Base 11 Space Challenge

Oregon State University American Institute of Aeronautics and Astronautics is currently competing in the Base 11 Space Challenge. A $1 Million prize will be awarded to the first institution that is able to "put a single stage liquid bi-prop rocket in space by the end of 2021" [1].

The engine being developed by OSU AIAA needs to be meticulously tested under many circumstances before it will eventually be launched. In order to aid in the tests, an apparatus known as the test stand has been built. The test stand is a rack that the engine can be mounted on that includes plumbing for the various fuels, sensors to collect data, and various other control systems. The test stand is located at the OSU Propulsion Lab (P-Lab).

Liquid Engine Testing

While tests are underway, only a few people are permitted to be at the P-Lab due to safety regulations. There is a closed-circuit camera system that is used to view various angles of the test stand while tests are underway, but the live footage is only available in the P-Lab. Additionally, there is pressure, temperature, and flow-rate data collected by various sensors on the test stand while tests are underway. The data is written to TDMs files on a local network share in the P-Lab.