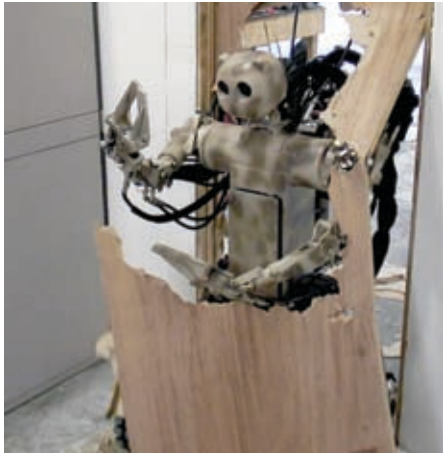# The BEAR™ Battlefield Extraction-Assist Robot

The Challenge: Military, police, and emergency response personnel put their lives at risk each day, performing heroically in the line of duty. Over half of the Medals of Honor earned by medics are awarded posthumously. How can we enhance search & rescue capability and reduce the time these brave people spend in harm's way?

A Solution: Vecna Technologies invented the BEAR Robot to meet this challenge. The BEAR is a revolutionary robot that combines an agile mobility platform with dynamic balancing and a high-strength upper body – capable of lifting over 500lbs. The BEAR can go just about anywhere a human can go – outdoors or indoors, up and down stairs, and over rough terrain, and through disaster areas. It can also go many places humans shouldn't go. Because it is immune to nuclear, biological and chemical agents, the BEAR can navigate through rubble, structurally compromised buildings, and other areas where danger and the threat to human life is high.

Versatility: Initially designed for rescuing wounded personnel, it is quickly becoming the platform of choice for numerous other military and commercial applications. As an agile robot capable of heavy lifting, BEAR can perform an array of hazardous duty and logistical support tasks in addition to rescue operations. The BEAR is also being considered for broader use in other sectors – for example, as a first responder during emergency response incidents, and even as a mine safety inspector.

Industry experts and government leaders alike are calling the BEAR a "game changer" not only for future military and peace keeping missions around the world, but also for police and emergency first responder personnel here at home.

Current Status: Vecna has so far successfully developed nine versions of BEAR – each demonstrating increased capability. Most recently, Vecna incorporated explosion and fire-resistant treads, a ruggedized, high speed, high energy drive system, intrinsically safe battery cells that are highly resistant to explosion and fire, enhanced dexterity (22 degrees of freedom), and independent, articulated legs for enhanced mobility. Vecna also completed and now utilizes its comprehensive physics-based simulation and modeling system that enables engineers to design and test robotic control systems quickly, inexpensively, and without risk to people or hardware.

The Work Ahead: While much has been accomplished, industry analysts are even more excited about the road ahead for BEAR. For example, Vecna is incorporating a flexible, semi-autonomous task execution capability which will significantly elevate the level of human-robot interaction beyond the current tele-operated mode. The BEAR's ability to negotiate and navigate through complex environments on its own is advancing rapidly. Vecna is also integrating Chem/Bio Agent Detection capabilities for military and homeland security missions.

VECNA ROBOTICS™
Better technology. Better world.™

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