

# NASA's ant-inspired Swarmie robots

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## Short Abstract

As humans push further beyond the grasp of earth, robotic missions in advance of human missions will play an increasingly important role. These robotic systems will find and retrieve valuable resources as part of an in-situ resource utilization (ISRU) strategy. They will need to be highly autonomous while maintaining high task performance levels. NASA Kennedy Space Center has teamed up with the Biological Computation Lab at the University of New Mexico to create a swarm of small, low-cost, autonomous robots to be used as a ground-based research platform for ISRU missions. The behavior of the robot swarm mimics the central-place foraging strategy of ants to find and collect resources in a previously unmapped environment and return those resources to a central site. This talk will guide the audience through the Swarmie robot project from its conception by students in a New Mexico research lab to its robot trials in an outdoor parking lot at NASA. The software technologies and techniques used on the project will be discussed, as well as various challenges and solutions that were encountered by the development team along the way.