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Remote Monitoring of the Polarized Targets Control for E1039[1]

DAVID FOX, Abilene Christian Univ, SEAQUEST COLLABORATION — The 1039 experiment at FNAL will further our understanding of spin structure by measuring the contribution that sea quarks orbital angular momentum provide to overall nucleon spin. It is accepted that the valence-quarks of nucleons only provide 30% of the total nucleon spin. To study the nucleons sea quark contribution, E1039 will use the Drell-Yan process by colliding 120 GeV un-polarized beam protons with polarized ammonia targets of hydrogen and deuterium. The asymmetric spin distributions of resulting dimuons will be measured. These asymmetries are sensitive, among other effects, to the orbital angular momentum contribution of the sea quarks. The polarized target requires a multi-stage vacuum pump located near the target. Since access to its present controls will not be possible during running, remote control and monitoring upgrades were required. A secondary control panel was purchased and tested. Information from the programmable logic controller (PLC) must be fed into our data stream to enable remote monitoring and to signal possible alarm conditions. This solution and the program created using explicit TCP/IP messaging to extract data tags from the PLC and log it within our databases will be presented.

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