
Three-dimensional graphic interpretation of manipulator telemetry data

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The article describes a variant of using telemetric information coming in real time at MCC to determine the spatial forms of manipulators and their position with respect to the International Space Station structure and to display the obtained data as a three-dimensional picture corresponding to the current condition of the real manipulators and the station. This idea corresponds to the current trends of replacing or supplementing the traditional symbolic representation of the processed telemetry data by graphic images. The proposed algorithm is based on the Denavita—Hartenberg method of coordinate transformation. The basic geometric and algebraic calculations required for the implementation of this method in the described application are presented and the design features of the International Space Station manipulators are considered. Without taking them into account the interpretation of graphical telemetry data will not reflect the real state of controlled products.

Keywords: *International Space Station, manipulators, telemetry data, three-dimensional visualization.*

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