Abstract for 03 November 2018, Taoyuan, Taiwan

Application of Intelligent Control to Automatic Landing System

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The first Automatic Landing System (ALS) was made in England during 1965. Since then, most aircraft have had this system installed. The ALS relies on the Instrument Landing System to guide the aircraft into the proper altitude, position, and approach angle during the landing phase. According to Federal Aviation Administration regulations, environmental conditions considered the determination of dispersion limits as being: headwinds up to 25 knots, tailwinds up to 10 knots, crosswinds up to 15 knots, moderate turbulence, and wind shear of 8 knots per 100 feet from 200 feet to touchdown. If the flight conditions are beyond the preset envelope, the ALS is disabled and the pilot takes over. An inexperienced pilot may not be able to guide the aircraft to a safe landing at the airport. It is therefore desirable to develop an intelligent ALS that expands the operational envelope to include safer responses under a wider range of conditions. The goal of this study is to show that the proposed intelligent control systems can improve the performance of the ALS and guide the aircraft to a safe landing in wind disturbance environment.

Experience:

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