

## Design Summary

Motor Power =

Motor Nom Torque =

Motor Peak Torque =

Motor RPM =

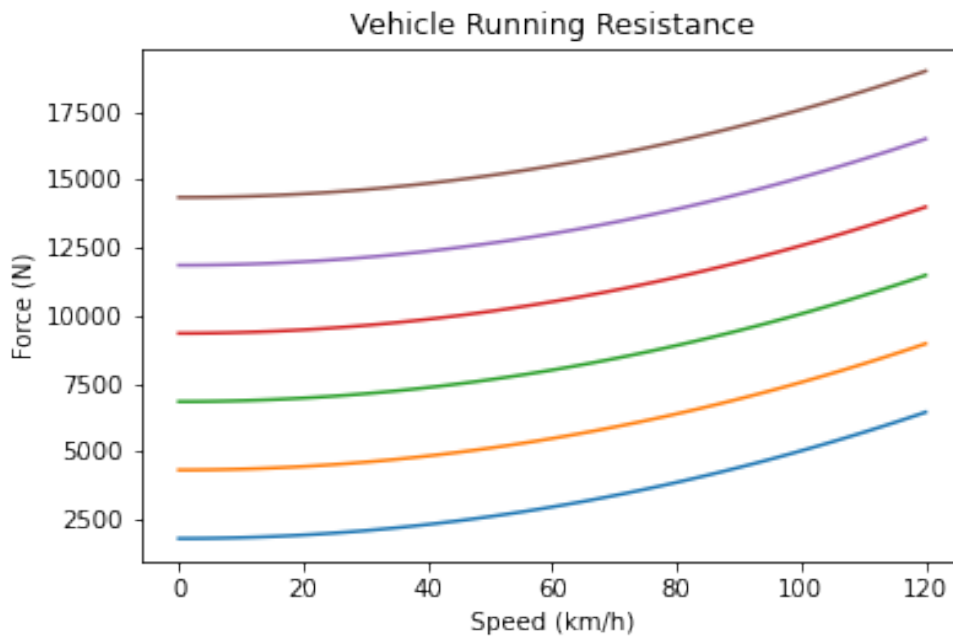
Gradeability =

Battery Power =

Battery Energy =

Final Gear Ratio =

## Grafik Motor Running Resistance



## Parameter Kendaraan

Lebar Kendaraan =

Tinggi Kendaraan =

Ca =

Af =

Massa Kosong =

Massa Isi =

Massa Total =

Kode Ban =

Jari - jari Ban =

Gear Box =

Axle =

Final GR =

Mech Eff =

## Dinamika Bergerak

Rolling Resistance =

Drag Resistance =

Massa Jenis Udara =

Kecepatan Angin =

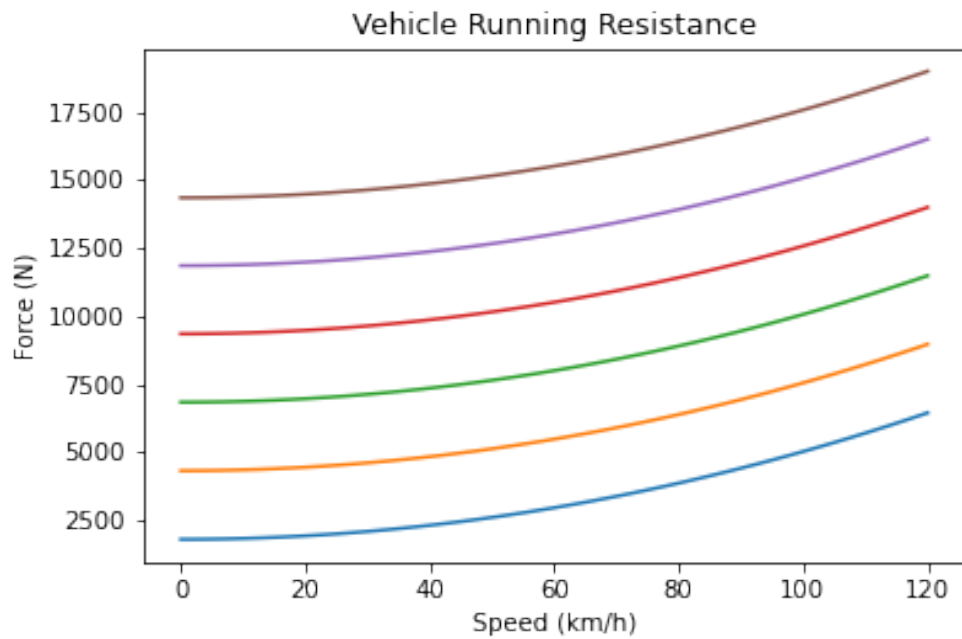
Percepatan Gravitasi =

Acceleration Margin =

## Grafik Vehicle Running Resistance

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

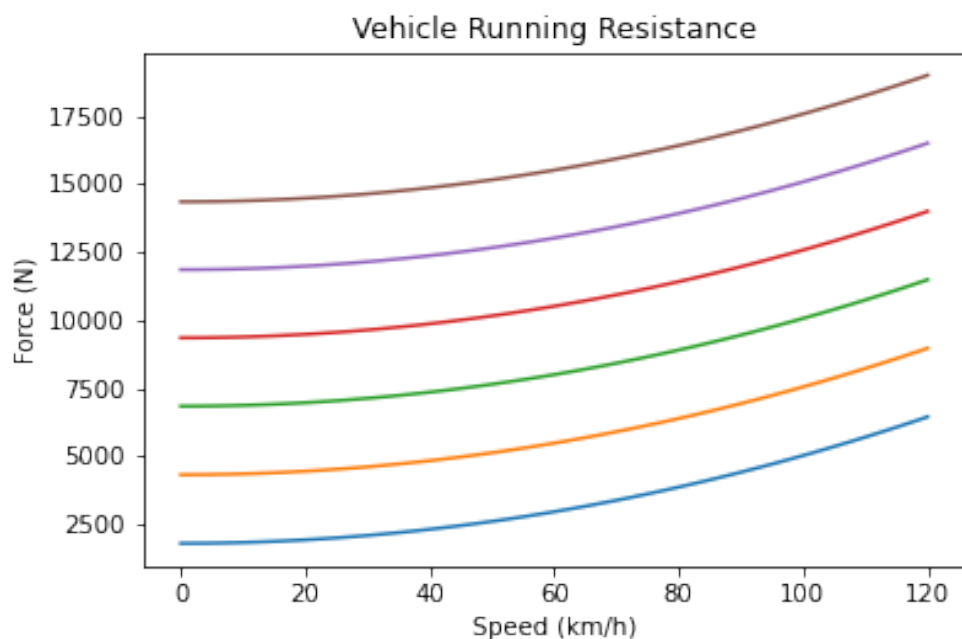
$$RR(N) = C_{RR} \cdot m \cdot g \cdot \cos \theta + \frac{\rho}{2} \cdot A_f \cdot C_D \cdot (V_V + V_W)^2 + m \cdot g \cdot \sin \theta$$



## Grafik Wheel Running Resistance

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

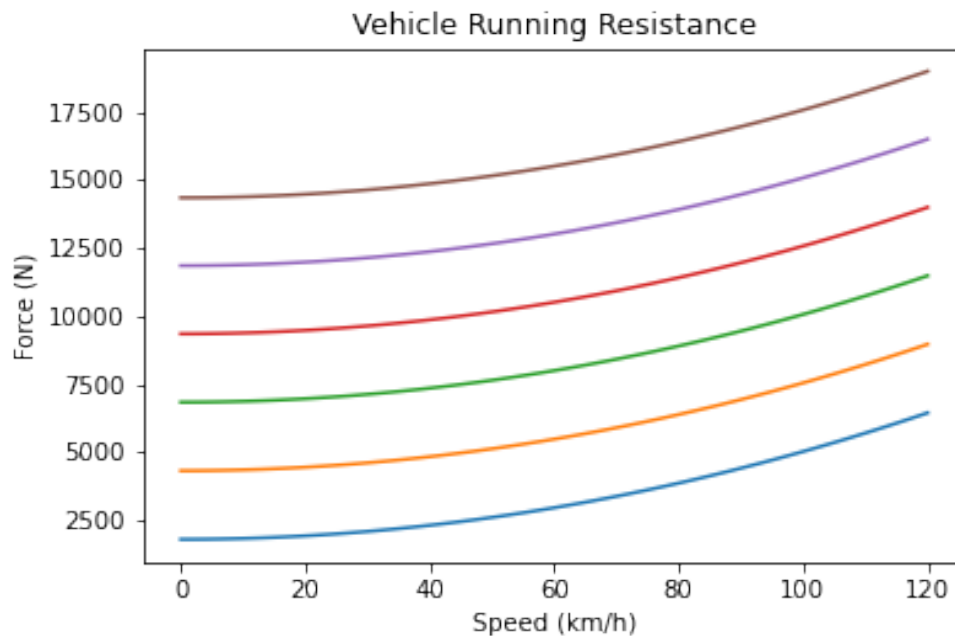
$$RR(Nm) = \left( C_{RR} \cdot m \cdot g \cdot \cos \theta + \frac{\rho}{2} \cdot A_f \cdot C_D \cdot (V_V + V_W)^2 + m \cdot g \cdot \sin \theta \right) \times r$$



## Grafik Motor Side Running Resistance

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

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



## Kebutuhan Power

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

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

$$P = F \times V_{WP} \quad P = \frac{\tau \cdot GR}{r} \times V_{WP}$$

Const T =

High Acc Const T =

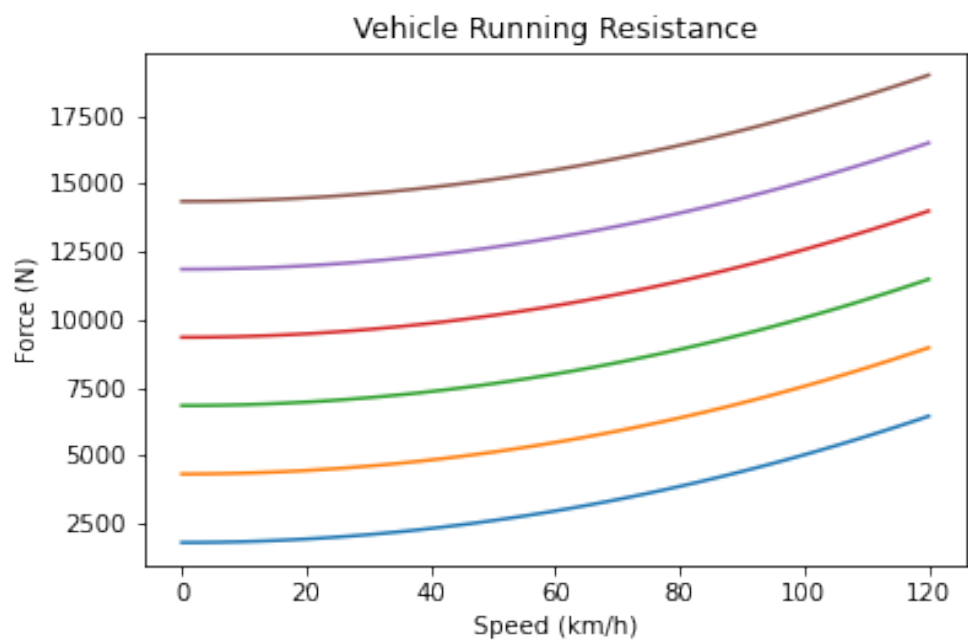
Weakening Point =

Avg Acc =

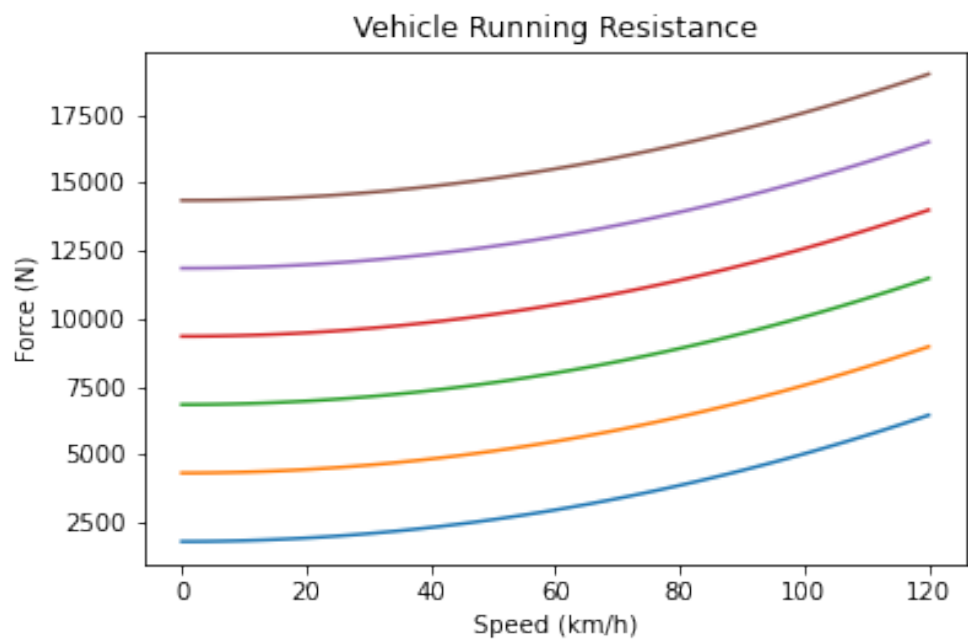
P Motor =

High Acc Weakening Point =

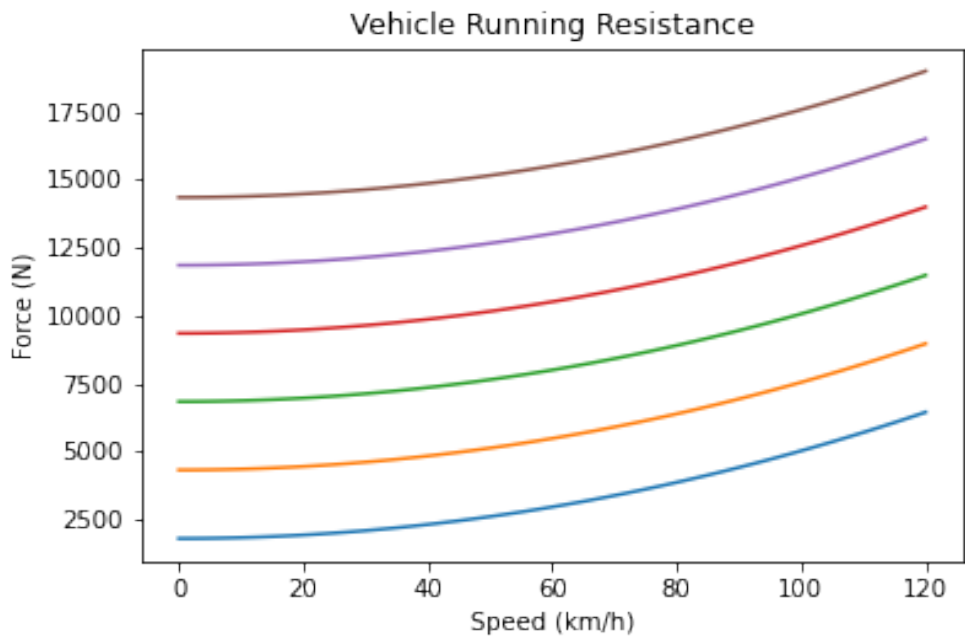
Grafik Vehicle Force Running Resistance



Grafik Vehicle Force Running Resistance



Grafik Motor Force Running Resistance



Kebutuhan Energi

V Cruise =  
S Cruise =  
t Cruise =  
% Cruise =

Pt Cruise =  
P Aux =  
P Cruise =

E Battery =  
P Battery =

Grafik Motor Cruise Running Resistance

