



**Company Information**

<b>Company Name</b>	<i>Husqvarna Group</i>	<b>Date Submitted</b>	<i>11/14/2022</i>
<b>Project Title</b>	<i>Design of a Pace Powered Dump-Cart or Wheelbarrow (HUSQ_CART)</i>	<b>Planned Starting Semester</b>	<i>Spring 2023</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	3	Electrical	2
Computer		Systems	
Other ( )			

**Company and Project Overview:**

With over 332 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**

- Husqvarna’s product portfolio needs an electric powered dump-cart or wheelbarrow. The electric powered dump-cart or wheelbarrow will need to use the Pace battery (94V) system.



**INDUSTRIAL SOLUTIONS  
LABORATORY**



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**Request**

- Creation of an electric dump-cart or electric wheelbarrow that is robust enough to benefit a residential consumer's needs.
- Product should be designed with specs in mind such as:
  - Load Capacity
  - Max Run Time
  - Design Life
  - Ease of Use
  - Cost of Product
  - Investment for Manufacturing (Tooling Cost)
  - Overall Performance
- Solution should use the (94V) pace battery system



*Figure 1: Electric Dump-Cart Example*



## INDUSTRIAL SOLUTIONS LABORATORY



Figure 2: Electric Wheelbarrow Example

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

- Husqvarna will provide a pace battery (94V) for the development of the electric dump cart or electric wheelbarrow
- Design team should provide at least three conceptual ideas for an electric wheelbarrow or electric dumpcart idea and present a comparison of each idea prior to moving forward with design and prototype of the top idea.
- Fully documented design, including drawings & technical product/accessory specifications.
- User instructions on how to operate the product as well as runtime estimates.
- Prototype of the new design
- A DFMEA of for the top-level accessory
- Testing and verification of the highest risk identified in DFMEA
- Demonstration at Husqvarna, of use of product

### **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):**

- none