



NFB Blind Driver Challenge Team Chooses TORC's ByWire XGV as Base Research Platform

Next Generation of Blind-Drivable Vehicles Using TORC Robotic Building Blocks Product Line

BLACKSBURG, VA (October 13, 2010) – TORC, a leading provider of modular unmanned vehicle technologies, is pleased to announce its products are being used in developing the next generation of NFB Blind Driver Challenge vehicles. The ByWire XGV vehicle, driven by a blind driver, will be demonstrated during the 2011 Rolex 24 at the Daytona International Speedway.

Mark Riccobono, Executive Director of the National Federation of the Blind (NFB) Jernigan Institute, says, "The National Federation of the Blind issued our Blind Driver Challenge to encourage partnerships with universities and technology manufacturers to develop nonvisual interface technologies that convey essential information about the driving environment to a blind driver in real-time. Having nonvisual access to this information will empower the blind driver to use his/her capacity to safely and independently operate an automobile. On January 29, as part of the pre-race activities of the Rolex 24 at Daytona, the resulting evolution of nonvisual driving interface technologies will be demonstrated using a Ford Escape that has been converted to the next generation blind-driver vehicle. A blind driver will independently operate the vehicle, in front of tens of thousands of spectators, to demonstrate that a blind person can safely perform various driving functions. This monumental milestone that brings us ever closer to the development of a road-ready vehicle for the blind is a direct result of the partnership between the National Federation of the Blind, Virginia Tech, and TORC."

The NFB Blind Driver Challenge was taken on by Dr. Dennis Hong and the Robotics and Mechanisms Laboratory (RoMeLa) at Virginia Tech, which successfully demonstrated a prototype blind-drivable dune buggy in May of 2009. In June 2010, RoMeLa partnered with TORC to develop the next generation of NFB Blind Driver Challenge vehicles. New and improved versions of RoMeLa's nonvisual interfaces will be integrated into a [ByWire XGV](#); TORC's modified Ford Escape Hybrid with its [ByWire drive-by-wire conversion modules](#), [SafeStop wireless emergency stop system](#) and [PowerHub power distribution modules](#). The ByWire XGV, which is based around TORC's success in the 2007 DARPA Urban Challenge, provides a thoroughly tested vehicle configuration from which the team can add more advanced technologies.

"The ByWire XGV base vehicle has enabled the RoMeLa team to focus on the research and development of nonvisual interfaces for the blind. We have chosen the ByWire XGV for its performance, ease of integration with our system, and most importantly, for its reliability as safety is most important. By leveraging TORC's commercial-off-the-shelf products, our team of graduate and undergraduate students will enable the blind to drive at the 2011 Rolex 24 and beyond," said Dr. Dennis Hong, Director of RoMeLa.

While many autonomous vehicle technologies will be used, the goal is not to develop an autonomous vehicle to drive the blind, but rather a vehicle that enables a blind person to drive. The sensing and perception data that would normally be used to autonomously carry out the appropriate driving behaviors will instead be passed to the blind driver through several nonvisual interfaces. The blind driver can then reason about the environment, make control decisions, and directly execute these decisions from behind the wheel. The novel interfaces being developed at RoMeLa include DriveGrip, a pair of vibrating gloves that relay steering information, SpeedStrip, a vibration-based device that relays speed information, and AirPix, a device that uses compressed airflow patterns to create tactile images.

For more information about the NFB Blind Driver Challenge visit www.blinddriverchallenge.org and to learn more about RoMeLa visit www.romela.org.

About TORC

TORC enables engineers to rapidly integrate robotic systems through a suite of modular, customizable products. TORC's Robotic Building Blocks product line is used by leading academic, commercial and government organizations to shorten the development process, lower costs and mitigate risks. These products have been used on over a hundred mobile robots ranging from 15 pounds to 15 tons. TORC provides solutions for drive-by-wire conversion, emergency stop, power management, autonomous navigation and



operator control. The ByWire XGV, a drive-by-wire Hybrid Escape with integrated SafeStop safety and PowerHub distribution systems, provides an integration-ready base platform for autonomous system development. For more information, visit www.torctech.com.

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