Consumer Grade Autonomous Snowplow

Team
Alex Beaulier, Brandon Jameson, Bri Mcintyre, Dustin Anderson, Josef Mendez

Clinic Advisor & Sponsor
Dr. Kundan Nepal

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.

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.