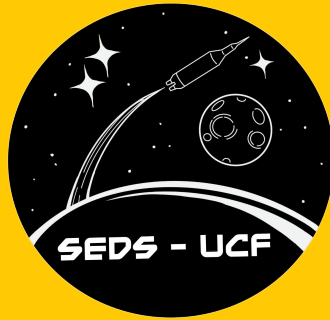


Project S.T.O.R.M.

Surface Terrain Operations Rover for Mars



OPTICA

University Rover Challenge (URC)



- Teams design, build and test rovers to perform missions in a Mars-like environment.
- The challenge is split up into 4 main missions, each consisting of multiple tasks for the rover to perform.

URC is an International challenge held in the desert of Utah at the end of May.



Science Mission



- Collect dirt sample to analyze for proof of life.
- Involves the use of multiple sensors to collect data on the following fields:
 - Panorama of collection site
 - Close-up of the sampling site
 - Stratigraphic profile of the sample
 - GNSS coordinates of the site
 - Soil Moisture
 - Soil Temperature
 - Any other desired data points

Delivery Mission

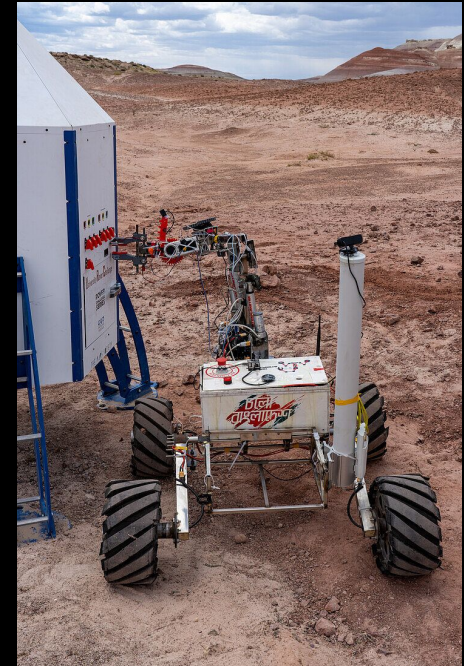


- Perform tasks to assist astronauts in the field.
 - Follow a marked path
 - Open boxes with hinged lids (like a toolbox)
 - Pick up, carry, and deliver objects to specific locations
 - Read signs
 - Find equipment in a large search area
 - Find objects in areas of poor radio reception
- Broken up into multiple stages.
 - Must complete each stage before moving on to the next.

Equipment Servicing Mission



- Perform several dexterous tasks on a lander.
 - Picking up test tubes
 - Placing them in a container
 - Opening a drawer and placing the container into the drawer
 - Undo a latch and open a panel
 - Autonomously type on a keyboard
 - Operate a joystick
 - Plug and unplug a USB
 - Push buttons, flip switches and turn knobs



Autonomous Navigation Mission



- The rover must autonomously navigate to several randomly assigned GNSS coordinates.
- Locations have key items/objects that need to be identified before moving to the next location.
- Many locations will have posts with ARUCO tags (Similar to APRIL tags) that need to be scanned. These tags may be blocked by obstacles that need to be cleared to get close enough to scan.

Timeline



Fall 2024

- Research & Design
- Preliminary Design Review (PDR) due Dec. 4 merits

*Teams are judged on their own

Spring 2025

- Manufacturing & Testing
- System Acceptance Review (SAR) due Feb. 28

*Teams are judged against other teams.
Only ~36 will be selected.

Summer 2025

- Science Plan due 5/16
- Challenge: May 28 - May 31

How to Join



- 1) Come to one of our meetings. Held every MWF 5:30pm - 8:30pm in Partnership II. No, you don't have to be there the entire time.
- 2) Join one of our five subteams (Drive, Arm, Science, Software, Electrical).
- 3) Join the RCCF Discord server and get assigned the Project S.T.O.R.M. role.
- 4) Continue to show up and contribute to the project. That's all there is to it!

Thank you for having me, I hope to see some of you at the lab!