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System design from wires to warranty

Part 1 of a 2-part article examines the global issues relating to the design methodology for a car. The increased complexity of the electronic/electrical design methodology and the rapid increase of mechatronic (electro-mechanical) subsystems, accompanied by a shrinkage in design cycles and an increase in warranty costs, are discussed. It has been suggested that up to half of warranty costs may be related to problems in embedded software functions used by manufacturers to differentiate between their products. The industry response is discussed with reference to the design and optimisation of vehicle electronic and electrical systems, restriction of the growth of onboard electronics, integration of functionality, the implementation of quality and reliability standards, and the optimisation of systems through multiplexing to reduce warranty costs.

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