

**Tabel 1.** Variabel penelitian

Variabel Penelitian	Variasi desain	
	<i>Chassis A</i>	<i>Chassis B</i>
Jenis Material	alluminium 6061, <i>carbon fiber</i> , titanium	
Penopang <i>rollbar</i>	Penopang hanya di ruang <i>engine</i>	Penopang di ruang <i>driver</i> dan di ruang <i>engine</i>

**Tabel 2.** Sifat mekanik material

Material	<i>Yield strength</i>	<i>Young's modulus</i>	<i>Mass density</i>	<i>Poisson's ratio</i>
<i>Alluminium 6061</i>	275 MPa	68,9 GPa	2714 kg/m <sup>3</sup>	0,33
<i>Carbon fiber</i>	350 MPa	72 GPa	1606 kg/m <sup>3</sup>	0,28
Titanium	275,6 MPa	102,8 GPa	4512 kg/m <sup>3</sup>	0,36

**Tabel 3.** Distribusi pembebanan

Komponen	Massa (Kg)	Total Massa (N)
<i>Body</i>	3	117,72
<i>Steering</i>	1,5	14,715
<i>Driver</i>	56	549,36
<i>Engine</i>	9	176,58

**Tabel 4.** Perbandingan massa

Konsep	Massa Material		
	<i>Alluminium 6061</i>	<i>Carbon Fiber</i>	Titanium
Desain A	8,344 Kg	4,944 kg	13,937 kg
Desain B	8,528 Kg	5,053 Kg	14,244 Kg

**Tabel 5.** Hasil *stress analyst* pada desain *chassis A*

No	Data Stress Analyst	Hasil Stress Analyst					
		Alluminium 6061		Carbon Fiber		Titanium	
		Max	Min	Max	Min	Max	Min
1.	<i>Von Misses Stress</i> (Mpa)	187,3	0	216,4	0	187,8	0
2.	<i>Displacement</i> (mm)	0,9073	0	0,8848	0	0,6075	0
3.	<i>Safety Factors</i> (ul)	15	1,44	15	2,45	15	1,6

**Tabel 6.** Hasil *stress analyst* pada desain *chassis B*

No	Data Stress Analyst	Hasil Stress Analyst					
		Alluminium 6061		Carbon Fiber		Titanium	
		Max	Min	Max	Min	Max	Min
1.	<i>Von Misses Stress</i> (Mpa)	172,9	0	212,6	0	170,2	0
2.	<i>Displacement</i> (mm)	0,6583	0	0,6433	0	0,4411	0
3.	<i>Safety Factors</i> (ul)	15	1,56	15	2,46	15	1,68