

Mini Well site Pressure Pumping Monitoring

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Category:
Manufacturing

Products Used
LabVIEW 8.2

The Challenge:

The client needed a new application that gave their customers access to the data from the well sight in near real time. They also needed the ability to store and output this data to industry standard software. A desire to analyze data specific of interest was also requested.

The Solution:

To meet these requirements, Data Science Automation developed an application using shared variables to transmit data and value parameters over the internet. The monitoring application would allow the end user to see the data and present it in a manner of their choosing.

Abstract

A drilling services company needed to provide data on the operation of a job site to their customers around the world in real time. This would allow the end user and the well site to communicate specific items of interest to each other. The application also needed to be flexible to allow the end user to take a closer look at the data they were receiving. The ability of having data transmitted to the end user allows for companies to monitor the drilling process without the need of having groups of engineers onsite around the world.

Introduction

Data Science Automation was selected to develop software to communicate the data across the internet using LabVIEW and shared variables. The Main application shown in Figure 1 provides the end user data from the well site based on the Invoice number and IP address of the hosting computer. Once the correct connection is established between Mini and the well site application the data will be displayed to the tabular and graphical indicators on the main front panel.

The main panel displays the tabular data on the left of the graphic display. This information is selected at the well site to be displayed in the tabular list. Any or all of this data can be trended on the graph or saved to file as well as provided to the serial port allowing the industry standard software to make use of the collected data. The graph pallet allows the user of Mini to zoom in on any feature of the channel data that may be of interest such as pressure drops or sudden pressure build ups. This graph also allows the Mini user to scroll back through the data to better understand the trends they are looking at. A

comments field just above the tabular data allows the Mini user to see live comments sent from the well sight. The comments are also permitted to be sent to the final report and to the serial output if desired by the end user.

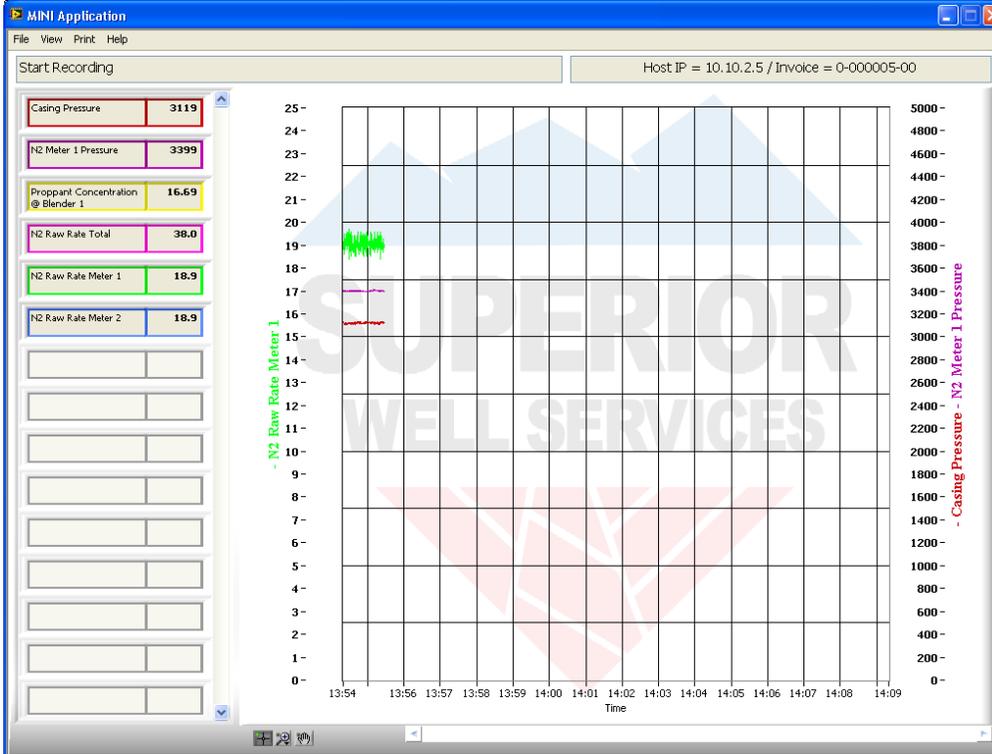


Figure 1 Main Panel

If the MINI user wishes to change the plots being displayed they can access the signal panel shown in Figure 2 by clicking on a channel in the tabular list or select it from the “View” menu in the menu bar.

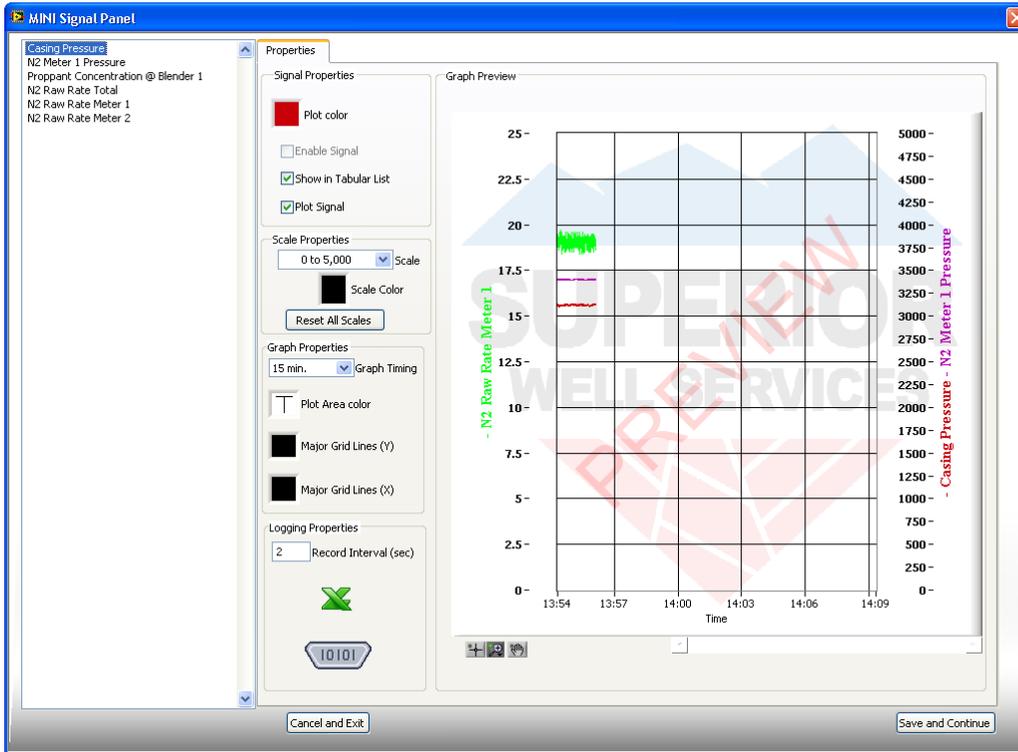


Figure 2 Signal panel

The Signal panel will allow the operator to add or remove channels to the plot area and tabular list. Changing the colors of the signals, scales, gridlines, and graph background can also be made from this panel. If the operator would like to change the scale values, graph timing or record interval it can be handled in the signal panel as well. From the signal panel the operator can click on the Excel or Serial symbols to make changes to the data being sent to file or a serial port. The spreadsheet panel and serial panel are shown in Figures 3.

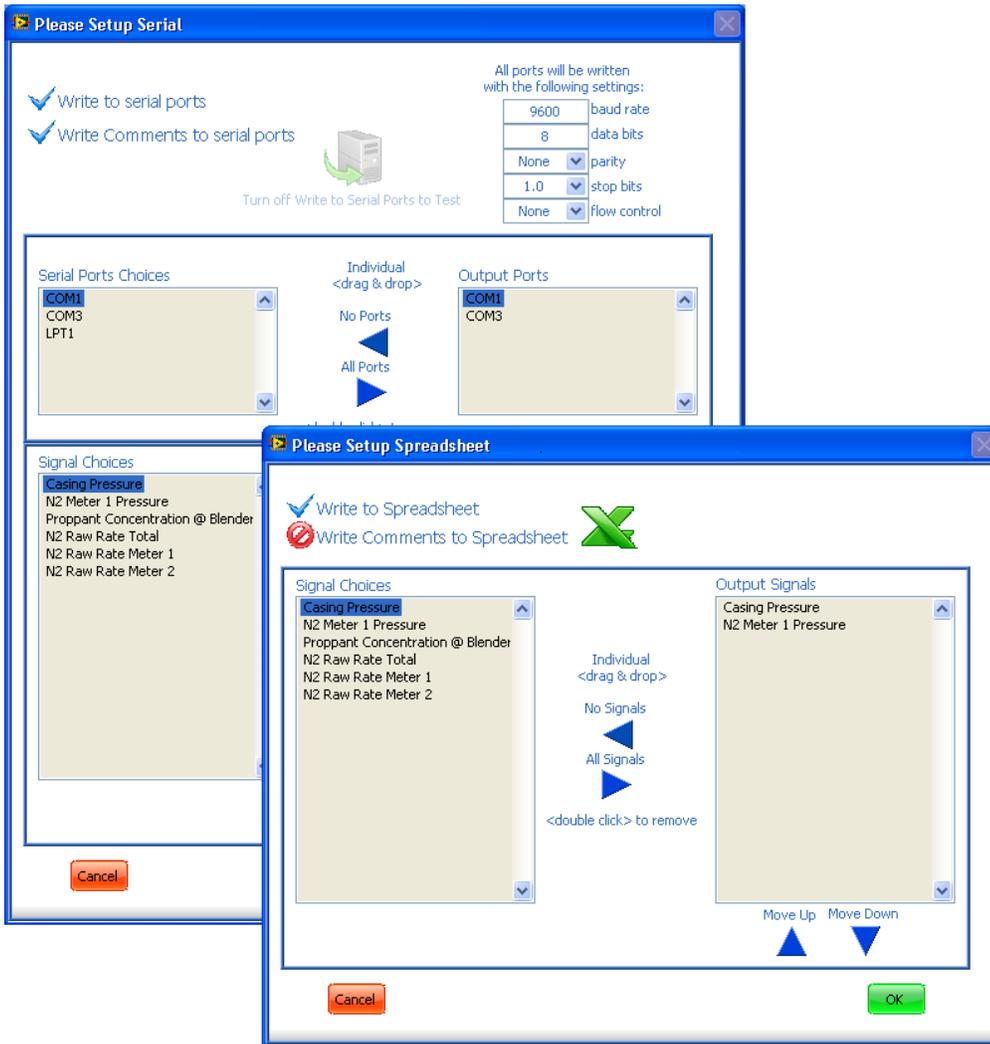


Figure 3 Spread sheet and Serial panel

If the Mini user needs to look at only the current data being provided at the well the operator can simply resynchronize to the well data by clicking reset to AccuDat under the help menu at the top of the application. This will not effect the data being saved to file but will remove any extra plots being view at that moment. The user will still have the access to the complete history of data. At the end of the drilling process or viewing of a portion of the process the Mini user can select to save the data being view by clicking the save and continue button or they can just click the cancel button to exit the application without saving the data to there hard drive. When the drilling process is completed the end user will receive a full report from the well sight but some Mini users like to have the data immediately for review.

The Result

Data Science Automation, Inc. using LabView software was able to provide the customer and their end user with a cost effective manner to which a drilling team and engineers could communicate and share data in a rapid manner to better control the drilling process. This saved the expense of transporting personal around the world to multiple locations to oversee the numerous drilling operations.