2018 Summer Pathways Show Case

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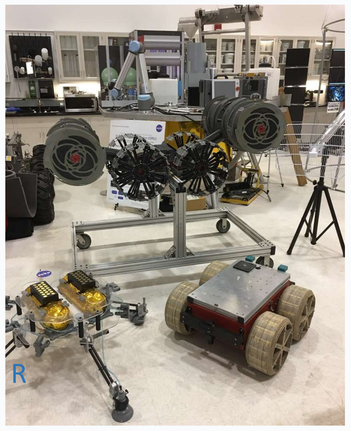
SWAMP WORKS
NASA KENNEDY SPACE CENTER

Robotics in ISRU



When going to Mars, NASA doesn't want to take all the necessary resources on the journey – it'd be heavy and cost a lot of money…

In-Situ Resource Utilization (ISRU) is using resources at the destination.

Robots and autonomous systems can be used to process everything before humans arrive.

RASSOR

Problem: Digging using conventional methods like on earth cause robot to lift up instead of successfully scooping regolith.

Solution: Use bucket drums that rotate in opposite directions for counter-acting excavation.

Resource Prospector

Lunar Environments Test Bed was developed for the JSC lunar ISRU research robot, Resource Prospector.

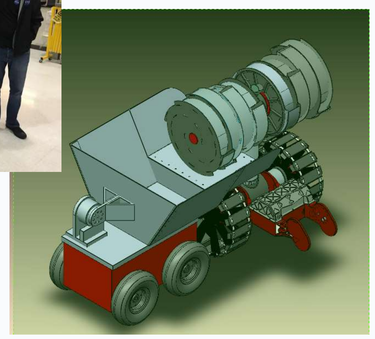
It tested the wheel to soil interactions in a regolith created by UCF to mimic regolith in the permanently shadowed regions on the Moon.

CANCELLED

RED Rover

System Test Platform:

- Dust Tolerant Automated Umbilical
- Autonomous alignment
- Resource transportation



Pathfinder

Process Mars regolith to get resources using congruent autonomous systems: RASSOR, RED Rover, oven, chemical processing, pumps, valves, etc.

Autonomous Inspection Maintenance and Repair

Smart robot developed to autonomously change parts on pads with an integrated tool belt.