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Refereed Article

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Plan Execution, Monitoring, and Adaptation for Planetary Rovers

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Abstract: *Planetary rovers must perform their missions in unknown environments with limited communication to ground controllers. To endow a rover with the capability for robust autonomous operation, we have designed an on-board executive architecture that incorporates robust flexible operation, monitoring of system and environmental state, and limited plan adaptation. The rover executive receives a plan with flexible time and resource constraints along with local and global contingency plans to handle deviations from the nominal plan. It internally monitors plan execution for communication and execution failures; through sensors and models of its operation, it determines its internal state, its resource usage, and its interaction with the environment. Based on the information it gathers from the sensors, it chooses the most appropriate course of action, potentially inserting contingency plans into its current plan, thus adapting its plan to fit the current situation.*

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3. Publicly *discussed* in the ETAI area of Planning and Scheduling during March-July, 2000. The discussion protocol is available and will be retained in the Article Interaction Page at
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Besides the publication and review history, it contains links for contacting the author(s), as well as to amendments and other related information for the article. It is intended to keep these links up-to-date in the future.