The DUNE 35-ton LArTPC prototype: Data acquisition, online software and monitoring

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The Deep Underground Neutrino Experiment will employ a multi-kTon Liquid Argon Time Projection Chamber (LArTPC) as its far detector located at the Homestake mine in South Dakota. Two of the primary physics goals of DUNE, nucleon decay and detection of galactic supernova neutrinos, require self-triggering capability independent of any external signals. The Data Acquisition design of the DUNE far detector thus anticipates continuous, untriggered readout of the TPC data. This type of DAQ system has been built and tested in the DUNE 35-ton LArTPC prototype. Successful operation of such a large detector also requires sophisticated monitoring of the data as it is being taken. Online and “near-line” monitoring systems have been developed for the 35-ton LArTPC, which will serve as prototypes for this of the far detector. This poster describes the DAQ and monitoring systems developed for the 35-ton prototype.