SUMMARY OF THE DISCLOSED TECHNIQUE

In accordance with one aspect of the disclosed technique, there is thus provided an aircraft that includes monoblock flight control surfaces (FCS) and a controller for dynamically limiting the inclinations of the flight control surfaces during a stall susceptibility condition. The controller obtains the real-time calibrated airspeed of the aircraft, obtains the real-time angle of attack (AOA) of the aircraft, obtains the real-time sideslip angle (AOS) of the aircraft, and calculates the real-time local AOA and AOS of each of the flight control surfaces, based on the obtained aircraft parameters. The controller dynamically limits the inclination of each of the flight control surfaces independently, ~~relative to the critical values according to~~ such that the calculated real-time local AOA and AOS of each of the flight control surfaces does not exceed the respective local critical values. The aircraft may be an unmanned aerial vehicle (UAV). The aircraft may be a V-tail aircraft. The flight control surfaces may include at least a left tail stabilizer and a right tail stabilizer~~, which are independently dynamically limited~~. The aircraft may further include temperature and precipitation sensors for detecting current weather conditions in the aircraft environment. The stall susceptibility condition may include icy conditions.

In accordance with another aspect of the disclosed technique, there is thus provided a method for dynamically limiting the inclinations of

the monoblock flight control surfaces (FCS) of an aircraft. The method includes the procedure of activating dynamic limitation of the flight control surfaces if a stall susceptibility condition is detected in the current environment of the aircraft. The method further includes the procedures of obtaining the real-time calibrated airspeed of the aircraft, obtaining the real-time angle of attack (AOA) of the aircraft, obtaining the real-time sideslip angle (AOS) of the aircraft, and calculating the real-time local AOA and AOS of each of the flight control surfaces, based on the obtained aircraft parameters. The method further includes the procedure of dynamically limiting the inclination of each of the flight control surfaces independently, ~~relative to the critical values according to~~ such that the calculated real-time local AOA and AOS of each of the flight control surfaces. The real-time calibrated airspeed of the aircraft may be measured using an aircraft measurement apparatus. Alternatively, the real-time calibrated airspeed of the aircraft may be estimated if the measured airspeed data is deemed unsuitable. The estimation may be based on the density, engine RPM, measured throttle, measured pitch angle, and measured x-axis acceleration of the aircraft, using an open loop state-space model. The real-time AOA of the aircraft may be estimated based on the measured z-axis acceleration and calibrated

airspeed of the aircraft. The real-time AOS of the aircraft may be estimated based on the measured y-axis acceleration, true airspeed,