

Mission-Critical Reconnaissance From A Miniature, Mobile Throwable Robot

[Jack Klobucar, ReconRobotics, Inc.](#)

For warfighters in Iraq and Afghanistan, knowing what lies ahead can save lives and enhance the success of the mission. But how can warfighters know what lies inside the next doorway, or over the next compound wall, without physically moving into those environments and putting themselves at great risk? Are there enemy combatants inside? Have they planted IEDs? Are civilians present? How can warfighters quickly gain this mission-critical information, in any weather conditions, and on any terrain, day or night?

One of the latest solutions to this problem is the Recon Scout® XT, from ReconRobotics, Inc. The Recon Scout XT is a throwable, mobile reconnaissance device that enables warfighters to obtain instantaneous video reconnaissance within indoor structures, or in outdoor environments of dirt, sand and rocks. The XT and its sister product, the Recon Scout IR, have been used in theatre since 2008 on platoon-level urban warfare missions, and on remote reconnaissance operations. Among the users of this technology are the U.S. Army, the U.S. Marine Corps, various special warfare teams and several Federal agencies, including the F.B.I. and D.E.A.

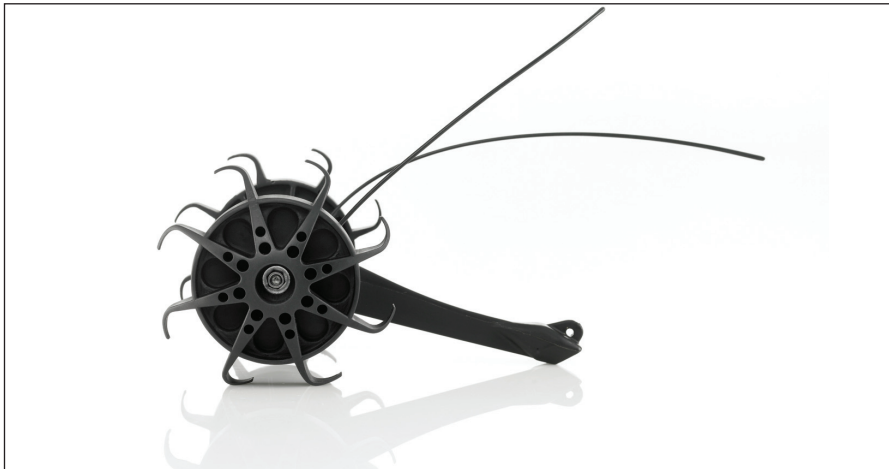
One of the most important performance characteristics of the Recon Scout XT is that it can be deployed in just five seconds, and using it requires no special training. Simply pull the activation pin and throw the robot through a window or doorway, over a wall, or into a bunker. Once the warfighter has deployed the device, he can direct it to move quietly



Deploying robot to search lower level



Robot can reveal enemy combatants and IEDs



The Recon Scout XT weighs just 1.2 lb(554 g)



Robot transmits video 300 feet (91 meters) outdoors

through the environment as it transmits real-time video of the situation back to the warfighter's handheld operator control unit (OCU). This transmission can extend to 100 feet through windows, walls and doors, and up to 300 feet outdoors. The XT can also be lowered from high vantage points into caves or compounds, and then retrieved using a 100' tether that can be attached to the tail of the robot.

Lightweight and Stealthy

The Recon Scout XT is the smallest throwable, mobile robot in military use. Just eight inches long and weighing less than 1.3 lb., the XT is extremely easy to carry on a vest, or in a pouch. When paired with

its OCU, the total system weight is just three pounds. The small profile of the XT, coupled with its matte black finish and extremely quiet operation, enable warfighters to use the device to gain situational awareness without revealing their positions. The robot can also be positioned within debris, or in a secluded area, to watch an environment or a subject. The optical system of the Recon Scout XT has a 60-degree field of vision in both the horizontal and vertical axis, and is designed to provide clear video in any level of darkness. When the ambient light falls below 0.0003 lux, the approximate light level of a starlit night, the infrared optical system automatically turns on, giving the warfighter a clear view of its environment, even in complete darkness.

Durable and Versatile

The climate and terrain of Iraq and Afghanistan make it imperative that any unmanned ground vehicle must be able to operate in a variety of environments, and the Recon Scout XT is no exception. The XT is designed to survive repeated horizontal throws of up to 120 feet, and vertical drops of 30 feet. Equipped with powerful motors and drive trains and aggressive wheels, the device can also negotiate terrain of sand and dirt, and easily climb

over clothing, rugs, door thresholds, and other obstacles. It can turn in place, giving the warfighter a 360-degree sweep of a room in less than five seconds. The water resistance characteristics of the XT also enable it move through a shallow puddle without incurring damage to its electronics or optical system.

Another unique characteristic of the Recon Scout XT that is particularly helpful in urban warfare operations, is that each robot can be specified in one of three transmitting frequencies, allowing warfighters to operate up to three robots in the same environment at the same time. This enables patrols to quickly gain complete situational awareness of a structure or environment, and mount an effective, co-ordinated response.

In addition to the Recon Scout XT, ReconRobotics also produces the Recon Scout IR, which has the same infrared capabilities and transmission range of the XT, but is designed for use in less challenging terrain. In addition, the company markets the original Recon Scout® Throwbot™ device, which has the same design as the Recon Scout IR, except for the infrared optical capabilities. All three robots can be guided using the same OCUs.

ReconRobotics, Inc. was formed in 2006, to commercialise field-proven robotics technology developed at the University of Minnesota Distributed Robotics Laboratory in Minneapolis, Minnesota. Their initial research and development work spanned more than five years, and was funded primarily by the U.S. Defense Advanced Research Projects Agency (DARPA). ReconRobotics products are now distributed through a worldwide network in thirty-five countries. ■



Contact information

For additional information about ReconRobotics and its products, please visit www.reconrobotics.com

<p>Performance</p> <ul style="list-style-type: none"> Indoor Range (NLOS) Test to: 100 ft/30m Outdoor Range (LOS) Tested to: 300 ft/91m Speed: 1.5 fps/0.46mps Drop Shock Resistance: 30 ft/9.1m Throw Shock Resistance: 120 ft/31.4m (maximum arc of 30°) 	<p>Mechanical Specifications</p> <ul style="list-style-type: none"> Length: 8.0 in/20.3cm Width (wheel to wheel): 7.3 in/18.5cm Height: 4.5 in/11.4cm Weight: 1.2lb/524g <p>Image Sensor</p> <ul style="list-style-type: none"> Black and White IR Illumination: 25 ft/7.62m Field of View: 60 degrees Frame Rate: 30fps 	<p>Run Time</p> <ul style="list-style-type: none"> Scout on Flat Terrain: 60 min. (varies on uneven terrain) OCU: 120 min. <p>Operator Control Unit</p> <ul style="list-style-type: none"> Height (with antennas): 20.75in/52.7cm Width: 3.5in/8.9cm Weight: 1.74lbs/790g Screen Size: 3.5in/8.9cm
--	--	--