

Feature Article

‘Robots don’t bleed’: Ukraine sends machines into the battlefield in place of human soldiers

CNN

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The scene is as old as warfare itself. Two soldiers, hands in the air, surrendering and carefully following the orders barked at them by the other side.

Except in this case, there were no human captors in sight. Instead, the two Russians were submitting to Ukrainian land robots and drones controlled by a pilot from the safety of a position miles away from the front line.

This is the future of warfare – and it’s happening now.

“The position was taken without a single shot being fired,” Mykola “Makar” Zinkevych, the commander of the Ukrainian unit that conducted the mission, told CNN.

Zinkevych, who serves in the “NC13” unit of Ukraine’s Third Separate Assault Brigade, handling ground-based, robotic strike systems, said the operation last summer was the first time in history that an enemy position was stormed and prisoners taken by ground robots and drones without the involvement of infantry. It’s a claim that’s hard to corroborate, but it underscores Kyiv’s pride in its technology.

Since then, missions in which robots replace human soldiers have become the unit’s daily bread and butter.

The skies above the front lines in Ukraine have been swarming with drones for years now, posing a grave threat to infantry. As a result, Ukrainians started to experiment with land drones – remotely controlled vehicles that run on wheels or tracks – and ground robotic systems. They were originally used mostly to evacuate casualties and resupply troops, but increasingly also to conduct combat assault missions.

Land drones are much harder to spot and intercept than larger military vehicles. Compared with their aerial counterparts, they can operate in all weather conditions and carry much larger payloads.

They are also more durable and have a much longer battery life. Late last year, the Third Army Corps, of which the Third Separate Assault Brigade is part, said a single land robot equipped with a machine gun had managed to hold off a Russian advance

for 45 days while needing only light maintenance and a battery recharge every two days.

“We must understand that we will never have more personnel, and we will never have a numerical advantage over the enemy,” Zinkevych said, highlighting Russia’s far larger military force. “So, we need to achieve this advantage through technology.”

The current goal, he said, was to replace a third of infantry with drones and robots this year.

Ukraine’s President Volodymyr Zelensky claimed Tuesday that drones and robots had conducted more than 22,000 missions in the past three months alone. “Lives were saved more than 22,000 times when a robot went into the most dangerous areas instead of a warrior,” Zelensky said in a speech marking the successes of Ukraine’s military tech industry.

Robert Tollast, a land warfare expert at the Royal United Services Institute, a British defense and security think tank, said that the new advances in Ukraine “will fuel a furious debate about whether these robots are the future of warfare or not.”

He said it was likely ground drones would struggle to actually hold territory, likening them to using tanks without infantry support. But they are now “regularly saving the lives of soldiers in casualty evacuation, dangerous resupply missions, mine clearance and increasingly, fighting,” he said.

“This is critical in a war where aerial drone observation has made movement near the front line almost deadly... even imagining a future where NATO doesn’t fight quite like Ukraine, it’s almost certain these systems will find many uses in other forces,” he added.

Drone superiority

More than four years of war have forced Ukraine to become a global leader in battlefield drones and robotic systems. But the push for supremacy in that arena has been supercharged with the appointment of Mykhailo Fedorov as Ukraine’s defense minister in January.

Fedorov was previously the minister of digital transformation, a role in which he oversaw Ukraine’s successful drone warfare project. After taking over the defense portfolio, Fedorov introduced what the ministry called a war plan, a blueprint of how Ukraine plans “to force Russia into peace.”

The strategy is heavily focused on technology and data, with hundreds of companies taking part in dozens of government-led drone development and production initiatives.

Fedorov said Sunday that he wanted ground-based robotic systems to eventually handle frontline logistics in their entirety.

The war plan focuses on both defense and offense. The goal is to use data and technology to identify every single aerial threat in real time and to intercept at least 95% of missiles and drones, as well as creating a “kill zone” 15 to 20 kilometers deep along the front line, where drones and robots are operating non-stop. The defense ministry said last week that some 1,000 crews were already operating as part of this new, unified program.

Zinkevych, the Ukrainian ground-based robotics commander, said the ability to scale up is key. Russia is behind in the race, but it is also making advances, he said. “On the battlefield, the decisive factor is not who invented the technology and (figured out) how to apply it, but who has managed to scale it up over the long term.”

The latest technological advances have given Ukraine a clear drone advantage on the battlefield, analysts say. The Institute for the Study of War, a US-based conflict monitor, recently assessed that this drone superiority is “likely contributing to the stalling of Russian advances and recent Ukrainian counterattacks.”

“While neither side has been able to achieve a decisive advantage, Ukraine’s mid-range strike campaign has allowed Kyiv to regain the upper hand,” its analysts wrote in a note, saying the “challenge now for Ukraine will be to stay one step ahead as Russia responds.”

Exchanging expertise for missiles

While the drone-based battlefield advantage may not be decisive for the war, Kyiv’s clear lead in drone warfare is now getting more attention outside Europe.

One example is in the Middle East, where multiple countries that have invested large sums of money into building up their conventional military capabilities have, since the Iran conflict began, unexpectedly found themselves using \$4 million missiles to shoot down a drone that cost \$50,000 to make.

Ukraine’s own limited resources have forced it to develop cheaper and much more efficient ways to combat the drones. Previously reluctant allies are now listening.

Zelensky has personally traveled to the Middle East, visiting Saudi Arabia, Qatar and the United Arab Emirates before moving on to Turkey and Syria, offering to share some of Ukraine’s hard-earned expertise in exchange for support. Kyiv has a lot to offer the Gulf countries, which in turn have resources Ukraine desperately needs – such as missiles for air defenses. Zelensky has also signed an array of new deals with multiple European countries.

The next big thing for Ukraine – and any military in the world – is, of course, AI. Ukraine is making strides in developing and training AI models for unmanned systems using real battlefield data.

But many remain cautious about using AI in land drones. Zinkevych said that while he can see some processes being automated, he is not sure that fully autonomous technologies have a place on the battlefield.

“The final decision must always be made by a human,” he said. “Would you entrust weapons to artificial intelligence? How can we be sure it will be able to distinguish a friend from a foe? How can we be sure there won’t be a malfunction or that something won’t go wrong?”

Still, as a former infantryman and a commander of assault groups, now in charge of robots, Zinkevych said he was continually amazed by the technological advances he has watched unfold over the past four years.

“If I had heard myself speaking like this back in 2022, I would have said that some madman was talking... it was all just science fiction,” he said.

But he is all in now. “Human life is priceless, whereas robots do not bleed. Based on this, my position is that robotic ground systems need to be developed much faster, on a much larger scale, and implemented as a global system for use on the battlefield.”