# 2010 CNR Challenge

## Next Generation Technologies for Today's Warfighter

## Seedling Research Funding

Bring your innovative ideas here and help us uncover the "next big thing." Funding will be provided for innovations that fit the theme of the conference and the six featured science and technology topics

## Code 30

**Enhanced Perception System for Autonomous Ground Navigation**

This challenge will evaluate the feasibility and/or utility of nonstandard sensors and alternative algorithms for the full spectrum of detecting, processing, classifying, and adapting to obstacles that would be normally encountered in a combat patrol or logistic resupply mission in an Afghanistan-like environment.

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OFFICE OF NAVAL RESEARCH

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# Code 30 Guidelines:

**Title:** Enhanced Perception System for Autonomous Ground Navigation

**Objective:** This challenge will evaluate the feasibility and/or utility of nonstandard sensors and alternative algorithms for the full spectrum of detecting, processing, classifying, and adapting to obstacles that would be normally encountered in a combat patrol or logistic resupply mission in an Afghanistan-like environment.

The desired end state of this challenge is to advance the state of militarily ready and affordable sensors from having object detection capability to having object classification capability for ground vehicle applications. Alternatives or significant improvements to technologies such as those utilized in the DARPA Grand and Urban Challenges fall directly into the category of consideration. The design that results from this challenge will be considered for funding in following years for further development and integration onto a technology demonstrator platform for developmental and operational testing.

**Description:** The United States Marine Corps (USMC), Naval Special Warfare Command, and Naval Expeditionary Combat Command have all identified the need to offload or redistribute the load of small units for extended dismounted missions and provide an unmanned logistic resupply capability in current theatres of operation via their current Science and Technology Strategic Plans. The Office of Naval Research Expeditionary Maneuver Warfare and Combating Terrorism Department (30) Maneuver Thrust Area has determined that enhanced and affordable perception systems are critical to enabling this operational capability. This challenge is to provide a design for an end-to-end autonomous kit for current military ground vehicles using the USMC/Special Operations Command Internally Transportable Vehicle as the baseline platform where the total system cost is estimated to be no more than $50,000 per vehicle in mass production (over 1000 kits) and requires no major modifications to the existing vehicle hull and electrical infrastructure. The system should be robust and able to complete full military durability testing once procured and integrated.

**POC:** Keith Hammack

The 2010 CNR Challenge will award up to 10 awards, each totaling up to $100K, to open funding opportunities for a larger pool of participants. Before submitting your white paper, take time over the course of the 2010 Naval Science & Technology Partnership Conference to meet ONR subject matter experts at the Information Exchange and in breakout rooms to discuss their needs. Submit your idea on site at the Director of Innovation's break-out room (must be on CD). Once received on site, ONR will provide you with a receipt acknowledging your submission. Entries will be reviewed after the conference with all submissions evaluated based on individual merit, applicability, relation to naval energy and research needs.

Specific white paper guidelines and the Award Timeline are available in the Director of Innovation's break-out room.