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STUDY AND DEVELOPMENT OF AN AI ASSISTANT FOR FUTURE MOON AND MARS STATIONS.

Abstract

Following the Global Exploration Roadmap defined by the International Space Exploration Coordination Group, ISECG, the Spaceship FR team from CNES, the French Space Agency, wishes to contribute to the development of technologies extending human reach toward space, notably for the development of Moon and Mars bases. The operation and sustainability of such structures in stressful isolation conditions constitute a high level technological and human challenge. To relieve the high mental load of the astronauts, the solution could be an artificial intelligence assistant that would supervise the automation of the base as well as monitor and maintain the mental health of the crew through a cognitive approach of the human-computer interaction.

AI4U is the system at the crossroad between computer sciences and human factors, aspiring to take on the task. Besides, its organisation and automation skills, this artificial intelligence interacts with the astronauts with an intuitive and natural interface. It can support their work and leisure activities with an empathic approach, recognising their current mental state by using face and voice recognition.

This paper will present the different steps of the development of AI4U, the challenges encountered and the next steps until its usage in a Moon outpost.