FUEL INVENTORY MANAGEMENT SYSTEM

UNIVERSITY OF ALASKA FAIRBANKS

BACKGROUND

Monitoring the levels and contents of tanks is important across various applications. In the field of fuel tanks, a typical fuel farm can have on the order of twenty tanks and a typical system for monitoring a few tanks costs tens of thousands of dollars. The major cost is associated with the sensors which increases as the tanks get taller. The sensors typically used are of a magnetostrictive design using multiple floats, which can detect water and fuel density as well. Due to the price of sensors and the install, not all tanks are monitored. With the lack of reliable level sensing, tank dipping by hand is often done to verify inventory. Thus there is a desirable need to provide a robust and economical solution for remote monitoring of tanks and their contents.

DESCRIPTION

The Fuel Inventory Management System, or FIMS, allows fuel tank managers to measure tanks at a granular level. FIMS eliminates the high cost of sensors and field installations by using pneumatics and poly tubing for pressure sensing fuel levels in multiple tanks. The system can be scaled for a few tanks or very large tank farms. Using air pressure rather than mechanical sensors allows FIMS to have more accurate readings and be more reliable in severe weather conditions.

ADVANTAGES

- Cost-effective and durable in harsh climates
- Improved detection capabilities
- Scalable and customizable for a variety of tanks
- Opportunity to offer a remote monitoring service

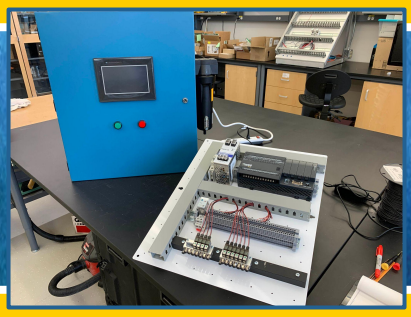
APPLICATIONS

- Remote & Harsh-Environment Energy Management
- Industrial Chemical and Process Monitoring
- High-Volume Fuel Depot Security and Auditing

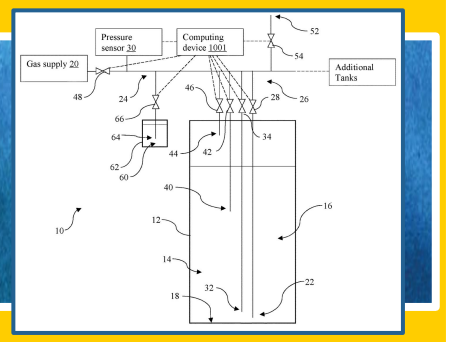
INTELLECTUAL PROPERTY

- US Patent Application Publication No 2024/0142060 A1
- Patent Pending w/notice of allowable claims

CASE ID: UA 531-22 / 558-23



The prototype of the Fuel Inventory Management System control panel.



The schematic diagram of the FIMS system for monitoring tanks.

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