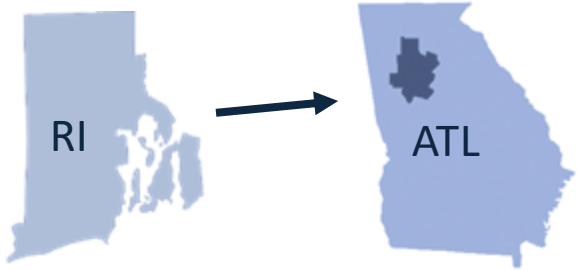
Amish Jariwala

4th Year Mechanical Engineer at GT



Key Values (ENFJ-T)

Applying engineering fundamentals and continuous learning to deliver high-impact solutions.

Career Development

- Expected BSME Graduation Dec. 2026
  - In +1 Year Masters Program (MSME) - Dec 2027
- Manufacturing Engineering, 9 Months
  - 3 months @ P&G
  - 6 months @ Rivian
- Academic Research, 2+ Years
  - First-author, peer-reviewed paper validating video-based crane tip-over analysis submitting to ACC under ASME for 2025

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1. Rivian R2 Hood

Full Line Ownership for the Rivian R2 Hood

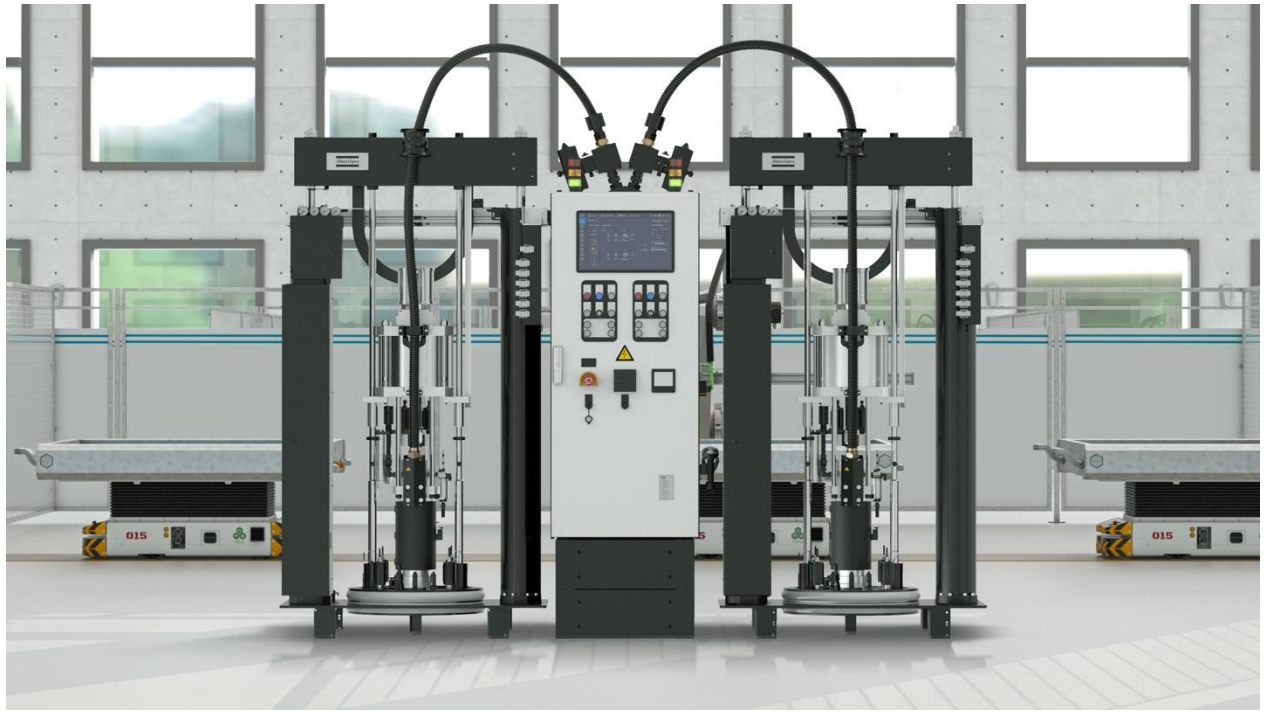
- Design – **CATIA V6**
  - Calculated the optimal flange and transition length for corner hemming in aluminum closures using **Assembly Autoform**
  - Authored 9+ change approvals to remove tooling and fixture clashes
  - Rapid prototyped jigs to be used in production for fit & finish

- Installation
  - Mechanical, Electrical, Safety, Robotics, PLC Installation / Commissioning
  - Joining (Adhesive, Welding) Validation
    - Adhesive bead width and length within 5% tolerance
  - Dimensional (Metal Fit, Repeatability) Validation

1. Rivian R2 Hood

Hood deformation + paint boil-out

- Introduced a two-part epoxy **reducing deformation in the hood by 61%** and eliminated paint boil-out defects ($600k system)
- Contingencies
  - Implements automated roller hem cleaners
    - $100k system implemented for production
  - Simulation
  - Cycle-Time Charts
  - Semi-Auto application while waiting on vendor manufacturing
- Completed
  1. Problem
  2. Baseline Data
  3. Solutions
  4. Risks
  5. Contingencies
  6. Vendor Buyoff



2. Rivian R3 / Pre-Production Design for Manufacturing

Bill of Process / Workcell Layout for R3 Liftgate and Hood

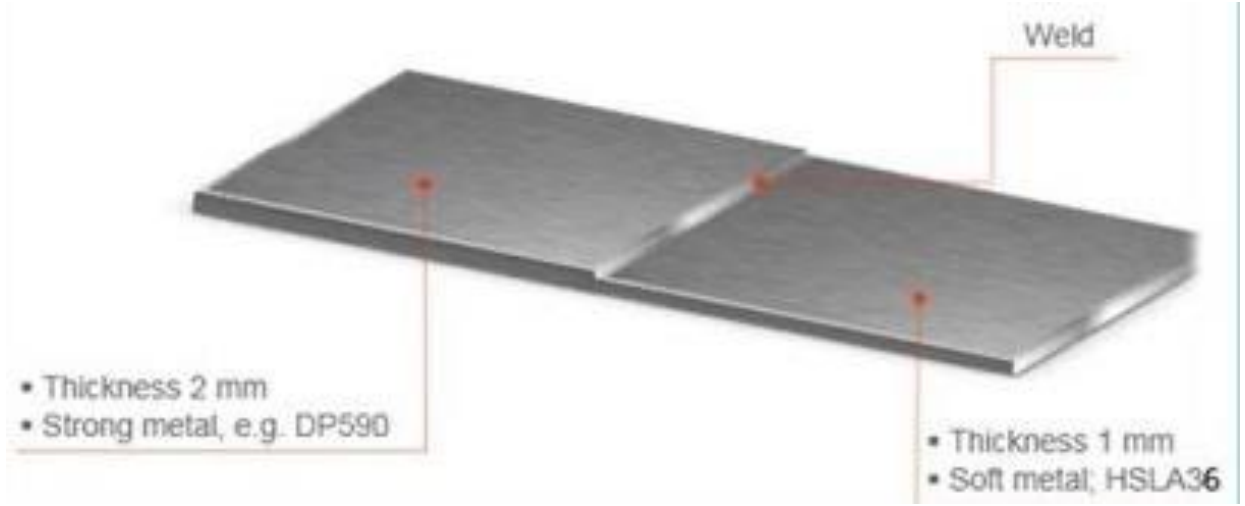
- Identified Process changes to **eliminate 4 stations** and reduce Capital Cost (CapEx) + Operational Cost (OpEx)

Introduced Tailor/Laser Welded Blanks

- Tailor one large sheet by laser seaming in stamping to fit 2 doors instead of 1
- Reduces Bracket/Part Count by 33%, eliminating CapEx (Equipment) and OpEx (Welds)
- **Savings = $640K Capex + $880k / year OpEx**

Weld Time Standardization

- Added equipment and joining (Resistance Spot Welding, SPR…etc) times to standard cycle time document through 14000 weld data analysis.



3. Advanced Crane Lab

Validated video analysis for extracting dynamic data from crane tip-overs

- Designed a 1:50 scale, tele-operated, 3d-printed model of a mobile boom crane to withstand repeated, controlled tip-over tests
- Included dynamic and kinematic calculations for inertia changes
- Yielded Incredibly strong correlation (**mean R^2 value of 0.970 and a mean RMS error of 3.29°**)
- Data will be used to calibrate a MATLAB dynamic model to replicate and predict tip-over behavior
- **First author paper submitted to American Controls Conference 2026**

Command Shaping Implementation & Validation

- Input shaping techniques (Zero Vibration & Extra-Insensitive) that actively suppress payload swing dynamics reducing likelihood of tip-over

Stop Crane Tip-over Fatalities

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Develop Anti-Tip-over Technology

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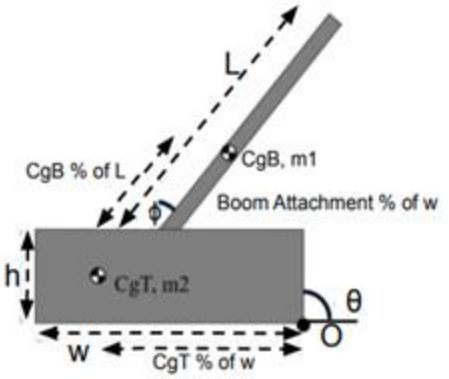
Need Verified Tip-over Data



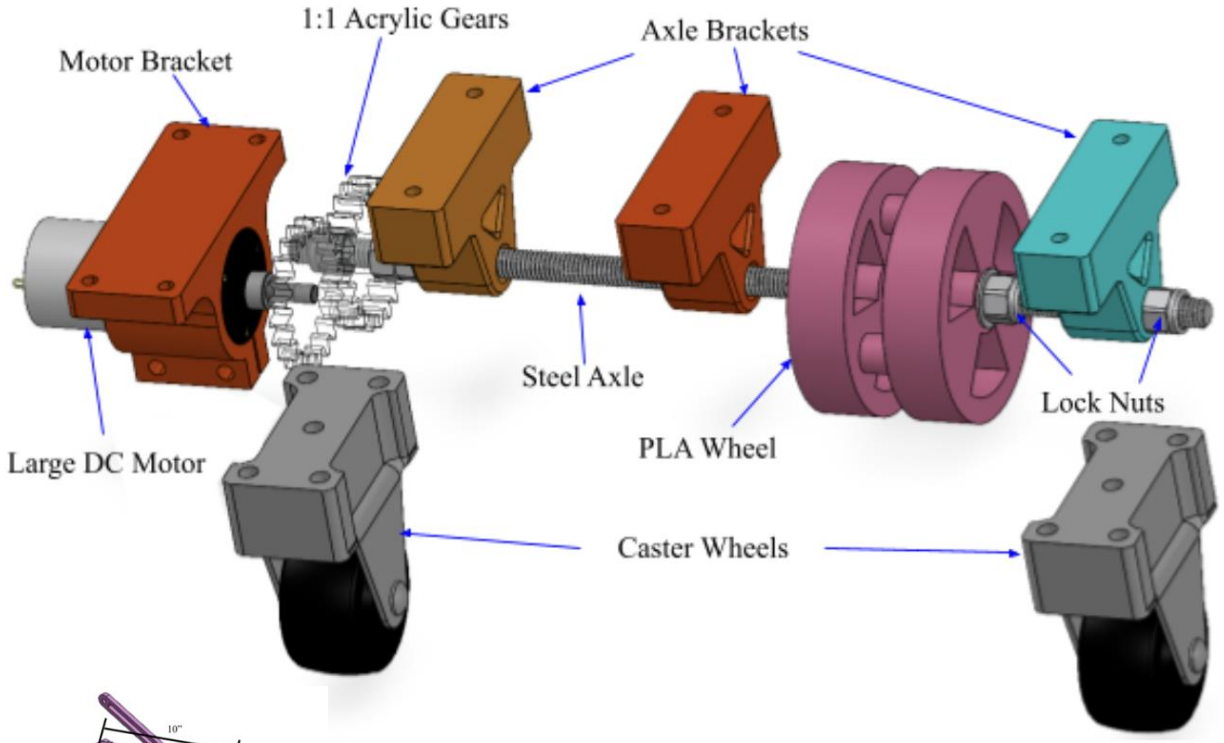
4. Competition Robot

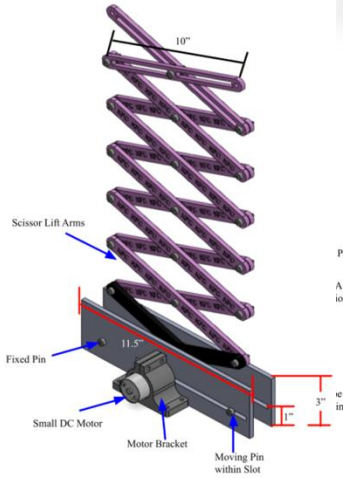
Engineered a Robot to compete in the ME2110 Georgia Tech Competition, placing 4th out of 68.

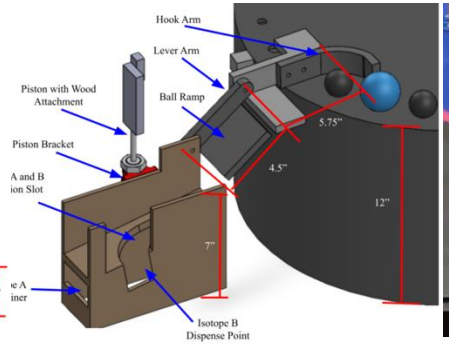
- **Performance standard deviation of 9%**
- Delta-trike drivetrain with a single-rear wheel drive geometry
  - High-strength steel rod axle + acrylic gears adhering to cost and material calculations
- Scissor Lift with pulley system to increase tension output, overcoming 47 oz-in torque requirement with underrated 36 rated motor
- Ball Collection subsystem with internal ramp
- Pneumatic Grabber subsystem maximizing reliability despite arena tolerance variations

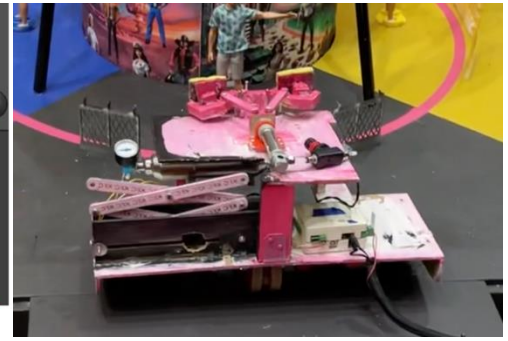
Performed Failure Modes and Effects Analysis

- Identified risk priorities which informed failures and component modularity
- Quality Function Deployment, Function Trees, and Morphological Charts









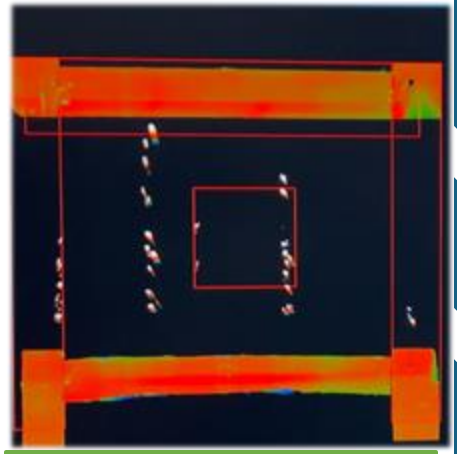
5. Pallet Defect Detection

Implemented Automated System to Identify Poor Pallets and reject them

- SICK Vision System
- Created Electrical Enclosure according to NEPA & NEC
- **Eliminated 2.2K Hours annually on Interventions & Stops + safety hazards, 1.5 Headcount, & 13,000 Touches annually**
- $200k Capital Investment - ROI 8 Years
- Immediate Safety, QA, and Touch improvements

Implemented auto-blower

- 87.5% Reduction in False Rejects

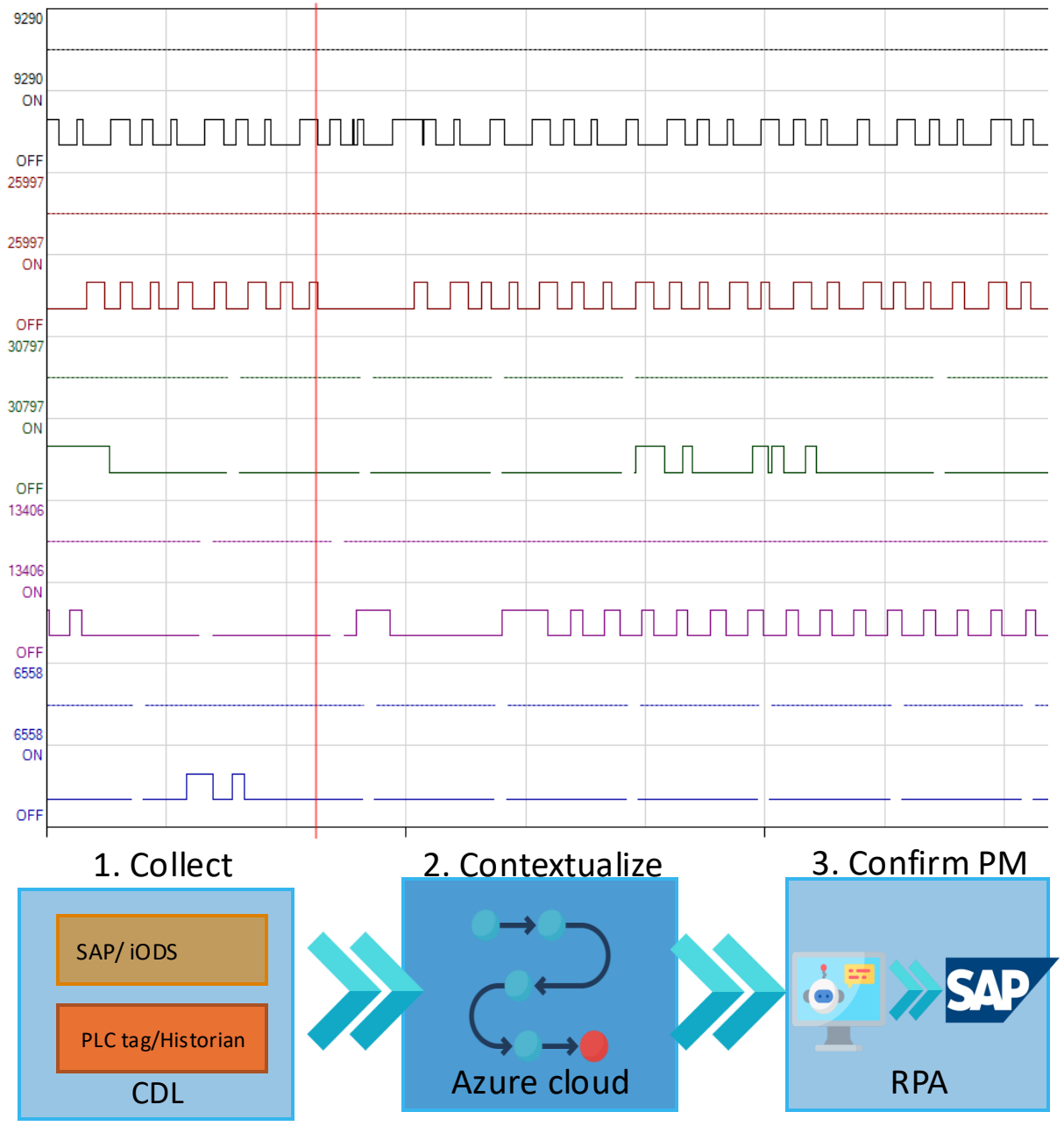


- **Problem Statement**
  - 6W2H - Meet with Techs/Teams
- **Quantify Loss**
  - House of Quality
  - Define Scope
- **Root Cause**
  - Why-Why Chart
  - FMEA
  - Fishbone
- **DFM**
  - BVOA
  - Process Flow (Quantify Touches)
- **Solve**
  - Gantt Chart
- **Results & Reiterate**
  - Eliminate Losses
  - Installation & Performance Qualification
- **Standardize**
  - Sustain
  - Standard Operating Procedures
  - Job Aids

6. SAP Automation

Automated Preventative Maintenance (PM+) Orders

- Used Aveva Historian to detect once over 5000 motors cross maintenance threshold to automatically push maintenance order in SAP.
- One central solution (cloud) using standard infrastructure and data sources
- Maintenance based on feedback loop from operations (SAP/ PLC tags)
- Program is designed to support in future transition to solutions
- Ongoing cost: $80K/year for all sites
- **Saving potential: $5M + across sites**
- **Saved 0.6 Headcount**



7. Makerspace – Invention Studio

Volunteer Prototyping Instructor & Laser Maser

- Entirely student-run makerspace (largest in the U.S.) serving 15k+ unique projects per semester
- Directed the operation and maintenance protocols for key rapid prototyping technologies
- Used 20k annual budget to improve and advance laser cutters in unique ways (700 hours of logged user use yearly)
- Served as technical expert, instructing in advanced techniques for lasers and embroidery machines

Safety Improvements

- **Installed Fume Extractor** with multi-stage carbon filters to improve longevity and improve safety of the laser cutters