DRONES NO CAMPO DE BATALHA MODERNO

Rodolfo Queiroz Laterza

MILITARY ORIGINS

First UAV flights during WWI — 1916

First recon drone — 1955

First modern UAV with live video — 1973

COMMERCIAL USE

Dominos DomiCopter — 2013

ParcelCopter by DHL — 2014–2015

Amazon Prime Air — 2016

UPS demo in US — 2017

HUMANITARIAN USE

Post-Katrina damage assessment — 2005

Earthquake in Haiti — 2010

Fukushima surveillance — 2011–2012

Search & rescue in Canada — 2013

Migrant rescue in Mediterranean — 2014–2015

Landslide risk in Ecuador — 2016

1916 1955 1973 ... 2005 ... 2010 2011 2012 2013 2014 2015 2016 2017


Love from Odesa
ТАНЯ ЛЮБОВ
ЗА СВОБОДУ

Lancet-3 Loitering Munition

Service ceiling
~5000 m

Length
~1.65 m

Speed
80–110 km/h

Wingspans
~1 m

Impact speed
300 km/h

Weight
12 kg

Engine
Electric

Maximum payload weight
3 kg

Origin
Russia

Endurance
40 minutes

ALTITUDE

Tier III
RQ-170
Centinel

Tier II+
Global Hawk,
RQ-4 PA-B

Tier II
MQ/1 Predator
, IAI Heron

Tier I
IAI Searcher,
RQ-2 Pioneer

Tier
Netra,
Batmav

High Altitude Long Endurance but Low Observable	High Altitude Long Endurance UAV (HALE/HAE)	Medium Altitude Long endurance UAV (MALE)	Low Altitude Long Endurance UAV	Small/Micro UAV

Types	Advantages	Disadvantages	Example
Fixed wing	Long range Endurance	Horizontal take-off, requiring substantial space or support Inferior maneuverability compared to VTOL (Vertical Take-Off and Landing)	
Tilt wing	Combination of fixed wing and VTOL advantages	Expensive Technology complex	
Unmanned Helicopter	VTOL Maneuverability High payloads possible	Expensive Comparably high maintenance requirements	
Multicopter	Inexpensive, Low weight Easy to launch	Limited payloads Susceptible to wind due to low	

DRONE WARS: UKRAINIAN & RUSSIAN DRONE ARSENAL

ENDURANCE: 27 HOURS
MAXIMUM SPEED: 136 MPH
MAXIMUM RANGE: 186 MILES

ENDURANCE: 24 HOURS
MAXIMUM SPEED: 74 MPH
MAXIMUM RANGE: 186 MILES

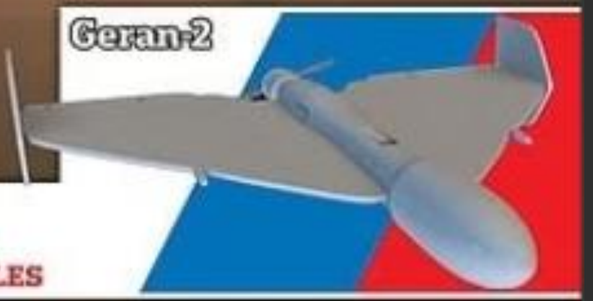
ENDURANCE: 40 MINUTES
MAXIMUM SPEED: 26 MPH
MAXIMUM RANGE: 5 MILES

ENDURANCE: 18 HOURS
MAXIMUM SPEED: 93 MPH
MAXIMUM RANGE: 372 MILES

ENDURANCE: 31 MINUTES
MAXIMUM SPEED: 44 MPH
MAXIMUM RANGE: 11 MILES

ENDURANCE: 2 HOURS
MAXIMUM SPEED: 80MPH
MAXIMUM RANGE: 15 MILES

ENDURANCE: 15 MINUTES
MAXIMUM SPEED: 63 MPH
MAXIMUM RANGE: 6 MILES



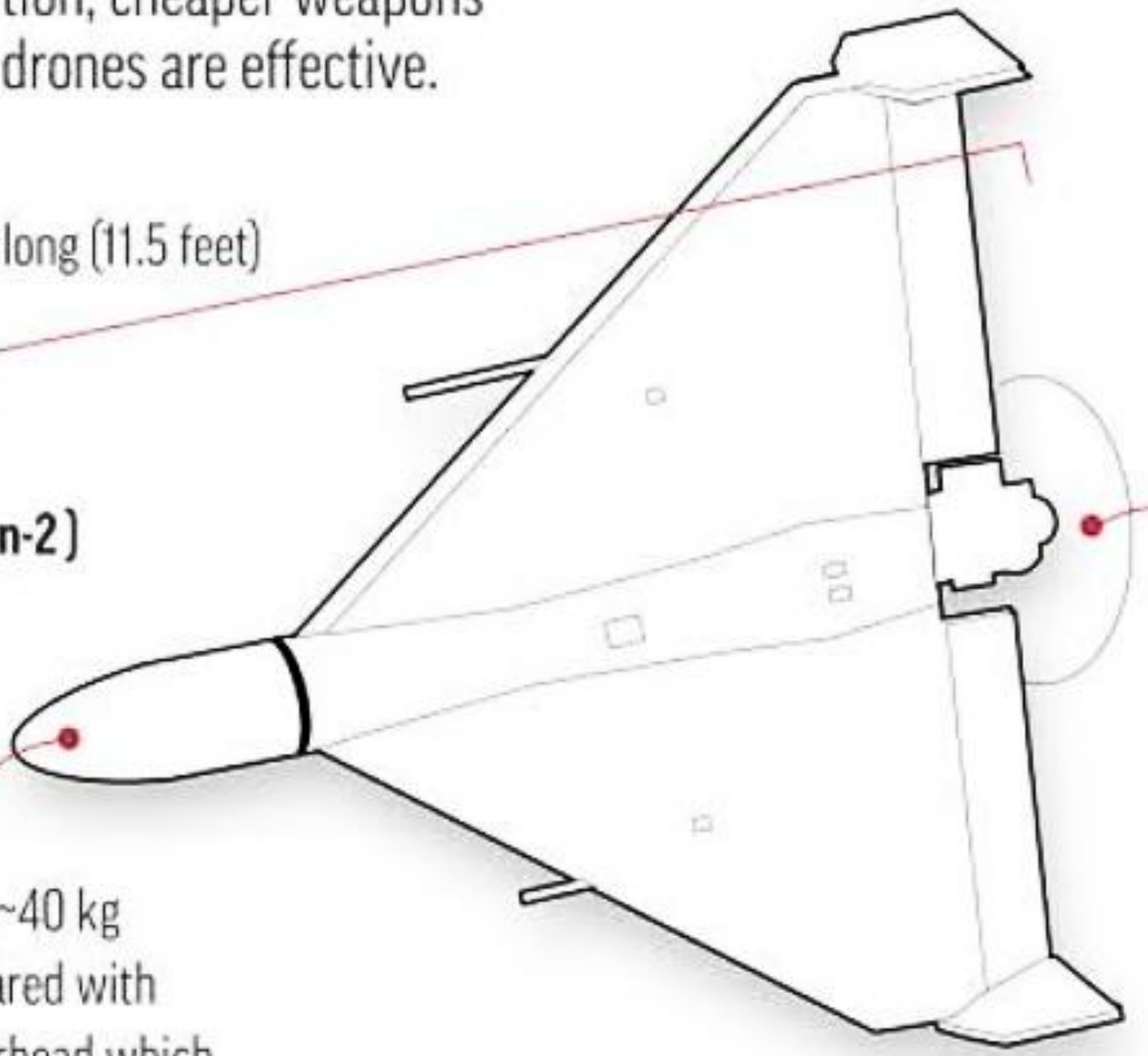
ENDURANCE: N/A
MAXIMUM SPEED: 114 MPH
MAXIMUM RANGE: 1,553 MILES

Russia uses Iranian drones against Ukrainian civilians

In a war of attrition, cheaper weapons such as Iranian drones are effective.

Length 3.5 meters long (11.5 feet)

Shahed-136 (Geran-2)



Delta-wing: 2.5 meters wide (8.2 feet)

Propeller and engine with a top speed of 185 kph (114 mph).

Cost: $20,000 apiece. By comparison cruise missiles cost about $1 million each.

Explosive charge: ~40 kg (88 pounds) compared with cruise missile's warhead which weighs 480 kg (1,050 pounds)

Source: Defense Express (Ukrainian online publication); National Institute for Strategic Studies

AP

Ukrainian Long-Range Attack Drones (OWA-UAVs)

COVERT SHORES

Only publicly known types. All illustrations provisional, approximate scale

Iran's Drone Inventory

Shahed-129
- Unveiled in 2012
- Flight time: 15-24 hours
- Deployments: Syria, Iran-Pakistan border

Fotros
- Unveiled in 2013
- Flight time: 16-30 hours
- Deployments: No known operational use

Saeqeh-2
- Unveiled in 2016
- Flight time: 16-24 hours
- Deployments: Syria

Mohajer-6
- Unveiled in 2018
- Flight time: 16-24 hours
- Deployments: Domestic counterterrorism in Iran

Sources: Armed Drones in the Middle East (RUSI, 2018); Drone Wars: The Next Generation (Drone Wars UK, May 2018)

SHAHED STEALTH DRONES FAMILY

Shahed 191 (Saegheh 2)

60% scale of Shahed-171
with turbojet engine

Endurance: 4.5 hours
Speed: 350 km/h
Engine: Turbojet 896
Role: reconnaissance, combat

Shahed 181 (Saegheh)

60% scale of Shahed-171
with piston engine

Endurance: 12 hours
Speed: 220 km/h
Engine: 80 hp piston
Role: reconnaissance, combat

Shahed 171 (Simorgh)

100% scale of RQ-170

Radius of action: 2200 km
Length: 4.75 m
Max range: 4400 km
Wingspan: 13 m
Endurance: 10 hours
Speed: 460 km/h
Flight ceiling: 12000 m
Engine: Toloue-14 turbofan
Role: Reconnaissance

Shahed 161

40% scale of Shahed-171
with microjet engine

Length: 1.9 m
Max range: 300 km
Wingspan: 5.13 m
Endurance: 3 hours
Speed: 350 km/h
Flight ceiling: 7620 m
Engine: Microjet
Role: reconnaissance, suicide

Shahed 141

40% scale of Shahed-171
with piston engine

Length: 1.9 m
Max range: 2600 km
Wingspan: 5.13 m
Endurance: 12 hours
Speed: 220 km/h
Flight ceiling: 4572 m
Role: Reconnaissance

Origin:
Iran

IslamicWorldNews

IRAN'S DRONE CAPABILITIES

Shahed 129

Specifications

Crew	none	Height	3.1m	Endurance	24h
Capacity (payload)	400kg	Cruise speed	150kph	Bombs	4×Sadid-345 PGM
Length	8m	Combat range	1,700km	Service ceiling	7,300m
Wingspan	16m	Ferry range	3,400km		

Mohajer-2

Crew	none	Empty weight	70kg	Endurance	1.5hr
Capacity (payload)	15kg	Propellers	2-bladed	Max speed	200kph
Length	2.91m	Range	50km	Service ceiling	3,350m
Wingspan	3.8m				

The Mohajer-6 has two hardpoints which can each carry one Qaem guided missiles

Ababil-1

Crew	none	Height	0.91m	Endurance	1.25-2hr
Capacity (payload)	40kg	Wing area	3.25m	Propellers	2-bladed
Length	2.88m	Fuel capacity	16L	Cruise speed	250-350kph
Wingspan	3.25m	Combat range	120km		

Shahed 171 Simorgh

Based on the Sentinel stealth unmanned vehicle which the Iranians say they shot down over Iran

Jet-powered flying wing reconnaissance unmanned aerial vehicle

Gerbera drone

Key feature: Close resemblance to the Shahed-136 “kamikaze” drone

Weapons: Optional small explosive payload

Operation: Low cost means it is mostly used as a decoy in swarm attacks alongside more expensive drones

Built from a plywood frame and foam materials

Liutiy
Kamikaze drone

The fuselage is made of fiberglass and epoxy and reinforced with metal mesh.

Designed range: 1,000 km. The fuselage is designed as a double-girder low-wing monoplane. The drone is propelled by an internal combustion engine with a three-blade pushing propeller in the rear part.

The drone is similar to the Iranian Shahed in terms of range and destructive power.

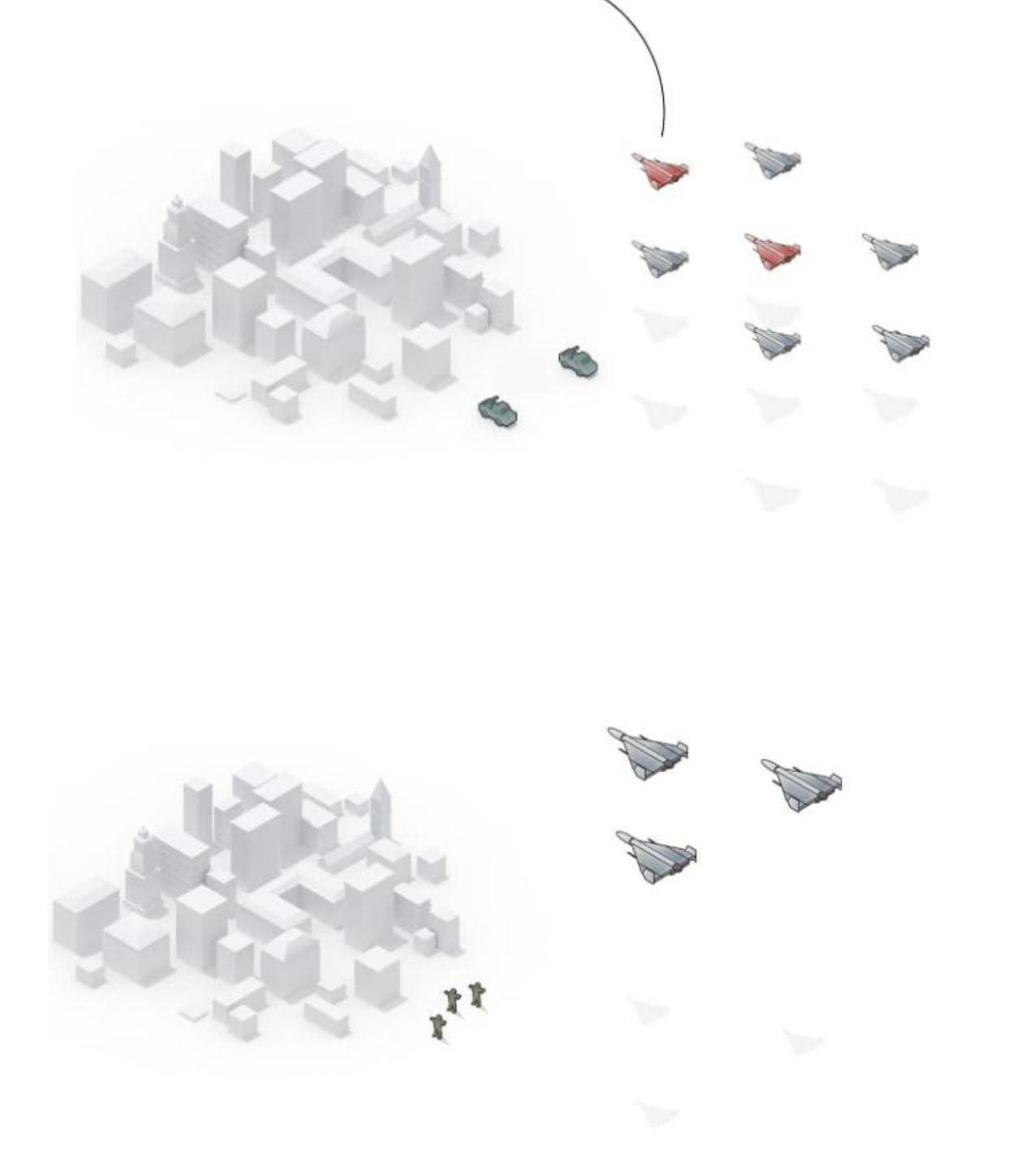
The design of the Liuty largely replicates that of the Turkish Bayraktar TB2 shown in the diagram.

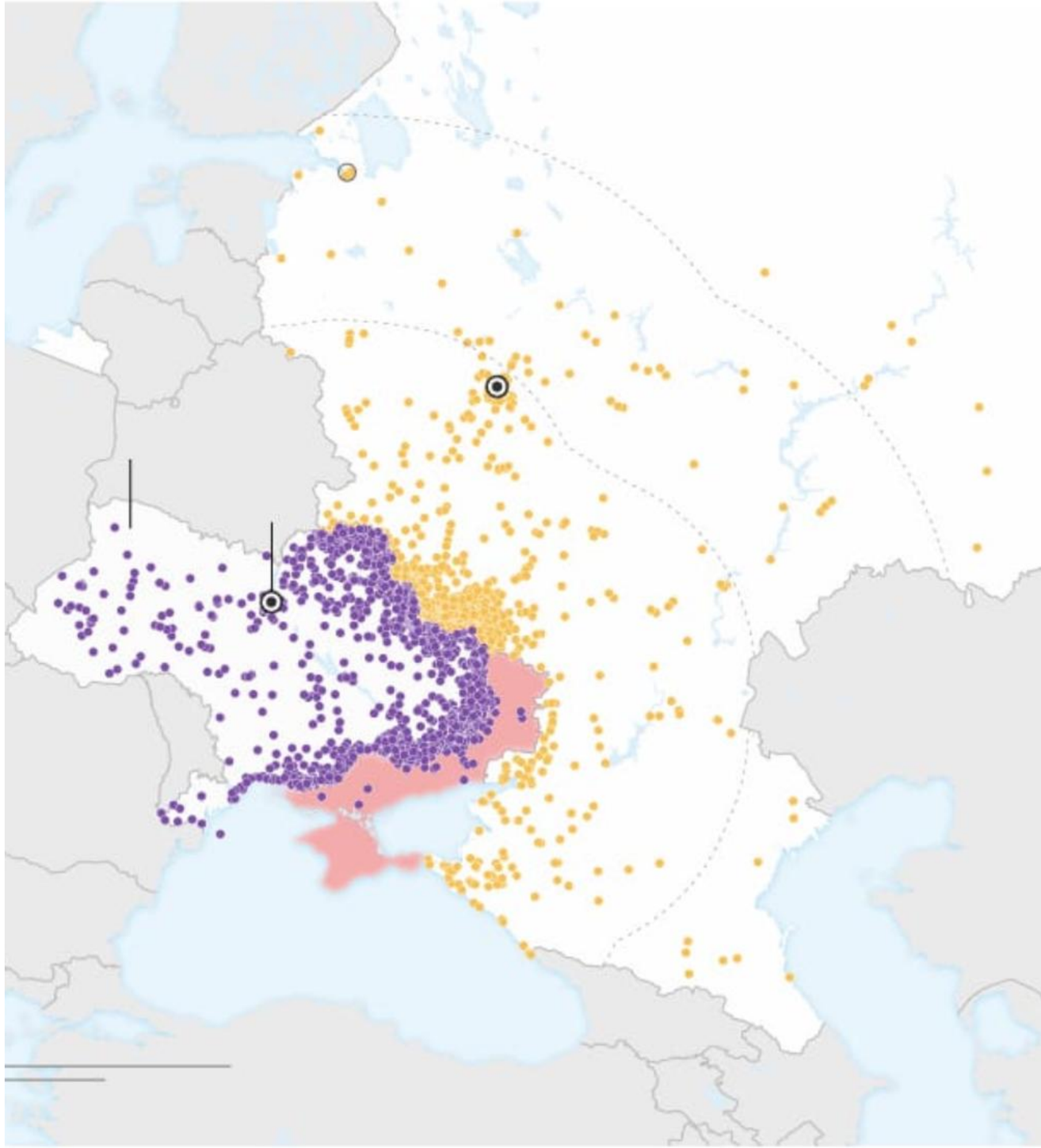
Control is typical of this type of UAV: inertial guidance combined with flightpath correction via satellite. Flight parameters are measured by a Pitot tube in the nose.

Approximate cost: $200,000

This UAV has a wheel chassis which means it takes off from a runway as per most ordinary aircraft.

Technical characteristics





Science & Technology

The Rising Drone Threat from Terrorists

Fist-sized craters pockmark 23 Wall Street, the corner building intersecting Wall Street and Broad Street, left by shrapnel from a bomb blast almost one-hundred years ago.[1] On September 16, 1920, a horse-drawn cart parked across from the building that headquartered J. P. Morgan at the time detonated, killing thirty-eight people and injuring several hundred.[2]

The evolution of vehicular bombs begins with this ruthless feat of ingenuity by a terrorist. Though the New York police never charged anyone, historians suspect that the perpetrator was Mario Buda, an Italian immigrant and anarchist.[3]

Militants have long sought parity with the artillery of state militaries, but a lack of resources and technological sophistication have posed barriers to radicals determined to inflict mass harm. However, Buda's deadly weapon fashioned out of widely available materials is an example of a practical resolution, which would later be replicated in other vehicle-borne improvised explosive devices (VBIED), leading up to the contemporary use of drones by non-state actors.

Terrorist networks have operated drones since at least 2004, when the Lebanese militant group Hezbollah flew a military-grade drone over Israeli airspace.[4] However, because of the lack of state support, most terror groups are barred from accessing drone technology of this caliber. Despite this, recent innovation has created an opening for unfettered drone experimentation: hobbyist drones.

Commercial-use drones, the kind available from Amazon.com and the most ubiquitous among militant groups, are not sold with arms or explosives; however, with a little engineering, they can be modified to carry a small payload and strike targets from a distance. Recognizing the potential for terrorism, in 2015, officials from the Department of Homeland Security (DHS), the FAA, and the military held a conference in which videos depicted simulated drone attacks.[5] DHS again outlined the threat to civilians in a 2017 fact sheet that highlighted the potential for "malicious schemes by terrorists, criminal organizations (including transnational organizations), and lone actors with specific objectives."[6] It is unclear how many, if any, civilians have been killed by hobbyist drones so far, as terrorist use of drones has occurred outside of the United States. And though the domestic threat might be "imminent," as indicated by FBI Director Christopher Wray, it has not arrived yet. But terrorists are nonetheless becoming frequent drone users, and as non-state groups acquire drones and launch attacks, terrorist drone use has proven destructive on the battlefield.

In this article, I argue that while terrorist drones indeed pose a moderate threat to civilians, non-state use of drones will pose the greatest challenges in combat. Professional militaries will need to invest in conventional air defenses in addition to counter-drone

FACÇÕES INSURGENTES E CRIMINOSAS QUE USAM DRONES NA CATEGORIA MUNIÇÃO VAGANTE (LOITERING AMMO) E FPV

JNIM - MALI E SAHEL

SINALOA CARTEL E CARTEL DE JALISCO NUEVA GENERACIÓN NA REGIÃO CENTRO-OESTE DO MÉXICO

FACÇÕES INSURGENTES DA SOMÁLIA

HOUTHIS NO YEMEN (SISTEMAS QASEF)

DRONES KAMIKAZE

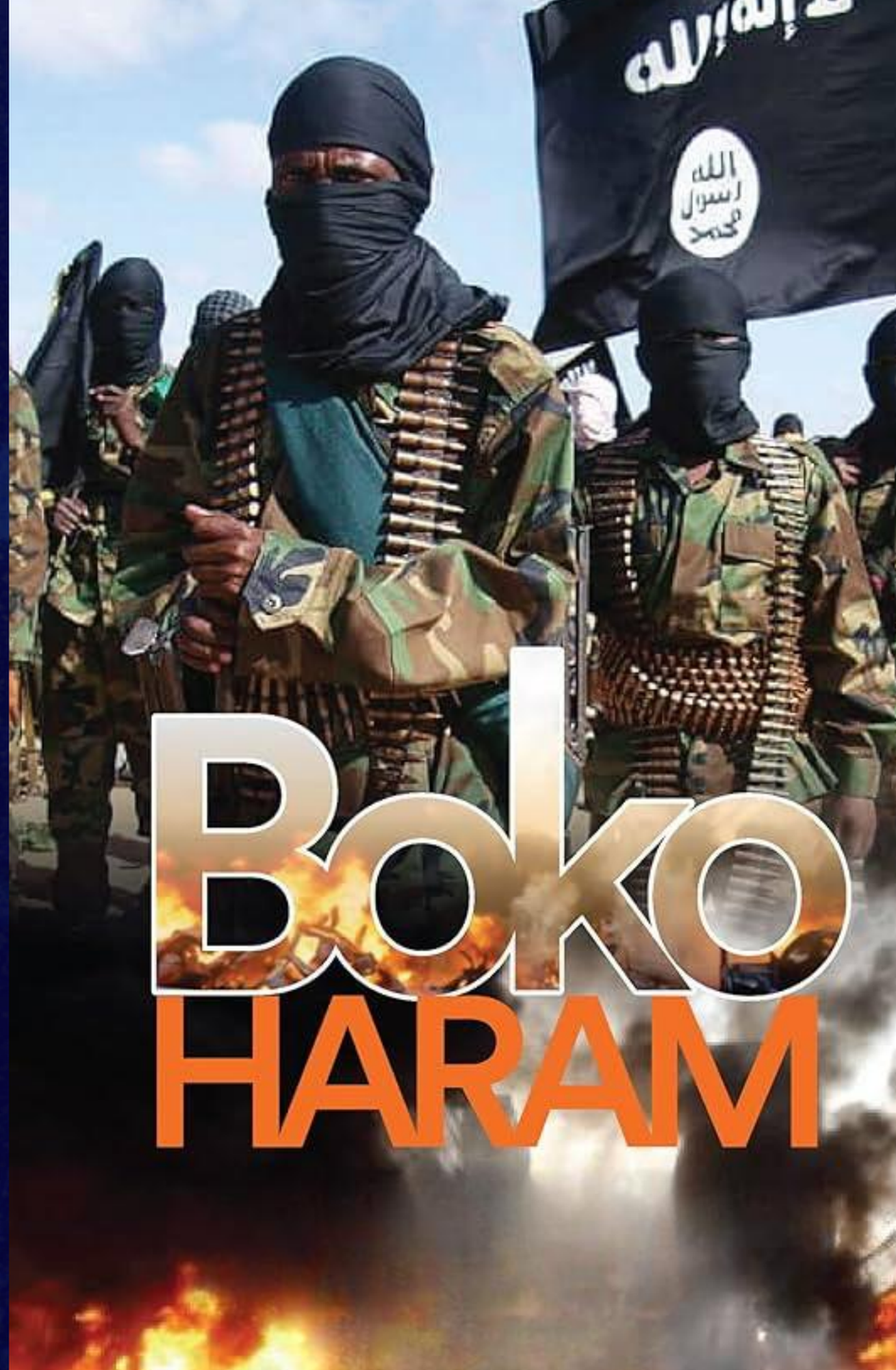
OS CHAMADOS DRONES KAMIKAZE SÃO, EM ESSÊNCIA, DISPOSITIVOS EXPLOSIVOS IMPROVISADOS (DEIS) VOADORES. GERALMENTE, SÃO QUADRICÓPTEROS DE BAIXO CUSTO, DISPONÍVEIS COMERCIALMENTE, CAPAZES DE TRANSPORTAR UM ÚNICO EXPLOSIVO — GERALMENTE UM MORTEIRO — QUE PODE SER LANÇADO SOBRE UM ALVO OU LANÇADO DIRETAMENTE CONTRA ELE

TECNOLOGIA

A TECNOLOGIA DE DRONES CRESCEU EXPONENCIALMENTE DESDE QUE O BOKO HARAM SE TORNOU O PRIMEIRO GRUPO TERRORISTA AFRICANO A UTILIZÁ-LA EM 2018.

EM 2018, O BOKO HARAM UTILIZOU DRONES PARA FINS DE INTELIGÊNCIA, VIGILÂNCIA E RECONHECIMENTO (ISR). O PERFIL COMPACTO E AS CÂMERAS SOFISTICADAS DOS DRONES OS TORNARAM IDEAIS PARA ESPIONAR FORÇAS MILITARES E DE SEGURANÇA OU PARA VIGIAR ALVOS CIVIS.

O GRUPO TERRORISTA ANSAR AL-SUNNA, DE MOÇAMBIQUE, COMEÇOU A USAR DRONES PARA IDENTIFICAR ALVOS NA PROVÍNCIA DE CABO DELGADO.



ISWAP

EM 2022 E 2023, QUANDO O RIVAL DO BOKO HARAM, O ESTADO ISLÂMICO DA ÁFRICA OCIDENTAL (ISWAP), COMEÇOU A EXPERIMENTAR O USO DE DRONES PARA LANÇAR CARGAS EXPLOSIVAS NA BACIA DO LAGO CHADE.

SÍRIA

NA SÍRIA, A NOVA ONDA DE DRONES IMPLANTADOS PELO HTS DURANTE A OFENSIVA CONTRA O EXÉRCITO DE ASSAD INCLUIU DRONES FPV KAMIKAZE DE CURTO ALCANCE E UAVS MAIORES DE LONGO ALCANCE PROPULSIONADOS POR FOGUETES QUE SE ACREDITA VIAJAREM ATÉ 50 KM E TRANSPORTAREM CARGAS ÚTEIS SIGNIFICATIVAMENTE MAIORES.

ESSES DRONES FPV KAMIKAZE PERMITIRAM QUE O HTS E SEUS ALIADOS ATACASSEM COM PRECISÃO TANQUES, POSIÇÕES DE ARTILHARIA E INDIVÍDUOS ATRÁS DAS LINHAS INIMIGAS E ERAM SEMELHANTES A MODELOS SEMELHANTES USADOS NA UCRÂNIA E EM OUTROS CONFLITOS

Os operadores de UAV demonstraram alto profissionalismo, destruindo com sucesso vários pontos de apoio inimigos na direção de Zaporizhzhia.