

2016 Anoka-Hennepin LEGO Robotics Challenge

Oak View Middle School

Saturday April 9th, 2016



Judging Stations

- **Performance.** The performance area is the area with robotic competition tables and lots of noise! This is where teams perform their challenge missions. In the performance venue, teams will have three chances throughout the morning and early afternoon to perform. **CHEERING IS ENCOURAGED!!!**
- **Technical judging.** The technical judging station is where teams are judged for Teamwork & Robot Programming and Engineering awards. Teams will run their robots through their paces on a competition table, show their computer programs to judges, and be interviewed. Teams are also evaluated on their teamwork and cooperation in this area, as well as in their pit, practice, and performance areas. Only the students and judges are allowed to talk in this area, so the coaches and spectators must remain silent. Once the doors close, nobody can enter or leave until finished.
- **Head to Head competition:** The team's best performance score of their 3 rounds will be used for seeding the head to head competition. It is single elimination with the winner receiving the Head to Head award.

Audiences are welcome at all performance and judging areas as space permits. Each of the technical judging sessions takes approximately 15 minutes per team.

AWARDS: (presented to team members at awards ceremony)

- **Engineering & Design Award:** is presented to the team whose understanding and application of sound mechanical principles produces the most solid, predictable, and dependable design while at the same time demonstrating unique or exceptionally creative execution of the Climate Connection challenge missions.
- **Robot Programming Award:** is presented to the team whose in-depth understanding of sound programming principles and application of those concepts creates a robot that is capable of consistently performing many of the Climate Connection challenge missions.
- **Performance Award:** is presented to the team whose robot scores highest point total in any of the three Performance rounds. The lowest two scores from their three performance rounds are not counted against the team.
- **Head to Head Award:** is presented to the teams whose robots finish 1st or 2nd in the Head to Head elimination round.
- **Teamwork Award:** is awarded to the team that best exemplifies the meaning of teamwork. This team will exhibit the qualities that are present when a team is well coached. Judges look for coaches and teams who work well together and focus on task specific activities during the day of the tournament.
- **Judges Award:** is an open-ended award determined the day of the tournament by the Official Judging Panel. There are no specific criteria for this award as each judging panel is looking for a one-of-a-kind, inspirational story that can change from tournament to tournament. It is often presented to a team that the judges feel are deserving of special recognition for their exceptional creativity, persistence, teamwork, and/or gracious professionalism during the tournament. *Please talk to an official if you have a team nomination*

Important Things to Know

Food is available for purchase in the cafeteria/concessions area. Proceeds help support student programs that we have at Oak View Middle School. Pizza will arrive approximately 11:30.

Other important notes

- Remember that we are visitors at this school; please respect the facilities.
- **Please do not eat or bring drinks into the carpeted areas of the school.**
- The school is smoke free, please observe.
- Everyone working at the tournament is a volunteer and doing the best he or she can. Please show respect.
- Teams should plan to arrive 5 minutes before each of their scheduled times at the performance and Technical Judging areas.
- Teams should clean up their pit area after their last Head-to-Head round. Remove all team supplies and personal items from the pit tables prior to the awards ceremony.
- Note: this is a public facility, so all robots, computers, and valuables are the responsibility of each team. Valuables should not be left unattended!

Special Thanks to

- All the kids who worked so hard to get their robots and presentations ready for today.
- All the coaches who devoted many hours to getting their teams here.
- All the parents for shuttling their kids around and championing this program.
- HighTechKids (Minnesota FIRST LEGO League) for lending us much of today's equipment. www.hightechkids.org
- GISE/GEMS organization for donating the official performance table.
- Twin City Fab, Inc for donating the light canopy for the official performance table.
- The professional community who volunteered their time and talents today (and at many other events) in judging, officiating, computer operations & scheduling including Cheryl Moeller, Norm Tiedemann, Vicki Coaty, Jon Schewe, Celia Wirth, Rand Whillock, Natasha Krentz, and Norton Lam & the "Ponytail Posse" FTC team members. Without their help, there would be no tournament!
- Jeff Taylor for his fabulous NXT Guy logo that we use on the t-shirts.
- Andover High School Tech-Ed department for printing the team t-shirts.
- School and district employees and administration who helped with facilities and equipment for the tournaments.

2016 Smart Move Robotic Missions and Scoring overview

The Game consists of several mini-tasks, or Missions, for each team's autonomous robot. At the beginning of each two and a half minute round, the robot will always start from Base, but the Missions that each team may choose to complete, and how and when they choose to complete them, are what make the Challenge an exercise in strategic thinking and planning. The Smart Move Robot Game gives you first-hand experience in getting a sensor-equipped vehicle (your robot) to ***gain access to places and things***, while ***avoiding or surviving impacts***, all in a test environment...

Imagine if you could program a vehicle to take you places, or even go by itself...

Imagine if each vehicle knew where all the other ones were...

Imagine if vehicles could avoid each other and the things around them...

Imagine if vehicles could be programmed to avoid causing or driving into traffic jams...

Would traffic signals be needed any more?

If these vehicles did hit each other...

How might they be built to really keep passengers safe?

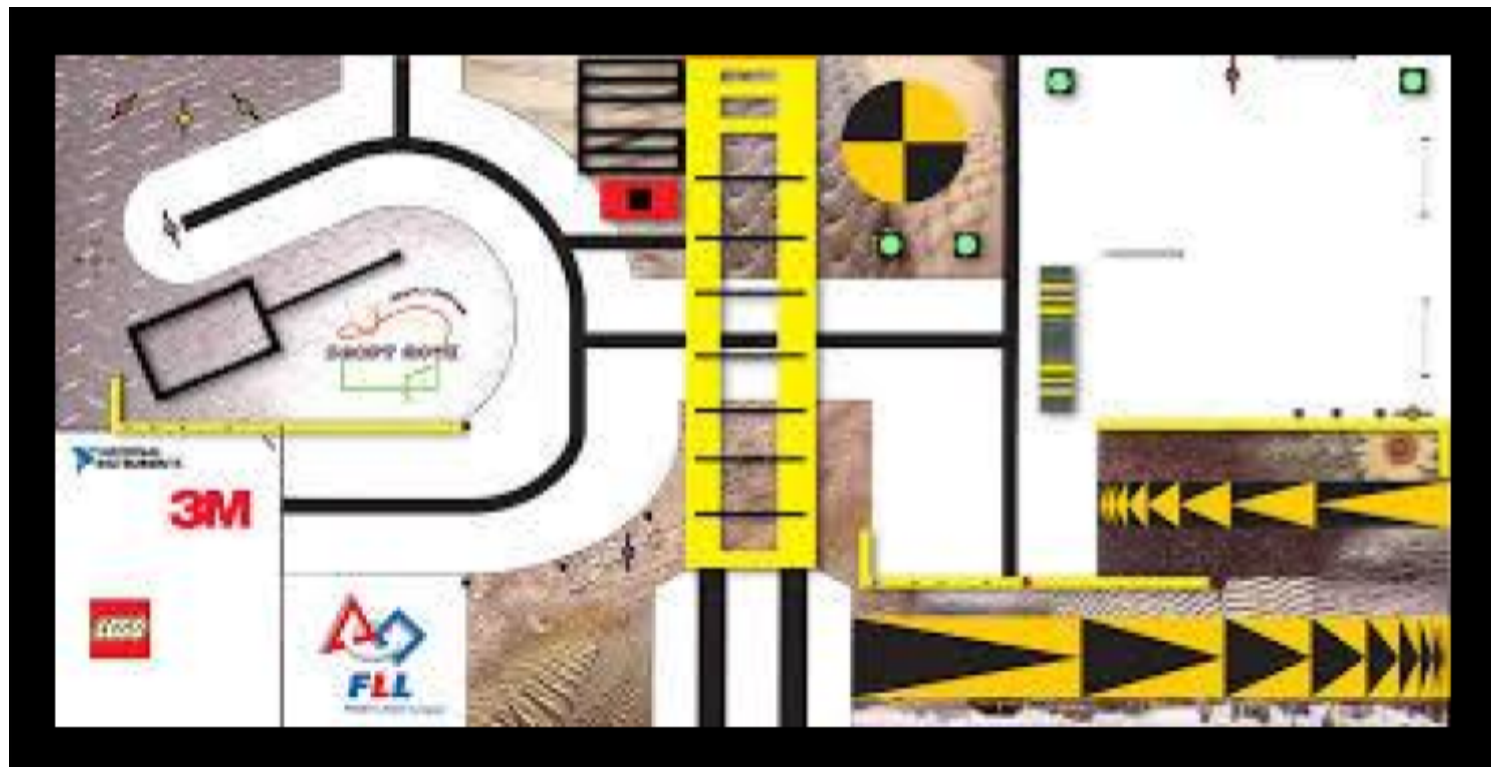
How might they be built to avoid getting stuck or damaged?

Have you noticed that most vehicles near where you live are only used part of the day?

How might the number of vehicles in your area be reduced?

What new technologies could sometimes eliminate your need to travel?

Now in addition to imagining and wondering... Try some of this yourself!



 **MISSION: GAIN ACCESS TO PLACES (choose one)...** Required Condition: Your vehicle needs to be in one of these positions exactly as the match ends (this mission does not affect others):

 **TARGET SPOT** - Required Condition: Parked with its drive wheels or treads touching the round target.
Value: 25 points.

 **YELLOW BRIDGE DECK** - Required Condition: Parked with its drive wheels or treads touching your yellow bridge decking, but not touching any red decking or the mat.
Value: 20 points.

 **VEHICLE SHARING** - Required Condition: Parked with its drive wheels or treads touching your red bridge decking, but not touching the mat.
Value: 25 points.

 **MISSION: GAIN ACCESS TO THINGS...**

ACCESS MARKERS - Required Condition: Access markers need to be in their “down” position.
Value: 25 points each.

 **MISSION: GAIN ACCESS TO THINGS...**

LOOPS - Required Condition: Loops need to be completely in “Safety” area.
Value: 10 points each.

 **BONUS:** New technologies can sometimes eliminate your need to travel. They are hard to develop, but each new one makes the next come easier... If all three gray loops are completely in “Safety”, you may take one red loop into “Safety” by hand. Independent from that, if all three red loops are completely in “Safety”, you may take one loop of any color into “Safety” by hand. Once earned, these hand freedoms (which are a special exception to the rules) may be used any time before the match ends.

 **MISSION: AVOID IMPACTS...**

WARNING BEACONS - Required Condition: Warning beacons need to be upright (square to the mat). Value: 10 points each.

ALSO: Warning beacons are the Interruption/Touch penalty objects for the Smart Move Robot Game. This means each time you touch your vehicle while it’s completely out of Base, the referee removes one upright beacon. The beacons are removed in order from south to north, then from west to east. If there are no upright beacons at the time of the touch, there is no penalty.

MISSION: AVOID IMPACTS...

SENSOR WALLS (AVOIDANCE OPTION): Required Condition: Sensor walls need to be upright (square to the mat). Any four walls can count. Only four walls can count. Each upright sensor wall also requires a “down” access marker. Example: If there are four upright walls but only three access markers down, only three walls count.

Value: 10 points each, max 40.

MISSION: SURVIVE IMPACTS...

SENSOR WALLS (IMPACT OPTION): Required Condition: No (zero) sensor walls are upright.

Value: 40 points.

Technical
Judging

Team Pit
Area

MISSION: SURVIVE IMPACTS.

VEHICLE IMPACT TEST: Required Condition: The truck needs to no longer touch the ramp’s red stopper beam. Your entire vehicle needs to be completely out of Base when it produces the required condition, otherwise the referee removes two upright warning beacons (in the same manner as two touch penalties).

Value: 20 points.

MISSION: SURVIVE IMPACTS.

SINGLE PASSENGER RESTRAINT TEST: Required Conditions: The crash-test figure needs to be aboard your vehicle for the entire match. The first time your vehicle is without the figure, the referee removes the figure. Any constraint system is okay as long as the figure can be separated quickly after the match.

Value: 15 points.

MISSION: SURVIVE IMPACTS...

MULTIPLE PASSENGER SAFETY TEST: Required Condition: All four people are sitting or standing in or on a transport device of your design, and some portion of that object is in the round target area.

Value: 10 points.