

Fall Validation Demonstration

Team C - Lunar Autonomous Regolith Excavator [LunAR-X]

Team Members: Dhruv Tyagi, Hariharan Ravichandran, Anish Senathi, Vibhakar Mohta, Vivek Chervi.

Objective: Demonstrate fully autonomous system excavating sand and building a berm

Elements: Full system

Location: Planetary Robotics Lab - Moonyard

Equipment:

1. LunAR-X Rover
2. Total Station
3. Control Station
4. Visualization Display

Procedure:

1. Flatten moonyard terrain
2. Place the rover in the Moonyard
3. Initiate total station for localization
4. Have the moonyard terrain pre-mapped right before the demo
3. Initiate the rover with a map of the initial state of the moonyard terrain
4. Give a desired berm configuration goal
5. Allow rover to execute autonomous operation to build berm
6. Visualize operation and the map post-operation

Verification Criteria:

1. The rover can autonomously and efficiently build a desired berm without human intervention
2. The built berm should have an error of less than 3 cm in height and 5 cm length