INTERNSHIP REPORT

ON

An Overview of Performance Monitoring and Analytics for Aero-Gas Turbine Engines

At

GTRE (DRDO)

Submitted by,

V SAIPRIYA DIPIKA - 20211CSE0178

Under the guidance of,

Dr. Sandeep Albert Mathias

in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING

At

PRESIDENCY UNIVERSITY

BENGALURU

MAY 2025

PRESIDENCY UNIVERSITY

PRESIDENCY SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Internship report **"An Overview of Performance Monitoring and Analytics for Aero-Gas Turbine Engine"** being submitted by V SAIPRIYA DIPIKA bearing roll number 20211CSE0178 in partial fulfilment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering is a Bonafide work carried out under my supervision.

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DECLARATION

I hereby declare that the work, which is being presented in the report entitled "**An Overview of Performance Monitoring and Analytics for Aero-Gas Turbine Engine**" in partial fulfilment for the award of Degree of **Bachelor of Technology** in **Computer Science and Engineering**, is a record of my own investigations carried under the guidance of **Dr. Sandeep Albert Mathias, Assistant Professor, Presidency School of Computer Science and Engineering, Presidency University, Bengaluru.**

I have not submitted the matter presented in this report anywhere for the award of any other Degree.

V. Saipriya Dipika

V SAIPRIYA DIPIKA

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INTERNSHIP COMPLETION CERTIFICATE

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This is to certify that **Ms. V Saipriya Dipika** (***Reg. No.:20211CSE0178***) studying ***B.Tech (Computer Science and Engineering)*** from ***Presidency University, Bengaluru*** has undergone Internship titled ***"An Overview of Performance Monitoring and Analytics for Aero Gas Turbine Engine"*** in **Information Technology *Group'*** of this Establishment from ***07th February 2025–02nd May 2025*** as a part of her B.Tech Programme.

The performance, conduct and character of **Ms. V Saipriya Dipika** has been very good to the best of our knowledge during the period of her Internship.

Nalini 02/05/2025
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ABSTRACT

This report presents a detailed analysis of aero-gas turbine engine test run data, focusing on evaluating performance through extensive time-series datasets. Utilizing a custom Python application, the study processes thousands of data points per run, tracking module-specific parameters and fixed sensors to identify trends, stagnation, erratic readings, sensor malfunctions, and anomalies. With the help of the **Mistral-7B** language model, the analysis generates precise textual insights, enabling the detection of critical issues that could affect engine reliability. The application supports comparative analysis across multiple runs, handling up to 20,000 data points to uncover subtle performance shifts. Through clear visualizations and structured findings, the report provides actionable recommendations for maintenance and operational decisions, ensuring the safety and efficiency of aerospace systems.