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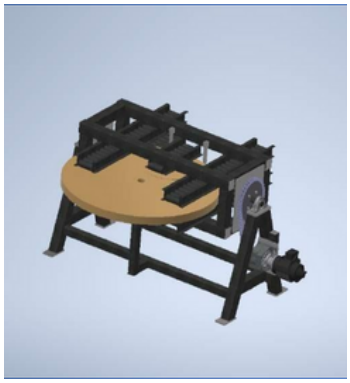
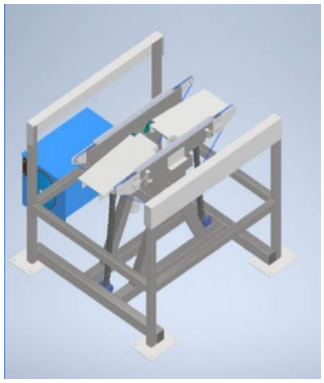
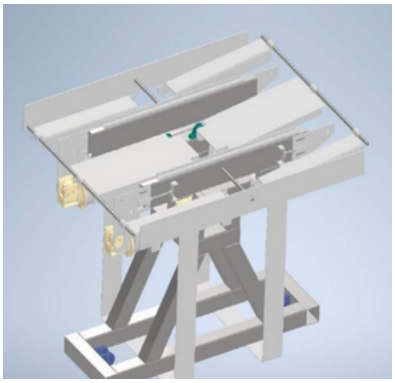
SONOCO - FLANGE FLIPPER


What?

- Designed, fabricated, and installed Flange Flipper machines.

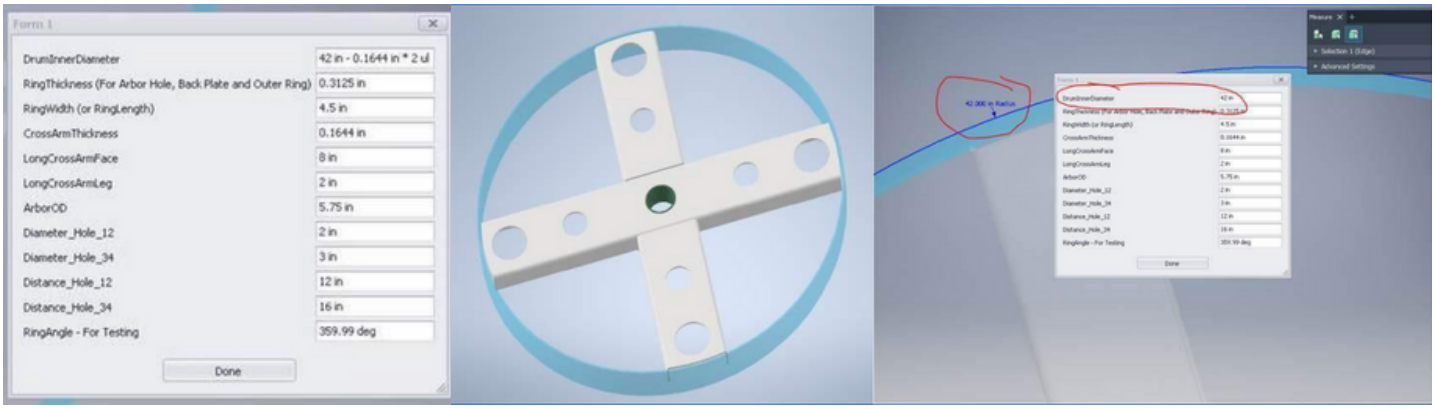
How?

- Used **Autodesk Inventor** to design the machine.
- Applied **Design for Manufacturing,** created **Hydraulic Drawings,** specked **Electric Motors,** and analyzed **Pneumatic Systems.**
- Practiced **milling & welding** to further assist with fabrication team.

Results

- A series of Flange Flipper machines installed with more **power, customizability,** and can **flip larger size range (20'' - 80'' diameter) .**

SONOCO - AUTOMATION



What?

- Created an **automated** system to convert customer's **specs and shapes** into **Sheet Metal cutting patterns.**

How?

- Used **Autodesk Inventor, Basic & Python,** and **Manufacturing Process and Tolerance Analysis** to create an algorithm.
- Integrated the system into **welding & cutting machines** for smooth transition.

Results

- A system that converts **customer's specs** (diameter, arbor hole location, bend angle, etc.) into specs for cutting patterns.
- **Reduced the use of 6 people on the manufacturing line.**

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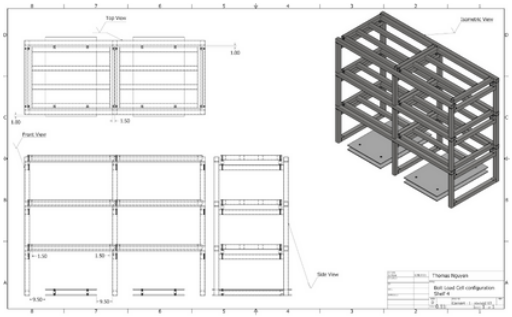
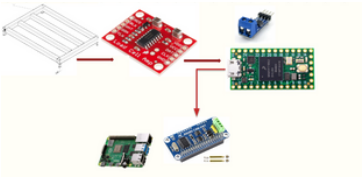
SONOCO - AUTOMATED BOLT SHELVING SYSTEM





What?

- A system of 86 metal shelves that can support **6000 lbs** of bolts each.

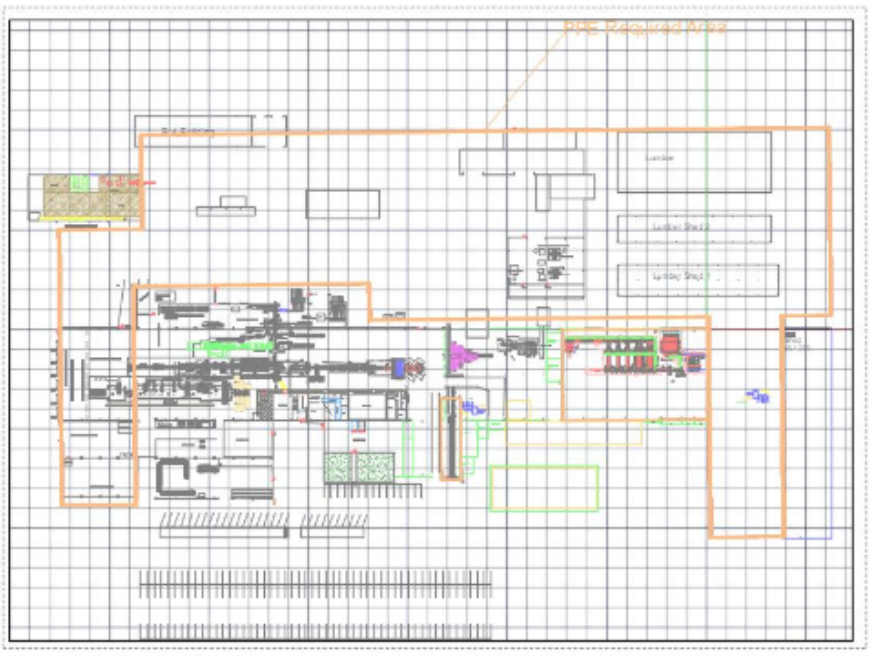
How?

- Used **Autodesk Inventor** to design configuration.
- Used **Inventor, Nastran & Patran** to perform FEA Analysis.
- Used **CAN Communication hardware, Raspberry Pi, and Micro-controllers** for automatic bolt sorting and data storage.

Results

- A **standardized & durable** shelving system.
- The new shelves **prevent pallet damage.**
- The weight & bolt type data is **automatically processed and stored on a server.**
- The shelves follows **Fire Safety, allowing water to get to floor when needed.**

SONOCO - CAPACITY PLANNING



What?

- Updated and detailed the **plant drawing** and consulting Engineers & Coordinators on capacity planning .

How?

- Used **AutoCAD & measuring techniques** to **update plant drawing.**

Results

- An updated & more **standardized AutoCAD Drawing** of the plant with **GD&T.**
- Created a **Fire Safety & Escape map** for the EHS Coordination team.

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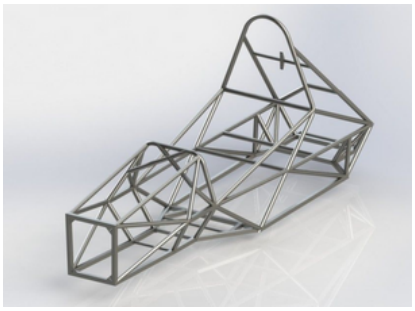
FORMULA SAE CHASSIS MANUFACTURING - NOTCHING




What?

- A **repeatable** method & work flow to make **complex notches** on 4130 Steel tubing.

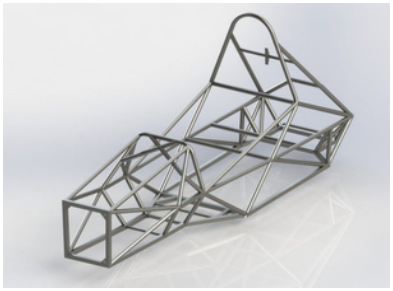
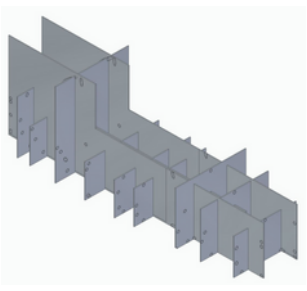
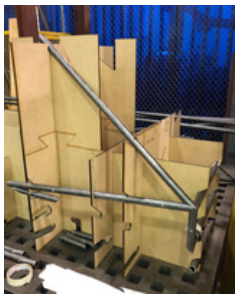
How?

- **Tested** multi-notch methods to control **tolerances** & perform **R&R.**
- Used **laser cutting, 3D Printing, laser cutting, traditional tube notching** & **discussion with vendors and experts** to come up with a **repeatable** method with **minimal tolerances.**
- Performing **temperature & speed** analysis to find the **optimized setting** to make precise & complex **cutting patterns.**
- Using **Arduino, AutoCAD & Python** to automate the process of cutting.

Results

- An **repeatable & precise custom cutting system** to create **complex cuts** on 4130 Steel tubing.

FORMULA SAE CHASSIS MANUFACTURING - JIGGING


What?

- A **support jig** to have **notched tubes** ready for **welding.**

How?

- Created a **template** with **SolidEdge & AutoCAD** for jigging **automatic generation** based on chassis design.
- Tested and implemented a **repeatable** process to **cut and glue MDF boards** with **laser cutters.**

Results

- An **jig** with proper **tolerances** to support the tube welding process.

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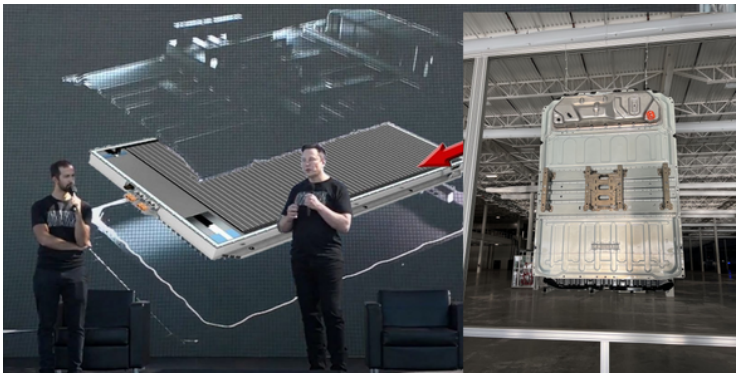
TESLA MOTORS - HIPOT TESTING IMPROVEMENT - GIGATEXAS



What?

- Helped **commission** the **HIPOT testing** line for the new **Structural Tesla Model Y battery pack.**
- **Performed** as HIPOT **Point of Contact,** organizing **improvement meetings & training sessions on HIPOT testing.**

Results

- **HIPOT testing method** with **3 times faster cycle time, 45% more effectiveness - new golden standard** ready for **semi-automation.**
- **New HIPOT testing method** with the use of **1 less worker,** better **ergonomic & safety,** standardized and ready for **larger scale production.**
- A network of engineering teams, vendors, expert, quotes to support the **HIPOT Improvement effort.**

How?

- **Managed** a team of **technicians, engineers, and workers** to **brainstorm,** perform **R&D** and **Comparison testing** on HIPOT testing **methods.**
- **Set up a testing lab, spec-ed & design** testing equipment, method & parameter, and managed **logistics for testing parts from Fremont, California.**
- Used **laser cutting, 3D Printing, and part fabrication** to perform testing.
- Performing **cycle time analysis, PFMEA, Root Cause Analysis** to improve the testing procedure and HIPOT cycle time.
- Created a **remote control system & wire management** to reduce trip hazard, increase cycle time, and improve worker's **ergonomic.**
- Worked with **EHS, Certification, Ergonomic Reviews** to finalize commissioning.
- Worked with **technicians** to create **manufacturing manual/procedure** for HIPOT testing.
- Executed **Arc Flash label** printing & installation.
- Created & implemented **solutions** of transport finished parts between manufacturing lines for **SOP.**
- Establish all **quotes, connections, and discussions** with **vendors, experts,** and cross-factory departments to work on **HIPOT testing.**