ENGR 290 H/C Competition Rule

The objectives of the competition are to:

1. Complete as much of the specified track as possible, operating autonomously.
2. Traverse as many of the increasingly challenging obstacles along the track.
3. Complete the course in as short a time as possible (2 min. time limit per each attempt)
4. Accomplish the Objectives 1-3 without using more resources (i.e. fans and servos) than necessary.

Specifically, you will receive a score:

$$d_{completed} /(N_c \times t_{course})$$

where

- $d_{completed}$ is the distance along the track that was successfully autonomously completed,
- N_c is the number of components used (fans, servo motors, and **sensors** count toward your total number of components, with the EXCEPTION of an IMU Sensor that is NOT counted),
- t_{course} is the time (in seconds) taken to complete the course from the start line to the finish line, in the case that the course is fully completed (otherwise t_{course} = 120s).

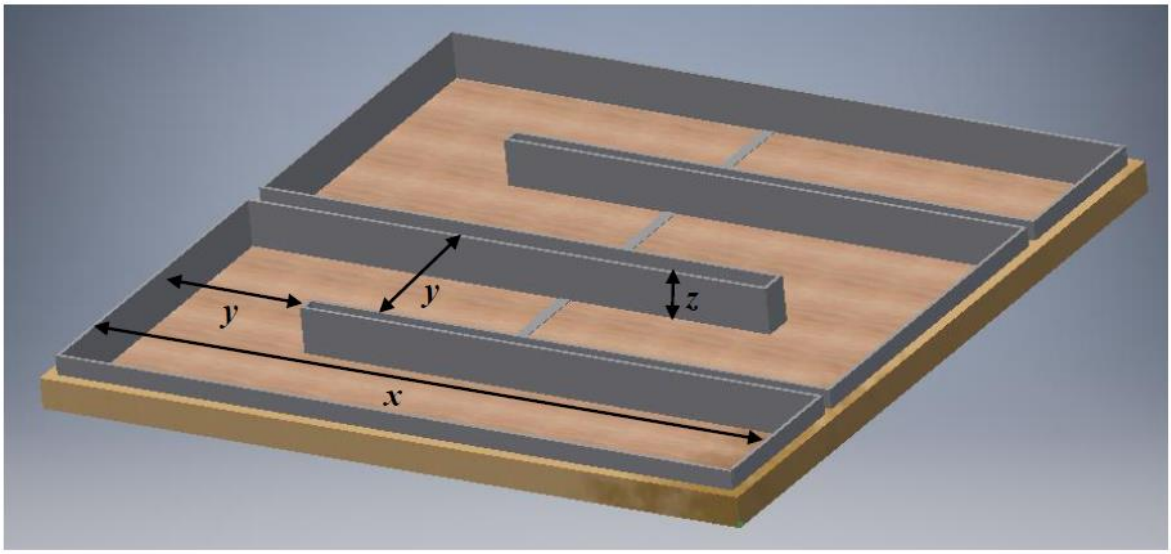
The objective is to achieve as **high** a score as possible.

Obstacles: The track includes 4 straightaway segments. In the first segment, there are no obstacles. In the second segment a 1mm height obstacle spans the track width; in the 3rd, a 2mm height obstacle; and in the 4th, a 3mm height obstacle.

Autonomy: The crafts will need to operate autonomously, interpreting input from sensors you select for your design, and actuating fans and servo motors in response.

Multiple attempts: You will get up to a maximum of 3 attempts. For each attempt, a score is computed. Your competition grade will be based solely on your best score out of these 3 attempts.

Competition course:
Details of the competition course are shown below. This course will be set up in the atrium on the 5th floor of the EV building (near the spiral staircase just outside the ECE main office.



The ENGR290 competition course

x – straightaway segment length (wall-to-wall): 235 cm
y – track width (wall-to-wall): 50 - 55 cm
z – wall height: 15 cm