284. SPEED STEERING CONTROL OF FOUR WHEEL INDEPENDENT DRIVE ELECTRIC VEHICLE WITH ELECTRONIC DIFFERENTIAL

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Abstract- Environmental and petroleum fuel issues are the major driving forces in the development of electric energy vehicles. Electricity is one of the alternate source of vehicles. In a new type of electric vehicle, which has four wheel independent drive (FWID) configuration and four wheel steering system is a next generation vehicle. In the FWID electric vehicle employ four in-wheel motors (On board motors) to actuate the four wheels and also the traction force on each wheel can be controlled independently. The Gearless wheel motor drive system in this vehicle have advantages over the classical construction with one central machine because by reduce the drive line mechanical system will leads to reduce the overall weight in the vehicle. In the Four Wheel Drive system the distribution of torque to the front or rear wheels according to the driving conditions like off-road.

Four wheel steering system is used to improve the steering ability of the vehicle while driving in traffic and parking area, because of the minimum turning radius of the vehicle can be increased. So when a spot turn is performed in the vehicle will turn easily. Using the speed steering control the speed of inner and outer wheels vary during turn the vehicle in either left or right direction. So the Electronic Differential is used to control the power of each wheel depends on the steering wheel command signal. This method is used to improve the driving range and steering ability of the Electric Vehicle.

Index Terms - Four wheel independent drive, Four wheel steer, Electric vehicle, Electronic Differential , Steering ability.

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