

# MARINE CORPS WARFIGHTING LABORATORY

**Dragon Runner** is a small, four-wheeled, all-wheel-drive, invertible, toss-able, remotely operated, low cost, man-portable Mobile Ground Sensor designed to increase situational awareness at the small unit level. It will provide tactical Marine units the capability to “see around the corner” or provide “real-time imagery” in environments where human access is impractical or unsustainable.

**Background:** Tactical, small units rely on their eyes and ears for situational awareness and reconnaissance, surveillance and target acquisition information. In today’s modern battle spaces, where potential enemies understand the U.S. strengths and capitalize on the asymmetric nature of urban areas, small unit leaders will increasingly enter these hostile environments and encounter life-threatening situations. The Warfighting Lab recognized that tactical units need a small, low-risk capability to conduct RSTA, and enhance small unit situational awareness to reduce danger to Marines operating in these environments. Dragon Runner aims to address a number of these requirements.

Dragon Runner is managed and funded by the Marine Corps Warfighting Lab. The prototype system is being developed at the National Robotics Engineering Consortium, Carnegie Mellon University’s Robotics Institute, Pittsburgh, Pennsylvania.

**Description:** Dragon Runner will increase a Marine unit’s situational awareness by providing real-time imagery of tactical objectives and potential danger areas beyond the unit’s line of sight both day and night. The system will enhance small unit force protection/early warning by standing watch in “Sentry Mode” by using several on-board motion and audio sensors to monitor selected areas and provide both audio and tactile alerts to the user. Dragon Runner may also be configured to carry mission specific payloads such as lethal, non-lethal, and NBC/explosive detection.

The prototype Dragon Runner mobile ground sensor system consists of a vehicle, a small Operator Control System (OCS) and a simple ambidextrous Handheld Controller for one-handed operation, all

## DRAGON RUNNER *fact sheet*



held in a custom backpack. The vehicle has a top speed of around 20 mph and can also be operated with slow, deliberate, finite control. The system will be easy to operate, requiring little formal operator training, and can be deployed from the pack in less than 3 seconds.

Dragon Runner development for FY03 will include: daylight readable display, mini-zoom camera, improved shell, all-wheel-drive/skid steer, payload interface, custom backpack, custom antennae, and Mil-freq radio suite. The total system, to include pack and batteries, will not exceed a weight of 30 pounds. A non-active and invertible suspension enables Dragon Runner to be tossed through windows, up stairs, and over walls for a rapid deployment capability day or night.

**Deliverable Product:** The prototype Dragon Runner system will be a baseline concept demonstrator for the material developer.

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