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