

Senior Design Project Description

Company Name	<i>Decore-ative Specialties, Inc.</i>	Date Submitted	<i>03/06/2020</i>
Project Title	<i>Automation of Glue Application Process</i> (DECORE GLUE)	Planned Starting Semester	Fall 2020

Personnel

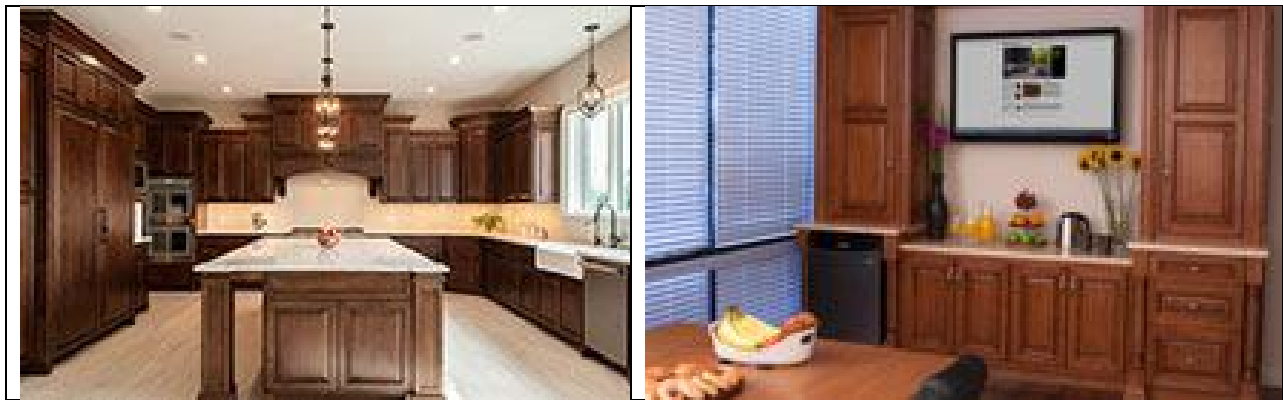
Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project.

Please provide your estimate of staffing in the below table. The Senior Design Committee will adjust as appropriate based on scope and discipline skills:

Discipline	Number	Discipline	Number
Mechanical	3	Electrical	1
Computer	1	Systems	
Other ()			

Company and Project Overview:

Decore-ative Specialties Inc. was founded in 1965 and has grown to 5 locations in the US, including a large operation in Monroe, NC. The company custom manufactures cabinet doors, drawer boxes, panels, molding and accessories for applications in kitchens, baths, closets, laundry and other work areas for both commercial and residential applications.



Their customers are custom cabinetmakers across the US. Decore-ative Specialties has perfected customization of wood and MDF products on a mass scale that enables cabinet makers to deliver high quality products in a timely and efficient manner. The company uses a variety of joining techniques in their manufacturing operations. One of the operations is application of glue to joints. This project's objective will be to develop improvements to the current process.



UNC CHARLOTTE

The WILLIAM STATES LEE COLLEGE of ENGINEERING

Project Requirements:

Wood is a porous, natural product and gluing is one of the most widely used joining technologies. For some of the gluing operations, the glue is applied manually with a paint brush as shown in the photo below:



The manual application results in more variability than is desired. Too much glue can result in a secondary clean-up operation that can damage the surface. Too little can result in insufficient bond strength. To improve the operation, automation of the operation is desired. A variety of products will flow through these types of workstations, but the relative size is similar to what is shown in the picture. The objective of this project will be to develop a proto-type system that automates the glue application operation.

Expected Deliverables/Results:

- Proto-type system that automates the gluing operation to the fullest extent possible within the project budget
- System application results in optimal amount of glue distributed across surface
- System allows completion of the operation in the same amount of time or less, than current operation.
- Quality of the system is improved over current technique
- Full documentation of the system including Bill of Material, drawings, programming



UNC CHARLOTTE

The WILLIAM STATES LEE COLLEGE of ENGINEERING

- documentation, etc. such that additional systems can be built by others
- Maintenance and operation instructions

Disposition of Deliverables at the End of the Project:

Hardware developed is the property of the Industry Supporter. The work product will be displayed at the last Expo then immediately handed over to the supporter unless arrangements have been made to deliver at a future date.

List here any specific skills, requirements, specific courses, knowledge needed or suggested (If none please state none):

- Travel to the Monroe, NC site will be required to document and understand the current process
- Design review location will be determined by agreement between mentor, team and company based on logistics for all involved.