



## **UNC Charlotte – Lee College of Engineering Senior Design Program Company Information**

<b>Company Name</b>	<i>Husqvarna Group</i>	<b>Date Submitted</b>	<i>11/01/2021</i>
<b>Project Title</b>	<i>Two Stage Snow Blower Ground Clearing (HUSQ SNOW)</i>	<b>Planned Starting Semester</b>	Spring 2022

### **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	1
Computer	0	Systems	0
Other ( )			

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

With over 330 years of innovation and passion, Husqvarna provides professionals and consumers with forest, park, lawn and garden products. We let high performance meet usability and safety, making you ready to get the job done efficiently. Husqvarna offers a wide and growing range of products and accessories, including chainsaws, snow-throwers, mowers, tractors, zero-turn mowers, trimmers and robotic lawn mowers.

#### **Project Requirements:**

##### **Problem**

- Two Stage Snow Throwers leave small amounts of snow on the ground (Figure 1). This causes additional work for consumers when clearing snow.

##### **Request**

- Achieve clearing to the ground similar to a single stage snow thrower (Figure 2).
- Solution should attach as an accessory to an existing two stage platform but can be electric, chemical, or mechanical.

- Stretch goal would include a solution that meets [Amazon's prime shipping requirements](#) for weight and size.



*Figure 1: Two Stage Snow Thrower*



*Figure 2: Single Stage Snow Thrower*

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

- Husqvarna will provide a ST200, ST300 or ST400 snow thrower for development use.
- Early in the design the team should initially provide at least three concept ideas with estimates of product cost, investment (tooling) cost, ease of use, reliability and performance. Present a comparison of each idea and move forward with design and prototype of the top idea.
- Fully documented design, including drawings & technical product/accessory specifications.
- User instructions on how to install this accessory to an existing machine.
- Prototype of the new design
- A DFMEA for the top level accessory
- Testing and verification of the highest risks identified in DFMEA
- Demonstration at Husqvarna, clearing wet saw-dust (Figure 3)



*Figure 3: Saw Dust*

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

Provide prototype to the industry supporter at the conclusion of the Expo

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

- none