A Low-cost Lunar Lander Mission with Mobility for In-Situ Imaging

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Abstract. Penn State University has entered the Google Lunar X PRIZE competition to land a privately funded spacecraft on the moon. There are high-resolution imaging and video requirements as well as a 500-m mobility requirement. The backbone of the mission is a philosophy of simplicity and adherence to the principles of systems engineering, particularly that any capability to perform beyond the requirement is unnecessarily added cost and development time, and potential risk to mission success.

The mission is described in all aspects. The flight system is described in detail. The mission timeline and events are outlined. Risks are assessed and mitigation strategies discussed.