



Kennedy Space Center

RASSOR

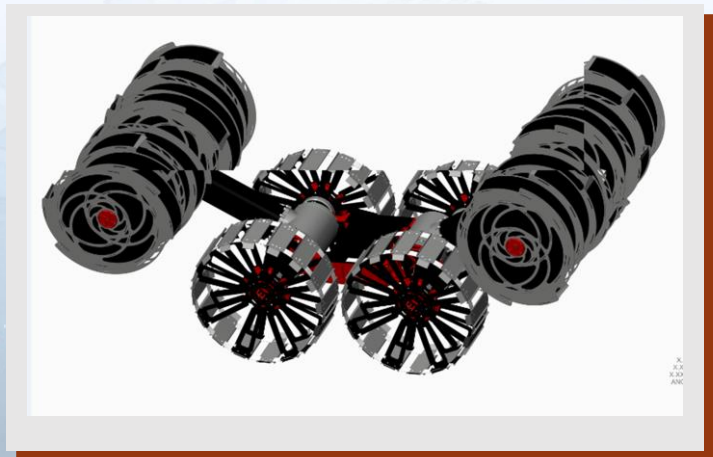
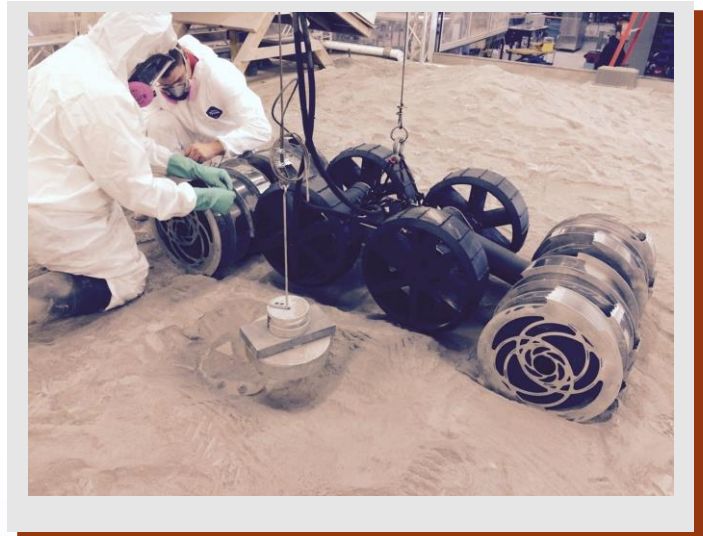
Regolith Advanced Surface Systems Operations Robot

The Regolith Advanced Surface Systems Operations Robot (RASSOR) is a lightweight excavator for mining in reduced gravity.

RASSOR addresses the need for a lightweight (<100 kg) robot that is able to overcome excavation reaction forces while operating in reduced gravity environments such as the moon or Mars.

A nominal mission would send RASSOR to the moon to operate for five years delivering regolith feedstock to a separate chemical plant, which extracts oxygen from the regolith using H₂ reduction methods. RASSOR would make 35 trips of 20 kg loads every 24 hours. With four RASSORs operating at one time, the mission would achieve 10 tonnes of oxygen per year (8 t for rocket propellant and 2 t for life support).

Accessing craters in space environments may be extremely hard and harsh due to volatile resources – survival is challenging. New technologies and methods are required. RASSOR is a product of KSC Swamp Works which establishes rapid, innovative and cost effective exploration mission solutions by leveraging partnerships across NASA, industry and academia.



Web sites: <http://www.nasa.gov/topics/technology/features/RASSOR.html>;
<https://www.youtube.com/watch?v=YWiRuyhjEZ8>

Contact information: Rob.Mueller@nasa.gov