

Modular Mount Control System for Telescopes

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The Space Observatory Control Kit (SpOCK) is the hardware, computers and software used to run small and large telescopes in the RDS division of the Air Force Research Laboratories (AFRL). The system is used to track earth satellites, celestial objects, terrestrial objects and aerial objects. The system will track general targets when provided with state vectors in one of five coordinate systems. Client-to-server and server-to-gimbals communication occurs via human-readable s-expressions that may be evaluated by the computer language called Racket. Software verification is achieved by scripts that exercise these expressions by sending them to the server, and receiving the expressions that the server evaluates.

This paper describes the adaptation of a modular mount control system developed primarily for LEO satellite imaging on large and small portable AFRL telescopes with a goal of orbit determination and the generation of satellite metrics.