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Control Box for Sub-Orbital Telescope CHRISTIAN RHODES, Francis Marion University, ATSA TEAM — One of the major obstacles for observational astronomers is the Earth's atmosphere. By sending telescopes outside of the atmosphere we can overcome this problem. However, this can be quite expensive, especially with billion dollar telescopes such as the Hubble. Reasonably, astronomers do not want to risk burning out the CCD on the valuable telescope by pointing it near the sun. Solutions such as using Black Brant rockets have arisen, yet still cost millions of dollars. By utilizing commercial spaceflights offered by XCOR, we can cut this cost to less than a couple hundred thousand dollars and get the telescope back at the end of the flight. To prove that this is possible, we are developing a telescope that can fit onto the passenger side of the spacecraft. Even though the telescope will be hand-steered, a programmed control box was needed to change the filters and to record. The control box sends commands via serial communication to a shell program that controls the CCD program and the filter wheel program. By creating a shell program that controls the CCD and filter program inside the Windows operating system, the shell program is easily adaptable to any CCD or filter wheel program. This control box allows you to manually and automatically change the filters and record as well as document the time in which all the actions occurred. - This project was completed under the Palmetto Academy, a division of the NASA SC Space Grant Consortium

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