Investigations into Unintended Acceleration Should Include Engineers

WASHINGTON (23 July 2010) -- Because of the electronic complexity of modern passenger vehicles, investigations into sudden, unintended acceleration should draw upon the expertise of a broad array of electrical, electronics and software engineers and computer professionals.

A February 2009 IEEE Spectrum article, "This Car Runs on Code," said that a modern premium-class automobile "probably contains close to 100 million lines of software code," and "all that software executes on 70 to 100 microprocessor-based electronic control units networked throughout the body of your car." By comparison, Boeing's 787 Dreamliner "requires about 6.5 million lines of code to operate its avionics and onboard support systems."

"The skilled engineers and technical professionals who design and evaluate modern vehicle systems bring not only knowledge and expertise from their specific disciplines, but also their experience and lessons learned from integrating technology into these vehicles," IEEE-USA President Evelyn Hirt said. "It goes beyond just having experience in a technology to understanding the complexity and application of that technology in its specific operating environment. This is frequently what is needed to assess why systems sometimes fail."

Faulty electronic throttle control systems have been cited as a possible cause of unintended vehicle acceleration incidents that have resulted in death and injury. The Toyota Motor Corp., the National Highway Traffic Safety Administration (NHTSA) and the National Academy of Sciences (NAS) National Research Council are each conducting separate studies into unintended acceleration.

NHTSA's study has enlisted "NASA engineers with expertise in areas such as computer controlled electronic systems, electromagnetic interference and software integrity." NAS' 12-member panel has, according to The Washington Post, three electronics experts and is planning to add three more. Its study will review unintended acceleration across all automotive manufacturers and investigate "electronic vehicle controls, human error, mechanical failure and interference with accelerator systems."

"There is no question that any effort to investigate these incidents will clearly benefit by including engineers with a firm grasp of the complex systems threaded through today's automobiles," said Doug Taggart, chair of the IEEE-USA Committee on Transportation and Aerospace Policy.

In a 6 April letter to Transportation Secretary Ray LaHood, IEEE-USA encouraged NHTSA to increase its number of electrical, electronics, computer and software engineers "to allow the agency perform the vital task of ensuring vehicle safety." On 24 May, NHTSA replied that it is "in the process of hiring a large number of engineers in response to the increased activities of the Agency."

Links:
"This Car Runs on Code":
http://spectrum.ieee.org/green-tech/advanced-cars/this-car-runs-on-code

Toyota's North American Quality Advisory Panel:
http://pressroom.toyota.com/pr/tms/leading-safety-and-quality-experts-157685.aspx
NHTSA announcing two investigations into unintended acceleration:
http://www.nhtsa.gov/PR/DOT-54-10
IEEE-USA's 6 April letter to Ray LaHood:
http://www.ieeeusa.org/policy/policy/2010/040610.pdf
NHTSA's response to IEEE-USA letter:
http://www.ieeeusa.org/policy/policy/2010/NHTSAReply.PDF

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