ABSTRACT

Nowadays, car generally uses differential gear to transmit engine rotation to its wheel drives. The differential gear has some lacks such as the decreasing of rotation energy connected to the wheel drive and has a large dimension, so it increase the load that received by vehicle. The way to overcome it is by applying of the using one motor on every its wheel drive. The applying it is not only can reduce loading from the vehicle, but also can minimize the power losses because of differential gear and make it easy in design this vehicle. The analysis and calculation of small vehicle design will discussed about applying of the using one dc motor at every wheel drive axis. The purpose of this analysis is to calculate the power distribution and rotation to every wheel drive. The rotation of each wheel drive is calculate according to the actual turning radius of the vehicle and power distribution is calculated based on loads that are received by each wheel drive. This analysis expected can produce power distribution formulation and rotation as a function of front steer angle and constant speed at some road condition.

Keyword: Front wheel steer angle, actual turning radius, the moving of lateral load, the moving of longitudinal load and vertical force.