Signature Company: Finishing Department Streamline

Overview
Signature Company, located in Chambersburg, PA, manufactures custom wooden assemblies such as stairways, railings, and cabinets for home builders. The focus of our project was to improve the staining and lacquering processes in the finishing department by reducing health hazards and eliminating current bottlenecks.

Objectives
- Reduce health hazards associated with manual staining and lacquering processes
- Improve material handling
- Improve performance metrics and eliminate bottlenecks in the finishing department

Approach
- Collect initial time study data from Signature to analyse their current processes
- Create a Simio model representing Signature’s current process to generate initial performance metrics
- Model a new A-Frame cart design in SolidWorks to improve material handling
- Develop a kitting system to incorporate the increased amount of loose parts being processed in the finishing department
- Research conveyor systems to increase the efficiency and utilization of the Flat Line Reciprocator
- Research robotic arms capable of automating the hand staining process
- Develop a Simio Model with the incorporated changes our team suggested to quantify improved performance metrics

Outcomes
- The sponsor will save 10.54 man hours per day as a result of this project
- Finishing process times were reduced by 15.53% as a result of this project
- The project reduced loading/unloading times on carts by 33%
- The project resulted in a health hazard reduction by reducing the amount of hand staining/lacquering being done
- The increased flow resulted in a 58.01% increase in the utilization of the Flat Line Reciprocator