



RESEARCH PAPER

Structural analysis of remote control precision planter using CAD software

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Abstract : Proper design of agriculture implements is necessary to increase their working life and reduce the farming costs. In this study Creo Parametric software was used to carry out finite element analysis of two components of remotecontrol precision planter. 3D model of remote control precisionplanter was made using Creo 4.O software and static structural analysis were carried out using Creo 4.O simulation software. Dimension of components of remote control precision planter was selected using some crop parameters, DC motor capacity, soil type etc. Results of the simulation showed that maximum deformation was observed as 0.00009 mm for planter tine and maximum deformation for the frame was observed as 0.025 mm at the given boundary conditions while maximum equivalent stress (von-mises) stress was analysed as 42.87 MPa for Frame and 10.24 MPa for planting tine. The maximum shear stress was found as 17.10 MPa for the structural frame and 5.34 MPa for the planting tine of remote control precision planter. Maximum and minimum principal stress for frame was observed as 26.04 MPa and -7.54 MPa, respectively.

Key Words : Simulation, Planter, FEA, CREO, CAD

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