



IPRO 341

**Design and Global Market
Analysis of a Tool Cabinet**

Sponsor: Versatility Tool Works

Task

- Assist to design and test industrial tool cabinet for Versatility Tool Works
- Integrate desirable features
- Main Customer: Amada



Unique Feature



- Big drawer: 20,000 cycles @ 440 lbs!
- Currently not found in market

Team Organization

- Design Team
 - Focus on features
 - Sub focus on structural element
- Testing Team
 - Focus on testing, structural element, modes of failure

Design Team

- Structural Design
 - Past results: 3500 cycles @ 440 lbs
 - This semester: corrugated design
- Features
 - Barcode / RFID
 - Lighting
 - Charging

Design Team

- Challenges
 - Manufacturing limitations
 - Cost constraints
 - Lack of customer feedback
- Propositions
 - V-shaped corrugations
 - Affordable feature packages
 - Market research

Testing Team

- Propositions:
 - Testing Protocol
 - Analysis of results
- Progress:
 - Testing Protocol complete and approved
 - Tool cabinet received
 - Testing rig set up with strain gauges

Testing Team

- Major Obstacles:
 - Getting up to speed with previous semesters
 - Coordinating with the sponsor
- Approach:
 - Run baseline tests
 - Identify areas for improvement
 - Investigate alternatives