

Investigation of Adaptable Winglets for Improved UAV Control and Performance

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Abstract : An investigation of adaptable winglets for morphing aircraft control and performance is described in this paper. The concepts investigated consist of various winglet configurations fundamentally centred on a baseline swept wing. The impetus for the work was to identify and optimize winglets to enhance controllability and the aerodynamic efficiency of a small unmanned aerial vehicle. All computations were performed with Athena Vortex Lattice modelling with varying degrees of twist, swept, and dihedral angle considered. The results from this work indicate that if adaptable winglets were employed on small scale UAV's improvements in both aircraft control and performance could be achieved.

Keywords : aircraft, rolling, wing, winglet

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