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HIGH OPERABILITY GRAPHICAL USER INTERFACE FOR SORATO BASED ON ROBOTICS
MISSION EXPERIENCE OF ISS

Abstract

When the private sector engages in the lunar surface development, i.e., the rover for the lunar surface exploration, low-cost and speed suited for the business potential are required. As discussed in the Second Internal Space Exploration Forum (ISEF2) side event, "Industry-ISEF," the key is to apply the experiences of ISS as much as possible.

Japan Manned Systems Corporation (JAMSS) is taking part in space exploration from the private sector. JAMSS, as the prime contractor for the operations of the Japanese Experiment Module (JEM or "Kibo"). has successfully supported astronauts' activities, provided various trainings, executed space experiments using the remote robotics system, and so on. Through our 10-year experience, we have accumulated vast experience and knowledge.

JAMSS has also contributed to Team HAKUTO, one of the challengers of the Google lunar XPRIZE. As a supporting company, we have provided support for operations preparation, training, and Graphical User Interface (GUI) design of the Robotic Rover (SORATO).

In this paper, we introduce the latest GUI design for SORATO aiming at the next mission of Google Lunar XPRIZE. We will explain the high operability of the new design and the knowledge gained through the JEM/Kibo operations that are applied to the latest GUI.

Lastly, we will make some recommendations in the following 5 aspects for the private sector to carry out initiatives for the lunar surface exploration more efficiently from the viewpoint of operability in particular. - For efficient nominal operations - For detecting off-nominal situations as soon as possible - For analyzing problem causes as soon as possible - For efficient recovery from off-nominal situations - For operating with degraded system