

***Design and Analysis of Electric Bike Chassis for Disabled By Solidwork 2016 Simulation***

**Septiana Sandi**

*Automotive Engineering Study Program  
Engineering Department*

**ABSTRACT**

*Electric bicycle is a vehicle that uses an electric motorbike as a driving force, Electric bicycle can also be used as a tool for people with disabilities. The components of an electric bicycle is the chassis which functions as a place for mechanical components, engines, brakes, steering, and other components, helping to maintain vehicle stability in different conditions. Chassis types are Ledger frame, Tubular Space Frame, Monocoq, and backbone type. In this study design and strenght analysis chasiss by software solidwork 2016 simulation. Strength analysis chasiss with an assumption force of 1000 N, on Carbon Steel AISI 4130 material maximum stress value of 77.076 MPa, deflection ( displacement) 0.727 mm, and the safety factor (safety factor) with a value 4.7. Carbon Steel ASTM A53 material maximum stress value of 77.134 Mpa, a deflection value (displacement) of 0.712 mm, and a safety factor value 3.1, Carbon Steel ASTM A283 material maximum stress value 76.446 Mpa, deflection (displacment) is 0.930 mm, and the safety factor is 3. Yeild stress of AISI 4130 carbon steel material is 144 Mpa, ASTM A53 carbon steel material is 96 Mpa, and ASTM A283 92 Mpa. deflection (displacment) recommended is 0.1588123 mm - 0.952869 mm, the safety factor used is 2.5 - 4. From the analysis the electric bicycle chasiss it is stated strong or safe because the maximum stress, displacment, and safety factor are still included in the criteria.*

**Keywords:** *Disabeld, Chasiss, Solidwork*