

ATMAE Student Robotics Competition - 2009

Frequently Asked Questions

1. The rules say that a "Robot can pick up 1, 2, or all balls at one time." When it says "pick up" is that literal or could the balls be pushed or dragged into their designated target areas?

The balls must leave the ground.

2. Do the balls need to be unloaded from the robot to get credit or can the robot simply hold the balls and move to the taped area to get the points?

The balls must be unloaded from the robot to get credit.

3. If they do have to be unloaded, does that mean they must be touching the arena surface or could they be placed on or inside something else that would be deployed by the robot itself?

They must be unloaded and touching the arena surface to get credit.

4. What is the arena surface made of? Will it be carpet or tile or some other surface?

The surface will be inside and will be carpet.

5. How will the winning manipulator be determined?

Each manipulator will have two runs through the course. There will be an interval between the runs for fine-tuning of the manipulator. This interval is the only time where teams may modify or work on their robots during the contest. In addition to the manipulator's performance, the judges will examine the team's poster and physical robot design for an overall score.

6. Can graduate students be a part of the team?

Graduate students may be a part of the design and engineering of the manipulator. However, only an undergraduate student may be the operator of the manipulator.

7. Can the operator follow the manipulator through or around the course?

No, the operator will have to stand in a predetermined location. Maximum distance that the operator will need to be able to control the robot is 35 feet. The Operator of Category 2 manipulators will be able to maintain a direct line-of-sight control (no walls or objects will be placed between the bots and operators).

8. Can one use a RC car/truck chassis as the platform around which to construct the manipulator?

Yes, however, the physical design and construction of the robot will be evaluated in addition to the performance and poster quality. A well-designed robot manipulator chassis constructed from scratch will be given more points in the robot construction evaluation. It is not required for teams to construct the chassis or RC circuitry. It is, however, encouraged.

9. Can a team enter more than one robot in the contest?

No, only one robot per student chapter will be allowed to enter the contest. Once the contest has started, teams may not substitute robots.

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10. Can another student club such as SME enter a robot into the competition?

No, the contest is only open to ATMAE Student chapters. However, another club with a minimum of 10 members may register their club as an ATMAE club via the ATMAE office. The fee to do this is \$20/year plus each member must pay their \$20/year dues to ATMAE (student member dues). Therefore, it may be possible for other clubs such as SME, TECA, and IEEE clubs to participate as long as they register their members and secure a faculty member to serve as their advisor. The advisor should also be an ATMAE member.

11. Can a team swap battery packs or charge their batteries during the interval between runs?

Yes, power outlets and/or power strips will be provided in a designated location in the room.

12. Is it possible to use a hydrogen fuel cell to power our robot?

Yes, you can use a hydrogen fuel cell as the power source to electric motors on the robot.

13. Does the operator of the robot have to be a registered ATMAE member?

Yes, the operator must be an ATMAE member. All attendees at the ATMAE Conference must be ATMAE members and register for the conference.

14. Do all the members of a competing ATMAE chapter need to register for the conference?

Yes, those members that are representing their student chapter and are participating in the competition should at a minimum register for the day of the event.

15. Can a robot be reused from last year's competition?

Components of the robot may be the same but the majority of the robot and manipulator should be original.

16. What is the ATMAE definition of a "robotic kit" and "manipulator?"

A manipulator is the part of the robot that is attached to the robotic arm or base/platform that is designed to manipulate an object. In other words, the part of the robot sometimes referred to as an end-effector or EOAT (end-of-arm-tooling) that is designed to pick up the ball. A robotic kit is defined by this competition to be a complete robot that the students would purchase. The intent of the rule excluding robotic kits from the competition is to prevent a team from entering a robot that was purchased rather than constructed. RC components are allowed including the use of a chassis (see rules). Therefore robotic platforms not sold as a kit would also be allowable since there is little difference between a platform and an RC chassis. The contest was originally designed to be an electro-mechanical exercise. As it has been done for several years now, robot construction will also be evaluated. Off the shelf platforms that teams may purchase will not yield high scores in the robot construction category, but they will allow a team to bring an entry with high reliability. Each team will need to balance reliability versus innovation to master the competition. Teams are advised to clear any questions with allowable components via this FAQ section. A single student (team captain) from each team should be prepared to describe the construction effort that went into their robot entry to the contest judges at the time of the evaluation.

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17. What kind of balls are being used in the competition?

Standard racquetballs and bocce balls, which can be found at a sporting goods store or at Kmart, Target or Wal-Mart.

18. Is it possible to have power for our poster station?

No, the poster is just that: a poster, not a video display unit.

19. On page 3 of the rules, it says, "The operator may not have any assistance from anyone else". Does this include having a spotter?

YES! Any and all forms of communications are prohibited between teammates, advisors, relatives, friends, etc and using any and ALL forms of communication for example: cell phones, two-way radios, telepathy, Internet, sign language, hand signals, gesturing, etc is prohibited. The emphasis of this robotics competition is to build a robot that can respond to changing environmental conditions and so it is imperative that human interaction is limited to the robot and the operator. Any team not conforming to this rule will be penalized 5 points for each iteration of this infraction (See specs, page 3 of specs and page 2 of scoring rubric).

20. The rules state "The robot can pick up 1, 2, or all balls at one time (The balls must leave the ground)." Clarification: The balls must leave the ground but do they need to stay off the ground once they have been picked up, or could a robot use a transportation system that does not KEEP the balls off the ground but, the balls still remain in the bots possession?

The balls must leave the ground and STAY OFF the ground until they are deposited into the team's corner.

21. Only balls in the team's taped-off corner at the 3 minute time limit will count towards points earned (The balls must be unloaded from the robot AND touching the arena surface to get credit). Clarification: To be "unloaded from the bot" does that mean that the balls are touching the ground or does that mean that the balls are outside of the robots footprint?

That means that the robot is NOT touching the balls after they are unloaded from the robot and are outside the robot's footprint. If I understand your question correctly, you are asking if the robot can be in its taped off corner (not touching the balls) protecting the balls. I don't think there is anything in the rules that prevents you from being in the taped off corner, but if we, the judges, have any doubt that the robot is completely not touching the balls, the balls in the corner will NOT count.

22. NEW! Can we place a stool or a table next to or in view of the robot operator? This stool or table will support a video screen that has video feed from our robot.

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Yes, you may place a stool or table inside the taped off operator area ONLY and the monitor must be within the taped off area as well. Furthermore, any and ALL sensors, transmitters, receivers, cameras, etc must be linked directly and ONLY to your robot.

OTHER QUESTIONS? If I have a question regarding the contest format or evaluation criteria, how may I address my team's concerns? Send an email with your specific question to Dr. Sergio Sgro by email at sergio.sgro@eku.edu or by calling (859) 622-1195. Your question and the response will be added to this site's FAQ section for all teams to examine. It is suggested that your team examine this site periodically for updated information.