

UAV IMPACT MODELLING, SIMULATION AND ANALYSIS ON THE BASE OF MATERIAL VARIATION

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ABSTRACT

Unmanned Aerial Vehicles are rapidly increasing as the need for them in a vast array of applications such as traffic control, forest fire monitoring, earthquake monitoring, and military applications increases. This growth however, has also brought about collision while airborne between manned and the unmanned aircrafts and the damage severity ranging from minor deformation to a completely perforated aircraft structure. The recent comparison is the bird strike but the UAV has different material composition with a higher stiffness as compared to the soft tissue and bone of the bird. In this paper the analysis of different materials influence on the result of the strike was done and their effect on the severity on aircraft structure. The materials are, steel, aluminum, titanium alloys and polyamide. FEM is the method we use to depict the most dangerous materials through ABAQUS EXPLICIT simulation.

KEYWORD: Structural Material, UAV, Collision, FEM Analysis.