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Team ViGIR at DARPA Robotics Challenge

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Posted on **March 27, 2013** by **antiwong**

[Team ViGIR](#) is a team consisting of members from [Virginia Tech](#), [Technische Universität Darmstadt](#) and TORC.

Example Disaster Challenge Scenario



| | | Capabilities | | | | | | |
|-------|--|-----------------------|----------------------------|------------------|---------------------|-----------|----------|-----------|
| | | Autonomy - Perception | Autonomy - Decision Making | Mounted Mobility | Dismounted Mobility | Dexterity | Strength | Endurance |
| Tasks | Drive Utility Vehicle to Site | ● | ● | ● | | | | |
| | Travel Dismounted Across Rubble | | | | ● | | | ● |
| | Remove Debris Blocking Entryway | ● | | | ● | ● | ● | ● |
| | Open Door, Enter Building | ● | | | ● | ● | | ● |
| | Climb Industrial Ladder, Traverse Industrial Walkway | ● | | | ● | | | ● |
| | Use Tool to Break Through Concrete Panel | ● | ● | | | ● | ● | ● |
| | Locate and Close Valve Near Leaking Pipe | ● | ● | | ● | ● | ● | ● |
| | Replace Component | ● | ● | | | ● | | |

They will be taking part in Track B in the [DARPA Robotics Challenge](#) where they will use the PETMAN instead of developing their own robot. The tasks are shown in the chart above. [TORC Robotics](#) will take the lead developing the algorithms required for the humanoid to perform during the competition.

[TORC](#) has developed autonomous navigation kits for vehicles and they develop components for autonomous vehicles. Teleoperation with autonomy of vehicles is one technology that they have that will improve the usability of PETMAN robot. [TU Darmstadt](#)'s Simulation, Systems Optimization and Robotics group will join the team. They have developed autonomous robot team and researched in dynamic modelling and optimisation methods in simulation. Last but not the least important is the Human-Computer Interaction Group from [Virginia Tech](#). The team consist of groups with different expertises that make them suited for Track B.

Sliding Autonomy is a buzz word that is used widely in this competition and some feel that this will make the difference between the various teams. This is important as robots are still unable to perform robustly in the given scenario. Human intervention is still required and this is allowed during this competition. This makes it interesting when some form of autonomy is given to the robot but there are of course situations human teleoperation might be more suited. It's about striking a balance depending on the capability of the robots. In Track B, all teams will use the PETMAN which means that they can concentrate on developing algorithms and teleoperation capabilities for use with the PETMAN. This is certainly a scenario that makes more sense today, as we take the first step away from teleoperating "dumb" robots. Heaphy Robotics was an initiative

by Willow Garage a while back (watch video below) that allowed people from around the world to gain control of the PR2 to perform task without their premises. As seen in the video, you could either take full manual control over the robot or allow the robot some form of autonomy. That's a good example of sliding autonomy.

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Posted in **Humaniod, Military** | Tagged **DARPA, DARPA Robotics Challenge, Humanoid, PETMAN, Sliding Autonomy, Teleoperation, Virginia Tech** | 1 Reply

Team Steel at DARPA Robotics Challenge

reply

Posted on **March 24, 2013** by **antiwong**

[DARPA Robotics Challenge](#) is the next grand challenge that's really getting most of the robotics community on their toes. The goal of this program is to develop ground robots that are able to operate in degraded human-engineered environments performing complex task such as opening a valve, climb a ladder or even drive a car. This is in response to the difficulties faced by robots deployed during the [Fukushima Daiichi nuclear incident](#). That revealed a lot about the current capabilities of the robots in the market today. It's not that the robots are incapable but it's a matter about using the wrong tool for the job.

[Team Steel](#), led by Christopher Atkeson, is one of the two CMU [teams](#) taking part in the [DARPA Robotics Challenge](#). They have selected to take part in Track B (using a DARPA-provided robot, the PETMAN) while their counterparts ([TARTAN RESCUE](#), lead by Tony Stentz) have chosen to take part in track A where members of that team will develop a robot of their own.

They have worked on the [Sarcos Humanoid Robot](#), a robot similar to the PETMAN. They will implement some learning methods and interesting techniques for their robot. This will definitely be beneficial to the other team given CMU has fielded 2 teams in this competition.

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