# SUPPORTS ASSEMBLY INSTRUCTIONS

*(#)* indicates a part index from the *Wheelchair Project Bill of Materials*.

**MATERIALS:**

1. 88” of *2x2x1/8”* Aluminum Tube Stock *(1)*
2. 4 T-brackets *(2)*
3. 4 L-brackets *(3)*
4. *48”x4”x1/8”* Aluminum Sheet *(4)*
5. 4 Permobil Sliding brackets *(5)*
6. 26 long bolt assemblies *(6)*
7. 4 short bolt assemblies *(6)*
8. 4 Permobil vertical paddles *(7)*

**MACHINING:**

Horizontal Support:

1. Use a bandsaw or chop saw to cut 24” off of the 88” of *2x2x1/8”* Aluminum Tube Stock.
2. Use a chop saw to cut one end of the 24” of tube stock to a 69.6° angle as specified in the Horizontal Support Drawing.
3. Use a drill press to drill holes of .26” diameter through the full part as specified in the Horizontal Support Drawing.
4. Repeat steps 1-3 to create 2 Horizontal Support parts, one for each side.

Vertical Support:

1. Use a bandsaw or chop saw to cut 6.63” off of the remaining aluminum tube stock.
2. Use a drill press to drill holes of .26” diameter through the full part as specified in the Vertical Support Drawing.
3. Repeat steps 1-2 to create 2 Vertical Support parts, one for each side.

Angle Support:

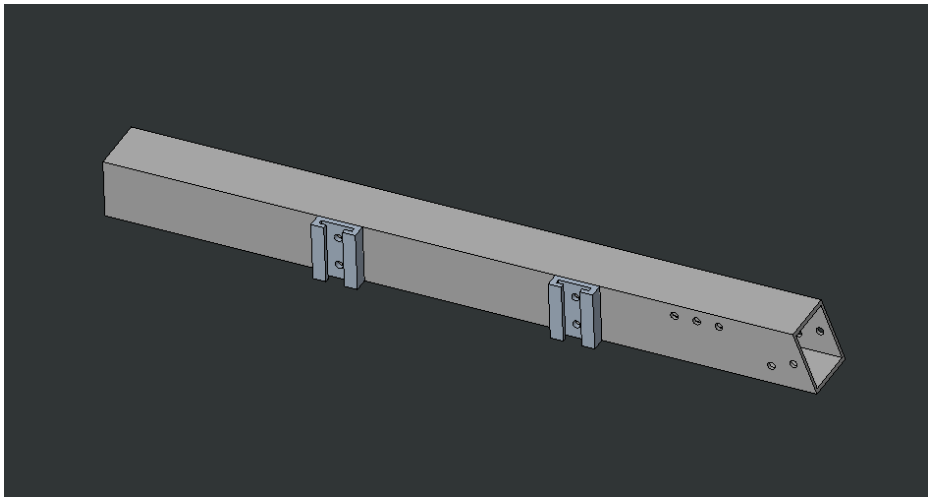
1. Use a bandsaw or chop saw to cut 13.21” off of the 88” of *2x2x1/8”* Aluminum Tube Stock.
2. Use a chop saw to cut one end of the 13.21” of tube stock to a 69.6° angle and the other end to a 40.8° angle, as specified in the Angle Support Drawing.
3. Use a drill press to drill holes of .26” diameter through the full part as specified in the Angle Support Drawing.
4. Repeat steps 1-3 to create 2 Angle Support parts, one for each side.

Triangle Brackets:

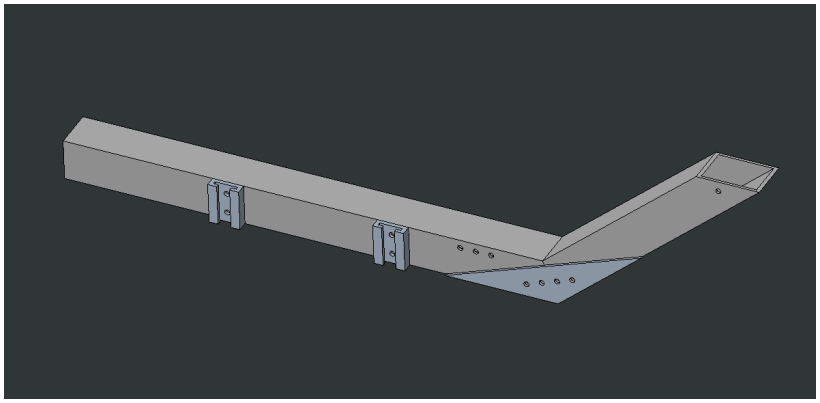
1. Use a band saw or chop saw to cut the *21”x4”x1/8”* Aluminum Sheet into 2 *10.3”x4”x1/8”* aluminum sheets.
2. Use a dremel to cut along both diagonals of each sheet, creating 4 triangles with side lengths of 10.3”, 5.5”, and 5.5”.
3. Use a drill press to drill holes of .26” diameter through the 4 triangle brackets as specified in the Triangle Bracket Drawing.

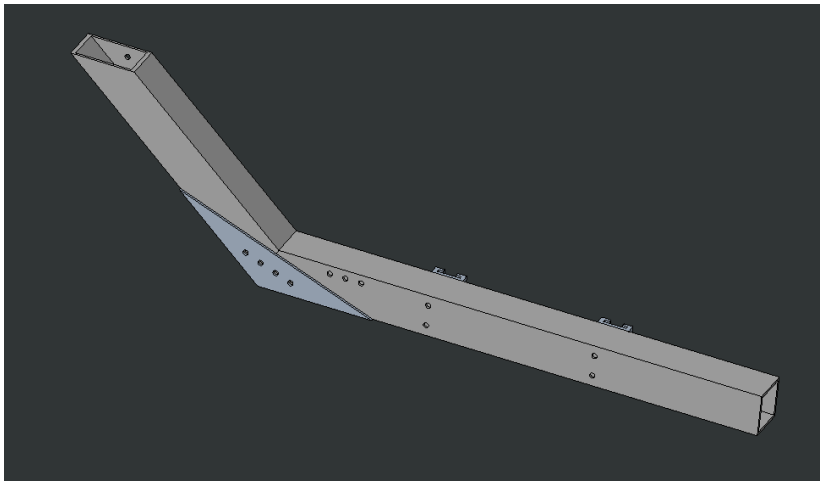
**ASSEMBLY:**

1. Use 4 long bolt assemblies to secure 2 Permobil sliding brackets to the Horizontal Support part as shown below.

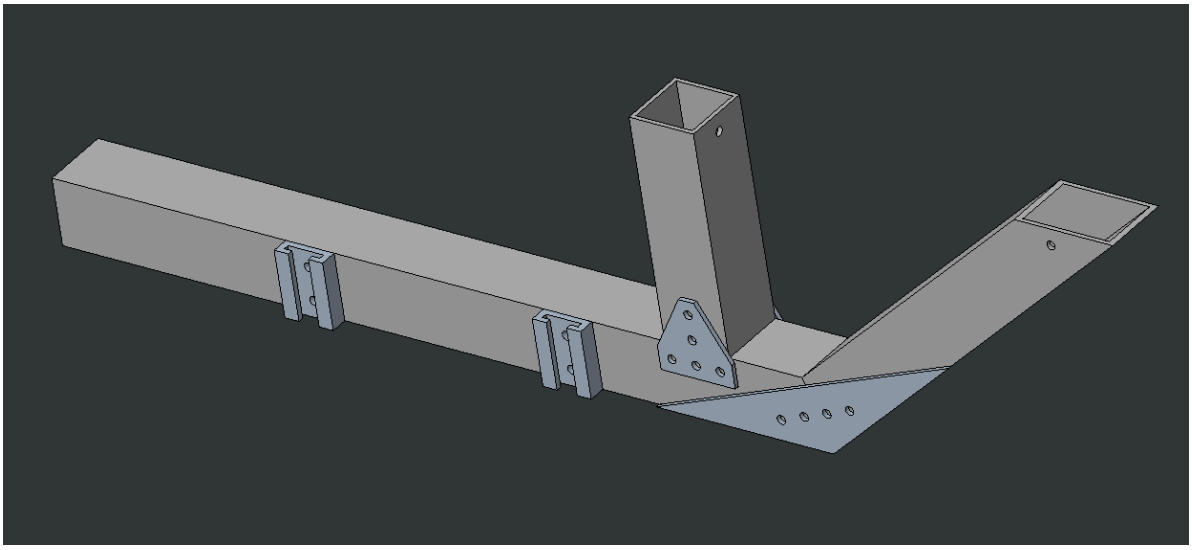


2. Use 2 Triangle Brackets and 4 long bolt assemblies to secure the Angle Support beam to the horizontal support beam, as shown below.

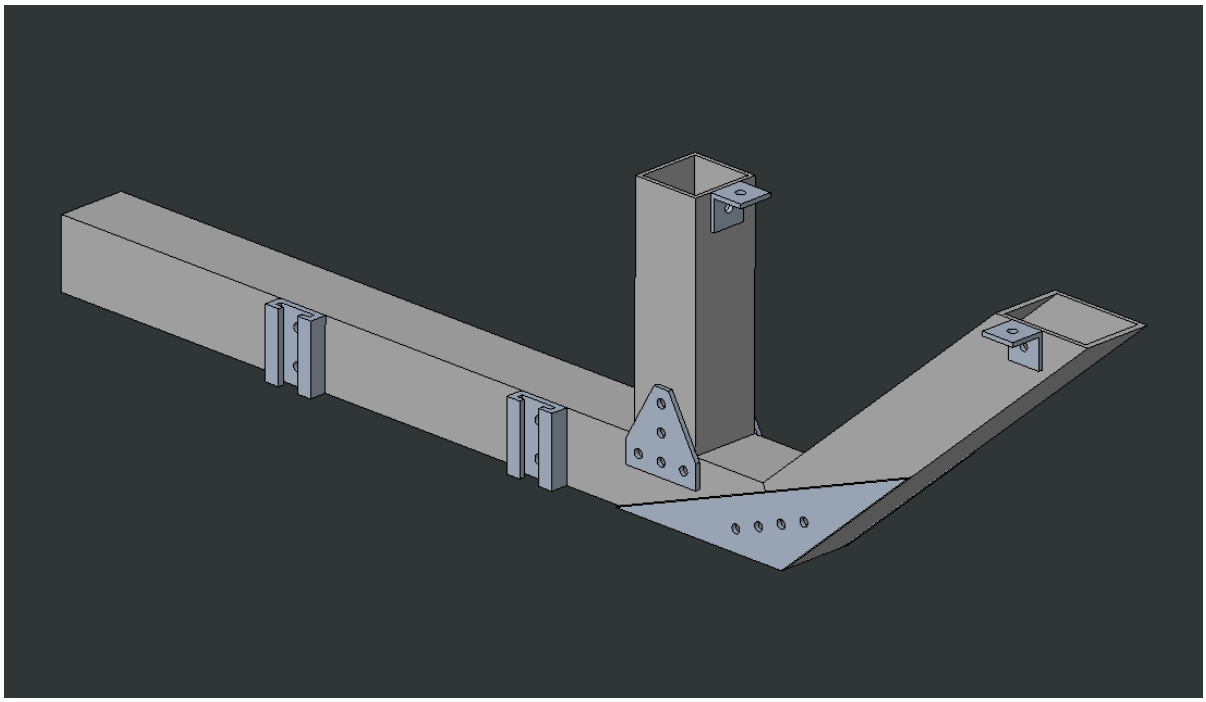




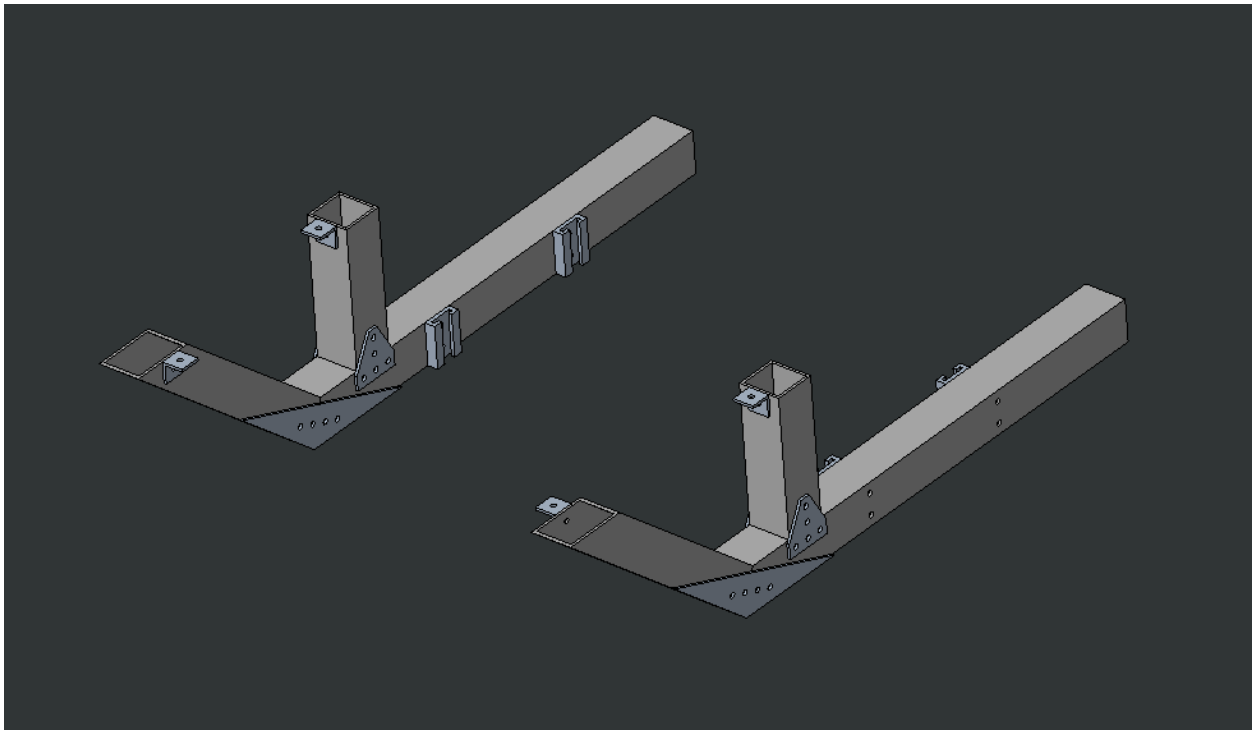
3. Use 2 T-brackets and 5 long bolt assemblies to attach the Vertical Support beam to the Horizontal Support beam as shown below.



4. Use 2 L-brackets and 2 short bolt assemblies to attach one L-bracket to the top of the Vertical Support beam and another L-bracket to the top of the Angle Support bracket.



5. Repeat steps 1-4 for the remaining parts, attaching the Permobil sliding brackets and the L-bracket connected to the Angle Support beam to the opposite side of the assembly, creating a mirrored version of the first Support Assembly. The final result is shown below.



6. Slide the Permobil sliding brackets on each slide of the support over the vertical paddles connected to the rail below the seat of the M3 Permobil Corpus. Slide a pin into the topmost hole in the vertical paddles to constrain the supports in the vertical direction.


7. Refer to the Tray Assembly Production Instructions for Instructions for assembling the Tray and completing the Baby Chair Attachment Assembly.

# TRAY AND FINAL ASSEMBLY INSTRUCTIONS

*(#)* indicates a part index from the *Wheelchair Project Bill of Materials*

**MATERIALS:**

1. *24”x20”x1/8”* Aluminum Sheet *(8)*
2. PLA *(9)*
3. 12”x24”x0.25” Acrylic Sheet *(10)*
4. 32 short bolt assemblies *(6)*

**MACHINING:**

Plate:

1. Use a dremel to cut off the corners of the *24x20x1/8”* Aluminum Sheet as specified in the Plate Drawing.
2. Use a drill press to drill holes of 0.28” diameter as specified in the Plate Drawing.

Click Attachments, Outer Constraints, and Hook Brackets:

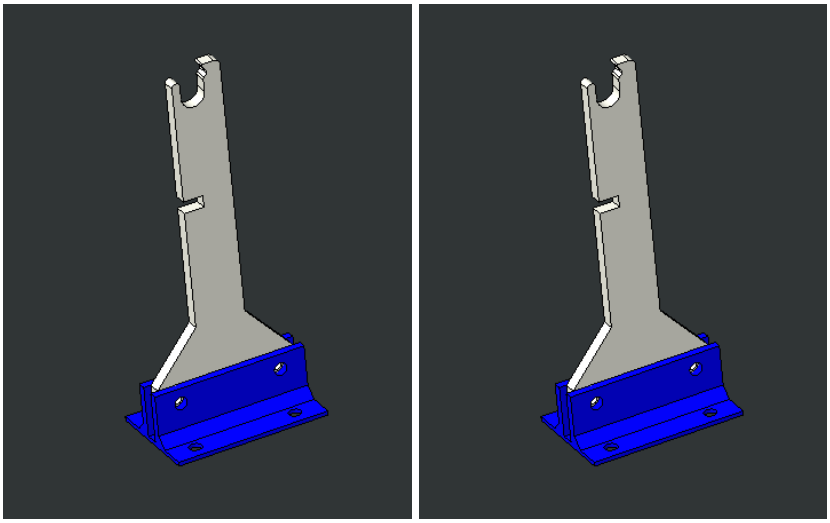
1. Use a 3D printer with your preferred PLA (tough black is recommended) to print the following .stl files:
    a. 1 of click_attach.stl
    b. 1 of click_attachmirror.stl
    c. 1 of outer_constraint.stl
    d. 1 of outer_constraintmirror.stl
    e. 2 of hook_bracket.stl

Hooks and Hook Support:

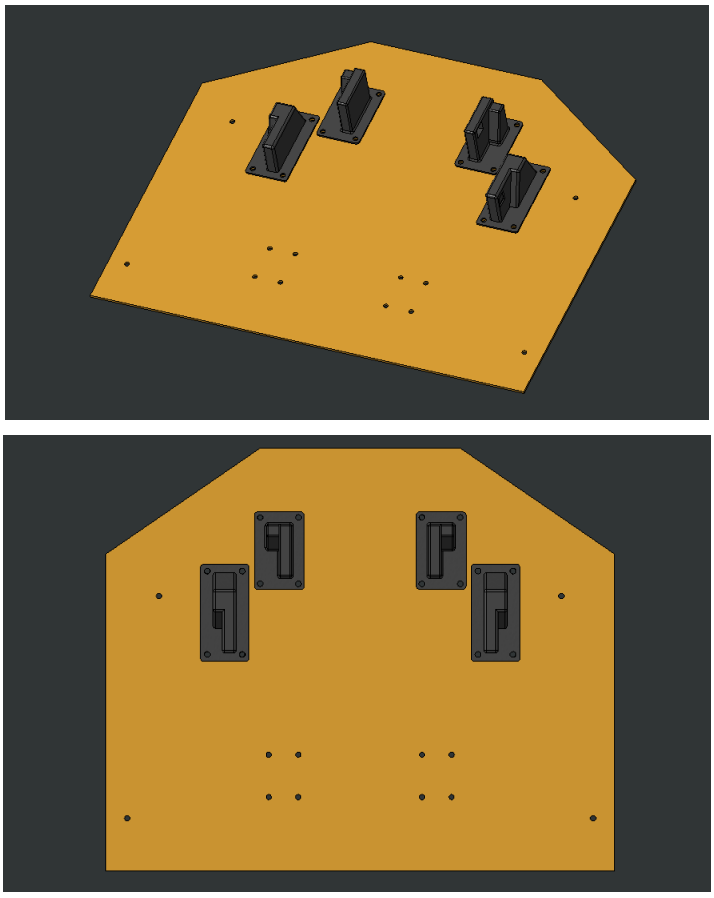
1. Use a laser cutter to cut two Hook parts and one Hook Support part as specified in the hook_lasercut.pdf file.

**ASSEMBLY:**

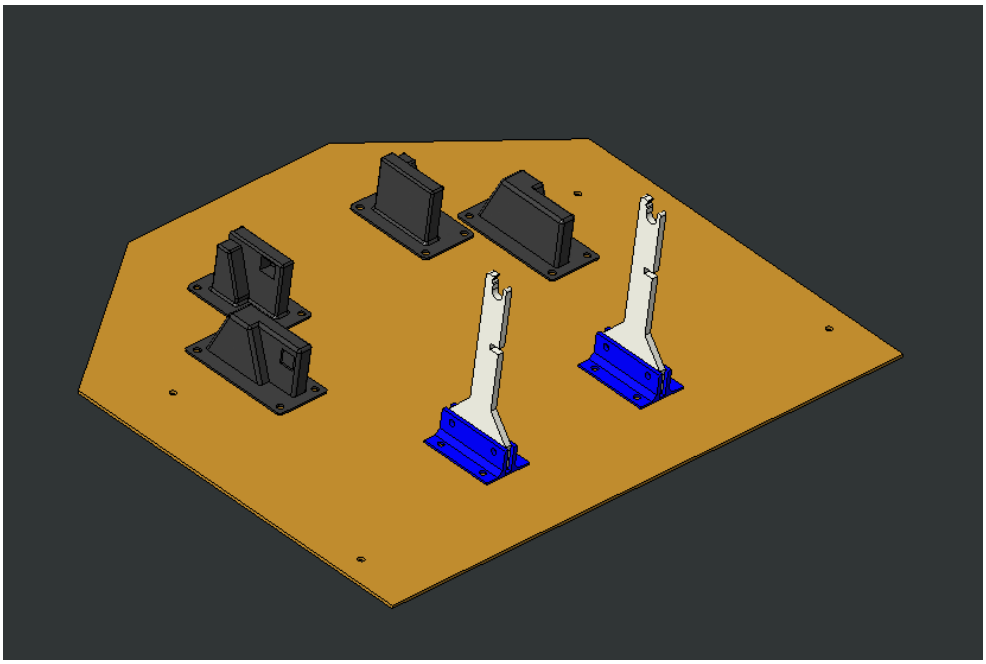
1. Use 4 short bolt assemblies to secure each Hook part to a Hook Bracket part as shown below.



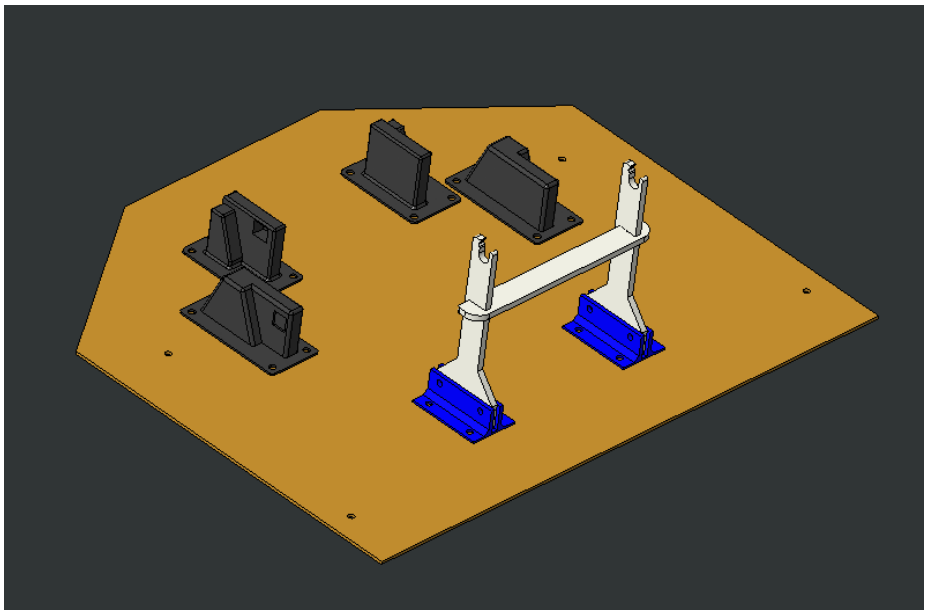
2. Use 16 short bolt assemblies to secure the Click Attachment parts and Outer constraint parts to the Plate as shown below.



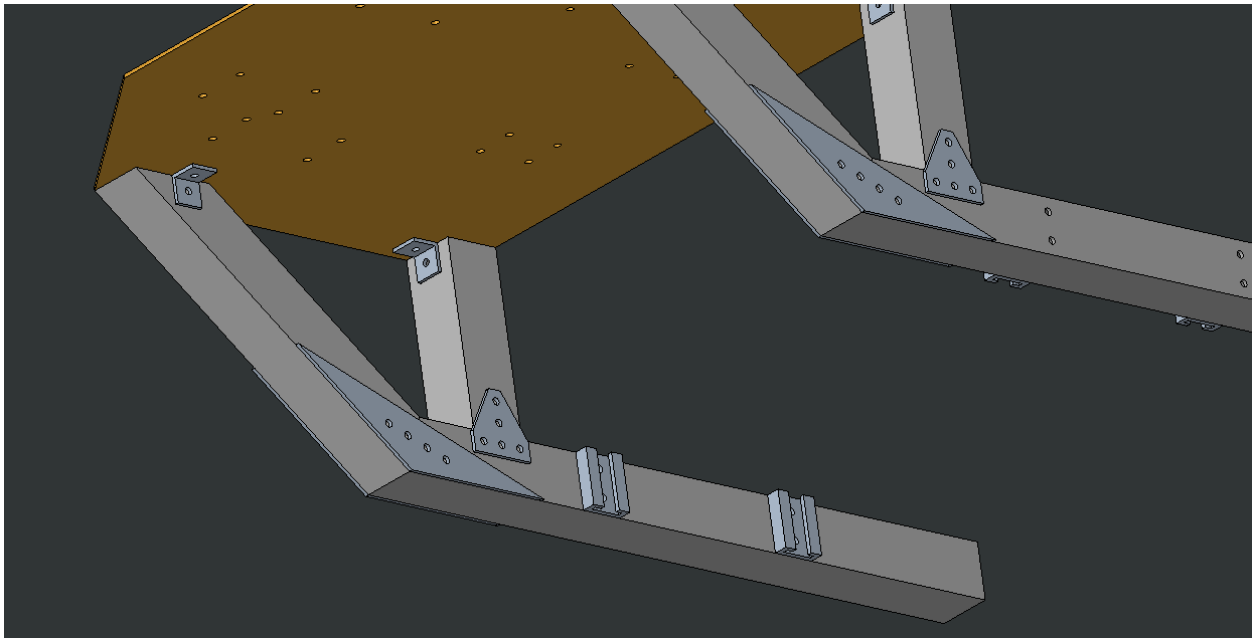
3. Use 8 short bolt assemblies to secure the hook subassemblies to the Plate as shown below.

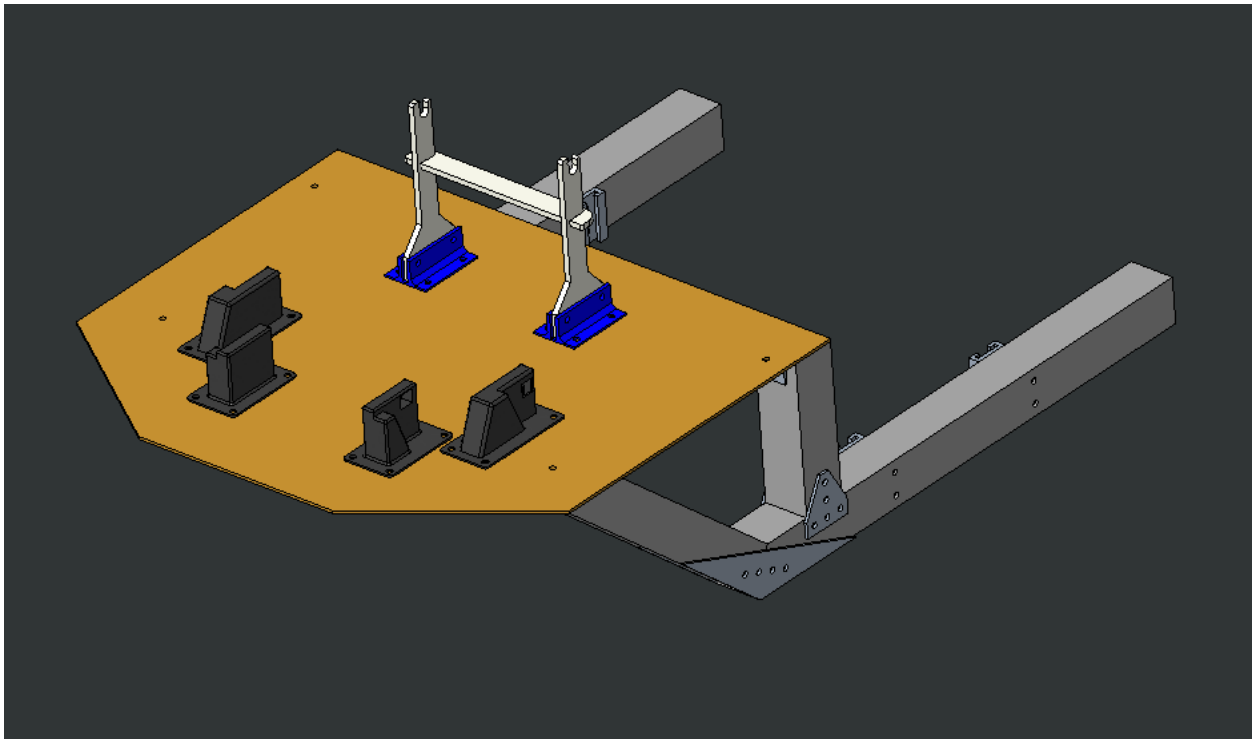


4. Use hot glue or super glue to connect the Hook Support part to the hook parts to add stability. The tray is now fully assembled.



5. Use 4 short bolt Assemblies to attach the plate to the L-brackets in the Supports Assembly which is already attached to the Permobil M3 Corpus. The wheelchair is not shown in the CAD instructions below.





6. The final assembly should look like this and the baby chair attaches to the Tray assembly as shown below.