Abstract Submitted
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Neutron Diagnostic System Redesign MARCUS HOLLEY, SULI — System overhaul and redesign for an outdated data acquisition system for Experimental Physics Industrial and Control System software (EPICS). This redesign will be using Modern National instruments hardware as a replacement for the older outdated CAMAC 404 timing module. EPICS is used to observe the data acquired from the National Spherical Torus eXperiment - Upgrade (NSTX-U). The NSTX-U uses 4 Neutron Flux Monitors (Thermo Fisher Scientific TR-10-5) units which measure neutron count. This data is then transferred using Labview DAQmx and NI CompactDAQ (cDAQ). Models NI-9402, NI-9220, NI-9425, and NI 9184 will be used in various ways to read and store data. The data is read and stored by Labview to the MDS Plus tree which then takes the raw data and uses python functions to calculate the neutron rate. Neutrons are a by-product of plasma which is used to determine the effectiveness of the shot, and the higher number of neurons recorded from a shot, the more effective the NSTX-U was at creating plasma.

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