The Study and Manufacturing of Vehicle Steer-by-Wire System

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ABSTRACT

Steer-by-Wire system has been used successfully in the aeronautic industry for many years. Non-mechanical and “ Steer-by-Wire ” systmes also work out in the automobile industry. Automobile “ Steer-by-Wire ” system replaces the traditional mechanical system; it allows the automobile manufacture flexibility on its design, improves automobile driving handling, safety, and riding comfort. In this study, the system model of “ Steer-by-Wire ” is established .The system model includes feedback motor model, steering wheel model and tire model .The road feeling on the steering wheel is produced by the feedback motor. The steering torque simulations are also compared with the torque of the actual moving vehicle. The hardwares of this research include：DC motor、gear reducer 、angle sensor and torque sensor. Pulse-Width-Modulate (PWM) is used to control the feedback motor to supply road feeling to the driver.

Keywords : Steer-by-wire system ; road feeling

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