

M2.06 – Process Improvement for Simpson



Project Manager: Daniel Flores

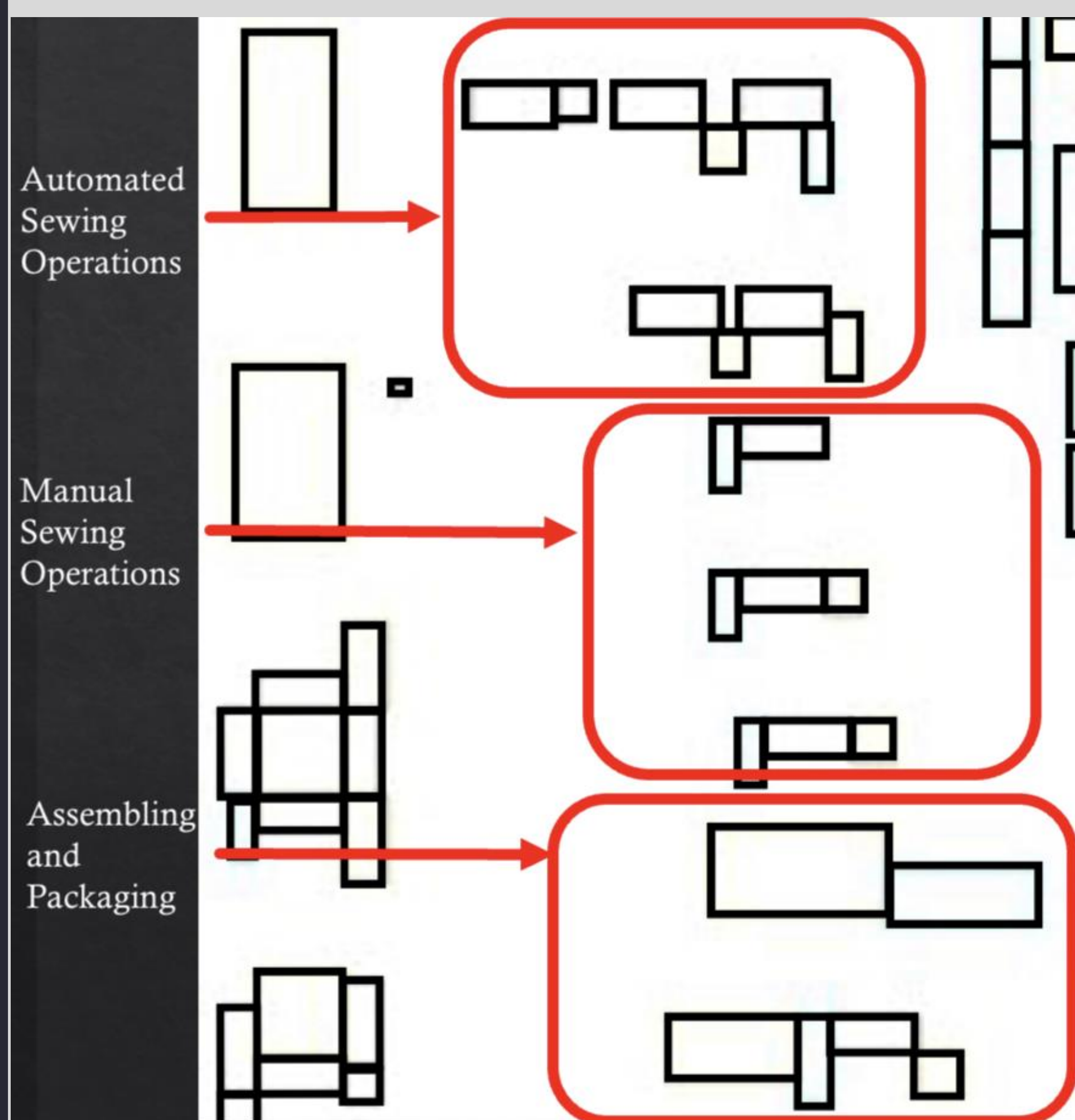
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Problem Statement

Simpson's 5-point racing harness production process can be optimized by minimizing non-value-added tasks performed by new and current operators, and by implementing a new storage system to help organize parts.

Layout



Objectives

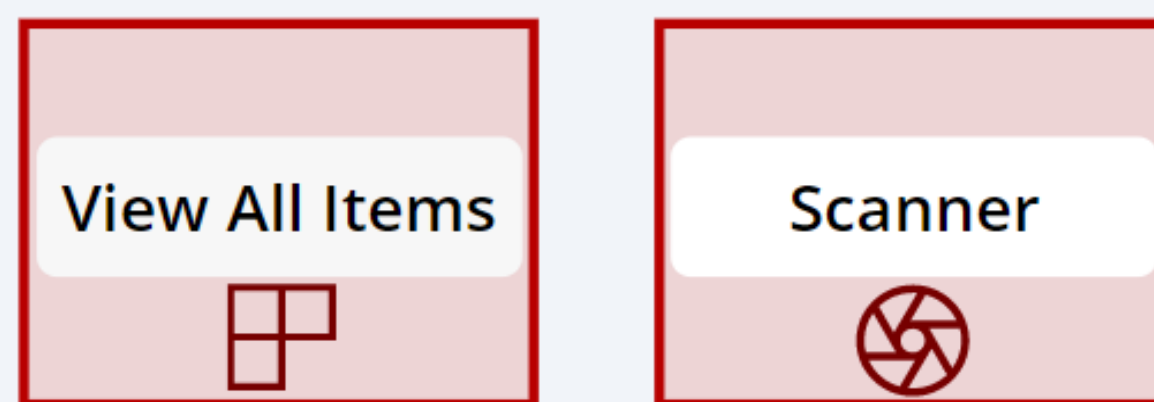
- Provide a new application in which new, and current, operators can easily gather information regarding each seat belt.
- Provide a proof of concept for a newly designed hanging rack that will store shoulder harnesses.
- Design a jig that minimizes attempts needed to align sewing plates.

Proposed Implementations and Results

Database Interface



All Parts Management



Steps	Instructions
1	With the expiration label facing up, slide tail end of Left Strap into bottom slot of Shoulder Harness adjuster
2	Continue to slide the strap through the top slot of the Shoulder Harness adjuster
3	Slide the tail end of the Shoulder Harness into the Slide-In Adjuster (leave 5" of excess)
4	Slide excess harness into Bolt-In Adjuster , and continue to the harness back into the Slide-In Adjuster
5	Repeat steps 1 and 2 with the Right Strap
6	Use pictures as reference



Database Features

- Part Location
- Part Description
- Visual Aids
- Work Instructions
- Barcode scanner
- SOP
- Database created using Power Apps
- Eliminates outdated reference system currently in place
- Allows operators to confidently assemble and package without the need of the supervisor.

Time Study Results

Without Database	With Database
Loc. Parts: 9.43 min	Loc. Parts: 1.38 min
A & P: 10.97 min	A & P: 9.50 min
Total: 24.63 min	Total: 10.88 min
Improved process by 55.83%	
18 harnesses/day	41 harnesses/day

Proof of Concept Channel



- One foot channel can hold up to 10 shoulder harnesses
- Assigning a coordinate system along with the hanging rack allows parts to easily be located.
- Efficiently organizes shoulder harnesses.

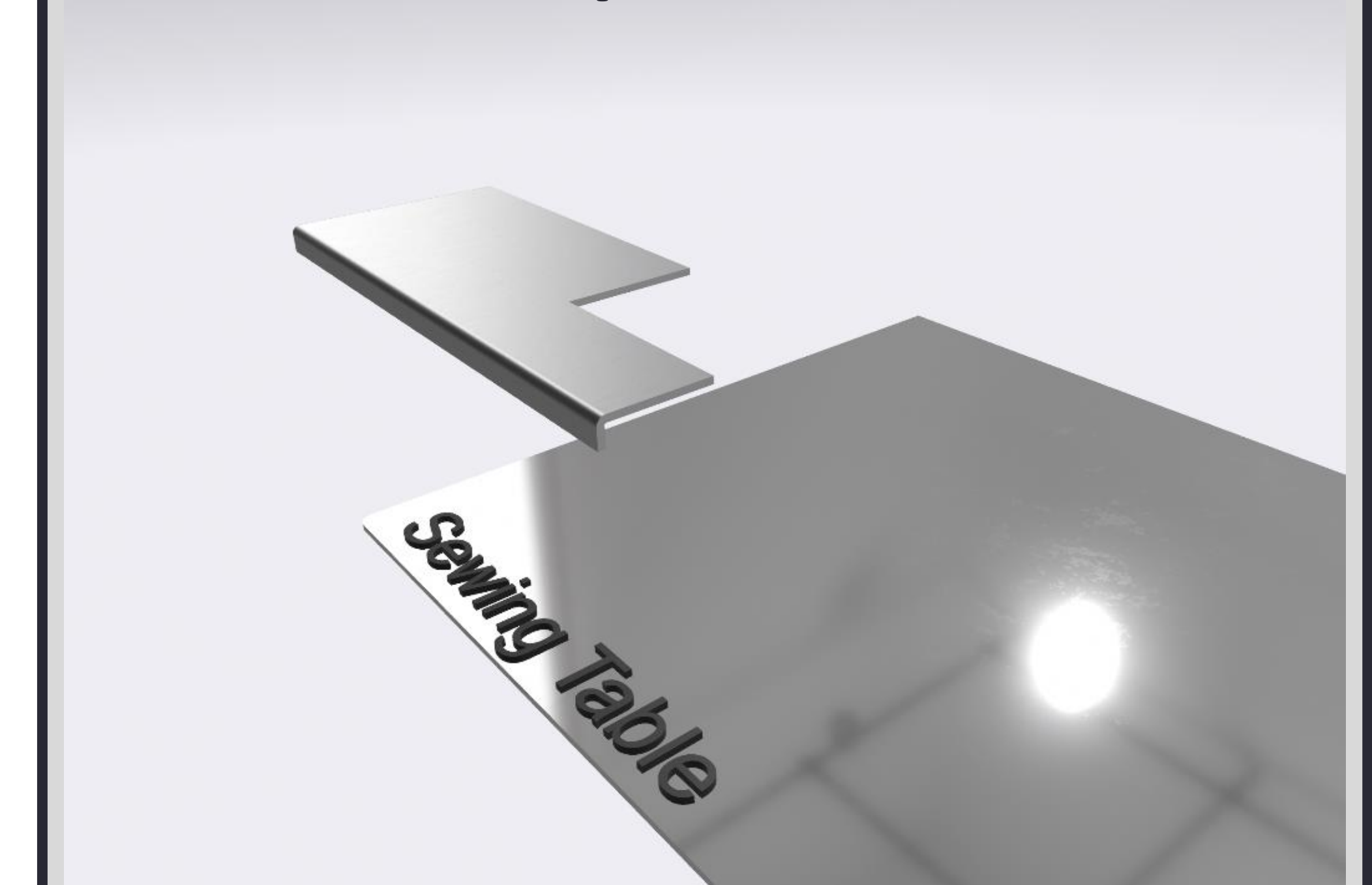
Alignment Tool



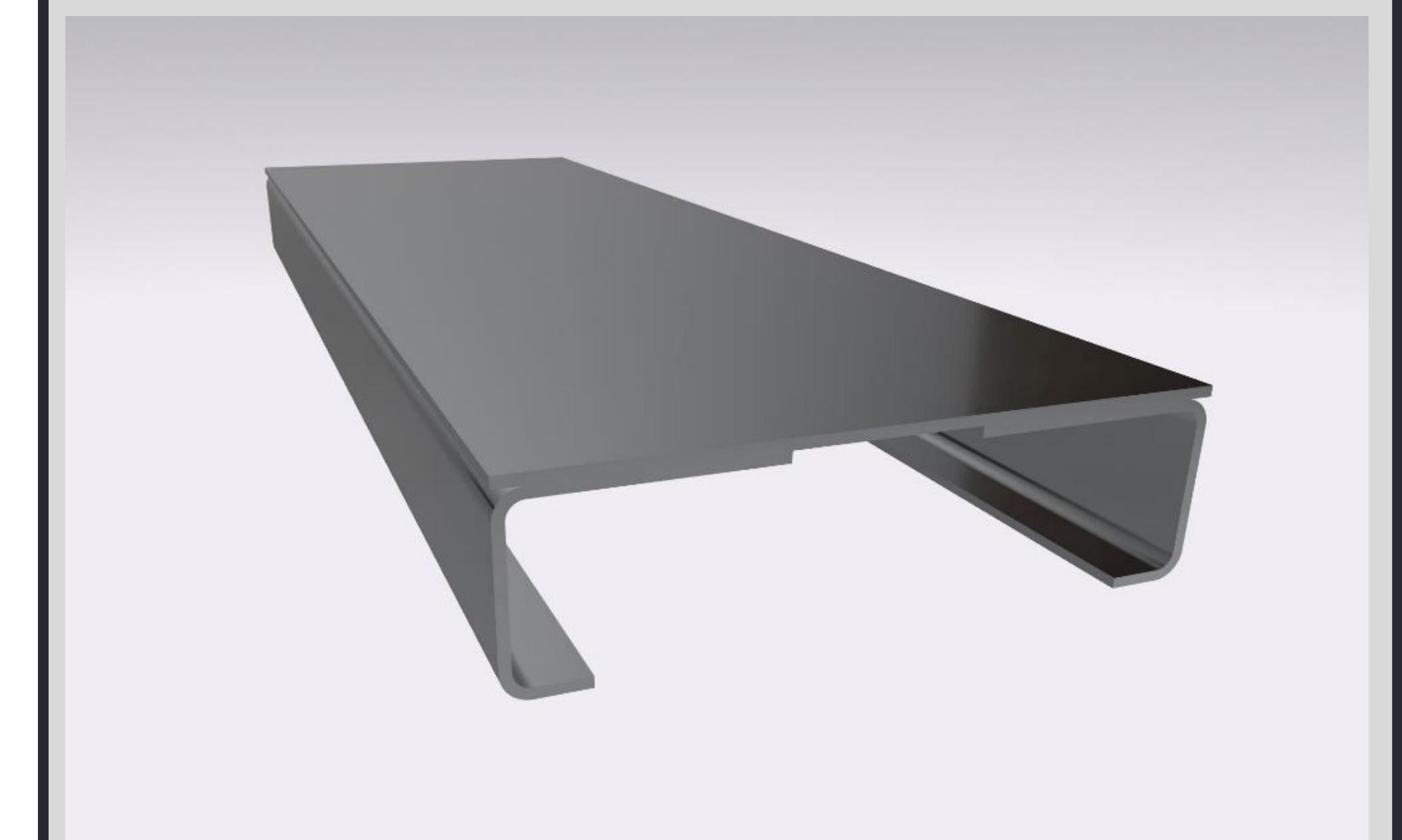
- Helps operators center the stitching plate easily, minimizing multiple manual attempts.
- Time to align stitching plates:
Without Jig: 14.38 min With Jig: 1.75 min
- Reduced time by 87.83%
- Savings: \$10.74/day ~ \$2600/year

Process

Conceptualization



This right-angle tool lies flush on the bottom left corner of the operator's workstation. Edges are bent to catch on the edge of the table



This proof of concept of a hanging rack allows 55" shoulder harnesses to be hung. Three pieces of carbon steel sheet metal were formed and welded to manufacture this channel.

Future Recommendations

- Create a live inventory tracking of parts in the database
- Improve new employee training program