MODELLING AND ANALYSIS OF A WHEEL RIM WITH DIFFERENT MATERIALS

Abstract:

In this project, we have planned to develop a wheel rim with spokes for heavy-duty vehicles similar to the present technology used for lightweight vehicles and also for two-wheelers. As we planned to develop this, we will take the reference measurements from any existing model and we develop a cad model in solid works for the existing one and also for the developed wheel with spokes. The next proceeding step in this project is the selection of material, other than the existing material like cast steel a new material like aluminum alloy or a composite is selected in which similar or better properties are extracted. In the next step of this project finite element analysis is carried out using ANSYS for static structural is followed in which total deformation, equivalent strain, equivalent stress, fatigue failure under rotation conditions, and coming to explicit dynamic analysis hitting a bump is evolved in this and the velocity, acceleration, and stress is going to be done.

Keywords: Wheel rim, Spokes, Alloy wheel, composite.