

Allowable Course Navigation

- Line Following
 - Phototransistor/IR Emitter Pair
- Wall Finding
 - Ultrasonic Rangefinder
 - IR Rangefinder
 - Touch sensors
- Mechanical Arms
- Decoders on wheels, treads, etc.

Allowable Mobility

- Wheels: Maximum Diameter of 80mm
- Treads: Maximum Cog Diameter of 80mm
- Mechanical Legs: Discontinuous contact with the ground.

Allowable Robot Size

- Max footprint of 250mm, unlimited height
- Max weight of 2 kg

Robot Rules

1. *Locomotion:* The robot may move through the course using any method as long as it does not damage the course. It also must not leave any parts behind.
2. *Protection:* The robot must keep the HandyBoard, motors, H-Bridge, Ultrasonic Rangefinder, voltage divider, battery pack and any integrated circuits shielded from water. Other electronic components are recommended to be shielded as well. Each robot will be required to demonstrate that all of the components are protected 4 weeks before the competition.
3. *Appearance:* The robot must contain a removable exterior skin that will provide a finished appearance. Additionally, the inside of the robot should be neatly organized and each component should demonstrate quality craftsmanship.
4. *Power Source:* The robot must be powered by only the 7.2 volt battery and 5 Volt HandyBoard battery provided.
5. *Autonomy:* The robot will be turned on at the beginning of the course and will begin movement when LED beacons are simultaneously lit up on all four courses. Additionally, the robot must navigate through the course autonomously with no help from the team members.
6. *Design and Manufacturing:* Each group must design and manufacture all aspects of their robot. Pre-built components such as wheels, treads, motors, etc. are allowed.
7. *Budget:* Each team will be given \$50 for parts on their robots and will be able to use \$20 out of pocket. Six \$15 motor credits as well as all necessary electronic equipment will be supplied to each team.
8. *Robot Contact:* The robots may engage each other at the end of the course, but no intentional damage may be dealt. Any intentional damage inflicted will result in elimination from the competition.

9. *Kill Switch:* Each robot will be required to have a kill switch on the top of the robot in the event that it gets stuck in the course.

Competition Rules

1. *Contest Table:* All four courses will be identical and will be 1' wide and a maximum of 1' tall. Each robot must begin behind a designated starting line.
2. *Objective:* The objective for each robot is to navigate through the obstacle course and to stay inside the finishing square.
3. *Time Limit:* The course shall be completed in 'xx' seconds.
4. *Winning:* The competition ends when the time has expired. Whichever robot is closest to the finishing square will be declared the winner.
5. *Interference:* The team members must stay out of the competition area at all times.
6. *Number of People on Course:* There will only be one person from each team allowed on the starting line of each course.
7. *Staging Area:* While four teams are competing on the obstacle course, four more teams will be in the staging area and must be ready to compete 30 seconds after the current competition ends.