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MULTI-DRONE SPACESHIP CONCEPT PROPOSAL FOR ASTEROID MINING

Abstract

Mining asteroids are one of the most challenging tasks of the space industry. In a previous paper¹, we proposed a drone carrier to reach the asteroid and mine its minerals as part of a process for human expansion pathway. The multiple-drone system works as a system working in the mining of asteroids with the objective of producing parts for assembling space habitat. Here we study in detail the concept of drone deploying and possible system structure, also we review the possible control systems and design approaches. A conceptual design is proposed with some artistic representations. To analyze system properties we have run simulations considering the number of drones, type and size of the asteroid, and rate mining time. The results are presented here, and some preliminary conclusions are obtained from the simulation data.

¹Escobedo, S. D., González P.; IAC 20-D4.1