



Robotic Mining Competition Questions & Answers (new Q&As in red)

Competition Questions

Q. How do we know where in the excavation pit to dig?

- A. See Rule and Rubrics, Page 14, Diagram 2. CATERPILLAR MINING ARENA, Top-Down View. Lines in the diagram are designated by florescent chalk in the actual arena.

Technical Questions

Q: As part of our robot's design and control system, we have an embedded Linux computer. We have some concern about corrupting SD cards in the event that the e-stop is pulled and we want to mitigate this risk with a super capacitor that would discharge when the e-stop is flipped and provide just enough power for the Pi to recognize that it has lost power and shutdown safely. The motor, controllers, and all other boards would lose power immediately, we just want to tie up loose ends with respect to files and shutdown safely. It is one of our failure modes where the SD card becomes corrupted for an unnecessary e-stop pull right before a round. If this violates the concerns with safety procedures, this feature will be removed from the rover, but if not, we would love to have it.

- A: If the motors and all controllers are shut down immediately when the E-Stop button is depressed, then the capacitor for orderly shutdown of a Raspberry Pi is allowed.**

Q: Would you please provide some clarification regarding the attachment of targets / beacons. To what may these be attached?

- A: You may attach targets or beacons to the sieve and/or the collection trough at any point on the perimeter: front, sides or back.

Q. How would you like us to prove we aren't looking at the walls? We plan on using a Kinect which "sees" everything including the walls, so though we won't be using them in our positioning calculations, our rovers will still register them.

- A. See Rules and Rubrics, Page 9, 2) n. The walls of the Caterpillar Mining Arena shall not be used sensing by the robot to achieve autonomy. The team must explain to the inspection judges how their autonomous systems work and prove that the autonomy sensors do not see the walls. There are no walls on Mars and teams shall operate as closely as possible to a Mars scenario of operations. Integrity is expected of all team members and their faculty advisors. Failure to divulge the method of autonomy sensing shall result in disqualification from the competition.

Q. What kind of light will we be using in the field?

- A. High intensity discharge (HID) lights such as metal halide lights.

Safety Questions