
A study on monitoring vehicle static state using longitudinal acceleration

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EPB system is used to hold vehicle when it is stationary. Although EPB has sufficient clamp force to hold vehicle, vibration caused by human, wind or other vehicle may make wheel speed sensor to detect pulses as if vehicle is rolling. As EPB should prevent vehicle from rolling, EPB compensates clamp force by applying its actuator again which is called rolling away re-clamp. However, additional clamp force by repeated re-clamp actuation applies excessive loads on the mechanical parts of EPB actuator. So EPB needs to detect actual vehicle rolling and distinguish miscalculation of wheel speed sensor values. The wheel speed sensor miscalculation comes from wind load, to open or close door, hood and trunk. In this study, a SW filter logic using longitudinal acceleration value is developed and validated to detect vehicle rocking state to prevent excessive actuation of EPB actuator.