



DEFENSE TECHNOLOGY MONITOR

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Related Categories: Cybersecurity and Cyberwarfare; Democracy and Governance; Military Innovation; Science and Technology; Israel

ISRAEL'S IED-DETECTING DRONE

Over the last decade, improvised explosive devices (IEDs) have been one of the most lethal weapons deployed against U.S. and allied troops. And although IED detection technology has taken some strides forward, a pressing need for better identification and removal still exists. Now, one of Israel's leading defense contractors has developed a solution. Israel Aerospace Industries (IAI) has created an autonomous robot that is capable of searching for, identifying, and destroying IEDs and mines. Reportedly, the bomb-clearing robot - which takes the form of an autonomous tractor-like vehicle - can find the explosives both on and under surfaces and function in any environment. The technology is now said to be mature enough to undergo rigorous testing prior to deployment. If the testing is successful, the system (known as the LR-II) has the potential to significantly reduce risks to deployed soldiers. (*Jerusalem Post*, October 8, 2018)

ARMY TECH TO MEASURE READINESS

More and more, the world's militaries have focused on developing technology to supplement - and at times even supplant - real world training exercises for warfighters. Synthetic training environments are offering previously unavailable capabilities to measure the effectiveness of soldiers preparing for upcoming missions, and to better integrate enablers like logistics, medical, or transportation teams into missions. According to Sgt. Maj. Jason Wilson of the Pentagon's Close Combat Lethality Task Force, "there are systems that we're looking at that can allow the soldiers to train as they will fight, train where they will fight and train against who they will fight while back in the home-station training environment." Tech innovations are also paving the way for greater troop efficiency, by harnessing biometric and sensor data that feeds into artificial intelligence capable of providing predictive analysis and readiness scores. (*Business Insider*, October 12, 2018)

TOKYO FOCUSES ON PRECISION STRIKE

Since the end of World War II, Japan's military has maintained a strictly defensive military posture, in keeping with the country's post-war constitution. But as China continues to increase its presence and military activities in South and East Asia, Japan is beginning to incorporate new weapons as preparation for a contingency in which it might need to retake territory seized by the PRC. Japanese researchers, for example, are working on a new high-speed glide missile (HSGM) which would be launched from a booster missile and then separate and glide to its target without following a ballistic trajectory.

Japan is currently said to be developing two versions of the HSGM. The first, a conventional missile with a "low glide capability," should be ready for operational use by 2026. The second, expected to be operational two years later, is a missile "shaped like a talon with high gliding capacity," experts say. Both variants are expected to augment Japan's long-range precision strike capabilities, and serve as a force multiplier in the event of territorial conflict with China. (*Popular Mechanics*, October 16, 2018)

FARMING INNOVATION OR BIOWEAPON?

The Defense Advanced Research Projects Agency (DARPA), the U.S. military's tech startup for innovative defense technology solutions, is facing criticism for its plans to revolutionize farming. Genetically modified crops are prevalent across the agricultural sector, but their effectiveness decreases between generations due to traits not always being inherited, and the buildup of resistance among and pests and weeds. Additionally, new genetic modifications are being needed with growing frequency to maintain crop profit margins.

DARPA's solution is to infect insects with genetically modified viruses and have the engineered bugs directly infect crops as a way of more rapidly inducing changes in plant chromosomes. Although possible in theory, researchers worry about the unintended consequences of such horizontal genetic manipulation - such as the potential for negative impacts on the ecosystem, unknown ramifications for humans that come into contact with the infected bugs, and the chance that non-GMO crops could also be altered. The project also has a potentially dangerous dual use application; the infected bugs could become a biological weapon delivery system to quickly spread an infection across an adversary's crops. (*WorldHealth.net*, October 21, 2018)