

EVENT 5: ZERO IMPACT VEHICLE

(As of 10/26/11)

OBJECTIVE: To design a vehicle which when released eight meters from a wall will move as close as possible to a wall without touching it.

RULES:

- a. The starting line will be 8 meters from the wall and parallel to it.
- b. The vehicle is to be designed and built by the team from household materials and/or materials available from hardware stores and/or from art/hobby supply stores. No commercial kits will be permitted.
- c. The design of the vehicle must meet the following specifications:
 - (1) The total mass of the vehicle system may not exceed 2 kg.
 - (2) No dimension of the vehicle may exceed one meter. (i.e. The vehicle must be able to fit within the volume of a 1m x 1m x 1m cube)
 - (3) The motion of the vehicle must be supplied by mechanical means such as rubber bands, springs weights, pulleys, and mechanical launchers.
 - (4) NO electrical components of any kind may be used, no remote controlled devices of any kind, and no chemical or nuclear reactions.
 - (5) No part of the vehicle or its operating system may be attached to the floor, wall, ceiling, or operator.

COMPETITION AND SCORING:

- a. The vehicle will be started at or behind a starting line of masking tape attached to the floor 8 meters from a wall. It will proceed toward the wall and stop as close to the wall as possible without any part of the vehicle touching the wall. It may not bounce off the wall.
- b. No practice runs will be allowed at the competition site.
- c. Each team will be allowed two trials and the better one of the two will be used for the team's score.
- d. The vehicle can be modified between trials.
- e. The distance from the wall to the nearest part of the vehicle toward the wall will be measured for the purpose of calculating the score.
- f. If both trials result in touching the wall, the vehicle will be disqualified.

$$\text{SCORE} = \frac{(\text{Distance to the wall of the winning vehicle in cm})}{(\text{Distance to wall of your vehicle in cm})} \times 100$$

DISQUALIFICATION SCORE = 30 points for a qualifying and working vehicle.