

Chase Kramer

ENGINEERING PROJECT PORTFOLIO

Chase.KramerMI@gmail.com

+1 (616) 402-2279

[LinkedIn](#) – [My Website](#)

Manufacturing engineering student with hands-on production cell optimization experience. Proven in reducing cycle time, operator travel, and material flow inefficiencies in high-volume automotive manufacturing.

Areas of focus: Manufacturing flow, automation, process optimization, fixture design, PLC logic.

Project #1 Assembly work-center

Task:

During my summer internship I was able to reduce operator step count significantly to increase a cell's output on all shifts.

High-volume automotive assembly cell

- Excessive operator travel
- Material presentation outside ergonomic reach
- Step count per cycle was high enough to impact throughput

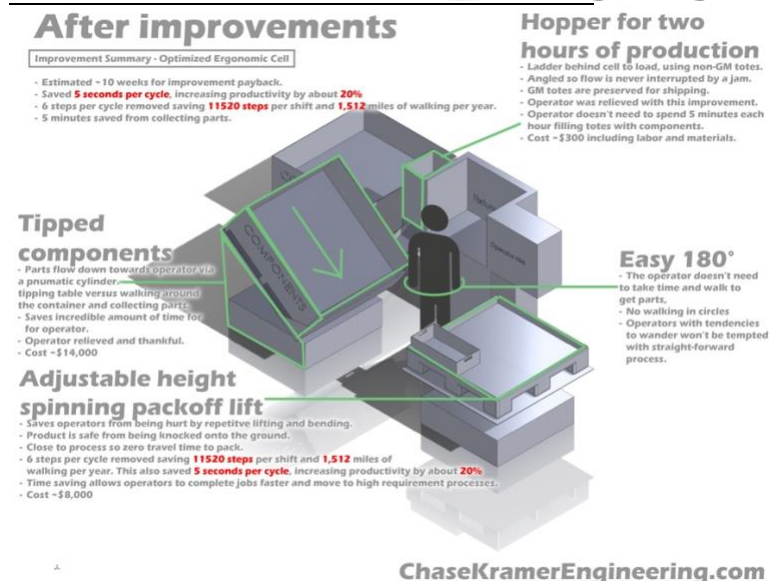
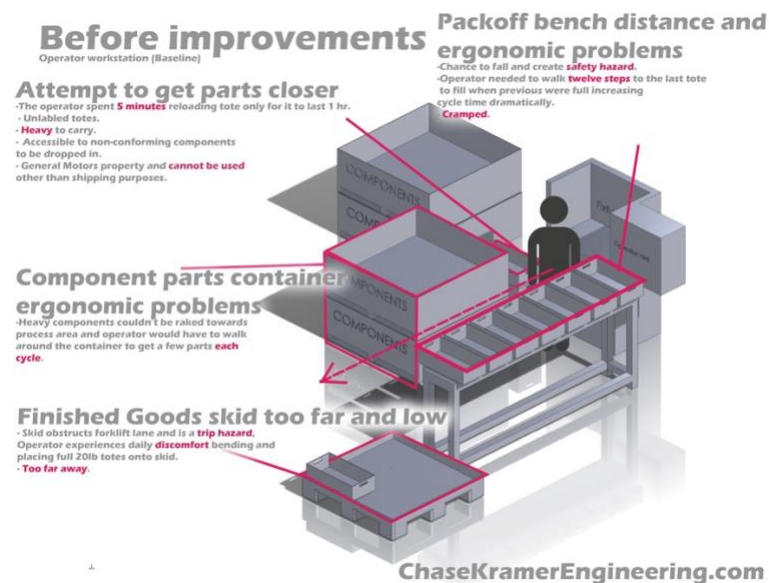
How:

Removed inventory systems that caused the operator physical strain, and made them do extra work outside of the Job Element Sheet. Installed component hopper and tilt decks for continuous flow of material to operation.

Results:

Removed 6 steps from each operation, saving a total of 1,512 miles of walking by the operator each year.

That's walking from Grand Rapids to Denver every year. Thousands of dollars were made by allowing the operators to work at other processes to meet requirements and avoid expedites.



Project #2

Basement wall

Task:

Stick-frame build a 14'x7' non-load supporting wall in the basement of my home for a code-compliant bedroom.

How:

Measure and calculate the number of 2x4's needed based on the wall length. Assess electrical configurations.

Results:

Before



After



Issues I encountered were electrical and incoming material related.

Electrical, one section of lights doesn't work because of a 60v reading on my multi-meter on a wall outlet circuit also going to an outside light. Pending licensed electrician inspection.

Material, incoming 2x4s from Home Depot were warped and caused sections of the paneling to bow slightly.

Project #3

RaspberryPi ladder logic sorter (WIP)

Task:

A manufacturing PLC controls system that visually detects and sorts colored Ping-Pong balls into their respective buckets with a paddle.

How:

Run OpenPLC ladder logic software on a RaspberryPi 5 board, and take inputs from a color sensor and two IR presence sensors in the position of the ball at rest behind the servo paddle. Once the logic sees that the color is red, it will let it pass straight through. Any other color will be rejected.

Results:

(WIP)

