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Design of an Instrumentation Setup and Data Acquisition System for a GAS Turbine Engine Using Suitable DAQ Software

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Abstract : Engine test-Bed system is a fundamental tool to measure dynamic parameters, economic performance, and reliability of an aircraft Engine, and its automation and accuracy directly influences the precision of acquired and analysed data. In this paper, we present the design of digital Data Acquisition (DAQ) system for a vintage aircraft engine test bed that lacks the capability of displaying all the analyzed parameters at one convenient location (one panel-one screen). Recording such measurements in the vintage test bed is not only time consuming but also prone to human errors. Digitizing such measurement system requires a Data Acquisition (DAQ) system capable of recording these parameters and displaying them on one screen-one panel monitor. The challenge in designing upgrade to the vintage systems arises with a need to build and integrate digital measurement system from scratch with a minimal budget and modifications to the existing vintage system. The proposed design not only displays all the key performance / maintenance parameters of the gas turbine engines for operator as well as quality inspector on separate screens but also records the data for further processing / archiving.

Keywords : Gas turbine engine, engine test cell, data acquisition, instrumentation
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