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APPLICATION OF PRACTICAL TERRESTRIAL RESOURCE DEVELOPMENT METHODS FOR OFF
EARTH MINING

Abstract

As activity increases in space, there is a growing need for development and provision of raw resources such as building materials, water and fuel. Earth sourced commodities are costly, unsustainable and ultimately limited. This leads to a broader issue of governance of the Earth resources for future generations. Alternative raw material sources will deconstrain any reliance on Earth resources and launch bottlenecks which should be a priority in developing space.

Resources are essentially unlimited in space. Advances in space resource development have been limited. A contributing factor to the slow development of space resources is limited terrestrial resource industry involvement. From a commercial perspective, a primary cause is the lack of a current market and therefore the inability to develop sustainable business model.

Space Resource Projects Planning Services (SRPPS) is intending to utilise broad and multi-disciplined operational and project management terrestrial resource development expertise to undertake a proof of concept mission to demonstrate that space resources can be safely, efficiently and reliably extracted for use in space in a cost beneficial manner. The aim of the mission is to demonstrate that a significant quantity of space material can be mined, collected, analysed and stored.

The SRPPS project revolves around a proprietary semi-autonomous Mining Module for material extraction on mining targets. As well as the Mining Module hardware, SRPPS is developing an innovative open source communications and networking capabilities. The long term objective of this infrastructure is to open the space market to all, where it is now tightly constrained.

This paper provides an overview of the project, with a focus the core aspects of practical resource development and opportunities through innovation.