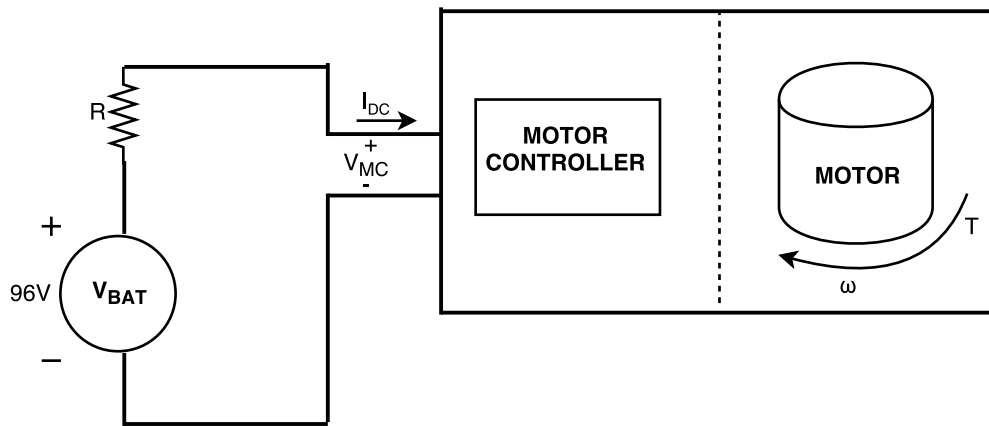


PHYSICS MODEL OF AN ELECTRIC CAR

MOTOR/MC TSV INTEFACE HIGH LEVEL DIAGRAM



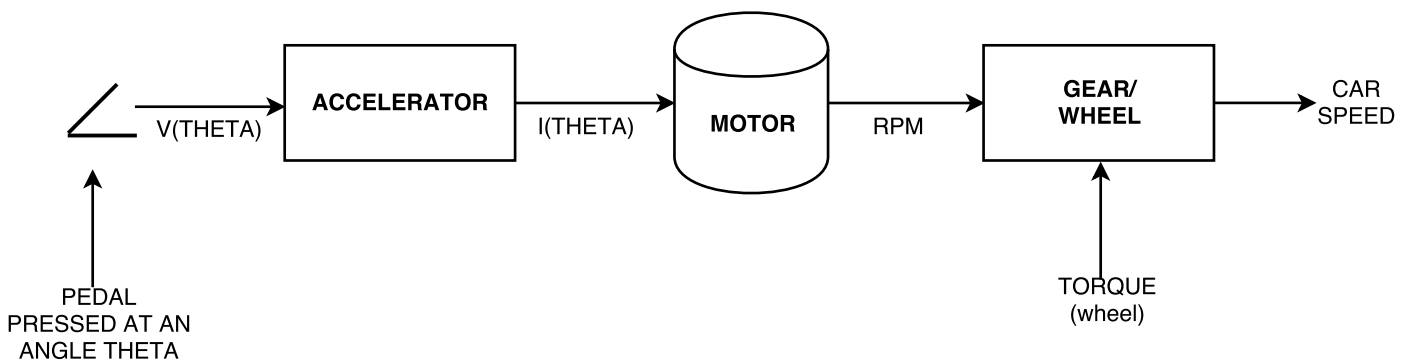
$$V_{MC} = V_{BAT} - I_{DC}R$$

where V_{MC} is motor controller voltage, V_{BAT} is battery voltage, I_{DC} is direct current and R is battery pack resistance

$$P_{LOSS} = P_{IN} - P_{OUT} = V_{MC}I_{DC} - TW/(2\pi)$$

where P_{LOSS} is the power lost as heat in the motor and controller system, P_{IN} is the electrical power into the motor and controller system, P_{OUT} is the mechanical power coming out of the motor and controller system, V_{MC} is the motor controller voltage, I_{DC} is the direct current into the motor controller, T is torque and W is angular speed of the motor

ELEMENTARY HIGH LEVEL DIADRAM OF INTEGRATED CAR



$$F = MA$$

$$T = JdW/Dt + kW$$

where T is torque, J is inertia constant, W is angular speed of motor, t is time and k is friction constant