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Novel Aspects of the DESI Data Acquisition System LUCAS BEAUFORT, KLAUS HONSCHEID, ANN ELLIOTT, Ohio State Univ - Columbus, DARK ENERGY SPECTROSCOPIC INSTRUMENT COLLABORATION — The Dark Energy Spectroscopic Instrument (DESI) will measure the effect of dark energy on the expansion of the universe. It will obtain optical spectra for tens of millions of galaxies and quasars, constructing a 3-dimensional map spanning the nearby universe to 10 billion light years. The survey will be conducted on the Mayall 4-meter telescope at Kitt Peak National Observatory starting in 2018. In order to achieve these scientific goals the DESI collaboration is building a high throughput spectrograph capable of observing thousands of spectra simultaneously. In this presentation we discuss the DESI instrument control and data acquisition system that is currently being developed to operate the 5,000 fiber positioners in the focal plane, the 10 spectrographs each with three CDD cameras and every other aspect of the instrument. Special emphasis will be given to novel aspects of the design including the use of inexpensive Linux-based microcontrollers such as the Raspberry PI to control a number of DESI hardware components.

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