***Dynamic Loading Analysis on Electric Bike Frame Design Using Solidworks* 2018**
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ABSTRACT

The level of strength and safety can be developed by determining the type of vehicle frame, choosing the type of material to be used, selecting profiles, safety factors, and the production process. In this study, an analysis of the design of the electric bike framework was carried out using the Solidworks 2018 software using the Finite Element analysis method to find the stress value, deflection value, allowable stress value, and safety factor value, for the value of the allowable stress and safety factor in this study. calculated manually. The purpose of this study was to test the strength of the frame to withstand dynamic loads using Aluminum Alloy 6061-T6 and Stainless Steel 321. The results of the analysis of the strength of the frame assuming dynamic loads are 950 N, 1050 N, and 1150 N with a loading time of 1 second. on the Aluminum Alloy 6061-T6 material, the maximum stress values are 94 MPa, 105 MPa, and 115 MPa, the deflection values are 2.152 mm, 2.398 mm, and 2.644 mm, the allowable stress value is 137.5, and a safety factor of 2, while the Stainless Steel 321 material is obtained stress values are 92 MPa, 103 MPa, and 113 MPa, deflection values are 0.771 mm, 0.859 mm, and 0.947 mm, allowable stress values are 117 MPa, and safety factor values are 2.

Keywords: *Solidworks, stress, deflection, a factor of safety*