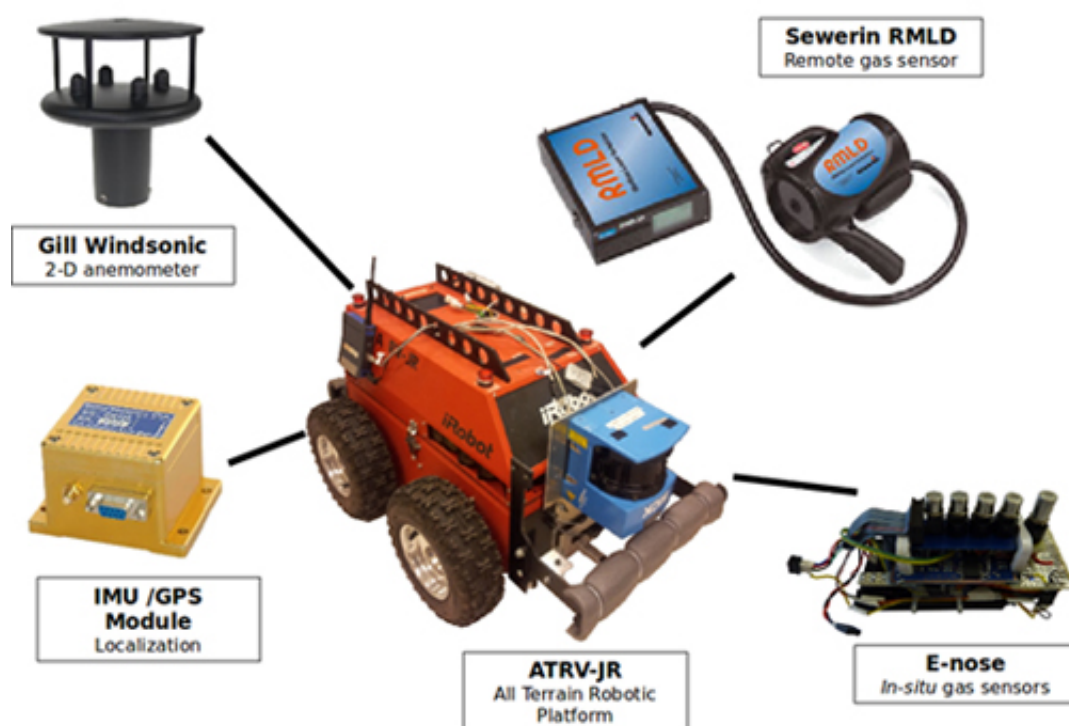


# Researches build robot to sniff out methane at landfills

August 6 2013, by Bob Yirka



(Phys.org) —A team of researchers at Sweden's AASS Research Centre at Orebro University has built a robot prototype that moves itself around in its environment searching for methane leaks. In its initial testing phase, the robot, dubbed Gasbot, was able to sniff out artificially created methane sources in a former landfill and in an underground tunnel.

Methane leaks are a constant problem for landfills and other places that are subject to rotting material. Such leaks present a [fire hazard](#) as well as an [environmental problem](#)—some estimates suggest [landfill](#) gas emissions contribute up to 2 percent of all manmade [greenhouse gas emissions](#). For that reason, scientists have been searching for ways to better detect gas emissions (generally methane) in landfills—the current method relies on sensors being hand placed in suspected areas by technicians—a hit or miss proposition to be sure.

In this new effort, the team in Sweden affixed a Tunable Laser Absorption Spectrometer sensor to a Clearpath Robotics Husky A200—a [mobile robot](#). They also added a GPS device. The idea is that the robot will roam around a landfill pointing its laser randomly around it as it goes. As it does so, it will be able to take measurements of methane levels around it and then use that information to build a map. Thus, to monitor methane levels at a landfill, all technicians would have to do is read the map sent wirelessly from the robot in the comfort of an indoor facility.

The Husky A200 is essentially a programmable automated box on four wheels—its purpose is to carry equipment or supplies around in a ruggedized fashion. It was designed to be used by researchers working on various robotics projects and is thus highly amendable to multiple configurations via customization.

The researchers report that while they were pleased with the initial successes of the robot prototype, they acknowledge that much more work will need to be done before such a robot will be ready for deployment in a real landfill. Specifically, it will need to be more ruggedized to deal with bigger and the more random nature of obstacles. Also it will need an upgrade to be able to scope out wide areas of terrain autonomously for long periods of time. The ultimate goal is to design a robot that can be produced in large numbers for use in a wide variety of

environments as a for-profit venture.

**More information:** Project: [www.robotdalen.se/en/Projects/Gasbot-/](http://www.robotdalen.se/en/Projects/Gasbot/)  
Research paper: [Towards Real-World Gas Distribution Mapping and Leak Localization Using a Mobile Robot with 3D and Remote Gas Sensing Capabilities](#)

via [IEEE Spectrum](#)

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