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Aurora Flight Sciences Wins NASA Contract for Multi-Robot Planetary Exploration

Cambridge, MA, March 2, 2009 - Aurora Flight Sciences announced today that the company, MIT's Manned Vehicle Laboratory (MVL), and the MIT Humans and Automation Laboratory (HAL) recently won a NASA Small-Business Technology Transfer Research proposal to develop a software system that performs command and control of a diverse team of mobile robots, operating in a variety of control modes, to perform multi-agent planetary exploration.

"Aurora sees this as an opportunity to expand its multi-vehicle coordination capabilities into the realm of planetary exploration. We view this project as a natural integration of our expertise in space systems and in tools for planning and coordinating autonomous teams," said Dr. James Paduano, Autonomy Controls and Estimation Group Lead.

Mobile robots operating in teams will be instrumental in extending human reach in planetary exploration, whether they are assisting humans during missions on the moon, or performing completely autonomous science on Mars. However, communication delays to remote robot teams and/or the limited supervision that an astronaut can provide make it necessary for the robot team to perform coordinated tasks robustly and autonomously. To address this problem, Aurora and MIT will combine multi-agent planning algorithms, human interfaces, and associated expertise into a multi-robot, human supervised system that can operate with long time delays between human interactive inputs, while still providing operator situation awareness sufficient for effective planning, event monitoring and notification, and interaction with specific tasks. This project extends Aurora's multi-vehicle planning algorithms to a new regime (planetary rovers) in the context of its ongoing collaboration with NASA's space science mission.

The system will provide ground control user interfaces and data management that: (1) allows for interactive user control of the robot team in a time-delayed control environment, (2) maintains operator situational awareness, providing a human interface for setting up a task queue that can be autonomously executed with limited/no human interaction, (3) allows the multi-robot team to optimize task performance as geospatial, navigation and other sensor information is gathered, and (4) is supported by recent algorithm and software developments in the military multi-vehicle control regime (including human interfaces).

About Aurora Flight Sciences

Aurora Flight Sciences develops and provides robotic aircraft and other advanced aerospace vehicles for scientific and military applications. Aurora is headquartered in Manassas, VA and operates production plants in Bridgeport, WV and Columbus, MS and a Research and Development Center in Cambridge, MA. Please visit our web site at www.aurora.aero.

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