Strength analysis and structural optimisation of an L-shaped bracket
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Abstract
In any manufacturing process, product quality and cost are the two critical, essential factors that need to be carefully selected by the company to maximize profit without compromising the product quality. This paper demonstrates the structural and optimization analysis of an L-shaped bracket suitable for any shelf support ranging from industrial equipment shelves, automotive brackets, aerospace and domestic applications. The structural analysis assesses the endurance of the bracket when subjected to both load and disturbance stress, along with the deformation characteristics. The optimization aspect deals with the removal of unnecessary portions/material from the structure without altering its specifications within the design constraints; this tends to minimize material wastages, hence, reducing cost and product weight. The stress analysis and optimization were both carried out using ANSYS software.

Keywords: Strength analysis, Structural optimization, Finite Element Analysis (FEA), ANSYS
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