Autonomous

Section 1
Objective

A fully autonomous unmanned ground robotic vehicle must negotiate around an outdoor obstacle course under a prescribed time while maintaining a minimum speed of one mph over a section and a maximum speed of 10 mph, remaining within the lane, negotiating the given obstacles on the course.

Judges will rank the entries that complete the course based on the shortest adjusted time taken. In the event that a vehicle does not finish the course, the judges will rank the entry based on the longest adjusted distance traveled. Adjusted time and distance are the net scores given by judges after taking penalties, incurred from obstacle collisions and boundary crossings, into consideration.

Section 2
Rules:

1. Vehicles must be unmanned and autonomous.
2. They must compete based on the ability to perceive the course environment and avoid obstacles.
3. Vehicles cannot be remotely controlled by a human operator during the competition.
4. All computational power, sensing and control equipment must be carried on board the vehicle.
5. No base stations allowed for positioning accuracy is allowed.
6. Teams are encouraged to map the course and use that information to improve their performance on the course.

Section 3
Specifications:

1. The robot must not be constructed in such a way as to damage the environment or other robots. See "Safety" for other restrictions...
2. Each robot will be controlled via Wireless protocol using a laptop keyboard for control. A handheld control is prohibited.
3. The driver of each robot will be in an enclosed location so the track is not visible to them. Each driver will control their robot via the wireless webcam being used as their eyes.
4. The robots motors cannot be modified physically in any way for increased performance. The only modifications that can be made is the actual programming itself to increase performance.
5. Any malicious Wireless interference will result in an automatic disqualification. If the offender is not identified for the violation then the race will be re-run. The wireless signals will be monitored at all times.
6. All Robots must be checked in prior to the competition start. The robots will then be inspected for illegal modifications. All non-competing robots will be in a holding area. In which the robot-pit teams cannot modify their robots prior to the race.

   a) **Motors:** must be unmodified. Motors will be tested prior to competition to verify illegal modification

   b) **Chassis:** must not contain anything that would damage or harm competitors or the race track

**Modifications:** *As long as the concept and fundamentals of the rules are observed, these rules shall be flexible enough to encompass the changes in the contents of matches. Any additions to the robots must be approved by a judge and, also must be submitted to all teams in the league*
All Modifications must be submitted by May 16th, 2013 5:00PM.

- If modification is deemed legal by judge, then modification is allowed.
- If modification is questioned by the judge then a vote will commence amongst competitors. Majority rules. The modification will have to be submitted to all competing teams. Each team has exactly 48 hours to vote on the modification. If a team does not vote on a modification then their vote is surrendered.