



Executive Summary

Overview

- Modern military and security forces face an evolving threat landscape involving **small unmanned aerial systems (sUAS)**. These platforms are increasingly used for reconnaissance, surveillance, and asymmetric attacks. Traditional training drones are often expensive, fragile, or difficult to replace at scale.
- The **TLAZA Boomerang™ 12-inch drone platform** addresses this gap by introducing a **low-cost, flat-pack, biodegradable UAV chassis** constructed from **MIL-SPEC corrugated cardboard** and modular flight components.
- The platform provides a **realistic training tool**, a **disposable decoy system**, and a **fully flight-ready FPV drone platform** that can be rapidly assembled and deployed.

Key Capabilities & Intended Applications

Flat-pack rapid assembly platform with widely available commercial drone components	Flight-ready FPV drone configuration	Training and decoy drone capability	Biodegradable and environmentally responsible materials
Rapid expendable UAV repair / reusability of components	Extremely low manufacturing cost	Designed for large-scale production	Rapid expendable UAV operations
Radar and sensor signature training	Drone Education & Training	Counter-UAS training exercises	Electronic warfare testing
	FPV pilot training	ISR experimentation	Decoy swarm deployment
Rapid expendable UAV Deployment			



Current Training Limitations/ Training Gap

Traditional drones
cost hundreds or
thousands per unit

Limits training
frequency and
experimentation

No standards of UAS
platform and use.

3D printers, plastics,
Battery packs require
power all cost money

Limited Scalability

Large training
scenarios require
dozens or hundreds
of drones

Repair Complexity

Composite and
carbon frames
require skilled repair

Repairs are time-
consuming

Requires special
tooling. (Allen key,
Hex , Metric and SAE)

Repairs require exotic
materials not
commonly available

No standards of bolt,
fastener for assembly
or reassembly all
known UAS platforms

Environmental
Concerns

Lost drones leave
plastic and carbon
waste

Carbon fiber is
difficult to retrieve

Lack of Disposable
Platforms

Unavailable on any
market place

Few systems are
designed to be
expendable or
swarm-deployable

Tlaza Boomerang 12-inch drone is a modular UAV frame designed for:

- Rapid manufacturing (100,000+) per week
- Disposability
- Toolless assembly
- Field assembly
- low-cost deployment (\$11.00) per chassis
- works with all motor types
- universal hardware compatibility
- made to look covert or overt with printed graphics



Water Resistance Treatment

V3C material is treated with a hydrophobic polymer coating, which provides resistance to moisture absorption.

Environmental Performance

This treatment allows the platform to maintain structural integrity during:

- light rain
- Snow
- humid conditions
- field training environments

Property	Performance
Water Absorption	Reduced by 70–85% compared to untreated cardboard
Humidity Resistance	Stable up to 85% RH
Surface Water Resistance	Splash resistant
Operational Exposure	Suitable for outdoor flight operations

Frame Type	Weight (Typical 12" Frame)
Carbon Fiber	180–250 g
Aluminum	300–400 g
Injection Plastic	200–280 g
TLAZA Boomerang Frame	25–60 g

Structural Weight Comparison

- This results in:
- longer flight times
- reduced motor load
- lower power consumption
- lightweight construction
- structural rigidity
- water resistance
- vibration damping
- biodegradable materials

Modular Universal Hardware Compatibility

The Boomerang

platform is compatible with standard drone components including:

brushless motors

standard ESC systems

Common flight controllers

FPV (F405)

Pix Hawk (Cube)

GPS, Air speed, Video, Audio, Signal Track /Decoy

Autonomous systems

This allows operators to integrate existing hardware and software systems.

Counter-UAS Training and Decoy and Swarm Simulation

- The Boomerang platform allows agencies to simulate **large numbers of threat drones** at extremely low cost.
- Use cases:
 - CUAS Training
 - CUAS radar calibration
 - drone interception training
 - EW jamming testing
 - kinetic interceptor testing
- Because of its **low manufacturing cost**, the platform can be deployed in **large quantities**.
- Possible uses include:
 - swarm threat simulation
 - air defense training
 - radar signature training
 - sensor validation exercises

FPV Training Platform

The Boomerang drone provides an ideal platform for **pilot training**.

- safe learning environment
- inexpensive replacement
- standardized training configuration

Rapid Field
Manufacturing

The drone frame can
be produced at **large
scale production
volumes**.

Projected capacity:

100,000 units per
day

1 million units per
month

This enables **mass
training exercises
and operational
testing scenarios**

Strategic Impact

Feature	Traditional Drone	TLAZA Boomerang
Cost	High	Extremely Low
Repair	Complex	Replaceable
Deployment	Limited	Mass Deployable
Environmental Impact	Plastic/Carbon Waste	Biodegradable
Production	Limited	High Volume

Flexible Aerial Platform Design

TLAZA develops **flying wing and Shahed-style aerial platforms** designed for training, decoy, research, and flight-ready applications. Our modular engineering approach allows us to manufacture **drones in virtually any size or shape**, depending on mission requirements. Using **flat-pack structural designs, universal motor mounts, and open flight-controller compatibility**, TLAZA systems can integrate standard FPV, GPS, or autonomous technologies. This flexibility allows organizations to rapidly prototype, test, and deploy aerial platforms at scale.

Conclusion

- The TLAZA Boomerang 12-inch cardboard drone platform introduces a new category of UAS And C-UAS systems: low-cost, scalable, biodegradable drones designed for training, experimentation, and operational simulation.
- By combining modular electronics, flat-pack manufacturing, and sustainable materials, the Boomerang platform enables organizations to conduct large-scale drone training scenarios that were previously cost-prohibitive.