Unmanned Ground Vehicle (UGV) – Team 2

Overview
Unmanned ground systems are more prevalent than ever in today’s world and can be used to safely transport material in a harsh environment with no risk to human life. In this project, a multidisciplinary team of 6 team members consisting of 2 Electrical, 2 Computer Science, and 2 Mechanical engineering students will compete in modifying a ground vehicle to be autonomous and carry a payload of water. They will compete to traverse a harsh obstacle environment as quickly as possible while not actually seeing the environment. Once through the obstacle course, the teams will have to deploy their payload to simulate extinguishing a fire.

Objectives
The team’s goal was to design and fabricate a final prototype that met all customer needs, while exceeding our sponsor’s expectations.

Approach
- A sponsor interview yielded customer needs
- Concept generation led to a number of options to pursue
- Concept screening and scoring led to a final design
- CAD Models of all parts were created
- Only a final prototype was fabricated because prototypes were useless for our project
- Subsystems (proximity sensors, thermopile array, and water pump) were tested
- A final obstacle course test was conducted to validate model
- A final prototype that can autonomously navigate a course and disperse water was generated

Outcomes
- The integration of cross-discipline engineers is a vital skill in industry
- A small scale application such as this, provides the groundwork for commercial unmanned vehicles