UNC CHARLOTTE
The WILLIAM STATES LEE COLLEGE *of* ENGINEERING

Senior Design Project Description

Company Name	Lowes Home Improvement	**Date Submitted**	May 21, 2018
Project Title	Device to Objectively Determine Lawnmower Cut Quality – Phase 2 (LOWES_CUT2)	**Planned Starting Semester**	Fall 2018

Personnel

Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project. 250 hours are expected per person. Complete the following table if this information is known, otherwise the Senior Design Committee will develop based on the project scope:

Discipline	Number	Discipline	Number
Mechanical	2	Electrical	1
Computer	2	Systems	
Other ( )			

Company and Project Overview:

From its start as a small-town hardware store in North Carolina in 1946, Lowe's has grown to become the nation's second largest home improvement retailer. Today, Lowe's is the 8th largest retailer in the United States with more than 2,370 retail locations and over 290,000 employees. In 2007, Lowe's opened its first location in Canada followed by Mexico in 2010, giving Lowe's its international presence.

Lowes is interested in finding ways to improve the product offerings in the store and in 2017-2018, supported a Senior Design project to build a prototype device to objectively measure the cut quality of lawnmowers. This is a follow-on project to improve that prototype.

Project Requirements:

Phase 2 of this project will be to take the Phase 1 device and design and implement the following improvements:

- Refine the optics of the device
- Smooth out the Software interface
- Demonstrate the device can be used to reliably and consistently measure cut quality of lawnmowers.

Using the refined device, trial different mower blades and show the differences in performance using the device and develop new designs that perform better.

Expected Deliverables/Results:

- *Refine the Phase 1 device to fix all problems.*
- *Demonstration of the consistency and operation of the Phase 2 prototype*
- *Conduct trials of different blade types to determine differences in performance*
- *Use the results of trials to develop new blade designs that perform better and document those results with the Phase 2 device.*

Disposition of Deliverables at the End of the Project:

Provide Hardware/SW and test data to Lowes at the conclusion of the Expo

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

- Firmware, optical image processing.