

## **STOP TRIM SYSTEM**

1. **Objective.** To design and develop an advanced Stop Trim System to enhance the stability, control, and safety of underwater vehicle (UV) operations. The system will ensure precise trimming during critical marine application, reducing pilot workload and improving overall UV performance.
2. **Background.** UV stability and control heavily rely on effective trim systems to balance hydrodynamic forces during various marine conditions. Current trim systems may not provide the required level of precision or adaptability for modern UV, leading to operational inefficiencies. A Stop Trim System is a critical enhancement, offering precise and automated trimming functionality for improved safety and performance.
3. **Problem Statement.** Existing trim systems lack the precision and reliability needed for modern UV, especially in dynamic and high-stress marine scenarios. This results in increased pilot workload and suboptimal performance. A robust Stop Trim System is required to address these challenges and ensure enhanced control and stability.
4. **Proposed Solution**
  - (a) **Advanced Design:** Develop a Stop Trim System with precise control algorithms and robust hardware components to handle hydrodynamic variations in marine applications.
  - (b) **Automation and Adaptability:** Incorporate automated features that adjust trim dynamically based on marine conditions.
  - (c) **Integration:** Ensure seamless integration with existing UV control systems for compatibility and reliability.
  - (d) **Safety Features:** Include fail-safe mechanisms to maintain functionality in case of system malfunctions.
5. **Expected Outcome**
  - (a) Enhanced UV stability and performance during critical marine applications.
  - (b) Reduced pilot workload through automated trimming functionality.
  - (c) Improved safety and reliability of marine operations.
6. **Key Deliverables:**
  - (a) Prototypes of the Stop Trim System for testing and validation.
  - (b) Comprehensive testing reports demonstrating performance and safety under various marine applications.

- (c) Integration guidelines and maintenance documentation.
- (d) Scalable production framework for deployment across multiple UV platforms.

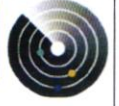
7. **Strategic Relevance.** The Stop Trim System is essential for modernizing UV control systems, ensuring enhanced safety, and aligning with the operational requirements of next-generation aviation. Its development will reduce dependency on foreign systems, promote indigenization, and strengthen India's marine capabilities.

8. **Future Expectations**

- (a) The Stop Trim System will enhance marine safety and performance by providing precise control and automated trimming functionality, reducing pilot workload during critical marine applications.
- (b) It will contribute to the modernization of UV control systems, ensuring compatibility with next-generation aviation platforms.
- (c) The system's reliability and adaptability will improve operational efficiency, especially in high-stress or dynamic marine conditions.
- (d) Indigenization of this technology will reduce dependency on foreign suppliers, fostering self-reliance in critical marine components.
- (e) The system can be scaled and adapted for various UV platforms, including commercial and military applications.
- (f) It has the potential for export, positioning India as a leader in advanced marine technologies.



## TECHNOLOGY DEVELOPMENT FUND (TDF) SCHEME



### **FEASIBILITY CUM RFI RESPONSE FOR THE PROJECT REQUIREMENT UNDER TDF SCHEME (PROFORMA)**

1. **Name of the Institute** (Industry/Academia):
2. **Contact details:**
  - a. Email
  - b. PoC
  - c. Address
3. **Title of the project requirement:**
4. **Project Description** (Define broad understanding of the project requirement and proposed solution under the project).
5. **Briefly detail the proposed technical solution in terms of subsystem/submodule levels.**
6. **Road map for achieving the proposed outcome (Development Plan Phase wise -Max 5 phases).**
7. **Development and production Estimates:**
  - i. Estimated time required for development of the proposed technology /product (In Months).
  - ii. Estimated cost required for the for development of the proposed technology /product (BQs of submodules/subsystems if any pls attach).
  - iii. Estimated production cost of the end product after successful development ( per unit or batch cost).
  - iv. Whether the industry has already done any Suo moto design and development of the proposed product/technology at Technology Readiness Level – Yes/No
  - v. Details of Suo moto design and development done if marked Yes in previous question (within 250 words).
  - vi. Essential infrastructure required for development of the proposed product/technology for which funding is required.
8. **Technical strength in terms of manpower.**
9. **Relevant Work Experience.**
10. **Any other relevant information**

Queries if any and the reply in PDF FORMAT to be submitted online addressing to;

TO,

**THE DIRECTOR TDF, DRDO**

**DRDO BHAWAN, RAJAJI MARG, NEW DELHI 110011**

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