INDUSTRIAL SOLUTIONS LABORATORY

Company Information

Company Name	*Husqvarna Professional Products Inc.*	**Date Submitted**	*04/28/2023*
Project Title	*Design of an Automower Automated Wash Station* ***(HUSQ_WASH)***	**Planned Starting Semester**	*Fall 2023*

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.

Discipline	Number	Discipline	Number
Mechanical	3	Electrical	1
Computer	2	Systems	

Company and Project Overview:

Husqvarna Forest & Garden Division

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The Husqvarna Forest and Garden Division is the world's leading producer of forest and garden products and services. Leading the way with innovative tools that enhance pride and performance. The division's core brand, Husqvarna, is the undisputed global market leader in robotic lawn mowers – sold through more than 25,000 independent dealers worldwide.

The division's products are designed for forestry, tree care, landscaping and other commercial lawn and garden services, as well as home and landowner consumers. Popular products include robotic lawn mowers and professional chainsaws. And there's a strong consumer market for handheld products like leaf blowers and trimmers. Plus, the Husqvarna Fleet Service™ provides effective business solutions.

The Senior Design Project that Husqvarna is proposing is an Automated Wash Station for the Automower. Husqvarna Automowers are autonomous mowing devices, however, they require manual cleaning to ensure they will operate properly. Manual cleaning of the Automowers reduces the main perk of an Automower, which is to reduce the time for lawn and garden maintenance. The mowers acquire clumps of grass and dirt on the cutting system, which can cause nonuniform and unacceptable grass cutting of an owner's yard.

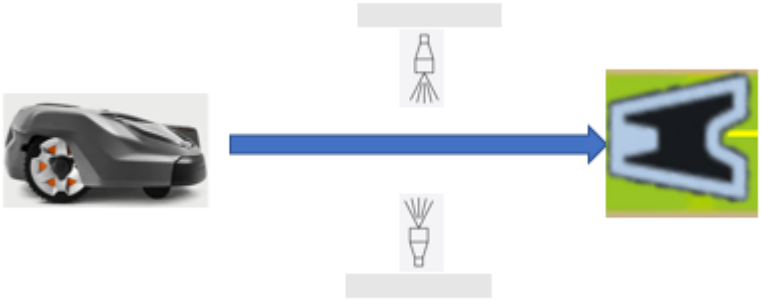
The automated washing system will clean the mower after a mowing cycle but before docking in the charging station. The system will utilize a nozzle water spraying system to clean the mower after mowing operations. This will reduce the owner's interaction time with the mower and make the unit more autonomous. It will also reduce the required maintenance due to the owner not cleaning the mower during a mowing season.

Project Requirements:

The Automower washing system will provide an autonomous way to clean the mowers, and it will increase the autonomy of grass cutting system. Therefore, the Automower owner will be able to spend more time doing the things they love!

The washing system incorporates spray nozzles, similar to a car wash, to clean the mower after the mowing operation.

The washing system will be placed before the Automower charging station so the mower is clean prior to daily storage and charging.



The washing system will use the transmitter that is used in the Automower fence door for activation. The transmitter will activate the spraying nozzles once the mower is within a certain distance of the Automower automated washing station. Therefore, water will only be used as the mower approaches and remains in the wash station.

Expected Deliverables/Results:

- Functional Automated Wash Station for Automowers
- All drawings and Bill of Materials
- Owners manual for operations and maintenance

Disposition of Deliverables at the End of the Project:

- Any hardware or software developed by the UNC Charlotte senior design team is the property of Husqvarna. The hardware and software will be handed over to Husqvarna at

the conclusion of the final Design Expo unless otherwise noted.

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

- 3D CAD Modeling
- Electric Circuits
- Embedded Software
- Fabrication