



## Top 5 Things Your Battlefield Robot is Trying to Tell You

Observers frequently comment how soldiers personalized their robots. Robots are given names, assigned ranks and even nominated for medals. As we move into second and third wave of unmanned systems, what would these humanized robots tell us if they could?

### 1) Can you hear me now?

The modern battlefield is full of robots all talking at once, as well as signals generated by IED jamming devices. Besides compromising range, radio noise may also affect how the robots respond to instructions, even instigating false commands. In 2007, Department of Homeland Security discovered that radio interference seriously compromised the effectiveness on 70% of the robots tested.

### 2) Does this form factor make me look fat?

The form factors of unmanned systems vary wildly, from the behemoth 512 kg General Atomics MQ-1 Predator to the tiny IAI's Mosquito micro UAV, which barely weighs 500 grams. Critical subsystems, such as Operator Control Units (OCU) also differ in shape, and size.

"Wearable" OCUs have excited a great deal of interest. In addition to their lightweight form factor, wearable computers hold out the promise of allowing the operator to access information and control without interrupting their other activities. Since "other activities" for a soldier may mean targeting an enemy or dodging automatic weapons fire, multitasking is a valuable asset.

### 3) Don't believe the bunny

You know that drumming robot bunny on TV? In reality, its batteries only last three to four minutes. Battlefield robots last longer (the 2-hour battery life of the PackBot is typical), but they're nowhere near the 10-hour running time that the US military wants. Greater battery power is critical for longer missions, improved maneuverability, miniaturization, legged locomotion and running numerous complex applications.

Adding more batteries to an unmanned system means adding more weight, which is self-defeating. Other possible solutions include improved battery technology, better power management, integrating recharge systems and alternative power sources.



#### 4) It's a question of control

Many subsystems, especially OCUs, are vendor-specific, proprietary and custom-built for each robot. At least 42 separate OCUs are currently in deployment. The vast majority controls only a single asset type and cannot be modified to control others. This "stove-pipe" engineering increases cost of ownership, complicates training, and hampers logistics. Especially frustrating is that it prevents single-operator command and control of multiple-robot systems, which is necessary for force multiplication.

#### 5) The future is yesterday

Some engineers are not fully aware of what the warfighters need and combat troops may not know what is technologically possible. Worse, by the time the tradition-bound military deploys cutting-edge technology, it's already obsolete. Once person complained that the modern warfighter is only "just getting use to World War II technology."

In order to match needs with technology and to speed up deployment, the military has instituted a number of efforts. Typical is Ft. Hood's "[Robotic Rodeo](#)," which combined warfighter feedback with testing of mature technologies.

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