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Kizilelma (Red Apple): First Drone Fighter Jet

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The first unmanned aerial combat vehicle (UCAV) propelled by a jet, Kizilelma,¹ conducted its inaugural flight on December 14, 2022. It is manufactured by the Turkish defence company Baykar, which continues to grow in popularity throughout the world after most recently assisting the Ukrainian army in its conflict with Russian forces.² Baykar has been working on this project for over a decade.³ The initial schedule for the maiden flight was set to take place in 2023. The 18-minute flight ended with a landing at the same airport. This drone is expected to be the backbone air arm of the Turkish Navy's future flagship, LHD Anadolu.⁴ The Fighter drone was seen taking off and landing at an airbase in the northwest Corlu region, 85 km west of Istanbul.

The Turkish defence company conceived the project in 2013. The project's code name was initially 'MIUS', the Turkish acronym for 'Muharip İnsansız Uçak Sistemi'. 'MIUS' means 'Combatant Unmanned Aircraft System'. 'Kizilelma' has now been kept as the official name.⁵ "Kizil Elma" has different meanings in Turkish culture. It is a concept that has been used in other contexts throughout history. One of the meanings is the 'Red Apple' which symbolizes universal sovereignty in ancient Turkish mythology.⁶

What is an Unmanned Fighter Jet?

A military aircraft that can fly without a human pilot on board is an unmanned fighter jet, autonomous fighter aircraft, or remotely piloted fighter aircraft. It is managed remotely or on its own via an onboard computer system or an autonomous system operating from the ground. A drone that can conduct intelligence, surveillance, target acquisition, and reconnaissance operations as well as carry weaponry such as missiles and explosives for striking adversarial targets is known as an unmanned aerial combat jet.⁷

The X-47B UCA system, which touched down on the deck of the USS George H.W. Bush off the coast of Virginia on July 10, 2013, was the first unmanned aerial combat jet. It had a UFO-like profile and was an experimental flying wing. Northrop Grumman created the X-47B for the US Navy as part of a campaign to show that flying unmanned aircraft from aircraft carriers is possible.⁸

The French company Dassault Aviation is leading the development of the experimental UCAV known as the 'Dassault nEUROn'. A flying wing stealth UCAV aims to test various technologies for future autonomous stealth fighter aircraft. It has an Adour engine adapted from the SEPECAT Jaguar. France, Greece, Italy, Spain, Sweden, and Switzerland are among the nations taking part in this project. The aim of the concept is to produce an autonomous, stealthy UAV that

can operate in combat environments with medium to high threat levels. The inaugural flight was on December 1, 2012.⁹

Some other UCAV projects that can potentially replace fighter aircraft are the British Taranis UCAV, the Russian MiG SKAT, and the Boeing X-45 Phantom Ray.

Specifications of Kizilelma

Although the original Bayraktar Kzlelma (Kzlelma-A) is subsonic, the subsequent versions (Kzlelma-B and Kzlelma-C), the latter of which has twin engines, will both be supersonic.¹⁰ Its capability specifications are:

- a) Max Ceiling: 35,000 and 40,000 feet
- b) Maximum take-off weight: 6 tonnes, including 1.5 tonnes of ammunition
- c) Speed: The first prototype will fly between 0.6 and 0.9 miles per hour
- d) Endurance: Can stay in the air for up to 4 to 5 hours
- e) Controlled by: Will be controlled by satellite via the SATCOM antenna
- f) Engine: Ivchenko-Progress of Ukraine's AI-322F turbofan engines
- g) Radar: Aselsan-built AESA radar
- h) AAM capabilities: Can fire domestic Bozdogan and Gokdogan AAM
- i) For surface warfare, future UCAV will be armed with SOM-J cruise missiles with a range of more than 250 km and Roketsan-made MAM family guided bombs for small attack missions

Engineer Selcuk Bayraktar, a Massachusetts Institute of Technology graduate, asserted that UAV would alter how air combat is conceived and eventually replace fifth-generation aircraft.¹¹ Bayraktar is the principal brain behind Turkey's drone program and also the son-in-law of Turkish President Recep Tayyip Erdogan.

Indian Projects

India is undertaking an ambitious project to develop its own stealth combat drones or unmanned combat aerial vehicles (UCAVs), which will be capable of firing missiles and PGMs at enemy targets and then returning to home base for its turn-around and re-arming for future missions. India's UCAVs will be able to fire missiles and PGMs at enemy targets and then return to home base for its turn-around and re-arming for future missions.¹² The predecessor project known as AURA (Autonomous Unmanned Research Aircraft), eventually led to the development of Ghatak. In collaboration with the Indian Air Force, the Aeronautical Development Agency (ADA) and the Defence Research and

Development Organization (DRDO) combined their efforts to launch Project Ghatak.¹³ The 'Times of India' claims that the 'Kaveri' engine is going to be utilised for the project.¹⁴ It is possible that the UCAV will take the place of fighters in long-range bombing missions. It is planned to have a stealth component, be cost effective, and there will be no risk of the air crew's life. Although the timetable for its production is not specifically outlined, it is encouraging to know that the production of drones that resemble fighter jets is currently under development.

Conclusion

Contemporary aerial warfare will shift the paradigm as unmanned fighter jet technology advances. Fratricide is a severe and challenging problem for all combat fighter missions that can only be reduced. The 'fighter Jet drone' will significantly advance all air forces worldwide. Compared to manned aircraft, they are less expensive to make and maintain. They minimize the probability that pilots will perish or will be captured by the enemy. They can carry out dangerous missions that manned aircraft may find too risky or challenging.

The fact that Turkey is managing the project on a war footing may worry some people. However, with drone-assisted warfare, the US cannot ignore Ankara's impact. The project 'nEUROn' may be the Western response to Turkey's project 'KizilElma'. However, no matter the advances in technology, the decisive factor will always remain the 'Man behind the Machine!'

NOTES:

¹ "Baykar of Turkey introduces new jet-powered drone designed for air-to-air combat", *East Coast Daily*, December 16, 2022, <https://www.eastcoastdaily.in/2022/12/16/baykar-of-turkey-introduces-new-jet-powered-drone-designed-for-air-to-air-combat.html>. Accessed on March 21, 2023.

² Omer Berberoglu, "Turkey's Baykar launches new jet-powered drone, aiming for air-to-air combat", *Reuters*, December 15, 2022, <https://www.reuters.com/business/aerospace-defense/turkeys-baykar-launches-new-jet-powered-drone-aiming-air-to-air-combat-2022-12-15/>. Accessed on March 12, 2023.

³ Ibid Berberoglu, n 2.

⁴ Tayfun Ozberk, "Turkey's future unmanned fighter jet conducts first flight", *Defense News*, December 19, 2022, <https://www.defensenews.com/industry/2022/12/19/turkeys-future-unmanned-fighter-jet-conducts-first-flight/>. Accessed on March 21, 2023.

⁵ Tayfun Özberk, "Baykar eyes first flight for MIUS in 2023", *Shephard*, July 23, 2021, <https://www.shephardmedia.com/news/air-warfare/baykar-eyes-first-flight-mius-2023/>. Accessed on March 25, 2023.

⁶ Gökalp, "Kızıl Elma", *Britannica*, 1915, <https://www.britannica.com/topic/Kizil-Elma>. Accessed on March 16, 2023.

⁷ Reg Austin, "Unmanned Aircraft Systems: UAVS Design, Development and Deployment", *Wiley*, May 2010, <https://www.wiley.com/en-us/Unmanned+Aircraft+Systems%3A+UAVS+Design%2C+Development+and+Deployment-p-9780470058190>. Accessed on March 20, 2023.

⁸ Larry Abramson, "In A First, Unmanned Navy Jet Lands On Aircraft Carrier", *NPR*, July 10, 2013, , <https://www.npr.org/sections/thetwo-way/2013/07/10/200808005/in-a-first-unmanned-navy-jet-lands-on-aircraft-carrier..>

⁹ "Bizare Aviation Projects," *HiTechWeb*, December 03, 2010, <http://www.hitechweb.genesis.eu/UCAV05.htm>. Accessed on March 20, 2023.

¹⁰ Ken Moriyasu and Sinan Tavsan "Ascendant and assertive Turkey creates tough choices for US", *Nikkei Asia*, July 28, 2021 <https://asia.nikkei.com/Politics/International-relations/Ascendant-and-assertive-Turkey-creates-tough-choices-for-US>. Accessed on March 20, 2023.

¹¹ Ibid Moriyasu and Tavsan n 10.

¹² Rajat Pandit, " India set to develop own stealth combat drones", *Tol*, December 14, 2015, <https://timesofindia.indiatimes.com/india/India-set-to-develop-own-stealth-combat-drones/articleshow/50165296.cms>. Accessed on March 25, 2023.

¹³ " Ghatak Combat Drone Project", *Study IQ*, July 06, 2022, [https://www.studyiq.com/articles/ghatak-combat-drone-project-free-pdf/#:~:text=Autonomous%20Unmanned%20Research%20Aircraft%20\(AURA,UAV%20with%20weapon%20firing%20capability%E2%80%9D](https://www.studyiq.com/articles/ghatak-combat-drone-project-free-pdf/#:~:text=Autonomous%20Unmanned%20Research%20Aircraft%20(AURA,UAV%20with%20weapon%20firing%20capability%E2%80%9D). Accessed on March 25, 2023.

¹⁴ Ibid Rajat, n 12.