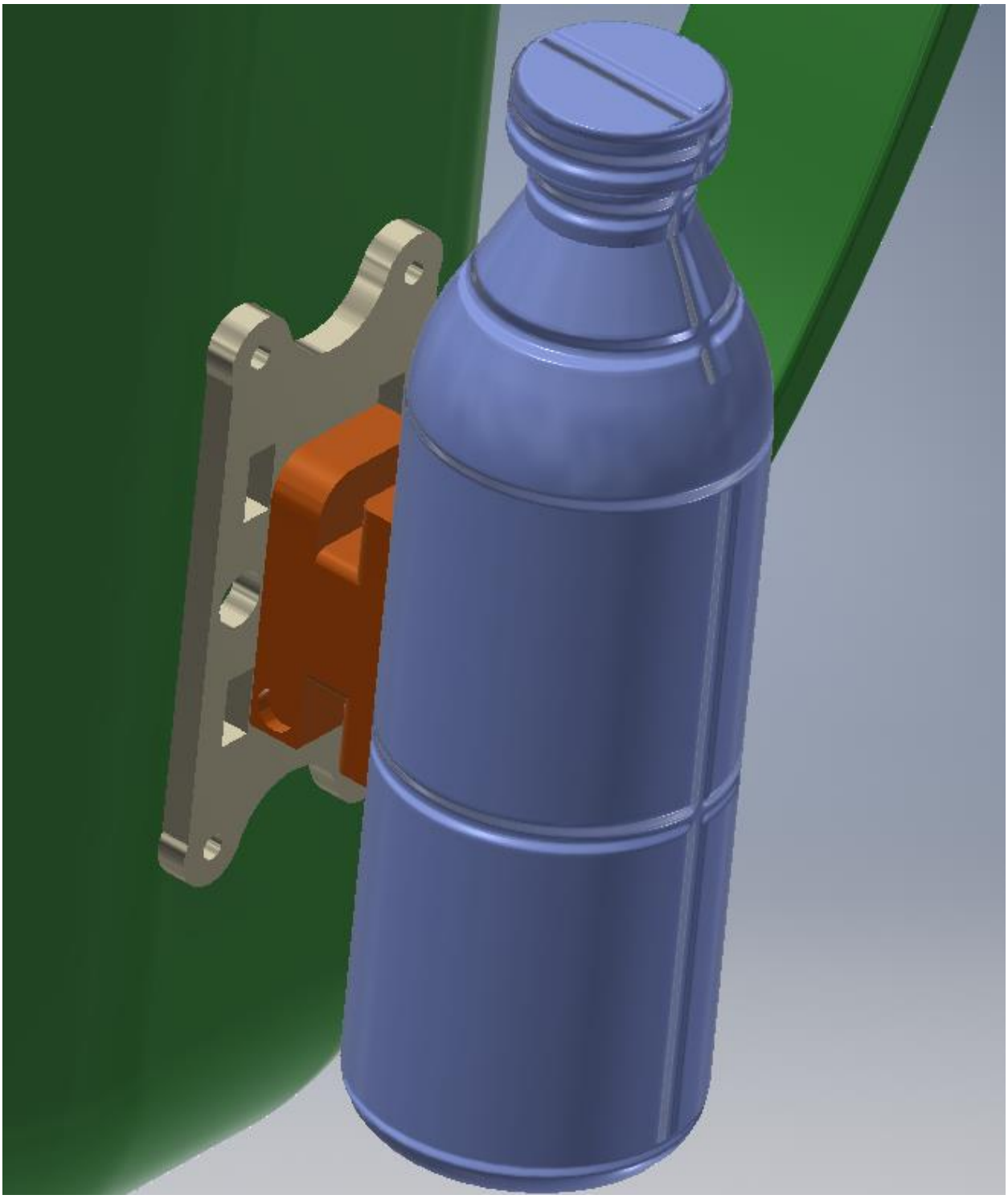




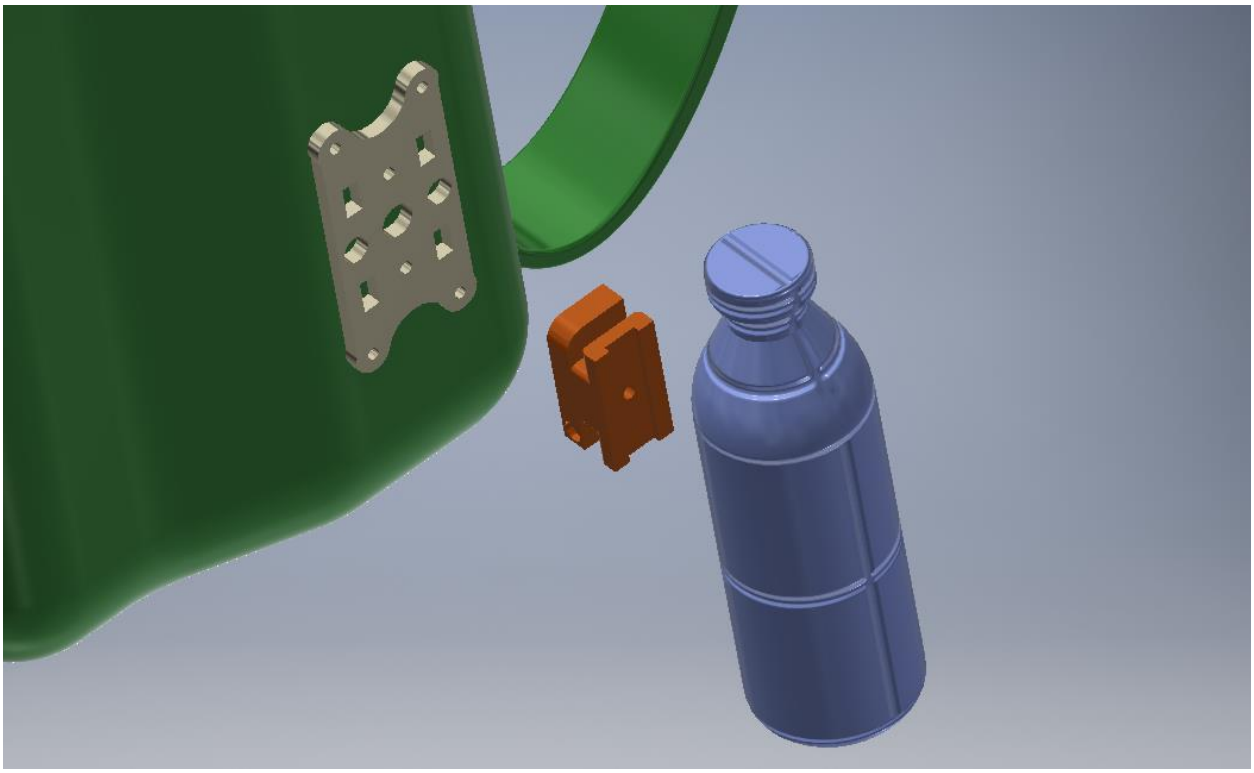
Final CAD Design Continued



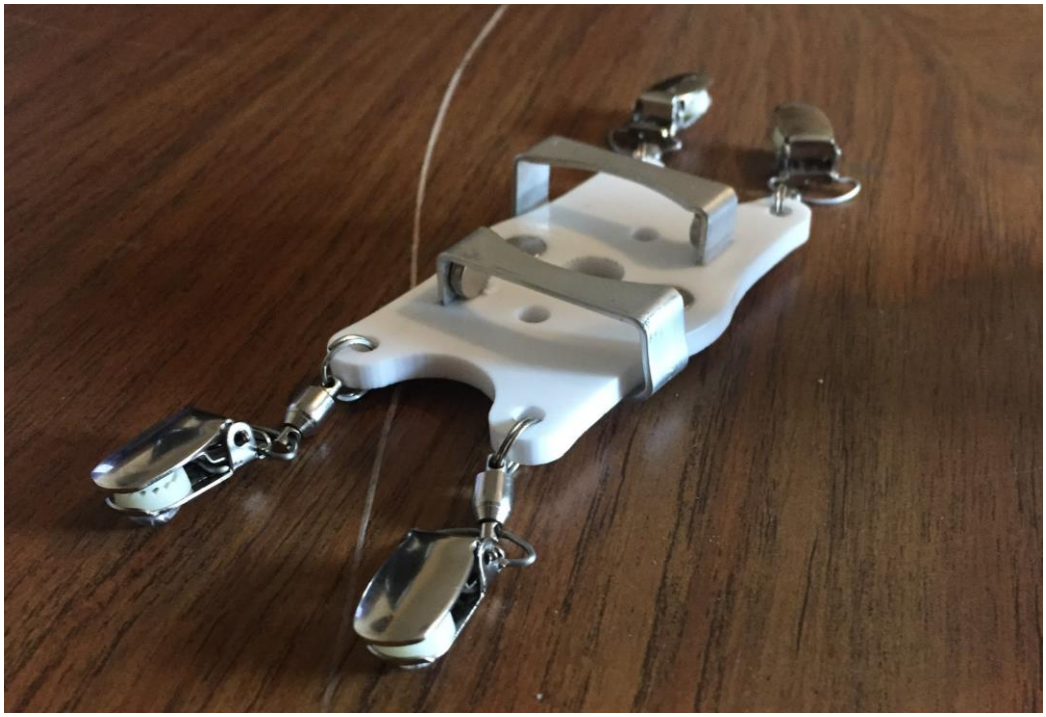
Final CAD Design Continued



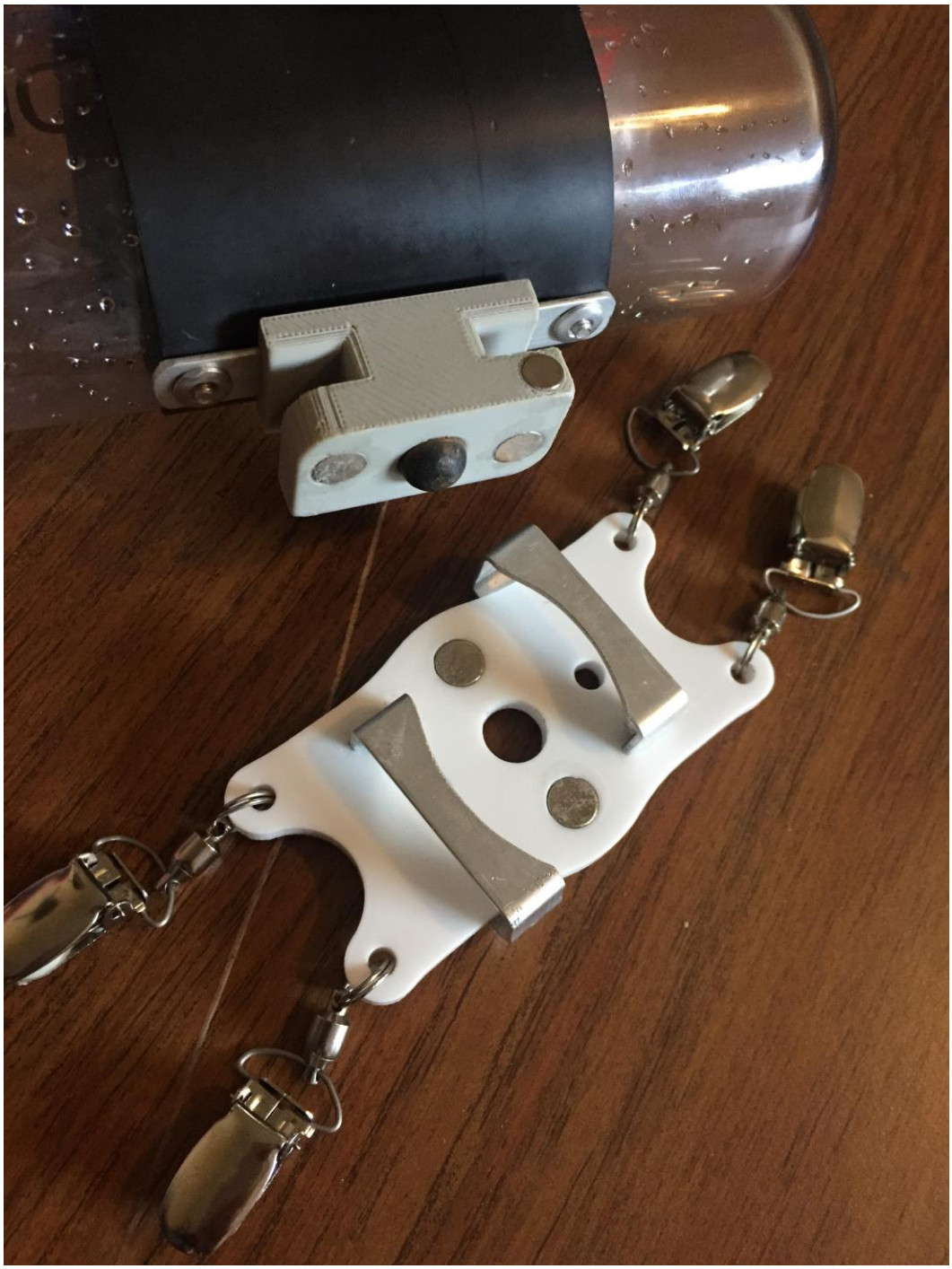
Final CAD Design Continued



Final Product



Final Product Continued



Final Product Continued