

Anticipatory Shifting – Optimization of a Transmission Control Unit for an 8HP Automatic Transmission through Advanced Driver Assistance Systems

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By integrating system simulation with vehicle dynamics into real-time environments, it is possible to simulate the physically correct behavior of vehicle components and also adjust it to the required operating strategies depending on external factors. Multi-physics system simulation for realistic representations of powertrains and their behavior combined with dynamic driving simulation allows for optimizations of the transmission control unit for an 8HP automatic transmission by employing advanced driver assistance systems for an increased efficiency through anticipatory shifting.

Realistic load cases that are based on measured data help optimize fuel consumption and driveline dynamics with respect to the control algorithms by using variation calculations with variable transmission parameters. This works also the other way around when control algorithms are validated and optimized quickly and free of risk as part of rapid prototyping.

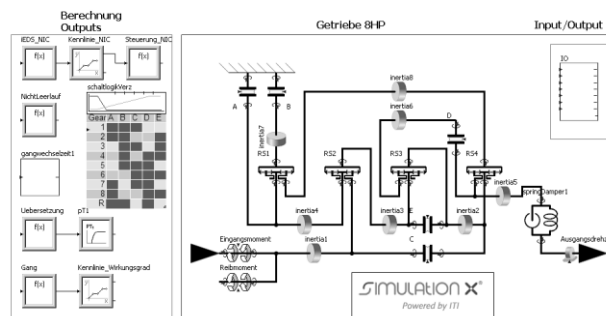


Figure 1. SimulationX model of ZF's 8HP automatic transmission.

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