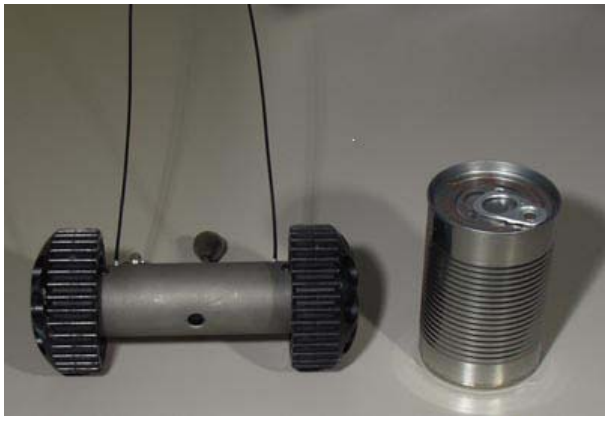
REQUEST FOR EXPEDITED CONSIDERATION

ReconRobotics, LLC
File No. 0056-EX-PL-2007

The pending license is urgently needed for late-stage development of a device that will provide safety assistance to law enforcement, state and local government first responders, and homeland security. Further development of this project is stalled pending grant of this license.

The application describes the Recon Scout®, a miniature robot designed specifically to perform reconnaissance and surveillance tasks in a variety of environments, including police actions, urban warfare, hazardous material searches, and hostage situations. It can be maneuvered by remote control.



The robot is small and lightweight for ease of portability, but rugged enough to survive deployment via mechanical launching or a drop from a low flying unmanned aerial vehicle. It can also be hand tossed into a building (even upper floors), tunnel, and other structures and spaces to provide reconnaissance back to the operator. Actual size is about that of a soup can: 7 inches long and 3 inches high at the wheel. (See photo.) Weight is just over one pound.

Packed into this small device are a video camera and microphone, short-range radio transmitter for conveying video and audio to the operator, 75 MHz receiver for remote-control signals,[1] along with batteries, motors, and all necessary video, audio, and control circuitry. The engineering challenge is to fit all of the necessary components into a package that is small and strong enough, with adequate shock absorption, to deliver the durability, reliability, and robustness needed to survive the inevitable rough treatment in the field, and still function perfectly every time.

For homeland security and other applications, the robot is designed to carry, in addition to the video, one or more sensors to provide, for example, infrared, biological, heat, and radiation data.

A military version of the Recon Scout, developed at the University of Minnesota through DARPA and NSF grant funding, has been experimentally deployed in Iraq for the past three years. During military testing, word of the device spread to domestic police forces, S.W.A.T. and emergency response teams, who now see an important role for the device in reducing the exposure of their own people to violent harm.

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[1] The 75 MHz operations comply with Part 95, subpart C (Radio Control Radio Service), and are not part of this application.

Technical Details

The Recon Scout transmits video from robot to operator in either the 902-928 or 2400-2483.5 MHz unlicensed band. The robot must use an analog-modulated transmitter to fit into the very small space available (under one-third of a cubic inch). Moreover, digital video is prone to sudden signal cut-off of at the edge of its range, which can be catastrophic in an emergency situation. At the required 1 Watt of power, however, the rules require digital modulation. The device thus does not qualify for certification. ReconRobotics is currently preparing a waiver request for submission to the Office of Engineering and Technology.[2]

Grounds for Expedited Consideration

A grant of the experimental license will enable designated police and first responders to test the Recon Scout in an operational capacity. This work will provide the design feedback needed to make the commercial version maximally effective and reliable for emergency responders and homeland security. ReconRobotics has learned a great deal from its laboratory studies and military field work, information that has been incorporated into the current design. Now the company needs live experience in limited domestic settings to ensure the device can operate in this mission critical environment. Among other properties, work under the license will test the device's physical durability, operational characteristics, and the power and bandwidth needed for realistic environments, including urban structures of differing construction and configurations that cannot be adequately simulated in a laboratory.

In short, the Recon Scout can make the dangerous work of law enforcement and homeland security safer by alerting personnel to otherwise hidden, life-threatening hazards. Delay in obtaining the experimental license translates to delay in the technology becoming available to lower the risk to emergency and security personnel in the field.

[2] The military version operates at 433.92 MHz. ReconRobotics also seeks experimental authority for this frequency, for purposes of baseline comparison to the military testing. The company will not use this frequency in a domestic version of the device.