



Contribution ID: 229

Type: Mini Oral and Poster

Trigger-DAQ and Slow Controls Systems in the Mu2e Experiment

Wednesday 14 October 2020 16:39 (1 minute)

The muon campus program at Fermilab includes the Mu2e experiment that will search for a charged-lepton flavor violating processes where a negative muon converts into an electron in the field of an aluminum nucleus, improving by four orders of magnitude the search sensitivity reached so far.

Mu2e's Trigger and Data Acquisition System (TDAQ) uses *otsdaq* as its solution. Developed at Fermilab, *otsdaq* uses the *artdaq* DAQ framework and *art* analysis framework, under-the-hood, for event transfer, filtering, and processing.

otsdaq is an online DAQ software suite with a focus on flexibility and scalability, while providing a multi-user, web-based, interface accessible through the Chrome or Firefox web browser.

The detector Read Out Controller (ROC), from the tracker and calorimeter, stream out zero-suppressed data continuously to the Data Transfer Controller (DTC). Data is then read over the PCIe bus to a software filter algorithm that selects events which are finally combined with the data flux that comes from a Cosmic Ray Veto System (CRV).

A Detector Control System (DCS) for monitoring, controlling, alarming, and archiving has been developed using the Experimental Physics and Industrial Control System (EPICS) Open Source Platform. The DCS System has also been integrated into *otsdaq*. The installation of the TDAQ and the DCS systems in the Mu2e building is planned for 2021-2022, and a prototype has been built at Fermilab's Feynman Computing Center. We report here on the developments and achievements of the integration of Mu2e's DCS system into the online *otsdaq* software.

Minioral

Yes

IEEE Member

No

Are you a student?

No

Authors: Dr GIOIOSA, Antonio (INFN - National Institute for Nuclear Physics); FLUMERFELT, Eric (Fermi National Accelerator Laboratory); HORTON-SMITH, Glenn (Kansas State University); PEZZULLO, Gianantonio (Yale University); O'DELL, Vivian; UPLEGGER, Lorenzo (Fermilab); RIVERA, Ryan Allen (Fermi National Accelerator Lab. (US))

Presenter: Dr GIOIOSA, Antonio (INFN - National Institute for Nuclear Physics)

Session Classification: Poster session C-01

Track Classification: Control, Monitoring, Test and Real Time Diagnostics Systems