Airport Ground Resource Planning Tool, Phase I

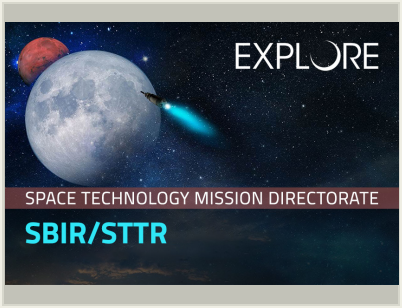
Completed Technology Project (2006 - 2006)

Project Introduction

The NASA-developed Surface Management System (SMS) is currently being used by several air carriers on a daily basis. Although SMS was intended to create shared awareness between FAA and National Airspace System (NAS) user stakeholders in airport traffic management, it was not designed to address the specific needs of air carriers or airport authorities. This suggests a market for an airport automation tool aimed directly at the decisions that air carriers must make every day and which can significantly impact their business efficiency. This project will design and build a tool to improve the efficiency with which airport ground resources are used. Substantial re-designing of the displays relative to those available in SMS will improve the system's usability. Moreover, the complexity of the problem of optimizing resource assignment in the presence of the uncertainties involved suggest that automation may be able to improve efficiency and reduce the planner's workload. The Airport Ground Resource Planning (AGRP) tool will include both appropriate graphical user interfaces for visualizing resource allocations and making manual entries as well as advanced planning algorithms to recommend efficient allocation decisions. Phase 1 will study a single resource ? the off-load crews for a cargo operation.

Anticipated Benefits

Potential NASA Commercial Applications: The AGRP tool is intended to be used by air carriers or airport authorities responsible for managing ground resources such as parking gate assignments. Ground resource managers will use the AGPR tool to aid parking gate assignments, off-load and load crew utilization, fuel and catering scheduling, maintenance crew assignments, and marshalling/tug dispatching. The benefit from the AGPR tool will be most noticeable for air carriers at hub airports or airport authorities responsible for utilization of a resource for the entire airport. This technology is applicable both here in the United States as well as internationally. Ground resources, including parking gates, are shared between air carriers at many international airports, making efficient use of the resources including fairness more important. In addition, fuel or catering companies contracted by the air carriers to provide services could use the AGRP tool to better manage their operations.



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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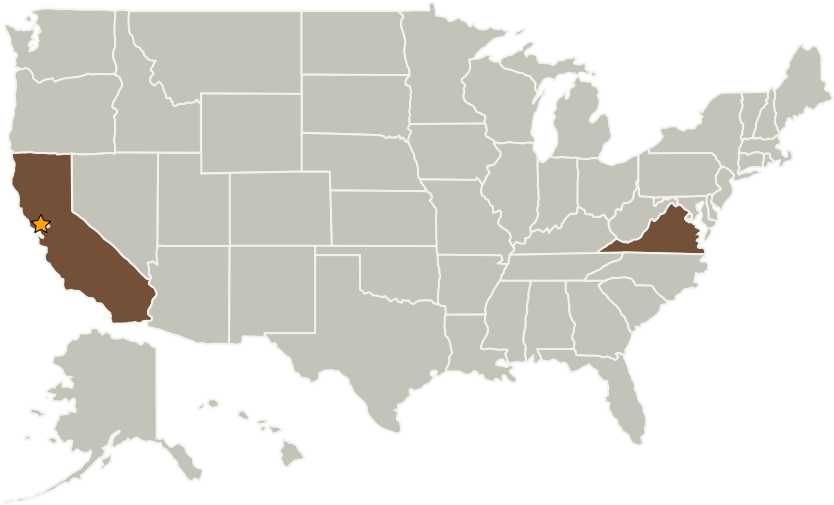
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Mosaic ATM, Inc.	Supporting Organization	Industry	Leesburg, Virginia

Primary U.S. Work Locations	
California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Steve Atkins

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
  └ TX05.1 Optical Communications
    └ TX05.1.1 Detector Development