Upgradation of Gas Turbine Control System

Project Overview

The project aims to develop a PXIe-based Automated Test Equipment (ATE) system for testing marine gas turbine engines at, focusing on modernization, precision, and reliability.

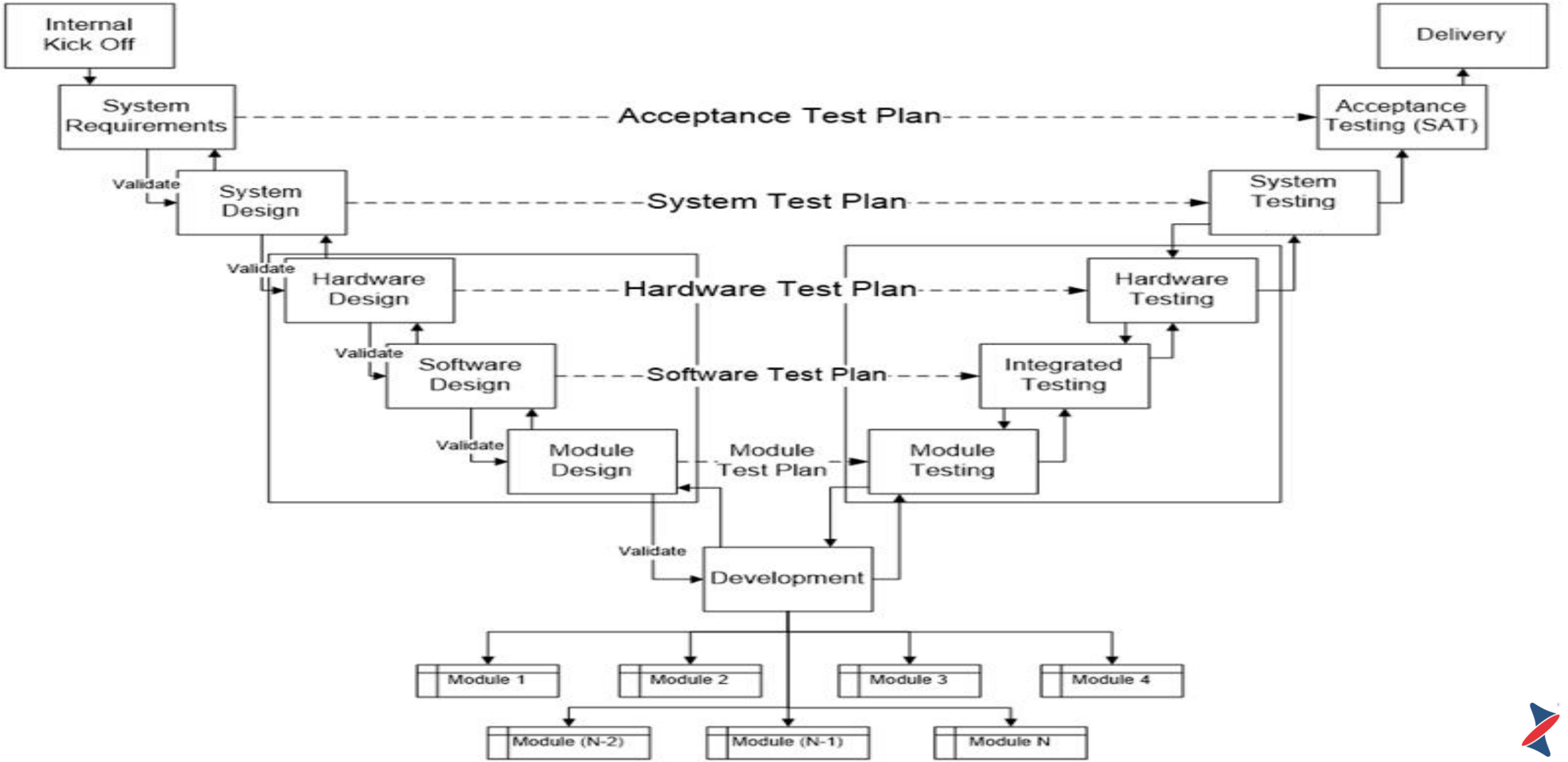
Key Objectives:

- Enhanced Performance
- Improved Accuracy
- User-Friendly Interface
- Minimized Downtime
- Advanced Diagnostics
- Quality Assurance
- Scheduled Maintenance

Challenge

- M15 Test House specializes in testing and maintenance of marine gas turbine engines.
- Supports multiple engine classes, including DS71-class, DT59-class, and Talwar/Teg-class naval ships.
- Focuses on indigenization and self-reliance by partnering with Indian industries for gas turbine development.
- Equipped with advanced diagnostic tools, real-time monitoring systems, and automated control solutions.
- Aims to enhance operational efficiency and reduce manual intervention during testing and maintenance processes.

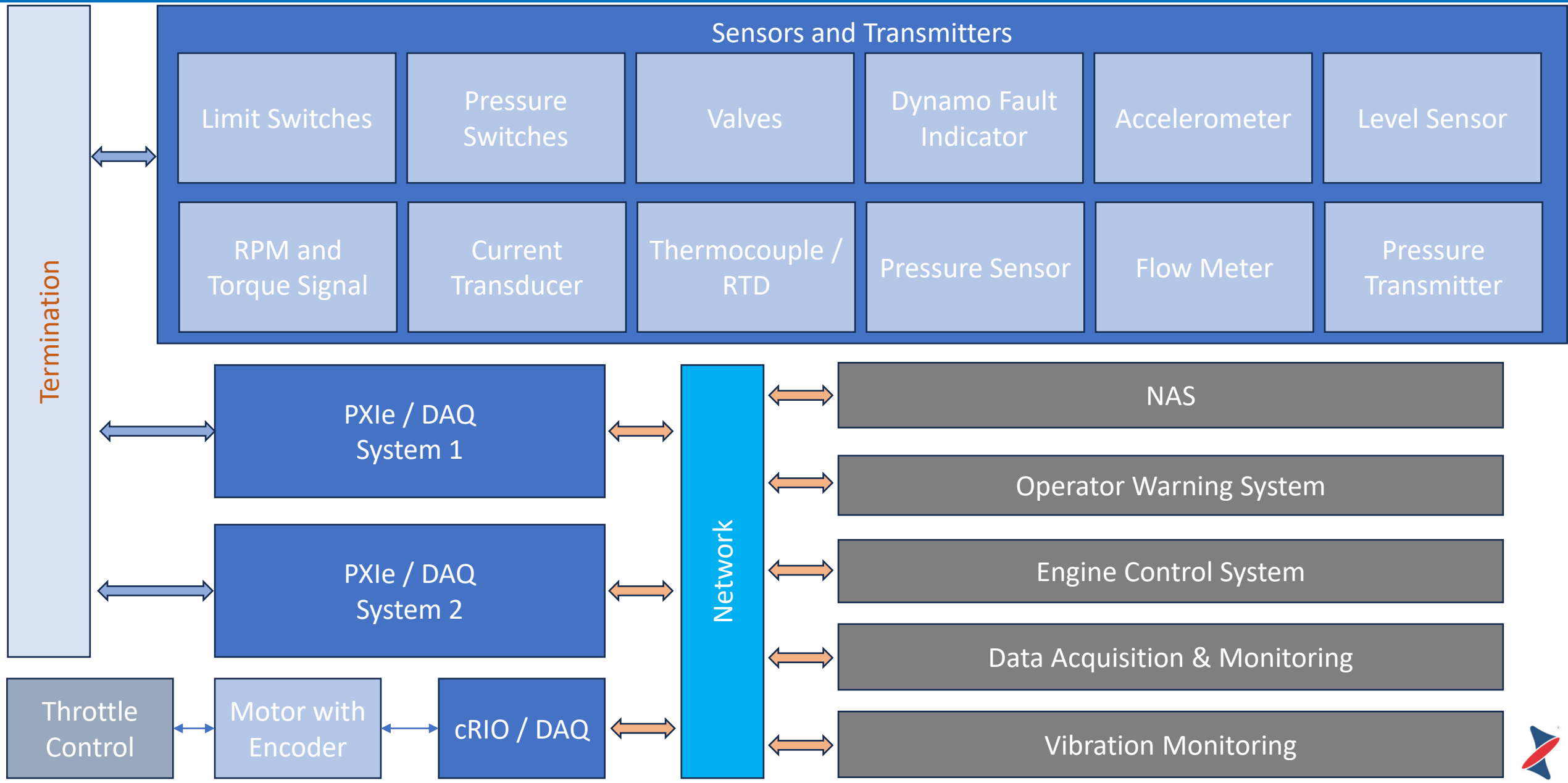
Our Approach : OSL System Development Life cycle



Solution

- PXIe based ATE for testing and maintenance of Marine Gas Turbine Engines.
- ATE Control panel includes Terminal box and cables to connect the various sensors Connected to Marine Gas Turbine Engines.
- Scope of Work as mentioned in specification provided
- Application Software for ATE system include following features
    - User Administration
    - Test Configurations
    - Testing GUI
    - Data Management & Report generation
    - Essential feature as mentioned in specification provided

System Architecture



Major Components of DAQ System for ATE

Sr.No.	Description	Quantity of System
1	NI PXIe-8880, Windows 10 64-bit (Multiple Languages)	2
2	Windows 10 IoT Enterprise USB Recovery Media for PXI, Multilanguage	2
3	PXIe-4082 6 1/2 Digit DMM and 300 V Digitizer with L and C	2
6	PXIe-5172 PXI Oscilloscope, 100 MHz, 14 bits, 250 MS/s, 8 Channels, 1.5 GB	8
7	NI PXIe-4143 4-Channel Precision SMU: 24V,150mA	2
8	NI PXIe-4139 40W System SMU with SourceAdapt Technology	8
9	RMX-4104 2U DC Power Supply, 1/6 Rack width, 0-100VDC, 0-8A	4
10	RMX-4104 2U DC Power Supply, 1/6 Rack width, 0-100VDC, 0-8A	4
11	Rackmount Kit for RMX-410x 2U DC power supplies, holds up to 6 supplies	2
12	RMX-4003, 2-channel, 100W, 0-80V, 0-20A DC Electronic Load	2
13	RMX-4000, Two-Slot Mainframe for RMX-400x DC Electronic Load Devices	2
14	RMX-4003, 2-channel, 100W, 0-80V, 0-20A DC Electronic Load	2
15	PXI-2532B PXI Matrix Switch Module, 512-Crosspoint, Reed Relay, .5 A, 100 V	2
16	PXI-2571 PXI Relay Module, SPDT, 66-Channel, 100 V, 1 A	4
17	PXIe-1095, 18-Slot 3U PXI Express Chassis	2
18	NI PXIE-8840 Core I5-4400E 2.7GHZ,Dual-Core,No ECard,LABVIEW RT	2
19	PXIe-1092 9-slot 3U PXI Express Chassis	2
20	PXIe-4080 High-Performance 6 1/2 Digit DMM and 300 V Digitizer	4
21	16A Power Switch (SPST)	4
22	Programmable Resistor module (16-bit Resolution)	2
23	Programmable Resistor module (24-bit Resolution)	8
24	Current probe and Amplifier	4

Optimized Solutions Limited

Thank You !

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