

# Giving new meaning to 'smart car'

May 17 2010

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Engineers at McMaster will study how using a single IBM multi-core processor to integrate what are currently disconnected automotive systems could improve vehicle efficiency and driver safety, as part of a Shared University Research (SUR) Award from IBM.

(PhysOrg.com) -- McMaster and IBM have launched a research project to investigate how the automotive industry can connect a vehicle's multiple microprocessors, which currently work in isolation, to create a "cognitive car" that can predict vehicle failures before they happen, redirect drivers to less congested routes and help reduce traffic accidents.

Engineers at McMaster will study how using a single IBM multi-core [processor](#) to integrate what are currently disconnected automotive systems could improve vehicle efficiency and driver safety, as part of a Shared University Research (SUR) Award from IBM. IBM's multi-core processor is a "super" microprocessor capable of performing many complex calculations simultaneously. It was originally developed for

video games but now has applications for financial services, energy exploration, information-based medicine, digital animation and oil and gas production.

The research will focus on integrating data from sensors and microprocessors in the vehicle and on roads to help drivers reduce accidents. In addition, researchers will look at how this same system can give drivers real-time [visual information](#) and alerts to take alternate routes, to reduce driver tension, road congestion and emissions related to stop-and-go traffic.

Alan Wassying, acting director of the new McMaster Centre for [Software Certification](#) and McMaster's Software Quality Research Lab and an associate professor in the department of Computing and Software, will lead a research team of faculty and graduate students, and work with [automotive industry](#) partners and several other Ontario universities on the project.

"To date, our research has focused on safety-critical software in industries such as nuclear energy and medical devices, but increasingly, the automotive industry is adding functionality to vehicles that is safety-critical," said Wassying. "Investigating how a powerful multi-core processor could be applied to manage that functionality will go a long way in helping build a smarter car that helps drivers operate their vehicles more safely and efficiently."

The program will also study how this increased computing power can help vehicles better integrate into regional and global transportation systems, including roadside service, traffic management, air quality management, and emergency services. The research team will use IBM Rational software, used extensively by the automotive industry to design, deliver and manage software throughout the course of the study.

"This project with McMaster University, is an important step in advancing intelligent transportation," said Karen Newman, Americas Automotive Industry Lead, IBM Global Business Services. "While cars today generate a great deal of information, IBM believes connecting that information can change the dynamic of the commute."

Provided by McMaster University

Citation: Giving new meaning to 'smart car' (2010, May 17) retrieved 25 April 2024 from <https://phys.org/news/2010-05-smart-car.html>

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