DARPA LIFT Challenge

Problem

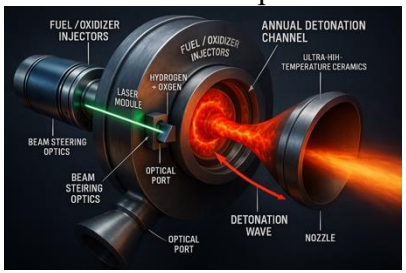
Legacy vertical lift systems rely on rotors and complex mechanics.
They scale poorly in payload, efficiency, and endurance,
require significant infrastructure.

Solution

A nontraditional vertical lift platform using
advanced detonation-based propulsion.
Designed for autonomous, infrastructure-free operation
with scalable lift geometry.
Hydrogen solid-state storage/in-flight H_2 production.
Thermal and acoustic management.
Safety considerations for operations near people/structures.
Weight is less than 55 pounds (24 kilograms).
8 ft 2.4 in (2.5 m) x 8 ft 2.4 in (2.5 m) x 1ft ft (0.30 m).
Payload is 300 U.S. pounds (136 kg).

Innovation & Technical Approach

- Pressure-driven lift mechanism ~ 25 kHz
- Minimal moving parts, reduced maintenance, low cost operation
- High-temperature capable materials
- Autonomous-first architecture, infrastructure-free operation
- Fuel-flexible energy carriers
- In-flight throttling and restart
- Vectoring/attitude control
- Mass manufacturable pathway



Impact & DARPA Alignment

- Rapid logistics resupply
- Disaster response
- Remote construction
- Government and research missions
- Dual-use scalability

Compared to helicopters and tiltrotors:

- Greater payload efficiency
- Lower complexity
- Higher endurance
- Mission scalability
- Nontraditional lift mechanism
- Radical performance improvement
- Estimated TAM: $100B+

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