Scrooge Rover

PROBLEM / QUESTION
The robotics challenge necessitates driving your rover through unknown terrain and steering around obstacles. In order to achieve this goal, the team chose an augur design which would glide through and above the terrain to make a forward, lateral and reverse progression rather than the bi-directional roll of a wheel.

MATERIALS
Material wise, the team chose to use a unique and functional transparent Plexiglass box. In order to streamline the electronic circuits, the team used an Arduino UNO with the Ardumoto and XBee stackable shields. A 12V battery with a 10A inline fuse powers the boards, motors, infrared sensors, and ultrasonic sensors.

TEAM MEMBERS
Brett Ford
Josh Cutler
Matthew Zimmerman
Zeb Garcia
Kassandra Davis
Emiliano Cabrera

ABSTRACT
During the development of Scrooge, the team was able to learn, grow, and enhance their applicable knowledge at the intersection of technology and engineering. At the rover challenge, the team aimed to have constructed a rover that could complete various trials and avoid obstacles in order to reach a beacon. Team members began to successfully write code for motion, obstacle awareness/avoidance, and target honing. The design, assembly, electrical circuit demands, and programming challenges proved to be tiresome but determination saw the project to completion. Due to the current situation with the COVID-19 virus, adaptation had to occur for all members to find new ways to work as a team to complete the Scrooge rover.