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Method and Associated Apparatus for Capturing, Servicing and De-Orbiting Earth Satellites Using Robotics

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DESCRIPTION

This invention is a satellite de-orbiting method. This invention is a method and supporting apparatus for autonomously capturing, servicing and de-orbiting a free-flying spacecraft, such as a satellite, using robotics. The capture of the spacecraft includes the steps of optically seeking and ranging the satellite using LIDAR; and matching tumble rates, rendezvousing and berthing with the satellite. Servicing of the spacecraft may be done using supervised autonomy, which is allowing a robot to execute a sequence of instructions without intervention from a remote human-occupied location. These instructions may be packaged at the remote station in a script and uplinked to the robot for execution upon remote command giving authority to proceed. Alternately, the instructions may be generated by Artificial Intelligence (AI) logic onboard the robot. In either case, the remote operator maintains the ability to abort an instruction or script at any time, as well as the ability to intervene using manual override to tele-operate the robot.

FEATURES AND BENEFITS

- Other satellites can be serviced autonomously during flight using such a robot.

APPLICATIONS

- Robotics
- Communications
- Weather
- Earth Remote Sensing
- Defense

FOR MORE INFORMATION

If you are interested in more information or want to pursue transfer of this technology, GSC-15002-3, please contact:

Darryl Mitchell
Technology Manager
NASA Goddard Space Flight Center
Innovative Partnerships Program Office
darryl.r.mitchell@nasa.gov
301-286-5169