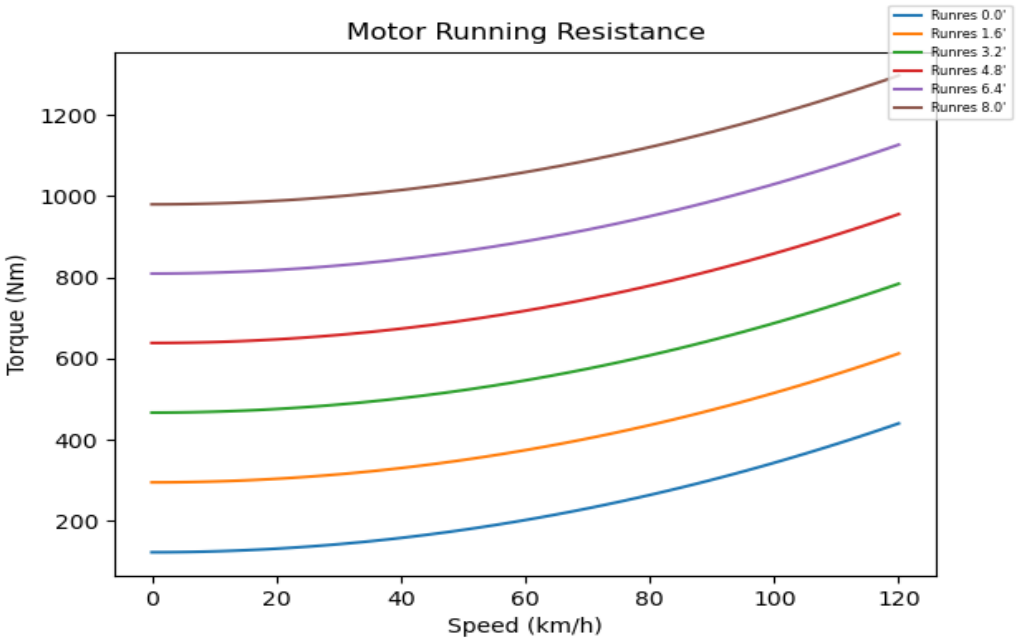
PERFORMANCE REPORT

Design Summary

Motor Power = 129.355
Motor Nom Torque =908.194
Motor Peak Torque =1251.893
Motor RPM =3497.43

Gradeability =14.054
Battery Power = 138.355
Battery Energy = 172.29
Final Gear Ratio = 5.86

Grafik Motor Running Resistance



Parameter Kendaraan

Lebar Kendaraan = 2.1
Tinggi Kendaraan = 3.57
Ca = 0.85
Af = 6.37

Kode Ban = 235/75-r17.5
Jari - jari Ban = 0.4

Massa Kosong = 8180.0
Massa Isi = 1020.0
Massa Total = 9200.0

Gear Box = 1.0
Mech Eff = 1.0
Axle = 5.86
Final GR = 5.86

Dinamika Bergerak

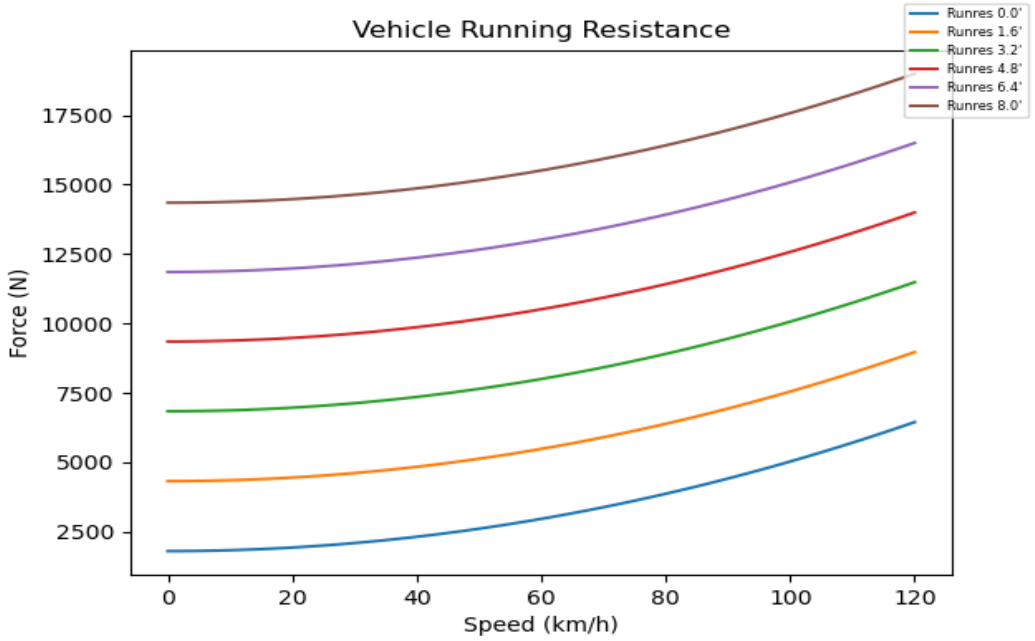
Rolling Resistance = 0.02
Drag Resistance = 1.05
Massa Jenis Udara = 1.25

Kecepatan Angin = 0.85
Percepatan Gravitasi = 9.81
Acceleration Margin = 0.85

Grafik Vehicle Running Resistance

$$RR(N) = R_{RR} + R_D + R_G$$

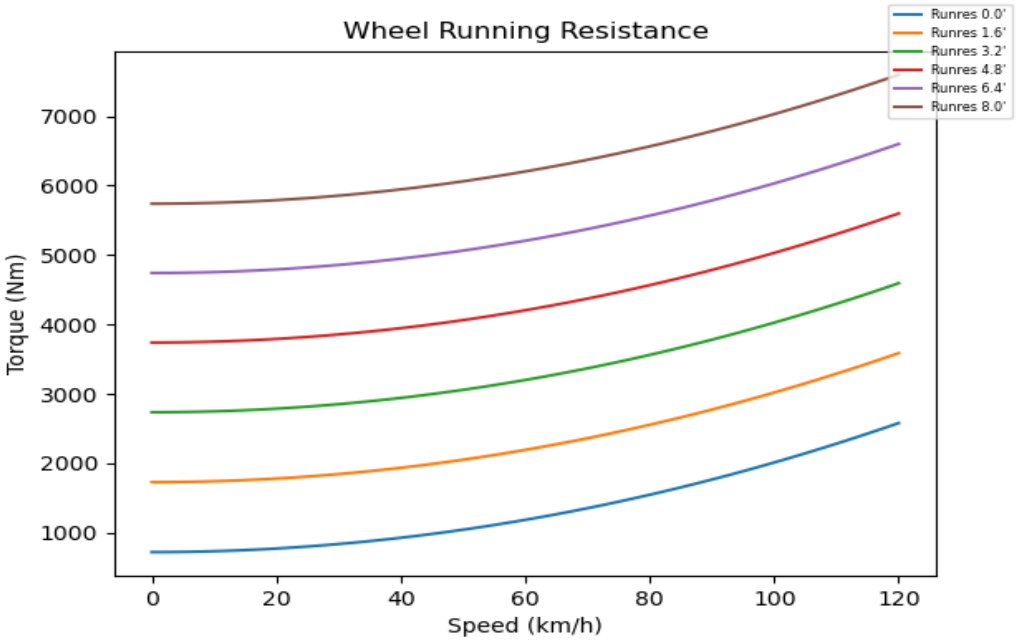
$$RR(N) = C_{RR} \,.m\,.g\,.\cos\theta + \frac{\rho}{2}\,.A_f\,.C_D\,.(V_V + V_W)^2 + m.g.\sin\theta$$



Grafik Wheel Running Resistance

$$RR(Nm) = RR(N) \times r = (R_{RR} + R_D + R_G) \times r$$

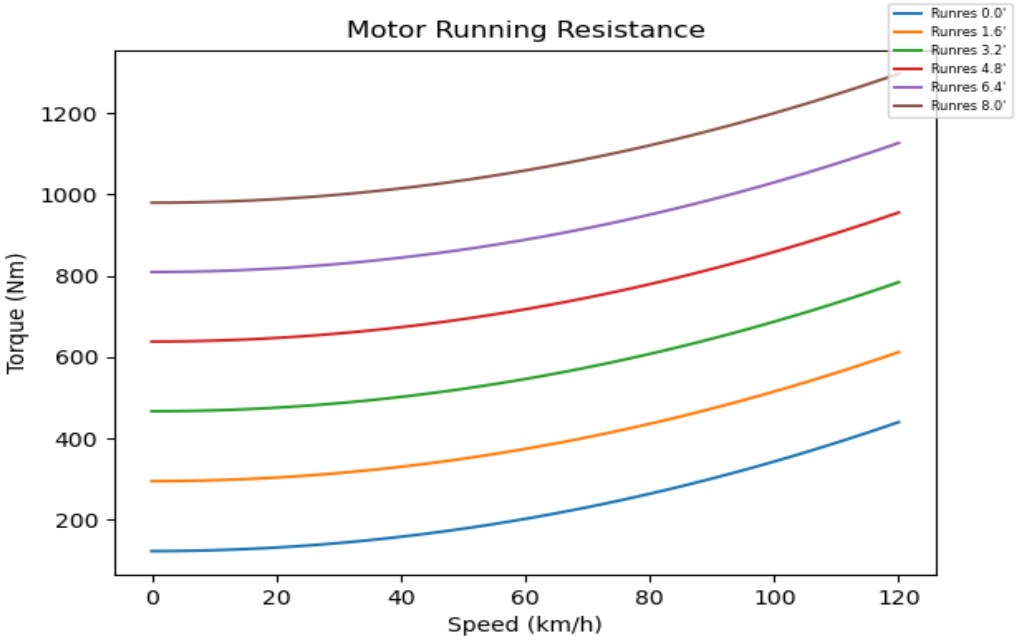
$$RR(Nm) = \left(C_{RR} \,.m\,.g\,.\cos\theta + \frac{\rho}{2}\,.A_f\,.C_D\,.(V_V + V_W)^2 + m.g.\sin\theta\right) \times r$$



Grafik Motor Side Running Resistance

$$RR(Motor) = \frac{RR(Nm)}{GR} = \frac{r}{GR} \times (R_{RR} + R_D + R_G)$$

$$RR(Motor) = \frac{r}{GR} \times \left(C_{RR} . m . g . \cos\theta + \frac{\rho}{2} . A_f . C_D . (V_V + V_W)^2 + m . g . \sin\theta \right)$$



Kebutuhan Power

$$F(\theta, V_V) = C_A . m . a + RR$$

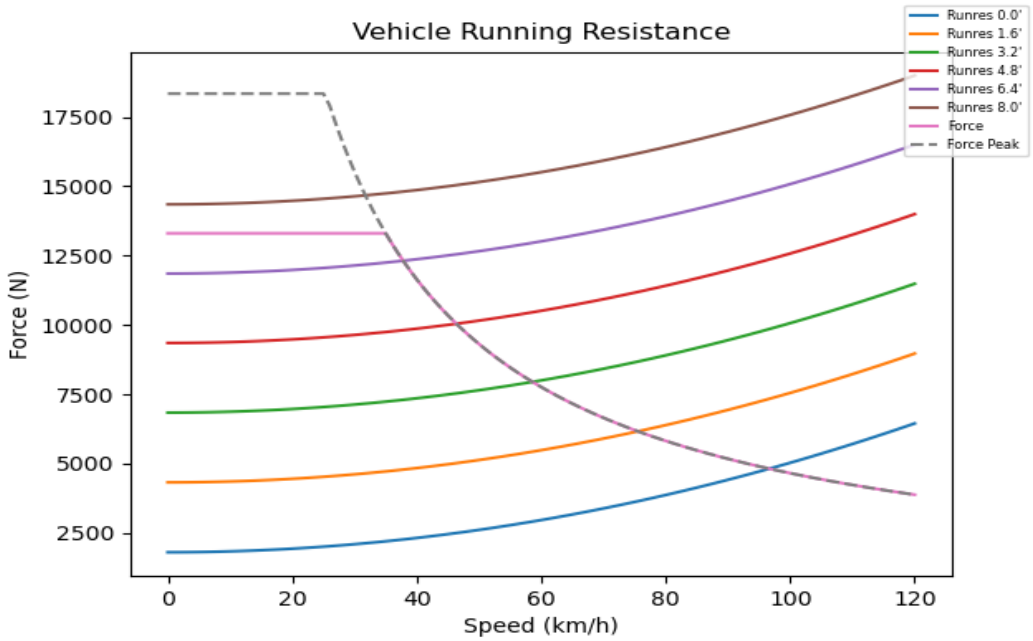
$$F(\theta, V_V) = C_A . m . a + C_{RR} . m . g . \cos\theta + \frac{\rho}{2} . A_f . C_D . (V_V + V_W)^2 + m . g . \sin\theta$$

$$P = F \times V_{WP} \qquad P = \frac{\tau . GR}{r} \times V_{WP}$$

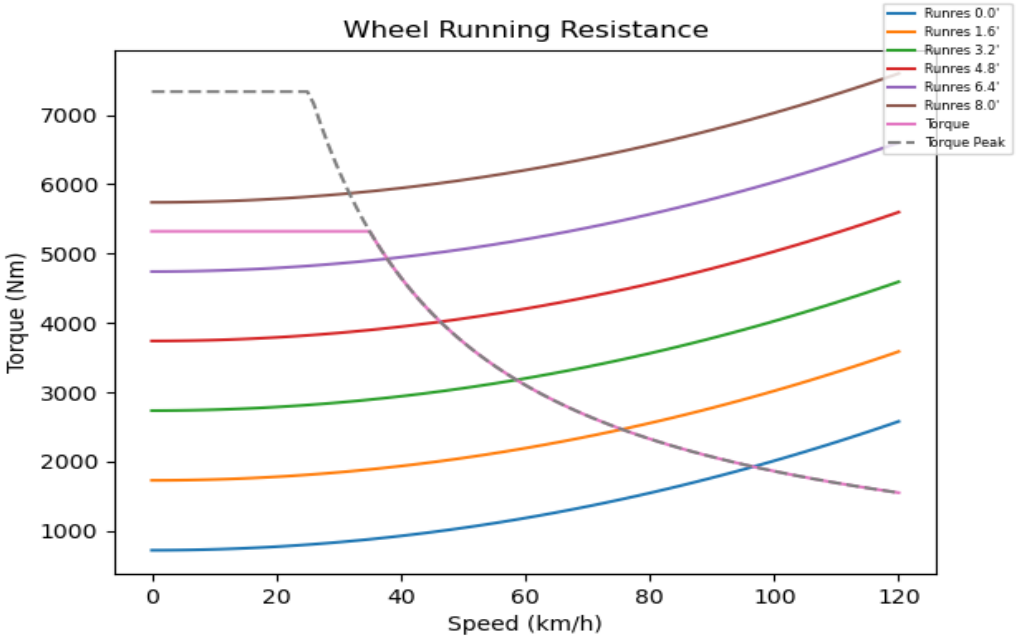
Const T = 908.194
High Acc Const T = 1251.893
Weakening Point = 35.0

Avg Acc = 0.762
P Motor = 129.355
High Acc Weakening Point = 25.391

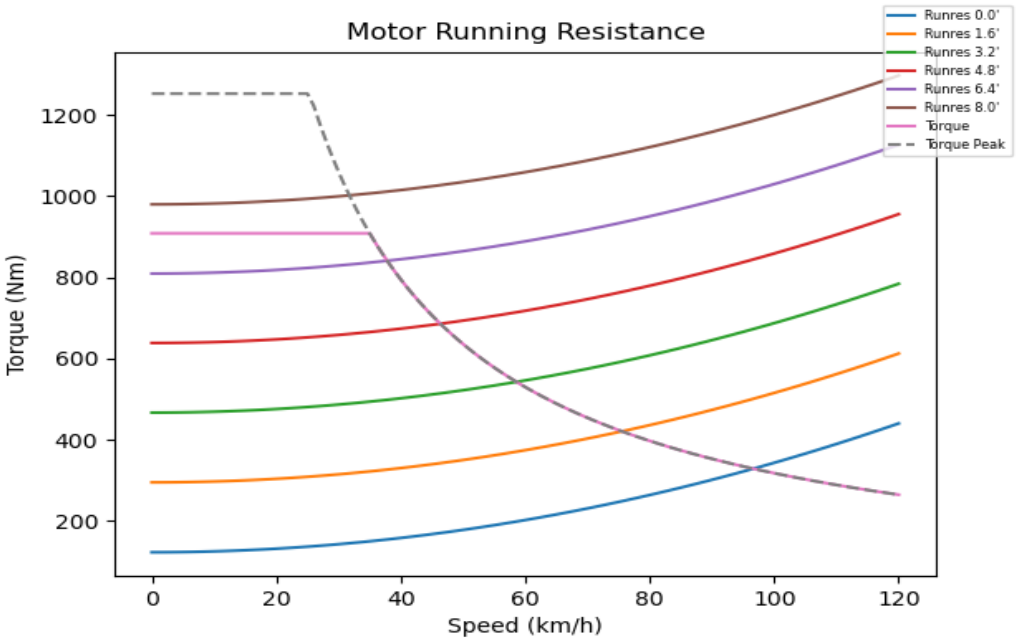
Grafik Vehicle Force Running Resistance



Grafik Wheel Torque Running Resistance



Grafik Motor Torque Running Resistance



Kebutuhan Energi

V Cruise = 60.0
S Cruise = 200.0
t Cruise = 3.333
% Cruise = 33.0

Pt Cruise = 42.687
P Aux = 9.0
P Cruise = 51.687

E Battery = 172.29
P Battery = 138.355

Grafik Motor Cruise Running Resistance