

Case Study: Wind Tunnel Control

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Company & Author Profile

FTT is a turbomachinery design and development company. In support of this turbomachinery development, FTT also works with a wide range of instrumentation to collect data in component and engine test articles. I am responsible for the development and calibration of advanced instrumentation such as thin-film heat-flux gauges, dynamic pressure sensors, miniaturized thermocouples and infrared measurement techniques. To support these efforts, FTT has built the Advanced Instrumentation and Measurement Technology (AIMTec) wind tunnel. I was responsible for developing control and data acquisition systems for this facility.

The Challenge

When I was selected to lead this effort, I only had a basic user knowledge of NI and LabVIEW. In order to develop the controls and data acquisition required to operate the wind tunnel and to take a wide range of data types, inputs/outputs, and sampling rates/timing, I needed a much better working knowledge of NI hardware products and LabVIEW development code.

Results

After taking the LabVIEW courses offered by Sixclear, I was able to create control logic for the wind tunnel and to record a wide range of data with appropriate time stamps including 16 static pressure, 16 temperatures, 8 dynamic pressures, 8 high response thin-film heat-fluxes, IR imaging along with heater, and valve controls for operation and safety.

