The Mini-Workstation for Astronauts Redefined

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Astronauts lose their tools constantly during extravehicular activities. This is a major problem financially and environmentally as these tools become deadly satellites that can collide with the International Space Station or with another satellite. Collisions between satellites in space can initiate the Kessler Syndrome. The Kessler Syndrome predicts that the space around earth could become blocked up with debris as to prevent vehicles from flying through. Currently, the astronauts use the Mini-Workstation to hold tools. The engineering goal of this project was to design a better device to carry the astronaut's tools during extravehicular activities and to build a prototype. The device that was built by the researcher, the Space Stowage Container, is compact and more practical than the current Mini-Workstation. The Space Stowage Container does not include the T-bar or the tethers from the Mini-Workstation. Instead, it is a trapezoidal prism with magnetic surfaces that can secure tools. The interior provides 10560cm3 of space, yet it is small enough to be attached to the hard-upper torso of the extravehicular mobility unit. The tools are easy to pluck and difficult to drift off. The Space Stowage Container will increase the astronauts' productivity. It will also be a great financial investment and a notable step towards the prevention of the Kessler Syndrome because there are no feasible solutions to the space debris problem. The Space Stowage Container is a pioneering instrument that will protect the space environment for generations to come.

Awards Won:

NASA: Honorable Mention