
Project Water-Horse

“Different approach is the foundation of extraordinary creation”
Engineered for Speed. Designed for Stealth. Built for Strategic Superiority

A Next-Generation Underwater Propulsion Engine

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1. Executive Summary

Water-Horse™ represents a new class of underwater propulsion engine engineered to deliver high-speed performance while maintaining significantly reduced detectability. Unlike traditional propulsion systems, which are typically optimized for either speed or stealth, this system is designed to integrate both capabilities within a unified architecture.

By combining advanced fluid dynamics with controlled thrust mechanisms and signature suppression techniques, Water-Horse™ enables efficient, high-velocity underwater movement while minimizing acoustic and visual tracking signatures. This integrated approach not only enhances operational performance but also significantly reduces the probability of detection in complex underwater environments.

As a result, Water-Horse™ positions itself as a next-generation propulsion solution for modern naval systems, where achieving both performance and stealth is not an advantage, but a necessity.

2. Problem Statement

Modern underwater propulsion systems operate under a fundamental limitation driven by cavitation and fluid resistance. When propulsion systems attempt to generate high speed underwater, they produce bubbles and turbulence, which create detectable signatures.

In the case of modified jet or rocket-based systems, these effects become even more pronounced. These systems generate excessive bubble trails and pressure disturbances, which can be detected by sonar systems with an estimated **60–80%**

probability increase in detection environments.

These signatures allow tracking systems to identify:

- Movement trajectory
- Speed patterns
- Launch origin

On the other hand, propulsion systems designed for stealth reduce these disturbances but operate at significantly lower speeds, often limiting their effectiveness in time-critical missions.

👉 This creates a critical gap: **no system currently delivers both high speed and low detectability together**

3. Market Gap & Strategic Opportunity

The global defense industry is rapidly shifting toward stealth-based and precision-driven technologies. More than **70% of modern naval R&D efforts** are focused on enhancing stealth, propulsion efficiency, and advanced operational capabilities.

Despite this, underwater propulsion systems have not yet achieved a balanced solution that integrates both speed and stealth. This creates a clear technological and commercial gap.

Water-Horse™ is positioned to fill this gap, offering a propulsion system that aligns directly with future defense requirements.

4. Technology Approach

The Water-Horse™ propulsion system is conceptually inspired by jet and rocket propulsion principles, adapted and engineered specifically for underwater environments to achieve high-speed movement with reduced detectability.

Rather than directly applying air-based propulsion systems, this approach re-engineers their core principles to function effectively in a high-density fluid environment. By integrating jet-like fluid control with controlled thrust mechanisms and signature suppression strategies, the system achieves a balance between propulsion efficiency and stealth.

5. Working Principle (Conceptual)

The system operates through a layered propulsion mechanism.

At its core, fluid dynamics are optimized to ensure smooth water displacement, minimizing turbulence and cavitation. This is combined with controlled thrust generation, allowing high-speed acceleration without continuous bubble formation.

In parallel, signature suppression techniques reduce acoustic and visual disturbances, ensuring that the system remains difficult to detect.

👉 The result is a propulsion engine capable of delivering **fast, stable, and low-signature underwater motion**

6. Market Size & Opportunity

The global naval defense market is estimated at approximately **₹25–30 lakh crore**, with underwater systems contributing around **₹2–5 lakh crore**.

India's increasing focus on indigenous defense technologies and naval modernization further strengthens the opportunity for advanced propulsion systems like Water-Horse™.

Market Snapshot:

| Segment | Estimated Size |
|---------------------------|-------------------|
| Global Naval Defense | ₹25–30 Lakh Crore |
| Underwater Systems | ₹2–5 Lakh Crore |
| Stealth Propulsion Demand | Rapidly Growing |

👉 This represents a **large and expanding market with long-term demand**

7. Development Cost

The development of Water-Horse™ follows a phased investment model.

Initial concept and simulation require approximately **₹25–50 lakhs**, followed by prototype development costing **₹1–3 crore**. Testing and validation phases require **₹3–8 crore**, while scaling and production setup may require **₹10–25 crore**.

👉 The total estimated development cost is **₹15–35 crore**, depending on scale and execution.

8. ROI (Return on Investment)

Water-Horse™ operates in a high-value defense segment where contract sizes are significantly large.

Defense procurement contracts for advanced propulsion systems typically range between **₹50 crore to ₹500+ crore per deal**.

Even a single successful contract has the potential to recover the entire development investment. Multiple contracts can generate **5x to 10x returns**, while licensing and export opportunities can create long-term recurring revenue streams.

ROI Overview:

| Scenario | Outcome |
|-------------------|--------------------|
| 1 Contract | Full cost recovery |
| 2–3 Contracts | 5x–10x return |
| Licensing | Recurring revenue |
| Globally deployed | 100x-250x return |

👉 This creates a strong investment case with high upside potential.

9. Competitive Advantage

Water-Horse™ derives its advantage from solving an unresolved challenge in underwater propulsion. Its ability to combine speed and stealth provides a distinct edge over existing technologies.

The project also benefits from a first-mover advantage, allowing it to establish early leadership in a new category of propulsion systems.

10. Entry Barrier & IP Potential

The development of such systems requires expertise in fluid dynamics, propulsion engineering, and stealth technology. These technical requirements create a natural

barrier to entry.

Water-Horse™ also presents strong intellectual property potential, including patentable propulsion architectures and signature suppression techniques.

11. Development Roadmap

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

Each stage is designed to validate performance and reduce risk while moving toward commercialization.

12. Risk & Mitigation

The project involves technical complexity and regulatory challenges. These risks are addressed through:

- Simulation-based design
- Modular system architecture
- Strategic collaboration with defense organizations

13. Ecosystem Position

Water-Horse™ is part of Eleven String Pvt. Ltd.'s broader innovation ecosystem, which includes:

- Sky-Astra™ (Anti-Drone Systems)
- Sky-Horse™ (Aerial Propulsion Systems)

Together, these projects form a **multi-domain defense technology platform**.

14. Final Positioning

Water-Horse™ is not merely an improvement over existing propulsion systems. It represents a transition toward a new generation of underwater propulsion technology that prioritizes both performance and invisibility.

👉 It is a strategic, high-impact innovation with long-term defense and commercial value

Call to Action

We invite investors, defense organizations, 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 intersection of innovation, defense, and high-value market potential.

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