



### **Company Information**

<b>Company Name</b>	<i>Carolina Signs and wonders Inc</i>	<b>Date Submitted</b>	<i>11/22/2024</i>
<b>Project Title</b>	<i>Design of a Method to Prevent Bucket Truck Grease Fouling (CSW_BUCKET)</i>	<b>Planned Starting Semester</b>	<i>Spring 2025</i>

### **Senior Design Project Description**

#### **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.

<b>Discipline</b>	<b>Number</b>	<b>Discipline</b>	<b>Number</b>
Mechanical	4	Electrical	
Computer		Systems	

#### **Company and Project Overview:**

Carolina Signs and Wonders is a family owned and operated sign company located in Charlotte. The company has been in business for 4 years and provides signage for all types of industrial applications. The company has seen rapid growth since inception. Their products are made by a skilled team of craftspeople using graphics, printing, lighting, architectural shapes, electronics, fabrication and computer cutting (plotter, laser, router). Some examples of their work are shown below:



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This project is partially supported by a grant from the NC Manufacturing Extension partnership, an organization that helps to support business and job growth for NC companies. To learn more about the NC MEP, click on this link: <https://www.ncmep.org/>.

### **Project Requirements:**

As part of the signage industry – installing signs is a complicated and unique process. We have



very specialized bucket trucks that are used for hoisting, lifting, moving and providing access to places where signs are installed. Carolina Signs and Wonders has 3 of these bucket trucks and all of them have the same issue.

The Bucket of the vehicle sits directly above the cab of the truck and when there is rain, hydraulic fluid and grease from the bucket end up dripping down onto the windshield creating a poor visibility situation. These materials aren't water soluble, so they don't get rinsed away in the rain, and the windshield wipers make this situation even worse.



#### **Expected Deliverables/Results:**

- Solution must prevent hydraulic fluid and grease from dripping onto the windshield from the bucket.
- Solution must be easy to use, not interfere with normal operations of the bucket.
- Solution must be able to deal with external factors (IE driving down the highway, normal weather, etc).

#### **Disposition of Deliverables at the End of the Project:**

Students are graded based on their display and presentation of their team's work product. It is mandatory that they exhibit at the Expo, so if the work product was tested at the supporter's location, it must be returned to campus for the Expo. After the expo, the team and supporter should arrange the handover of the work product to the industry supporter. This handover must be concluded within 7 days of the Expo.

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

- Machine design
- Ability to travel to company site as needed
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