Fill-Rite Company – Purdue Fort Wayne Sr. Design Project Proposal for Spring 2024

Title: Pump Dynamometer Electrical Redesign

Industry Sponsor: Fill-Rite Company

PFW Students: 2-4 Electrical/Computer Engineering Students

Project Description and Scope:

Background: The pump dynamometer is used to measure pump output flow characteristics with varying loads and motor speeds set by the user. While functional, the current system does not provide real time data output or data collection and is difficult to change over from one pump model to another. The goal for this project will be to redesign the pump dynamometer electrical control/data acquisition system as follows:

Electrical Design:

- Design a control system for operation and monitoring of the test conditions and performance output variables such as inlet and outlet fluid flow rate, inlet and outlet pressure, temperature, and motor speed (including acceleration/deceleration rates).
- Provide a means of closed loop control of the test fluid temperature for future implementation.
- Create an HMI (Gui) interface with a few basic program screens for test station operation.
- Provide a means of data collection through data acquisition hardware and software.

Budget : $3500 depending on how much of the current test station can be re-used.

Technology Disclosed:

Point of Contact:

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NDA Agreement: TBD