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Design of a mechanical four-wheel steering system

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Our model is a driver-selectable four-wheel steering which is cheaper than most existing systems and provides a large dynamic benefit over other mechanical four wheel steering systems. This system will allow the vehicle to have two-wheel steering where it is required (such as high-speed driving) and will give the driver an option to switch to four-wheel steering and perform complex maneuvers. We have tried to combine the performance index of an electrical system with the low cost and easy maintenance of a linkage-based one. This four-wheel steering system can be activated by the driver and disengaged as well, while the vehicle is in motion. We have considered two different types of engaging mechanism.

1. **Servo-based**, which can be activated by the push of a button and gives an indication on the dashboard whether, the vehicle is in two-wheel drive or four-wheel drive. This system will use a very small servo motor as compared to fully electrical ones.
2. **Lever-activated system**, which will use a lever to switch between two-wheel and four-wheel steering modes. This system will require some physical effort by the driver but the cost of this system will be considerably less as the system is fully mechanical.

This system will enable drivers to negotiate some tricky parking situations and carve a way easily in the intense and jumbled traffic of Indian cities. It will also aid off-road drivers in getting out of precarious conditions and make the most of the strained paths encountered in off road driving.

Biography

Aastik Chawla is pursuing Bachelor's in Mechanical Engineering from Delhi Technological University, New Delhi, India and will be starting final year from August 2015.

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