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Architecture for humans in space: design, engineering, concepts and mission planning (1)

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SPACE ARCHITECTURE, A TOOL TO REMOVE ROADBLOCKS ON THE SPACE EXPLORATION
HIGHWAY

Abstract

Space agencies around the world have been planning manned space missions to Moon, Mars, and asteroids for decades. There have been ups and downs on that road but real dreamers of space exploration never gave up the idea and once in a while return to the plans of humans becoming multi-planetary species. One of the major roadblocks for making such plans a reality is the fact that long-term surface missions cannot be realized without convincing the public and governments in their feasibility.

Avenues for private and public to space exploration so that they can see themselves being equal partners of space endeavors need to be created. How design research and design itself can help to accomplish this task? Or generally speaking, can design help?

This paper investigates those questions through reviews and illustrations drawn from exploratory design projects conducted by master students in the USA, Europe and Russia. The overview includes objectives and design strategies, design stages and transitions between mission's objectives while still targeting the main goal of the mission. The overview leads and summarizes in the discussion about current limitations in bringing space exploration closer to public and private interests. The paper argues potentials of using of space architecture tools to achieve this goal.