



- $X(s)$  = Pedal Displacement
- $V_p(s)$  = Voltage Proportional to Pedal displacement
- $E(s)$  = Error speed
- $\omega_i(s)$  = Input Motor speed
- $\omega_m(s)$  = Output Motor speed
- $\omega_p(s)$  = Ring Gear Output speed
- $\omega_c(s)$  = Speed of the Vehicle
- $T_L(s)$  = Torque from Resistive Load
- $T_E(s)$  = Engine Torque
- $T_{DE}(s)$  = Desired Engine Torque
- $\omega_e(s)$  = Engine speed
- $V_E(s)$  = Voltage proportional to engine speed

\* First Iteration with lossless gears

\* Motor Design first

\* Load and Carburetor acts as scalars

\* Need to understand Sensor changes in

\* Controller is undetermined, will be decided upon later due to constraints and requirements from each sub-system