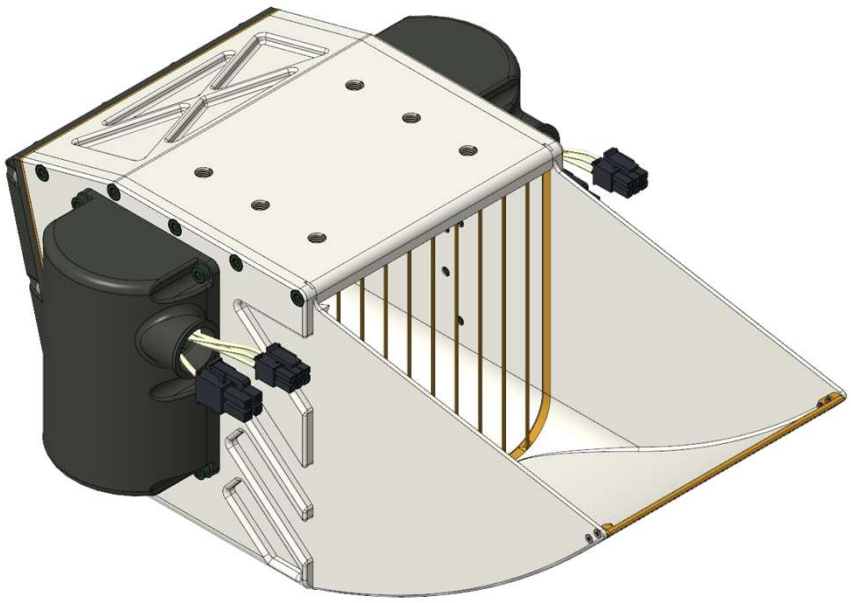
Multifunctional End Effector for Regolith Construction, Acquisition, and Transfer

MEERCAT

SWAMP WORKS
NASA KENNEDY SPACE CENTER



MEERCAT is designed to interface with a robot arm

Specifications All specs can scale to the mission.	
Mass	1-3 kg
Power	24-80W
Volume	4000-5500 cc
Sieve rate	10-40 g/s
Sieved Particle Size	≤ 1 mm pass
Regolith Capacity	0.5-3.5 kg per scoop

Con-Ops: ISRU Processing	
Excavate	Collect regolith using the scoop.
Rock Rejection	Larger rocks are rejected via the grizzly bars.
Move and Position	Transport regolith to ISRU processing plant.
Size Screen & Transfer	Regolith is screened and deposited into a stockpile or into an ISRU processing plant.
Self-Clean & Purge	A proprietary self-clearing process to clean the screen and clear the storage area.
Repeat	As desired.

Geotechnical Research
MEERCAT can perform various geotechnical tests

Con-Ops: Site Preparation & Construction	
Remove Rocks	Rocks can be scooped, pushed, pried, and removed from the worksite.
Cut & Fill	The scoop is used to remove high spots and fill low spots at the worksite.
Grade	MEERCAT can be used to precisely level and grade the site.
Compact	Compact regolith up to 90% relative density.
Build	Manipulate regolith to make structures. (berms, trenches, & foundations). Deposit regolith in layers or other configurations as required by secondary construction processes such as sintering/melting.

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