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The research of vehicle network control system model

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With the development of automotive electronics, the problem of strong coupling and poor generality of vehicle electronic control products become more significant due to the closed-loop control mode of the vehicle electronic control systems. According to the trend analysis of the future development of Automotive Electrical and electronic by using s-curve and nine-screen method of the TRIZ, automotive network control system, also referred as VNCS is not only an important way to solve the above mentioned problem, but also an important trend for Automotive Electrical and Electronic development. Since the basic theory and model of VNCS have not fully developed yet, the methodology of research and design of VNCS still need to be further studied. In this paper, according to automotive electrical and electronic features, the theory of industrial network control system and communication system model is introduced to build up the automotive network control system model based on CAN and Flex Ray, and furthermore, network communication and automatic control modules of automotive network control system model are simulated and analyzed. The research results indicated that, under the condition of real-time communication, increasing the transmission rate of the network will improve the independent level of automatic control system sensors, actuators and controllers, and also the diversification of the system functions, which is an effective solution for the problem of strong coupling and poor generality of vehicle electronic control products. This research provided guidance of basic theory and design for VNCS, and also forecasted the future of automotive network control system development prospect.

Biography

Likai has completed his Master's degree from Ukraine Kiev University. He is the director of Electronic and Electrical department of Dongfeng Motor Corporation Technology Center, China, Mainly Responsible for the development of automotive infotainment and auxiliary drive products, He also is a expert in Vehicle communication network.

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