57th IAA SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE ACTIVITIES (D5)
Interactive Presentations - 57th IAA SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE ACTIVITIES (IP)

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ADVANCED COMMS AGENT SWITCHER FOR LUNAR BASE CAMP VIA SIWÖNET (ACASNET)

Abstract

Remote monitoring of astronauts, cosmonauts or taikonauts (any space walkers) is considered a key driver for more efficient and proactive delivery of healthcare services and management of potential chronic diseases in a hostile environment such as the Moon or Mars. Increased time in outer space suggests local quantitative and qualitative analysis that helps space walkers successfully complete their challenging missions and preserve their long-term health. Currently, four proposals have already been selected to protect the health and performance of space explorers during future long-duration missions beyond low Earth orbit. We are aware that, despite years of research, understanding of the space radiation environment and the risk it poses to them on long-duration spacewalks remains limited.

There is a disparity between research results and empirical effects observed in space explorer crews, likely due to the numerous factors that limit terrestrial simulation of the complex space environment and extrapolation of human clinical consequences from various models. It is, therefore, that the technological

contributions of data transport and mobile equipment will help to ensure that this information is recovered as soon as possible, through the use of sensors, portable devices (e.g. CubeSats or Rovers with detection technologies, smart containers passives, augmented reality imaging systems) along with electronic health devices (e.g. medical totems). Information must be collected and analyzed without the space walkers having to trek to a camp containing a space medical care center or without a medical professional on the mission. The data would be analyzed locally so that scientifics on the ground can contact the health specialist according to the eventual urgency. The space sensitive aid and assistance system of lunar stations for explorers in remote areas to the camp via SiwöNet is the proposal to create mobile equipment that contains a transport layer solution for remote monitoring of space walkers and that performs comparison scale with machine learning algorithms, the primary diagnosis.

The solution is based on use cases developed in focus groups that standardize the connectors in autonomous networks, analysis of existing data from other countries space missions. This may use AI based techniques, public multi-modal data (including text, visual camera images, and videos) and the creation of sample controllers in the knowledge base (KB), with international collaboration in **ITU** (International Telecommunications Union).

The word "*siwö*" comes from a Costa Rican aboriginal language, which means Moon.