**Design And Analysis Of Shock Observers In Suspension System**

**Abstract -**

Shock absorber is a mechanical device designed to smooth out or damp shock impulse, and dissipate kinetic energy. In a vehicle, it reduces the effect of traveling over rough ground, leading to improved ride quality, and increase in comfort due to substantially reduced amplitude of disturbances. In this work suspension system is designed and a 3D model is created using CATIA V5 R21. The model is also changed by changing the thickness of the spring. Structural analysis and modal analysis are done on the shock absorber by varying different spring materials. Spring materials are Spring Steel, Phosphor bronze, Beryllium Copper and Titanium alloy. To validate the strength of the model, the structural analysis on the helical spring was done. The analysis is done by considering loads, bike weight, and single, double riding. Modal analysis is done to determine the displacements for different frequencies for number of modes. Finally comparison is done for different materials to verify best material for spring in Shock absorber. Modeling is done in CATIA and analysis is done in ANSYS.

Keywords: Static, Transient Dynamic, Buckling, CATIA V5 R21, ANSYS.