



Roncelli Plastics

INTERN PRESENTATION

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AGENDA

- Introduction
- SM Team
- Timeline
- Contract Review Tool
- Tooling Reorganization
- Plastic Welding Robotics
- Final Overview

SMART MANUFACTURING TEAM

Defined AI implementation timelines

Identified areas for early AI usage through user interviews

Created early wins within contract review, tooling, and plastic welding



INTERNSHIP TIMELINE

(Weeks 1-10)

1-3

Defining scope of internship
and early contract review
tool

4-6

First work instruction
created and implemented
for tooling

7-9

User research and defining
tools for material
reorganization

Present

Defining future for team
and internal projects
(plastic welding)



Contract Review

User Interviews

AI Integration

CONTRACT REVIEW

- ✓ Purchase order comes in

- ✓ Contract review agrees to build part

- ✓ Part number is checked in Jobboss

- ✓ If repeat order, changes are noted

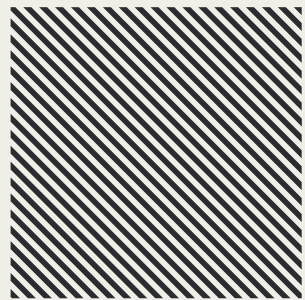
PAIN POINTS

0-3Hrs Reviewing

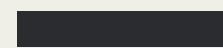
- Spends most time looking for changes and begin estimating time and materials needed

<1Hr Review

- Quality clauses have to be checked against every website and is often time consuming



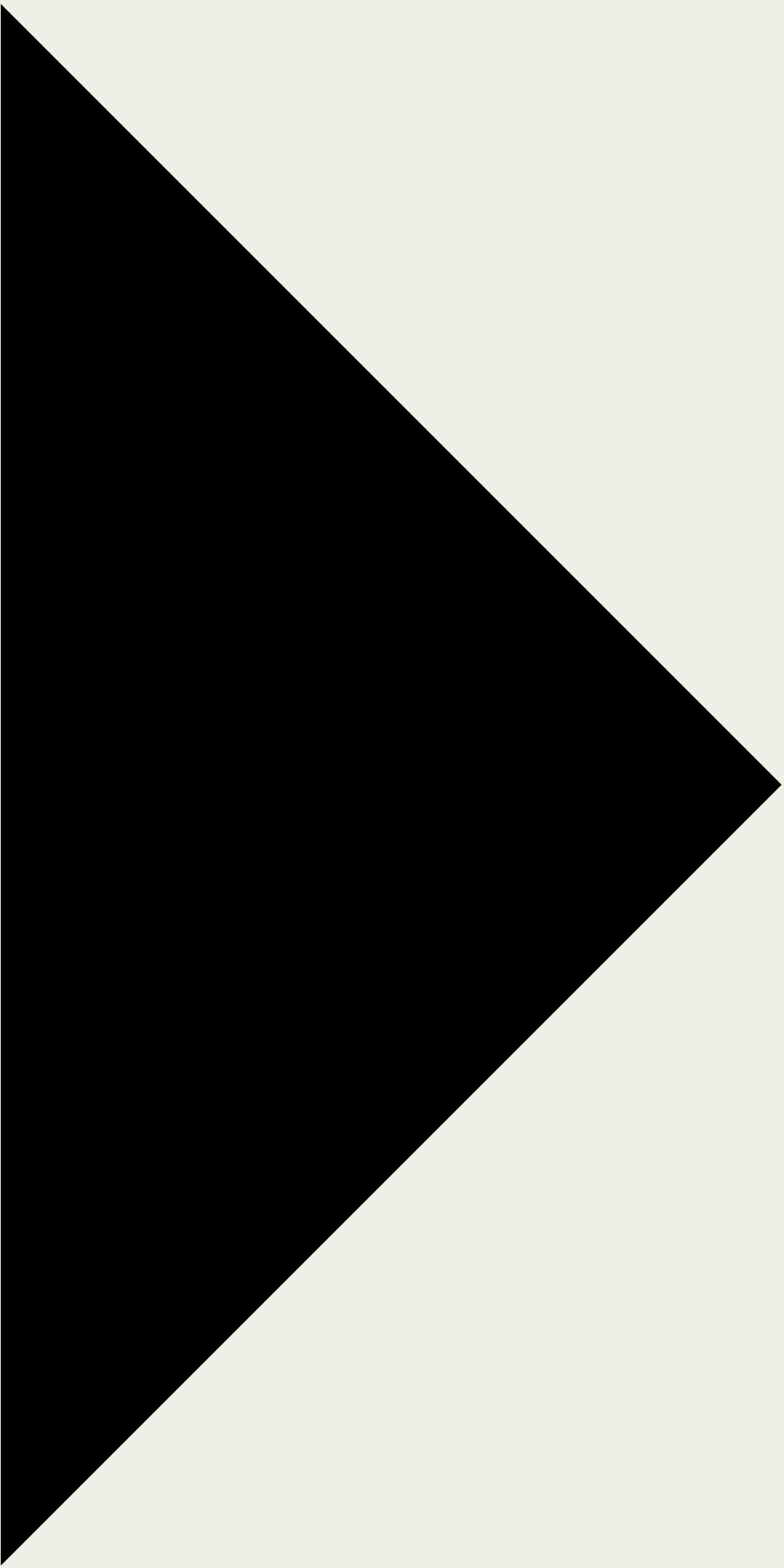
SOLUTION



Co-Pilot agent that analyzes two documents and generates a structured comparison, highlighting differences and extracting quality clauses in a tabular format.

Demo Tool

Nayan Sarma: User Researcher
Jason Hananel: Engineer



Estimated Savings

Contracts Processed (YTD): 1900

Time Saved/Contract: 2hrs

Time Saved: 3800 hrs

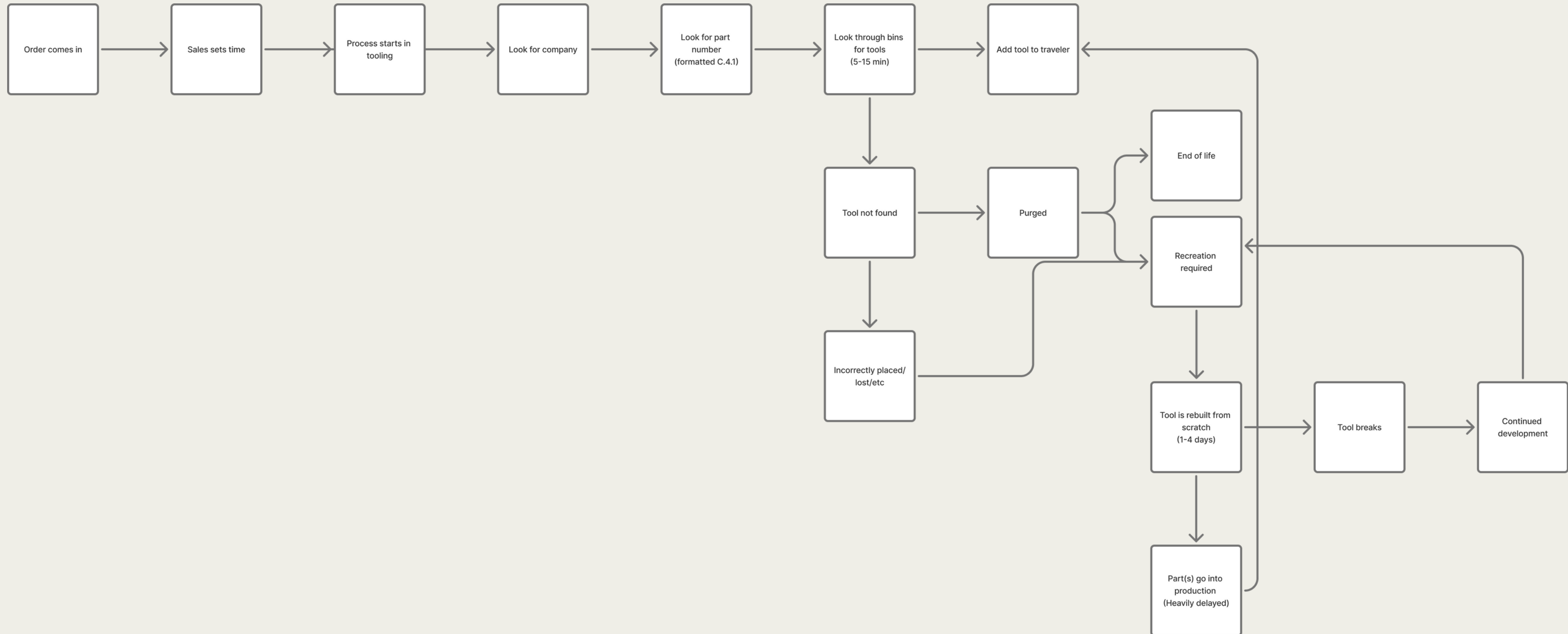
Cost Savings: \$95k

Tooling

Organization

- User interviews
- System redesign

Tooling Map



✓ Sales schedules job

✓ Expeditors locate custom tooling

✓ Tooling added to traveler

✓ Job proceeds to production

FORMER TOOLING RETRIEVAL SYSTEM

SYSTEM BREAKS

Custom tool
not found or
purged

Rebuilt from
scratch (1-4
days)

Production
delays

Customer
dissatisfaction

USER CONCERNS

1

Tools take time to
remake

2

No photos before
tools are purged

3

Storage space is
running out

IDEA 1

Tool purging rubric (Link).

- Tool ID
 - Usage Frequency (25%)
 - Customer Priority (20%)
 - Remake Time (20%)
 - Tool Uniqueness (15%)
 - Machinist Recommendation (10%)
 - Upcoming Jobs (10%)
 - Weighted Score
- 

I D E A 2

Purging pictures

What this needs

- Measurements of all tooling
- Camera
- Excel sheet for sorting/documentation

Where this helps

- Reduces remake time from days to hours
- Gives us more room to purge tooling
- Saves time on projects and reduces delays

IDEA 3

Tool storing process



Check in/out sheet



Sorting by company



Inventory with Jobboss

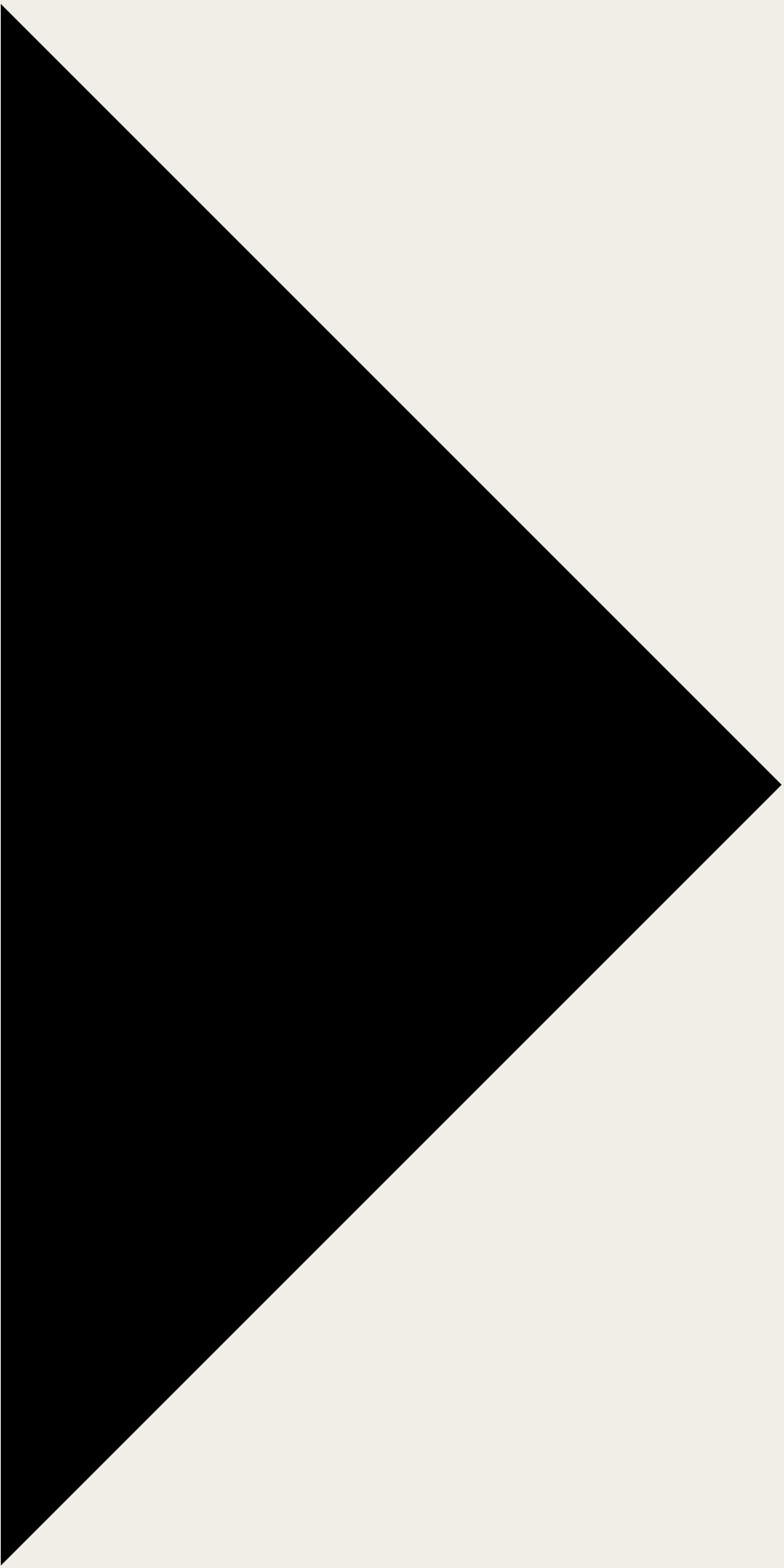
NEW LABEL



- Customer (M)
- P/N & Rev (M)
- Quantity (M)
- Year (M)
- Location (E)
- **Remake Time (M)**
- **Tool Uniqueness (M)**
- **Weighted Score (E)**
- **Date of score (E)**

*M = Machinist
E = Expeditor*

(Approved by supervisors & HR)



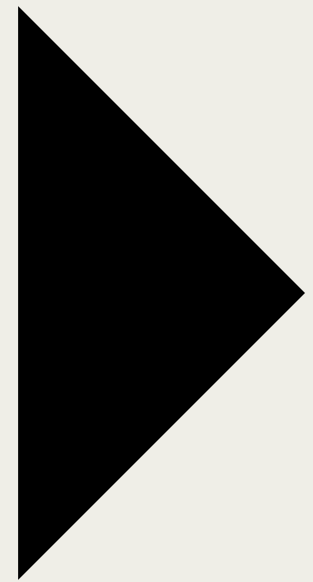
Estimated Savings

Tools lost annually: 60

Tool remake time: 2 days

Cost of lost productivity: \$1,500/day

Estimated annual savings: \$180,000

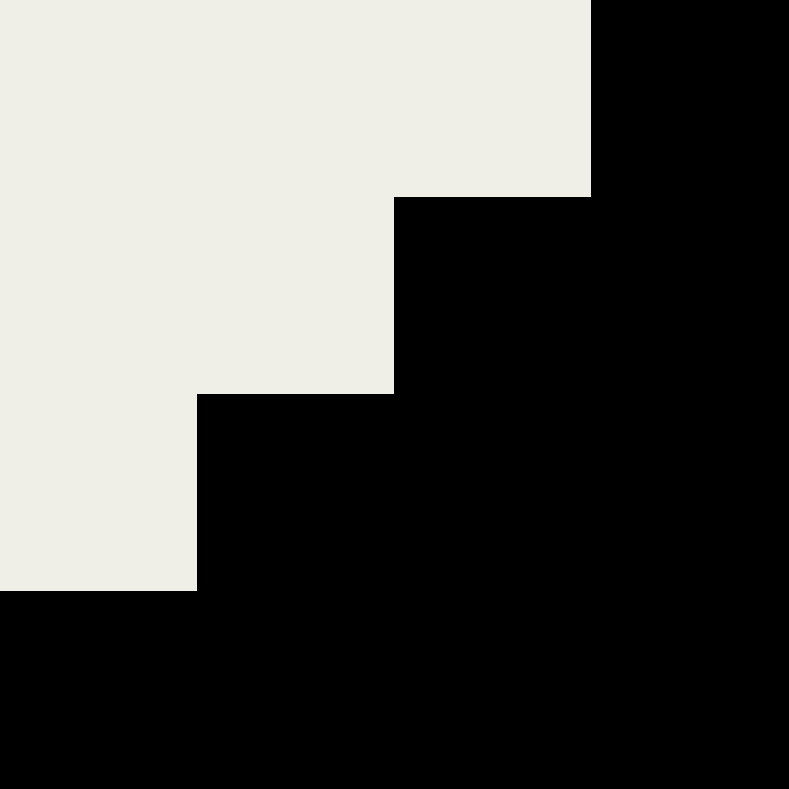


Plastic Welding & Robotics

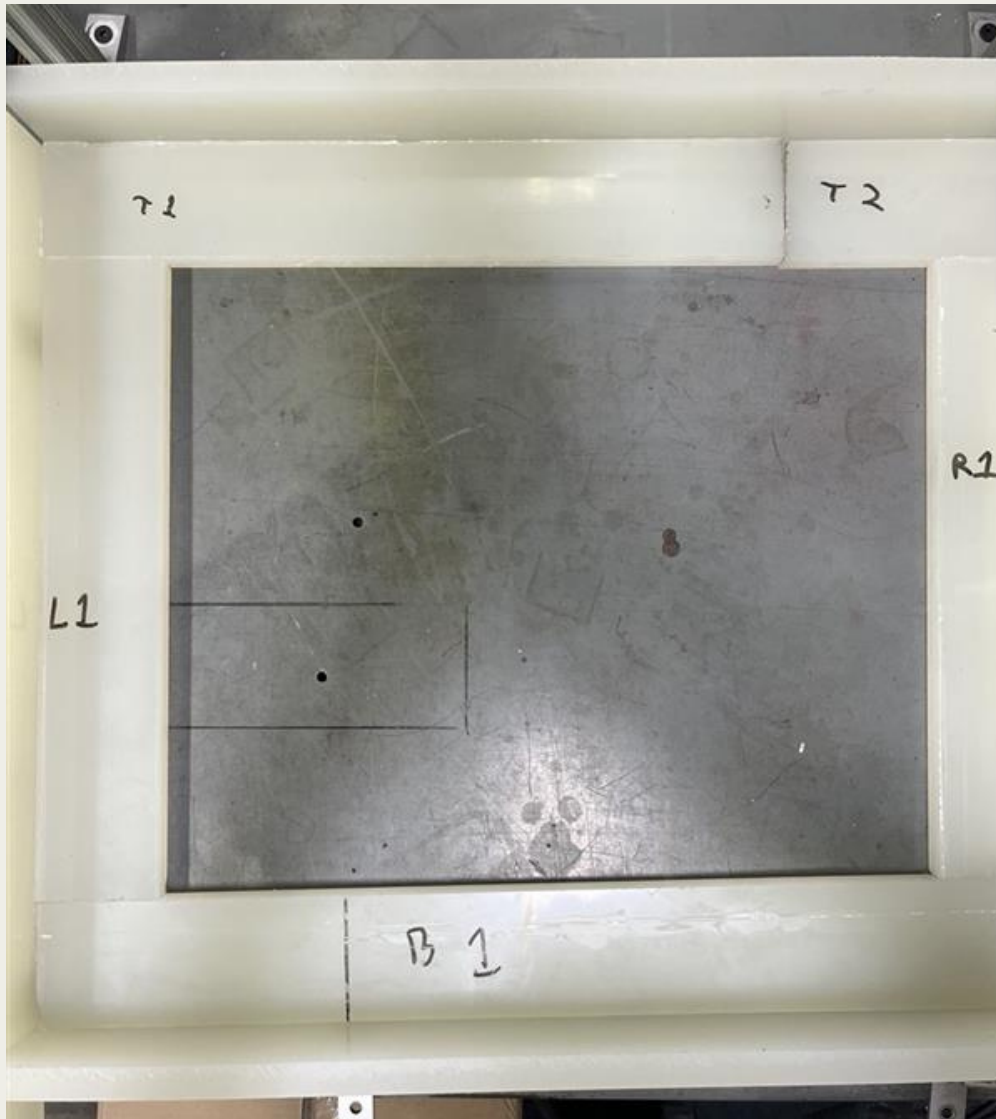
Early R&D



**How might we automate plastic welding for
consistent quality?**



CHALLENGES



-
- ✓ Size of the box (6ft x 9ft)
-
- ✓ Corners of box
-
- ✓ Ensuring consistency
-
- ✓ Speed of robot when welding (ensuring plastic doesn't melt)
-

Tools

1

Universal Robot



2

**Leister Triac
Welder**



3

Doosan Robot



Early Ideation

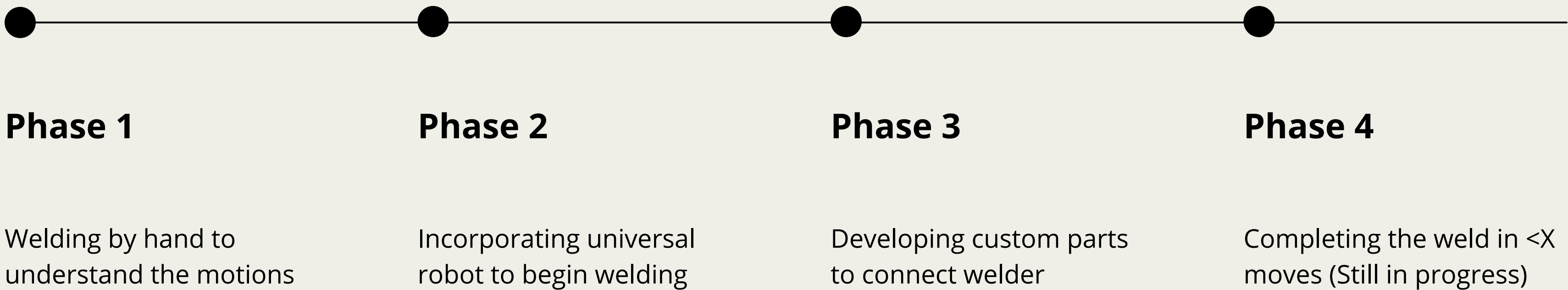
Using multiple robots

Starting with all the walls in place

Semi-automated welding

Exploring fixture designs

Timeline



INTERNSHIP RESULTS

Contract Review

Leveraged insights from user interviews to design and deploy a chatbot that automated order comparison, **reducing manual processing time and saving over \$95k.**

Tooling

Redesigned tool storage system to improve disposal tracking and cataloging, **reducing costs and streamlining repeat orders to save over \$180k.**

Plastic Welding

Defined early tools for plastic welding including custom fixtures, tool paths, and scope of project.