Team Objective:
A team’s objective is to score points by having their vehicle avoid the obstacles and contact the active beacons.

Contest Play:
Each team will compete for points against another team in a double elimination contest. Beacon B1 will signal the start of the contest by becoming active. Beacons B2 and B3 will be active at a random time between 30 to 60 seconds after beacon B1 has signaled the start of the contest. A beacon will indicate it is active by illuminating its visible LED. Any time a beacon’s LED is illuminated the beacon’s modulated IR LEDs will also be active. The IR LEDs are modulated by a 4khz electrical signal. When an active beacon is contacted it will become inactive and will indicate the points awarded to the contacting vehicles team by beeping. When a beacon is contacted for the first time after the start of the contest 30 points will be awarded. A beacon that is inactive due to a previous contact will become semi-active when contacted. At least 20 seconds must elapse after a contact before a beacon can become semi-active. A semi-active beacon will cycle between a 2 second active and a 3 second inactive period. A team’s vehicle that contacts a semi-active beacon that is in the active phase will be awarded 10 points less than the last time the beacon awarded points. So, beacons can only award 30, 20, or 10 points for a total of 60 points. The contest will end when all beacons have awarded 60 points or 5 minutes has elapsed from the starting time whichever comes first.

Figure 1
Contest arena.
Scoring:
A team can only score points if their vehicle contacts a beacon that is active. A beacon will indicate when it is active by illuminating its LED. An active beacon will indicate the points awarded to the team with the contacting vehicle by beeping. Each beep represents 10 points scored. An official will determine which team’s vehicle initiated the contact. The official will award the points to both teams if it is determined that both teams simultaneously contacted an active beacon (unlikely). A team will be penalized 30 points if their vehicle moves out of the starting area before beacon B1 becomes active.