Automotive electronics in 2013 and beyond: Batteries bear a burden

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This year will see automotive electronics designers approach power management (PM) more like their mobile industry counterparts.

While it may seem a fringe concern, the burgeoning security, convenience, connectivity, safety, and infotainment features of tomorrow's vehicles will drive design and component choices that address standby power consumption. Despite sizable batteries in vehicles, there are still corner-case risks of premature battery exhaustion due to light driving habits and car electronics that "sleep only lightly". Just as cabin illumination from an open car door could drain a battery overnight, too many stealthy electronics nibbling at the reservoir can pose a similar risk.

The power management mandate grows as the car industry continues to add electronics-based features as standard equipment. According to Consumer Electronics Association (CEA) research, factory-installed automotive infotainment will represent an $8.7 billion market in 2013, with 15 percent of US households having connected communication/entertainment systems in a vehicle. The automotive electronics aftermarket is even feeling the pinch from increasing factory OEM gadgetry.

Analysts at TechNavio peg the overall global OEM automotive electronics at almost US$200 billion by 2015. Assuming a $1.5 trillion market size for global automobile shipments, electronics will represent some 13 percent of vehicular content at retail. That percentage is also expected to rise with time.

Simply stated, electronics increasingly permeate our vehicles and more standard-feature technology is coming down the turnpike. This is good stuff overall – we are riding in smarter, safer, and more efficient vehicles than ever before – but the industry will pay growing attention to PM in the car.

To be sure, much of the additional 'run-time-only' electronics will be largely immune from PM concerns, but the rising tide of connectivity and convenience features from 2013 forward may not be so harmless.

A case study illustrates why future vehicle electronics will, in some areas, more fully embrace the stunning low-power advances made in mobile consumer electronics.

My five-year old car may soon be on its fourth battery due to wear out from frequent low-charge conditions, and my circumstance is not unique. Keyless access and other features that remain active when the car is 'off' and locked, along with annual mileage half the norm, are the culprits behind excessive drain. Absent near-daily drives, the car now needs a trickle charger lifeline to stay alive.

Connectivity as a consumer expectation and competitive imperatives for feature-rich vehicles are upping the PM ante in our cars. Automotive designers will necessarily "think mobile" on parasitic drain for situations where driving frequency (recharge rate) may be below-average.

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