Abstract

Automobile sector is one of the highest producer of Greenhouse gasses. The rising threat of global warming due to air pollution, we look for more cleaner alternative for transportation. To reduce our emissions, we look for alternatives. Hybrid Electric vehicles and Electric vehicles are the best alternatives. One of the factors that hinders the adoption of Electric Vehicle is tits limited driving range. In urban cities, due to the nature of stop and go movement a large portion of the tractive energy is wasted to braking. With Electric Vehicles this energy can be recovered, with regenerative braking increasing the total range of the vehicle. The project compares regenerative braking energy recovery between Induction motor, Brushless DC motor and synchronous reluctance motor.

For common comparison between the three motors, Tesla Model S is modelled in Matlab. While the motors are simulated in Simulink with different drive cycles.

Currently, we have successfully modelled the electric vehicle in maltab. This model gives out traction toque and braking force required by the vehicle. It is modelled in such a way that it is easy to change vehicle characteristic parameters and drive cycle to compare the regenerative braking energy recovery across different drive cycles.