



TECHNOLOGY DEVELOPMENT FUND (TDF) SCHEME



TITLE: QUICK FLIGHT DATA RECORDER (FDR) ANALYSIS SOFTWARE/TOOL FOR FIGHTER AIRCRAFT

1. Objective:

To develop a robust and efficient software tool for rapid analysis of Fighter Data Recorder (FDR) data specific to the Fighter aircraft. The tool will streamline data extraction, visualization, and analysis to support timely decision-making in maintenance, performance evaluation, and safety assessments.

2. Background:

The Fighter aircraft's operational efficiency and mission readiness heavily depend on effective post-flight data analysis. Current FDR data analysis processes are time-intensive and rely on generic tools, which are not optimized for Fighter-specific data structures. A dedicated, user-friendly analysis tool is essential to enhance operational efficiency and reduce downtime.

3. Problem Statement:

The OEM-provided Flight Data Recorder (FDR) Analysis Software for Fighter aircraft processes approximately 400 flight parameters. This software converts digital information into physical values, enabling flight parameter analysis in static, dynamic, and 3D modes. However, the OEM software is complex and does not provide quick analysis. Furthermore, it is localized to an OEM-supplied Leader PC, which is only available at base locations.

The deliverable for this project is to develop a quick FDR analysis tool for the Fighter fleet, including the requisite hardware (PC/Laptop and accessories) for deployment at multiple locations. This will allow faster and more efficient analysis of flight data.

4. Proposed Solution:

- 1. Custom Software Development:** Design and develop a Fighter-specific FDR analysis tool with capabilities for quick data extraction, decoding, and visualization.
- 2. Advanced Analytics:** Integrate features such as anomaly detection, trend analysis, and predictive maintenance insights.
- 3. User Interface:** Create an intuitive interface for ease of use by maintenance teams and analysts.
- 4. Interoperability:** Ensure compatibility with existing Fighter systems and data formats.

5. Expected Outcome:

1. Accelerated analysis and reporting of FDR data for Fighter aircraft.
2. Improved decision-making in maintenance and safety management.
3. Reduced aircraft downtime and enhanced mission readiness.

6. Key Deliverables:

1. Fully operational FDR analysis software tailored to Fighter aircraft.
2. Detailed user manual and training modules for operators.
3. Validation reports demonstrating performance across various scenarios.
4. Integration framework for seamless deployment in operational environments.

7. Strategic Relevance:

This project is critical for enhancing the operational efficiency and safety of Fighter aircraft. It supports the broader goals of modernization and digitization in defense systems while strengthening the country's capability for indigenous software development in aerospace technology.

8. Future Expectation:

There is no immediate requirement for future upgrades. However, the developed software should have the flexibility to integrate additional parameters in alignment with any future upgrades to the Fighter aircraft.

9. Likely Order Quantity (MoQ):

The minimum requirement is for six licenses and six sets of hardware (PC/Laptop and accessories) to enable the use of the tool/software at multiple locations.

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