

Small Unmanned Aircraft Systems Detect and Avoid Requirements Necessary for Limited Beyond Visual Line of Sight Operations

Purpose

- This research will develop a limited approach to Detect and Avoid (DAA) obstacles (airborne or ground) that could enable beyond visual line of sight (BVLOS) operations of small Unmanned Aircraft Systems (sUAS) in the National Airspace System (NAS) under specific operational limitation

Background

- The current activity to develop a Minimum Operational Performance Standard (MOPS) for UAS DAA capabilities may result in a technology that is incompatible with sUAS (55 lbs. and below, relatively low speed or stationary, low altitudes). The MOPS will also pose a challenge for sUAS in terms of size, weight, and power requirements
- Under the FAA's rule for sUAS operations (published within the Code of Federal Regulations as 14 CFR Part 107), any potential visual line of sight operating limitation will not be compatible with the precision agriculture and geographical mapping sUAS applications that will require greater access to the NAS in order to reach their full economic potential

Projected Benefit of Research

- The objective is to expand access for sUAS in limited portions of the NAS and still achieve a level of safety equivalent to manned aircraft operating in a similar manner
- This research and associated operating limitations will facilitate safe and efficient use of applications that the Association for Unmanned Vehicle Systems International (AUVSI) says will make up to 80% of the future commercial UAS market

Research Approach

- Development of an operational framework, including operating constraints, a description of the operating environment, and any assumptions that need to be communicated to other stakeholders for sUAS BVLOS operations
- Conduct a comparison of ground-based and airborne approaches to sUAS Detect and Avoid and determine whether to develop requirements for both, or only the most feasible approach

Research Partners

- The FAA's Center of Excellence for UAS Research, Alliance for System Safety of UAS through Research Excellence (ASSURE): New Mexico State University and University of North Dakota

Status

- Research began September 2015
- Use Case for DAA Report delivered
- DAA Approaches Report delivered
- Radio Line of Sight Testing and Report completed
- Final Report for Phase 1 of research expected May 2017
- Follow-on work expected to start Summer 2017