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Additional files and documentation can be found at GitHub.

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PROJECT PORTFOLIO

WORK PROJECTS

Work Request System Overhaul for ASML Model Shop

Workflow Overhaul

- Identified inefficiencies in the team's workflow.
- Redesigned & streamlined processes for efficiency and customer transparency.
- Added automated internal and external feedback loops.
- Automated data modification & approval processes.
- Created easy to use interfaces for management and customers.
- Drafted a site-wide communication in the newsletter informing customers.
- Presented the changes to the D&E DM.
- Saving upwards of $140,000/year in work hours for the Model Shop team.

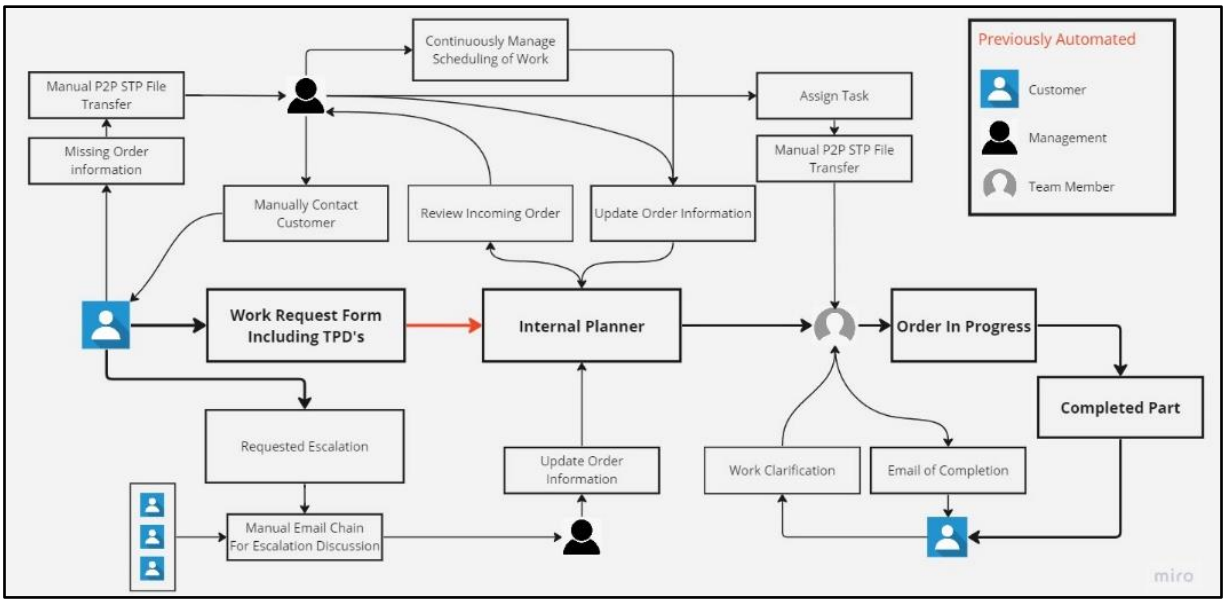
Internal Changes

- Reduced platforms used from 4 to 2.
- Reduced instances of manual typing from 15-20 to 3.
- Simplified escalation process to 2 clicks instead of a multi-participant email chain.
- Removed the need for manual file sharing involved in multiple parts of the order.
- Removed the need for 1 to 2 manual emails depending on the order.
- Reduced needed meeting discussion time for each order by 2-3 minutes.
- Removed the need to manually update the team planner.
- Constrained sub-processes to their own platforms.
- Removed the need to discuss order timing with each customer.
- Added a variable control panel for management that allows instant modification of Outgoing automated message formats, included info, and automation logic with no understanding of the underlying code.

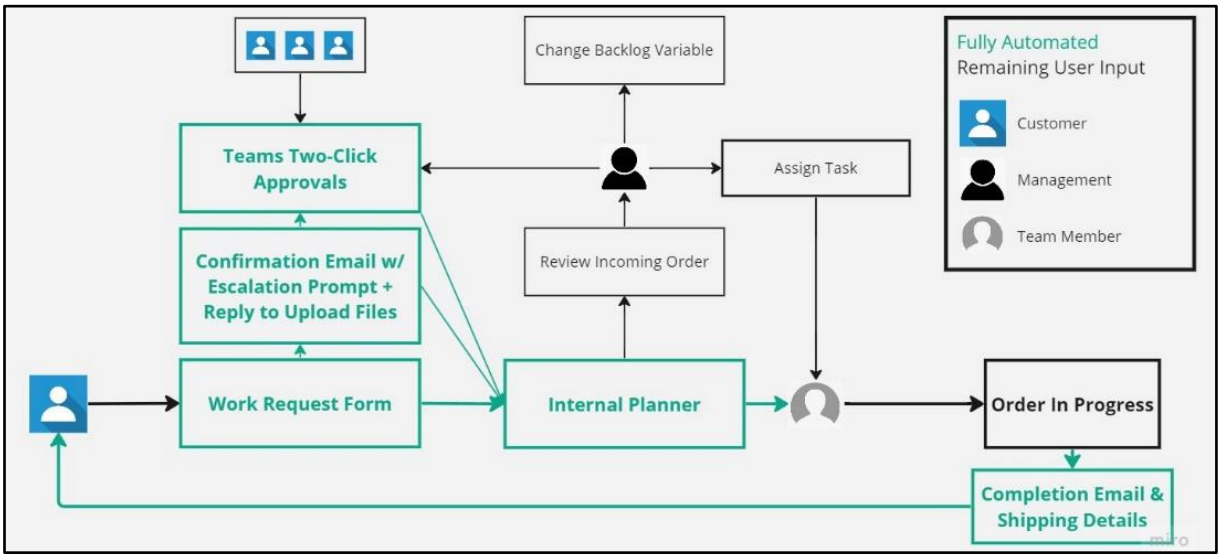
External / Customer Experience Changes

- Removed reliance on the Model Shop team availability for order updates/changes.
- Removed the need for manual file sharing.
- Created Teams integration to show current backlog and escalation requirements.
- Added 3 auto-verification emails for various events.
- Added automatic file uploads.
- Reduced escalation process to 2 clicks.
- Streamlined the request forms to improve efficiency and clarity.

BEFORE



AFTER

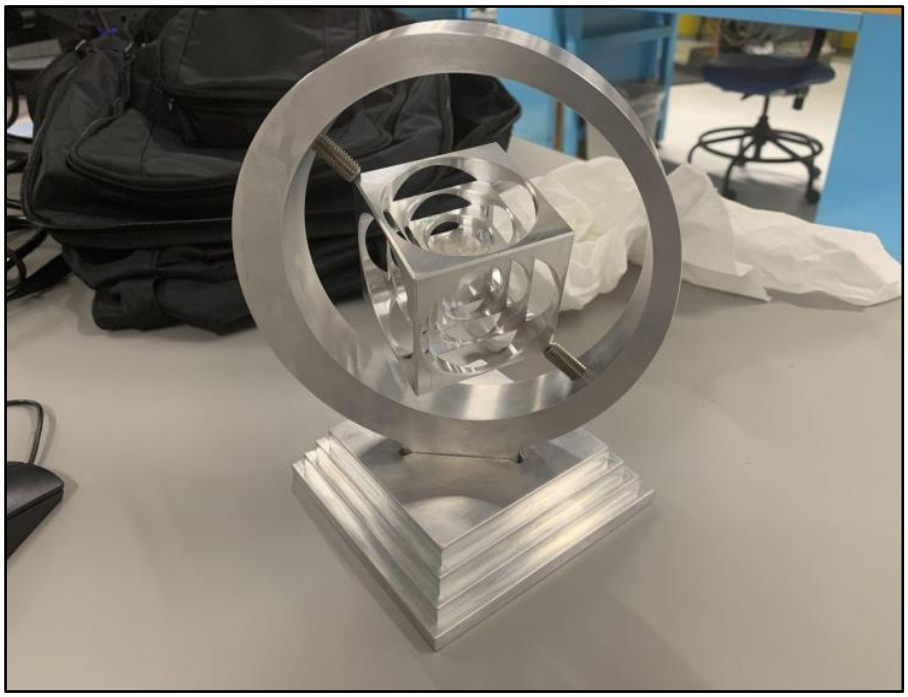


From Design to Fabrication — *Display Piece Showcasing Gathered Skills Throughout ASML Internship*

Takeaways:

- Understanding Relationships Between Design and Manufacturability
- Process Planning
- 3D Modeling
- Dimensioning and Tolerancing
- G-Code generation (Mastercam Programming)
- Complex Machine Setups & Fixturing

Product Image



[Process Images at GitHub]

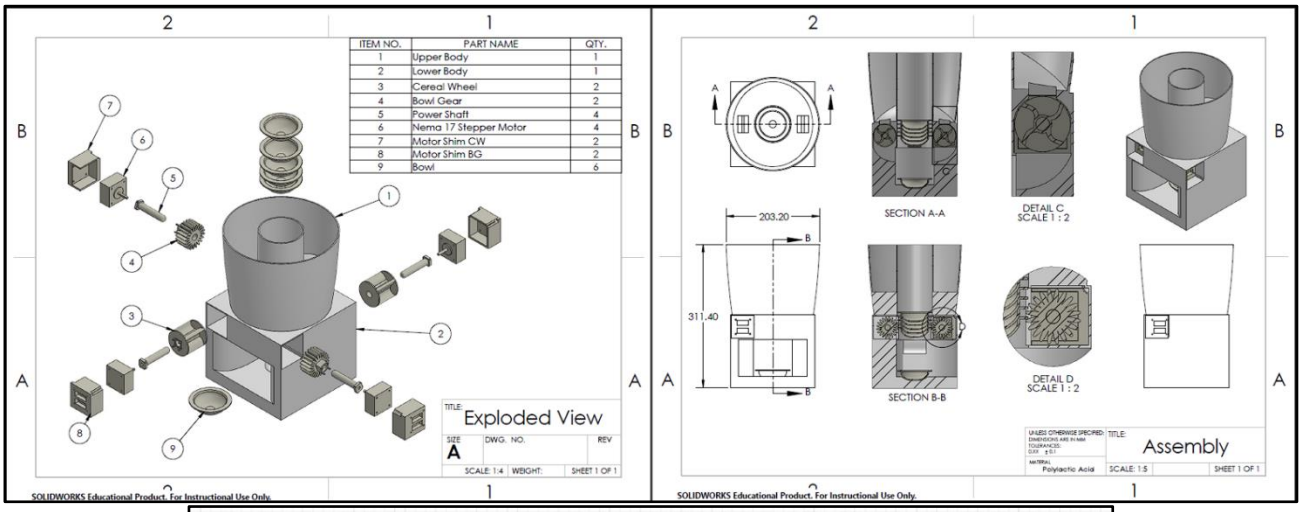
UNIVERSITY PROJECTS

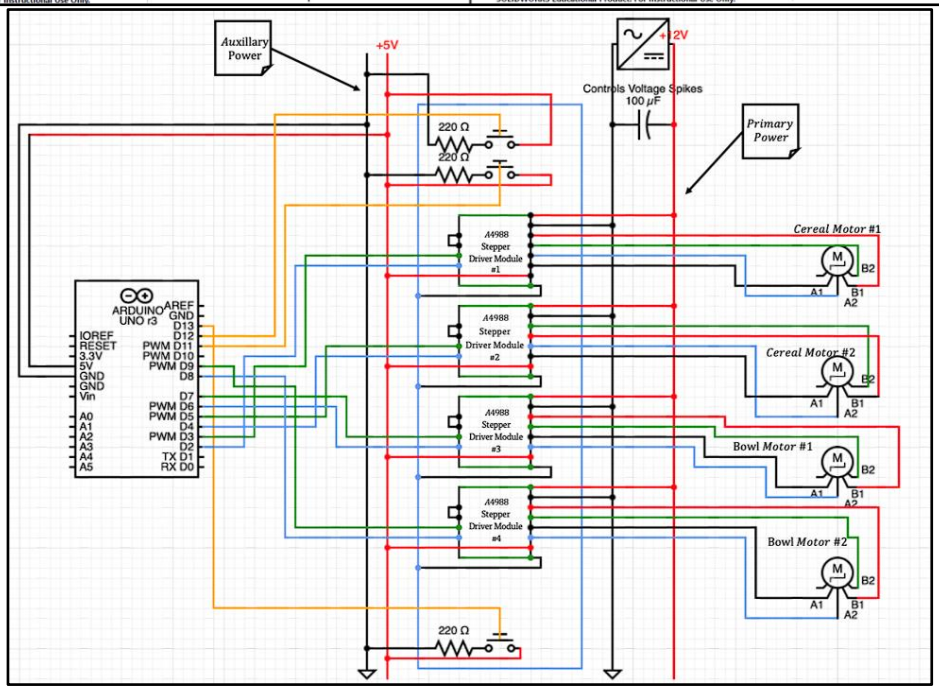
Push & Go Cereal Dispenser — *Automated Cereal & Bowl Dispenser for Cafeterias & Dining Halls*

Created a product that fulfills a market need.

- Experienced Various Phases of Product Design
- Component Selection & Research
- Arduino (C++) Programming
- Component Design
- 3D Modeling & Tolerancing
- Mechanical Assembly Design
- Process Planning
- 3D Printing
- Circuitry and Electrical Components

Deliverable Images:





Project Presentation Can be Found at GitHub

Internal Stress Automated Spreadsheet — *Calculating the Internal Stresses of a Traffic Light Support Structure (Mechanics of Materials)*

Created an Automated & Modifiable Excel Spreadsheet That Returns the Following:

- Center of Gravity & Centroid Calculations
- Second Moment of Inertia Calculations
- Principal Stresses & Plane Calculations
- Shear Stresses & Shear Plane Calculations
- Modifiable Forces, Wind Speed, Dimensions, Safety Factor etc.

Please View Spreadsheet & PDF Version At GitHub

Technical Memorandums – *Technical Writing for Instrumentation Lab*

- Cutoff Freq of LM741 Through Base & Amplified Sine Waves
- Flywheel Displacement Through Varying Rotational Frequencies
- Load Cell & Strain Gage Evaluation for Proposed Measurement System
- Temperature Readings of a Thermistor & Amplified Thermocouple
- Type K1 & K2 Pressure Transducer Calibration

Memo PDF's At GitHub

HOBBY PROJECTS

Mohr's Circle Generator — *C++ Application*

User Inputs of Shear and Axial Stresses are Used to Generate a Graphical Output Which Represents Principal Stresses and Planes.

- Pack & Go Executable Application with No Installer or additional dependencies.