A compact, mobile, robotic, high precision tracking platform for SLR, astrometry, photometry, and lasercom

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Cybioms'automated tracking systems, capable of sub-mm SLR normal point precision and 1 mm system accuracy on geodetic satellites, have been going through field commissioning. A scaled-down lower-cost modular version of this with a compact telescope (~300 mm) capable of reaching GNSS with sub-arcsecond precision tracking has been under development upon completion of an extensively tested laboratory prototype. This tracking platform will support target imaging, photometry, astrometry, debris tracking, laser transponder, lidar, SLR, and lasercom. Simultaneous multicolor high PRF (MHz) ranging capability is planned with multiple transmit/receive telescopes. One key consideration is the modularization and migration of certain traditional hardware functions into the software regime to reduce cost, weight, and suitability as a broad platform for applications including laser communications. To enable a mobile compact SLR platform for precision geodetics and to minimize the need for surveying, there is a built-in provision for precise and repeatable optical placement over a fiducial reference as well as internal system calibration. Currently, such a robust tracking telescope is going through development and integration in the lab in support of a US Govt project.