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Control and Automation of an Ultracold Atoms Apparatus via the Labscript Suite T. GARCIA, Y. GUZMAN, H. KHINDA, J. PERMANN, J. PECHKIS, H. PECHKIS, California State University, Chico — We report on progress to construct an ultracold atom apparatus at California State University, Chico. Computer control via the Labscript suite[1] has been completed and allows for autonomous shot-based experimental control of the apparatus. Absorption imaging will be utilized as the main detection tool of the apparatus and allow for the determination of the temperature and density of the atom cloud. A camera driver is under development, which will allow for full control of the scientific camera through Labscript. A low-cost, microcontroller-based shutter driver circuit has been designed and constructed, which allows for automated optical switching of the cooling beams. Finally, we will utilize a master-slave configuration for increased optical power of the cooling and trapping beams. [1]The Labscript suite was developed by the BEC research group at Monash University in Australia for use in the Spinor BEC lab of Dr. Lincoln Turner and Dr. Russell Anderson, and the Dual Species BEC labs of Professor Dr. Kristian Helmerson.

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