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## Helicopter Blade Test Facility Software Update

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### Industry:

Aeronautics & Defense

### Design Task:

The US Marine Corps' Fleet Readiness Center contracted KDY to perform a software overhaul to the LabVIEW-based application used to run their helicopter blade test and balancing facility. The update was required to be compatible with the existing SCXI chassis used for analog data acquisition and digital system control.

Through this overhaul, the client hoped to achieve the following objectives:

- Improve the usability and flexibility of the current UI
- A searchable database for completed test data
- A user-friendly calibration interface to increase operator efficiency

### The Solution:

KDY was able to provide both the capability requested by the client and additional features to increase the usability of the legacy software. KDY provided the following changes:

- **An operator friendly, user driven calibration interface.** In addition to providing intuitive calibration routines, the new system stored calibration values in a user accessible database, allowing technicians to view & revert to previous calibration states.
- **Honeywell Chadwick Helmuth Vibration Expert (VXP) Integration:** KDY fully integrated the calibration & blade test routines with the client's vibration based maintenance system, allowing for a single graphic interface for full operator control.
- **Microsoft Access Database Management System:** The blade test and balancing software enabled the user to store test data in a custom location. KDY provided a database query/historical data display utility to allow the user to search for records by Date, Blade Type, & Record Number.
- **High Resolution, PDF Printable Reports:** KDY's software update allowed for the creation of print-quality reports that displayed test information, data captured, and values calculated for each blade test. The report was generated by a LaTeX typesetting engine seamlessly from within the main user interface.
- **User-End Customization and Management:** KDY provided additional capability, enabling the client to programmatically modify user access accounts, customize test prompts, and change database file locations without having to contact the software provider.
- **System Failure Security:** The update included the reformulation of all legacy and new DAQ measurement tasks to ensure routine retention should a system failure require software reinstallation.

The software overhaul drastically increased the usability and manageability of the Fleet Readiness Center's blade testing unit. The client gained the ability to easily store, print, and access testing data and customize UI settings and system access without relying on a 3<sup>rd</sup> party to edit the source code. The update increased the client's autonomy thereby decreasing maintenance hours and cost.