Consumer Grade Autonomous Snowplow

Team

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Clinic Advisor & Sponsor

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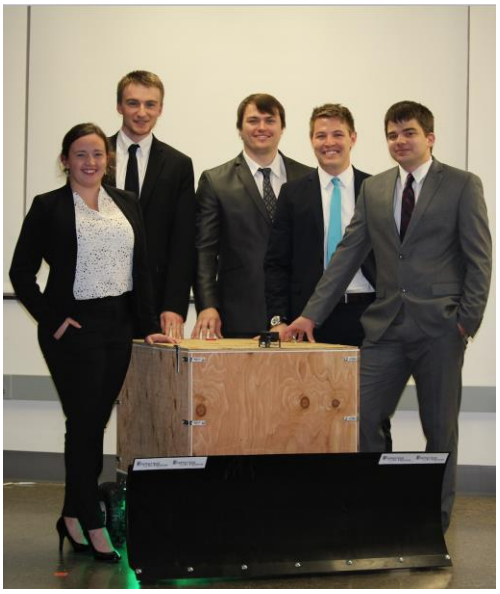

Project Summary

The objective is to design and operate an autonomous, unmanned snowplow vehicle. The vehicle shall be capable of quickly and accurately clearing snow from a rectangular snowfield similar in size to the driveway of a single-family home while avoiding obstacles.

Design Goal

Designing and building a prototype autonomous snowplow vehicle capable of clearing a driveway in under twenty minutes and returning safely back to the garage.

Constraints

1. The snowplow vehicle shall not exceed 2 meters in any dimension.
2. The snowplow shall be autonomous and unmanned.
3. The snowplow shall be equipped with an emergency stop, both remotely and on the vehicle.
4. The snowplow shall plow the snowfield in 20 minutes or less.

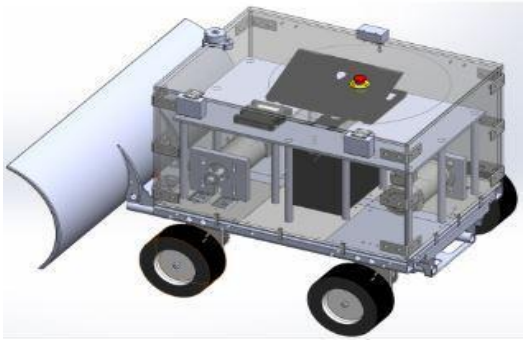

Figure 1: Final CAD Model

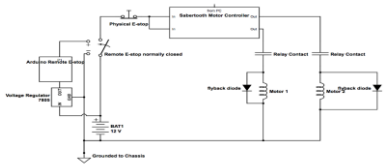

Figure 2: Electrical Schematic of snowplow

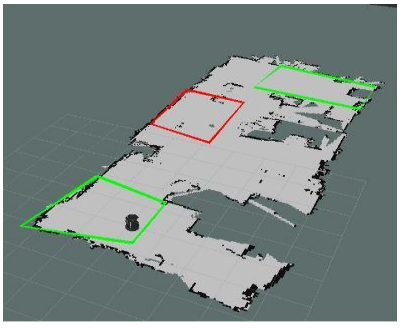

Figure 3: SLAM (Simultaneous Localization and Mapping) will be used to map the environment.