
Project Sky-Horse

“Different approach is the foundation of extraordinary creation”

. Engineered for Efficiency. Designed for Speed. Built for the Future of Aerial Systems

A Next-Generation Aerial Propulsion Engine

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1. Executive Summary

Project Sky-Horse™ represents a new class of aerial propulsion engine designed to overcome the limitations of traditional engine systems used in modern aviation and defense technologies.

Unlike conventional propulsion systems such as jet engines, rotary engines, and solid fuel-based systems, Sky-Horse™ focuses on developing a **lightweight, efficient, and scalable propulsion architecture** tailored specifically for next-generation aerial platforms.

The system is designed to power:

- Advanced drones
- Anti-drone missile systems
- Future aerial defense platforms

By rethinking propulsion from a structural and performance perspective, Sky-Horse™ aims to enable faster, more efficient, and cost-effective aerial systems, positioning itself as a **next-generation propulsion solution for modern defense ecosystems**.

2. Problem Statement

Current propulsion systems used in aerial platforms face multiple structural and operational challenges that limit innovation and scalability.

Traditional jet engines, while powerful, are complex, expensive, and heavy. They require high manufacturing precision and significant operational costs, making them less suitable for small-scale or mass-deployable systems such as drones.

Rotary and solid fuel-based propulsion systems, while simpler, face limitations in efficiency, control, and adaptability. These systems often lack the flexibility required for modern aerial defense applications, especially in rapidly evolving drone warfare environments.

Additionally, the increasing demand for compact, high-performance systems has exposed the inefficiencies of existing propulsion technologies, particularly in terms of **thrust-to-weight ratio, cost efficiency, and scalability**.

👉 This creates a critical gap in aerial propulsion technology, where current systems are unable to meet modern performance and deployment requirements.

3. Market Gap & Opportunity

The global aerospace and defense industry is witnessing rapid growth in drone technologies and aerial defense systems. A significant portion of this growth is driven by the need for lightweight, efficient, and scalable propulsion systems.

It is estimated that the global drone and aerial systems market is growing at a rate of **15–20% annually**, with increasing demand for high-performance propulsion technologies.

Despite this growth, current propulsion systems have not evolved at the same pace, creating a gap between system requirements and available technologies.

Sky-Horse™ is designed to bridge this gap by introducing a propulsion system that aligns with modern needs:

- Lightweight design
- High efficiency
- Cost-effective scalability

👉 This positions the project within a **high-growth, high-demand market segment**

4. Technology Approach

Sky-Horse™ introduces a fundamentally new propulsion architecture that moves beyond traditional engine designs.

The system focuses on optimizing structural efficiency and performance by improving thrust-to-weight ratio while reducing mechanical complexity. This allows the engine to deliver strong performance without the limitations of traditional propulsion systems.

By integrating lightweight materials, efficient energy utilization, and scalable design principles, Sky-Horse™ creates a propulsion system that is adaptable across multiple aerial platforms.

5. Working Principle (Conceptual)

The Sky-Horse™ propulsion system is designed to operate through an optimized energy-to-thrust conversion mechanism.

Instead of relying solely on traditional combustion or mechanical rotation, the system focuses on improving efficiency through controlled energy distribution and thrust generation. This allows for higher performance output with reduced structural weight.

The architecture is designed to be modular, enabling integration across different aerial systems, from micro drones to advanced missile platforms.

👉 The result is a propulsion engine that is **efficient, lightweight, and highly adaptable**

6. Market Size & Opportunity

The global aerospace and defense market is valued at approximately **₹80–100 lakh crore**, with drone and aerial systems forming a rapidly expanding segment.

India is also investing heavily in drone technology and defense modernization, creating a strong domestic opportunity for advanced propulsion systems.

Market Snapshot:

Segment	Estimated Size
Global Aerospace & Defense	₹80–100 Lakh Crore
Drone & Aerial Systems	High Growth (15–20% CAGR)
Propulsion Systems	Core Enabler

👉 This indicates a **large and continuously expanding market opportunity**

7. Development Cost

The development of Sky-Horse™ is structured in phases to ensure efficient capital utilization.

Phase	Estimated Cost
Concept & Simulation	₹20–40 Lakhs
Prototype Development	₹1–2 Crore
Testing & Validation	₹3–6 Crore
Scaling & Production	₹10–20 Crore

👉 **Total Estimated Investment:** ₹15–30 Crore

8. ROI (Return on Investment)

Sky-Horse™ operates within a high-demand propulsion market where even small improvements in efficiency can generate significant commercial value.

Defense and drone-related contracts can range from **₹20 crore to ₹300+ crore per deal**, depending on application and scale.

ROI Scenarios:

Scenario	Outcome
1 Contract	Cost recovery
2–3 Contracts	5x–8x return
Licensing & OEM Deals	Recurring revenue
Global deployed	200x–500x

In addition to direct contracts, partnerships with drone manufacturers and defense OEMs can create long-term revenue streams.

👉 This creates a strong ROI profile with scalable growth potential.

9. Competitive Advantage

Sky-Horse™ gains its advantage from its ability to address multiple limitations of traditional propulsion systems simultaneously.

Its lightweight design, efficiency, and adaptability provide a strong edge in a market that is rapidly shifting toward scalable and cost-effective solutions.

The project also benefits from a first-mover advantage in developing alternative propulsion architectures tailored for modern aerial systems.

10. Entry Barrier & IP Potential

The development of advanced propulsion systems involves complex engineering and design challenges, creating a natural barrier to entry.

Sky-Horse™ presents strong intellectual property potential, including innovations in propulsion architecture, efficiency optimization, and lightweight system design.

👉 This strengthens long-term competitive positioning.

11. Development Roadmap

The project will progress through structured phases, including simulation, prototype development, testing, and deployment.

Each stage is designed to validate performance, reduce risk, and improve system efficiency.

12. Risk & Mitigation

The project involves technical complexity and development challenges. These risks are managed through:

- Simulation-based testing
- Modular system design
- Collaboration with aerospace experts

13. Ecosystem Position

Sky-Horse™ acts as the propulsion backbone within the Eleven String innovation ecosystem, supporting:

- Sky-Astra™ (Anti-Drone Systems)
- Advanced drone technologies
- Future aerial defense platforms

14. Final Positioning

Project Sky-Horse™ represents a transition toward a new generation of propulsion systems that prioritize efficiency, scalability, and adaptability.

👉 It is a **strategic innovation with strong commercial and defense applications**

15. Call to Action

We invite investors, aerospace experts, and strategic partners to participate in the development and scaling of this technology.

This is an opportunity to be part of a project positioned at the forefront of aerial propulsion innovation.

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