



## Low-cost military robotics as a capability levelling tool?

2/2 - BRENNUS 4.0

le sous-lieutenant Dylan Rieutord

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**New technologies are no longer reserved for countries at the cutting edge of progress. Dual technologies and the rise of innovations in the civil field, such as 3D printing for example, make it very easy to find cheap materials to get closer to the desired effect.**

Assuming, however, the technological gap and thus the difference in performance between the same product from a State with resources and a non-State actor with limited means, technological innovation develops at two speeds. Wars are a favourable breeding ground for catalysing technological research and defence innovation. Not surprisingly, therefore, the Middle East is in a state of turmoil with regard to the technologies employed on the battlefield. While sometimes rudimentary, the armaments designed by non-state actors are intended for the same use as those envisaged by nations. Sometimes these actors even invent modes of action that governmental powers had not envisaged. For example, the Islamic state used a drone capable of throwing a grenade<sup>[13]</sup> at French soldiers and Kurdish fighters operating near Erbil. The attempt at capability levelling with nations regarding the use of industrially developed weaponry is thus very real.

Armed groups are thus capable of using remotely operated weapons, as shown in a 2012 video published on social networks, where the Jamaat Ansar al-Sunnah group shows a wheeled cart with a machine gun and laser sight, all linked by cables to a screen <sup>[14]</sup>.

In May 2013 in the Idlib region, the Free Syrian Army (ASL) recovers a robot built by the jihadists, a kind of mini-tank capable of carrying several types of weapons. In July 2013, in the region of Homs, the ASL published a new video showing a machine gun with a camera for target acquisition, control and monitoring. The structure allows the machine to rotate 360 degrees or to move the gun on a vertical axis <sup>[15]</sup>.

In 2015, the first images and videos of the robots used by the Kurds are released [16]. In Mosul, tele-operated machine guns on board pick-ups or fixed guns are used [17]. While each side tries to innovate and create, arms transfers resulting from leaks, defeats and theft during the fighting are common. Thus the Peshmergas found in Kirkuk a tele-operated precision rifle developed by the Islamic state [18], and the system turns out to be quite modern. The rotation of the gun, its elevation, and its firing were made possible by cables, and a camera made it possible to refine the precision of the image transmitted to the computer.

In February 2016, Popular Mobilization Units, a paramilitary coalition of mostly Shiite militias formed in 2014, also called Hachd al-Shaabi, testified to the use of similar weaponry [19]. One of their main groups, the Peace Brigades (Sarāyā al-Salām), had already developed in 2015 two robots, [20] one combat robot equipped with a 12-gun machine gun. 7mm DsHk type (Soviet heavy machine gun), the other rather intended for mine clearance, equipped with a mechanical arm and a 7.62mm PKM type machine gun (Kalashnikov machine gun). On the border of Iraqi Kurdistan, the Kurds found a tele-operated precision rifle belonging to the Islamic state, mounted On the border of Iraqi Kurdistan, the Kurds found a tele-operated precision rifle belonging to the Islamic state, mounted on a mobile base but equipped with a recoil-limiting system, itself protected by dogs, while the operator was underground in a bunker [21].

All these observations demonstrate several things. On the one hand, that the actors feed on each other in terms of TTPs (tactics, techniques, and procedures). For both states and terrorists, the need to mitigate the high intensity of urban combat and to limit attrition is the same. Therefore, the use of substitutes is essential, with robotics now playing the role of "proxy" [22] in today's wars. Feedback on the use of robots in the Middle East could be of great interest to feed Western doctrinal thinking and would make it possible to anticipate possible forms of future conflicts in the region and tactics in the age of robotics.

Popular Mobilization Units seem to be one of the most prolific actors in terms of home-made robots. This can be explained by their experience of fighting with American robots deployed in Iraq since 2003. One man, marked by these years, became the engineer of this robotic arsenal [23]. Having joined these units, he put his experience and know-how in the construction of various robots to limit allied losses. All his robots are remotely operated, operate by joystick and are managed by Bluetooth, Wifi, Android or cable technologies. His creations are not simply limited to a rifle with remote vision. The Ashura, the Launch of the Greatest Prophet, the Karar Sniping Base or the ArmoredTiger all respond to precise effects. While the first two are of a fairly conventional design, the Karar Sniping Base is tracked, and uses a hydraulically operated mechanical arm to pull the wounded off the battlefield. The ArmoredTiger carries three rocket-propelled grenade launchers. If the operational effects of these machines are to be put into perspective, the technical prowess is nevertheless commendable and their concept of use is directly inspired by the battles fought in this environment for more than ten years. Moreover, the construction of these robots costs between 1000 and 4000 dollars [24] while a Packbot, a small mine-clearing robot produced by the company iRobot, would cost 150,000 dollars [25].

## Conclusion

As warfare encourages adaptation, the Middle East has become a theatre of experimentation in robotic warfare for many state actors with considerable financial means, but also for armed groups that can only rely on their inventiveness. The latter have taken advantage of destroyed or captured Western robots to analyse them and thus shape their own doctrine. Moreover, the reflection on the possible uses of robots in combat has clearly benefited from the very typology of these conflicts, which take place mainly in urban areas and involve armies with limited manpower. Rustic, rudimentary, home-made, these robots make it possible to remotely detonate improvised explosive devices or other booby traps, to recognise an axis, to pass through a door, to cross a crossroads, etc. Becoming "proxies" for the belligerents, they form a first defensive or offensive curtain, making it possible to limit friendly human losses while at the same time being capable of causing the death of the enemy. The Middle East represents a giant laboratory, receptacle of an innovation that has no limit other than financial resources and creativity.

However, the West has the technology and the financial means at its disposal, but struggles to find a concept of employment, or even voluntarily limits the robotisation of its armies. On the other hand, the Middle East has more limited resources but uses these robots in operations without sometimes taking the time to establish precise doctrines for their use. The question of the robotisation of part of the armies to limit the loss of human lives therefore continues to arise.

13] <http://www.opex360.com/2017/03/01/attaque-terroriste-avec-drone-ne-pourra-pas-toujours-etre-empechee/>, Consulted op.cit.

14] BUNKER Robert J., KESHARVAZ Alma, Terrorist and Insurgent Teleoperated Sniper Rifles and Machine Guns, FMSO, 2016, 43p.

15] Ibid.

16] Ibid.

17] Ibid.

18] Ibid.

19] Ibid.

[20] <https://medium.com/war-is-boring/an-iraqi-shi-ite-militia-now-has-ground-combat-robots-68ed69121d21>, Accessed 20 March 2018.

21] BUNKER Robert J., KESHARVAZ Alma, Terrorist and Insurgent Teleoperated Sniper Rifles and Machine Guns, FMSO, 2016, 43p.

22] In the computer field, proxies are relay servers, intermediaries. In today's warfare, we can consider robotics as a proxy, causing effects on a space, protected by its own condition and which turns out to be a projection and protection interface.

23] <https://www.wired.com/2017/02/warbot-builders-middle-east-spill-secrets/>, Accessed on March 20, 2018.

24] Ibid.

25] SINGER P., Wired for War: The Robotics Revolution and Conflict in the 21st Century, New York, Penguin Books, 2009, 512p.

**Title :** le sous-lieutenant Dylan Rieutord  
**Author (s) :** le sous-lieutenant Dylan Rieutord  
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