Phase I Project Summary

Firm: Intelligent Automation, Inc.
Contract Number: NNX11CG88P
Project Title: A Robust Separation Assurance Architecture using Integrated Airborne and Ground SA Concepts

Identification and Significance of Innovation: (Limit 200 words or 2,000 characters whichever is less)

Prototype the ability to model and simulate a distribution of separation assurance responsibilities across air traffic controllers and flight crews. This demonstrates the capacity to model this type of distributed responsibilities which portends the ability to evaluate other distributions/architectures. The evaluation of other architectures in terms of robustness to systemic faults will be a valuable tool in developing transition plans for actual use of airborne separation assurance.

Technical Objectives and Work Plan: (Limit 200 words or 2,000 characters whichever is less)

Determine how to use existing and futuristic separation assurance (SA) concepts to safely handle greater flight density.

Provide a study and a demonstration that suggests how to transition from current day SA procedures to futuristic SA procedures.

Technical Accomplishments: (Limit 200 words or 2,000 characters whichever is less)

Developed an integrated air-ground SA model for ACES based on Stratway and ACCoRD software components.

This model was used in simulations to produce preliminary results supporting the idea that an integrated air-ground SA concept can outperform one that is either purely airborne or purely ground-based in the presence of certain off-nominal operating conditions, although it has been noted that more experiments are required to produce conclusive results.

NASA Application(s): (Limit 100 words or 1,000 characters whichever is less)

This is an enabler for evaluating architectures for functional allocation of separation assurance, where there is a primary system and a backup system, that are robust with respect to a fault in the primary system.

Non-NASA Commercial Application(s): (Limit 200 words or 2,000 characters whichever is less)

None directly.

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