Research and Design of Orbital Net-Capture Robot System

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Since geostationary orbit is far beyond the outer residuals of the earthSs atmosphere, the non-functional satellites on geostationary orbit will remain in the vicinity forever. This led and still leads to an accumulation of objects within the geostationary region over its nearly 40 years history of use, the collisions with spent objects or fragments from other collisions or explosions will pose a threat to the active payloads operating within this orbital regime. In this paper, an Orbital Net-Capture Robot System(ONCPS) is researched and designed. With the application of vision navigation subsystem and laser range finder subsystem, a net will be released by the minitype intelligentized net-capture device and enwrap the target satellite after a approaching maneuver. As a compound of satellite and space robot, the system can be used to restore geostationary by transporting the out-of-order drifting objects from geostationary orbit into graveyard orbit.