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The slow control system for the Fermilab Muon g-2 experiment

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The Fermilab Muon g-2 experiment will measure the anomalous magnetic moment of the muon to a precision of 140 parts per billion (ppb), which represents a four- fold improvement over the Brookhaven E821 measurement. Central to the measurement are a system of 24 calorimeters and 3 straw tracking detectors, as well as a magnetic field in the muon storage volume that must be known to 100 ppb. The states of the detectors must be controlled, monitored and stored to ensure data integrity. Additionally, the environment of the experimental hall and the temperature of magnet yoke must be continuously monitored, as temperature changes of even a degree Celsius will result in a shift of the magnetic field strength significant to the experiment. Monitoring of the experimental hall has already begun, since the environmental state affects the magnetic field shimming currently underway.

This poster presents the slow control system for the experiment, designed primarily around the MIDAS slow control bus.

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