THE UNITED STATES NATIONAL DRONE ASSOCIATION

WASHINGTON, D.C.

DroneWERX Hackathon Prompt

Build the Warfighter's Drone Hub + Tactical Simulator

Overview:

The **U.S. National Drone Association (USNDA)**, in collaboration with the **Special Competitive Studies Project**, **National Center for Simulation**, **Tesseract Ventures**, and **U.S. Special Operations Command**, invites you to participate in the **DroneWERX Hackathon** — a groundbreaking challenge combining:

1. A **Reddit-style collaboration platform** for warfighters, technologists, and solution providers advancing emerging drone concepts and capabilities.

2. A **next-gen FPV drone simulator** built for realistic, mission-based training and gamified public use.

This dual-focus initiative aims to reshape how tactical drone technology and tactics challenges are surfaced, solved, and simulated — creating a feedback-driven innovation pipeline for the defense and drone communities alike.

Your Challenge:

PART 1 — Build the DroneWERX White List Platform (Warfighter's Reddit)

Design a prototype of an open collaboration platform to crowdsource tactical problems from warfighters and connect them with actionable solutions from innovators.

Platform should support:

- Secure or anonymous challenge submission from verified DoD users
- Concept posts and responses from solution providers (academia, startups, industry)

- Community features: upvoting, tags, video submission overviews, TRL levels, urgency labels, domains
- Moderation workflows for OPSEC compliance
- Smart matching between past solutions and new challenges (optional)
- Searchable archive of historical threads

PART 2 — Design a Next-Gen FPV Drone Simulator

Prototype a **dual-use FPV simulator.** For the purpose of this hackathon, we are providing a real-world platform, the **Tesseract Nano FPV Drone**, as a representative dual-use drone. Hackathon teams should build a physics-accurate drone simulation in a realtime engine that mimics the flight characteristics of the Tesseract Nano FPV Drone**.** Your highest priority in this hackathon should be accurately replicating the physics and flight characteristics of the drone. This includes its responsiveness, handling, and real-world behavior under various conditions. Demonstrating the drone's performance in a mission scenario is secondary, but still important to the overall scoring. Additional features such as telemetry, environmental effects, or user interface improvements will also be considered and can strengthen your submission.

You are free to use any tools or software necessary to achieve your goals, including open-source third-party plugins. However, **you may not use pre-existing drone-specific physics profiles or drag-and-drop simulation templates**. Your drone's flight behavior must be built from scratch using your choice of physics engine or framework.

We strongly encourage teams to architect their solution in a way that allows for easy adaptation to other drone platforms in the future—for example, by designing a modular system where different drone specifications can be entered and simulated realistically.

Special Feature: Tesseract Nano FPV Drone Demo

Hackathon teams will receive exclusive **access to a live demonstration of the Tesseract Nano FPV Drone**, including:

- Technical specs and documentation
- Flight performance details
- Payload configurations and control systems
- Opportunity to **engage directly with Tesseract engineers** for Q&A and design integration

This real-world platform serves as a **reference drone** for your simulator modeling, use case scenarios, and user interface design.

Key Features:

Simulate Real Drone Physics

- Model lifelike flight characteristics across small drone platforms
- Use available specs from Tesseract and open-source telemetry data
- Create simple tools to verify that the simulated drone's physics match real-life performance. Some examples could include logging acceleration, pitch, roll, and yaw over time, comparing input-response curves to real drone telemetry, or building a visual overlay for side-by-side comparisons with flight footage.

Gamify Tactical Training; this is more than a flight simulator.

- Scenarios can include: Clearing ops, obstacle trials, information-surveillance-reconnaissance (ISR) ops, GPS-denied ISR, swarm coordination.
- Bonus points for integrating missions reflective of the Tesseract Nano's capabilities (e.g., indoor stealth ISR, low-light navigation)

Optional Content

Customizable Interface

- Support for analog and digital controller systems

Hardware Support

- Design for commercial controllers, VR HMDs, FPV goggles, etc. (optional)

Back-End & Expansion

- Propose an architecture to support multiplayer, plugin drones, and real-time content updates

Back-End & Expansion

- Clickable UI/UX prototype for the DroneWerx platform

Deliverables:

- **DroneWERX White List Platform (Reddit for the Warfighter)**
    - **Tech spec documentation** (tools used)
    - **All Platform Features per Part 1 description**
- **Working or conceptual simulator prototype**
    - **Tech spec documentation** (sim engine, physics model, tools used)
    - **Mockups or gameplay wireframes**
- **Use case brief**: How it serves commercial, DoD, and educational users
- **Future roadmap** + military compatibility proposal

Tools & Support:

- Game Engines: Unreal Engine 5, Unity, (ask if you want to use another one)
- Physics: Any, but could include PX4, Gazebo, ROS, AirSim, or JBSim
- AI Tools: Use as much as you want to expedite development.
- We'll accept most tools, just ask.

Reference Material:

- **Tesseract Nano FPV Drone specs & live demo**
- OpenStreetMap/GIS-based terrain layers
- Public drone telemetry logs & USNDA Drone Crucible data

<u>Why This Proeject Matters</u>:

This hackathon is more than a tech sprint — it's your chance to:

- Reinvent how the DoD sources innovation
- Design the interface between real and simulated tactical drone operations
- Model and simulate a live battlefield-ready drone in development

• Shape a new dual-use platform serving national security and public innovation

Prizes & Opportunities:

Winning teams may receive:

• Cash Prize (1st Place: $25k, 2nd Place $15k, 3rd Place $10k)

• Invitations to demo with USNDA, DoD, and DroneWERX partners

• Opportunity for future collaborations with U.S. Special Operations Command (SOCOM), USNDA, and/or aligned defense tech organizations.