



HorseSHU UAV

Next generation UAV which blends an all-carbon composite rigid shell, tilting nacelles for directional thrust and lifting body aerodynamics for efficient flight. The unique aerodynamic design combined with leading edge RF, sight, and sound sensors makes the HorseSHU a versatile platform for use in defense, perimeter and border security, inspection and monitoring of critical infrastructure.

OVERVIEW

HorseSHU is a complete Unmanned Aerial System (UAS) solution suitable for a multitude of commercial and military applications. The HorseSHU employs a tilt nacelle design* that combines Vertical Takeoff and Landing (VTOL) and hovering capabilities of a multi-rotor UAS with the fast and efficient forward flight capabilities of an airplane in one practical lightweight platform.

* Patent Pending



Maneuverability, VTOL, Hoverability

of a quad-copter combined with the speed and mission endurance of a fixed-wing lifting-body UAV.



Protect, Monitor, and Survey

multiple locations more times per day due to enhanced range and mission endurance.



Modular Design, Payload Capacity

allows for multi-mission role, multiple payloads.



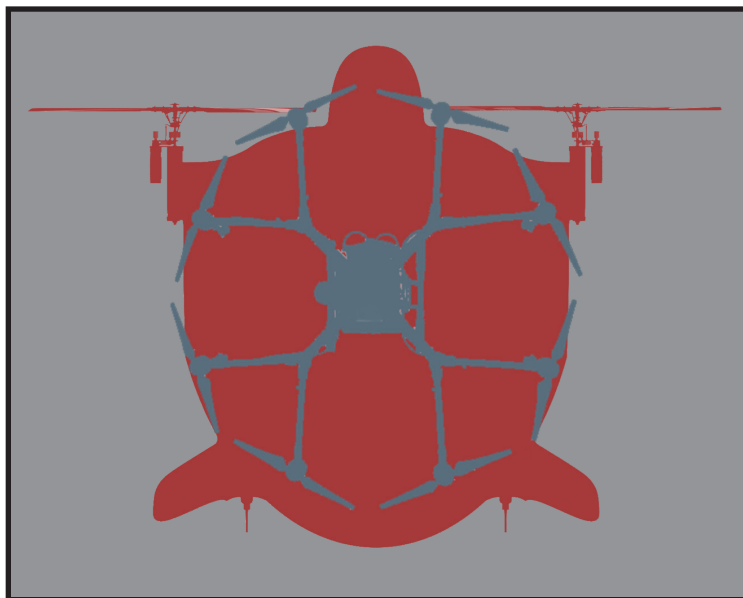
Leading Edge Sensor Payload

RF, sight, and sound sensors allow UAV to detect threats other drones may miss.



Secured & Hardened

against cybersecurity threats, and rigorously tested with proprietary CyberPhysical test bench.



SPECIFICATIONS

Size:	Span: 60 inches Length: 72 inches
Weight:	55lbs with full payload
Propulsion:	Electric
Launch/Recover:	Launch: VTOL Recover: VTOL

PERFORMANCE

Cruise Speed:	45 mph
Dash Speed:	70 mph
Duration of Cruise:	60 minutes
Range:	45 miles

POTENTIAL MARKETS

- Border Patrol and Surveillance
- Critical Infrastructure Surveillance
- DoD Applications
- Prison Perimeter Inspection
- Pipeline Inspection
- Power Grid Inspection
- Wind Turbine Inspection
- Agricultural Facility Inspection and Protection

ONBOARD TECHNOLOGY

The HorseSHU integrates state-of-the-art RF hardware for secure communication, and sight & sound technology for multi-mission capability. The ~4 cubic ft of internal volume allows payload modularity for maximum operator flexibility and future technology expansion.

Optical Sensors

- IR and Visual Spectrum
- Thermal Imaging
- Long Range Continuous Zoom/Auto Focus HD Lens
- Fiber Optic-Based UV/Vis/IR System
- Remote Systems
- Automated Data Acquisition
- Field Deployable Portable Optical Monitoring

Radar Sensors

- 2D Beam-formed FMCW Radar
- CA Radar Locates Obstacles in Range, Cross Range
- Continuous Real-time Coverage at 4Hz Update Range
- FOV: +/- 45° Angle Coverage
- Resolution: 12 cm Range, 20° Cross Range, 0.2m/sec Velocity

Acoustic Sensors

- Dielectric Microphone
- Robust, Wide Environmental Range with Sustained Sensitivity
- Exceptional Low Frequency Response (to fractional Hz)
- High Sensitivity
- Higher Measurement Accuracy and Dynamic Range Compared to Electro-Mechanical Sensors
- Small Footprint
- Low Power Requirements
- Low Sensitivity to Temperature or Humidity (Lab or Operational Performance)




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