

WRANGL3R

Water Regolith ANALysis for Grounded Lunar 3d Reconnaissance

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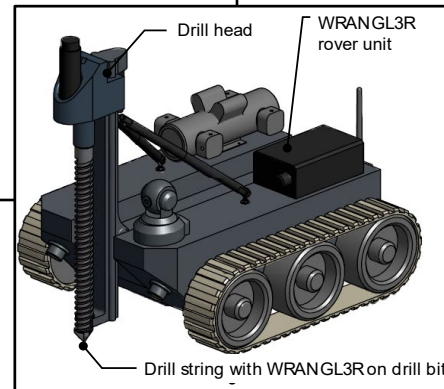
Development Objectives

In this LuSTR project our team will [1] Design, assemble and validate a breadboard; [2] Design and integrate a prototype with a drill bit and bench test; and [3] Design a TRL5 WRANGL3R

Challenges include design of a new miniaturized type of laser and optical path that performs under drill vibration & percussion

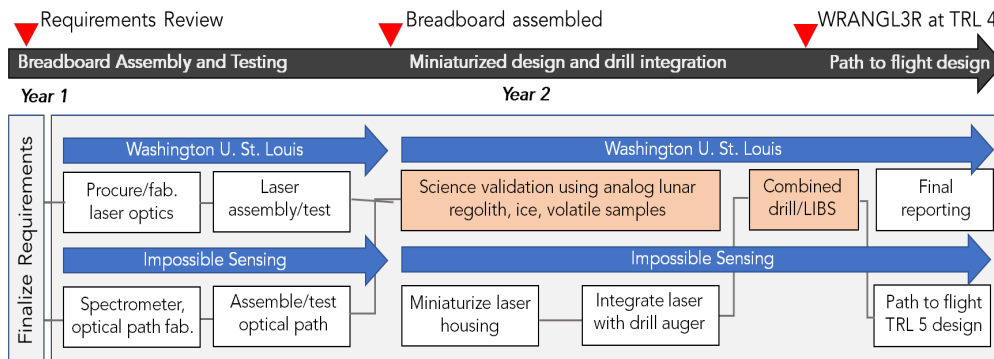
WRANGL3R brings a very powerful instrument to the subsurface, as opposed to bringing subsurface samples to an instrument

Concept design of WRANGL3R on a micro-rover



WRANGL3R includes unproven innovations at TRL2. This project will deliver a proof of concept, moving the concept to TRL4

R&D Approach



Impact and Infusion

WRANGL3R will advance lunar exploration by bringing first-time observational and analytical capabilities to small rovers: rapid, direct, depth-resolved downhole quantitation of water content while drilling

Following LuSTR, we will propose to DALI, pre-phase A, PRISM, and/or CLPS to initiate assembly of a flight instrument

WRANGL3R approach to resource characterization and mapping in lunar regolith can be included in a future lunar ISRU strategy