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CONCEPTUAL DESIGN OF A TOROIDAL SPACE STATION FOR LARGE-SCALE HUMAN TRANSPORTATION TO MARS

Abstract

Human beings have always desired to live outside of Earth, travel to locations like Mars. But it is not a dream—it is survival. Life on Earth may no longer be viable one day because of disasters. Current space travel is too slow and insufficient for massive undertaking. We created this doughnut-space station with the vision of making humanity a multiplanetary species. This paper describes a theoretical design for a doughnut-shaped space station that would make it possible to transport thousands of individuals to Mars. It is considerably bigger than the International Space Station (ISS) and not only can it carry astronauts but also ordinary individuals to space which is the reason why it was created. There is a large storage room in the middle of the ring system where the crew will take the items they will need during the extended flight. During travel to Mars, the exterior of the ring rotates around the center, thus gravity is created. This keeps the astronauts from floating all the time. It also has shielded layers to prevent space radiation from harming everyone. For movement, it is able to use electric thrusters and move by propelling the space part around in order to save fuel and go even faster to Mars. There are living quarters, dining areas, places to carry out science-based activities, and places to have fun too within. This is important since the travelers have to do something to stop themselves from becoming stressed along the journey that takes a long time. In fact, there is even a monorail to assist for transportation. In the event of a failure, they can shut off the safety of a specific section of the station to maintain everyone's safety. Besides, there are small escape capsules that can come to the rescue just in case they have to leave. Our plan is to build this using robots in space, and this involves both increased security and lower expenditures as opposed to sending humans to the space. Perhaps, the entry costs will initially be very much in the negative, but as demand for trips into space rises, it could well be possible that this enterprise might generate return over a lengthy span of years. This station will be of crucial importance in the longer run as it is the beginning of the human's habitation on Mars or even a farther exploration of the outer space.