



Cosmic Charlie

Week 2, Section 1

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Aedan Scaria - Subtopic 3 Technician
Angela Clayton - Game Moderator



Mission Objective: Create a sustained presence in lunar orbit

Input from other Teams

Problem

- Sustain life in Lunar Orbit
- Sustain for multiple years
- Gather Lunar Data
- Ensure safety of Crew

Solution

HALO
(Habitation and Logistics Outpost)

1

Station Research & Communications

Specific Radio Frequencies (S and Ka band)

2

Maintain crew health

Direct Communications, and Holograms (future)

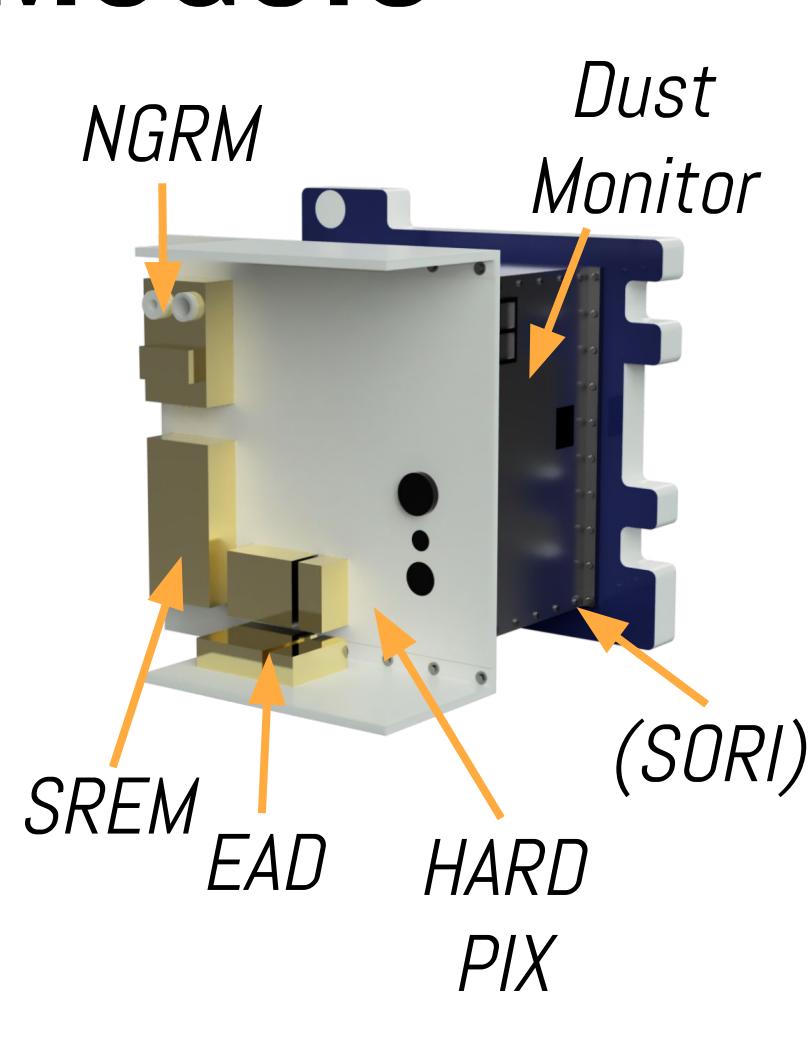
3

Protect Crew from Space Weather

Polyethylene

CAD

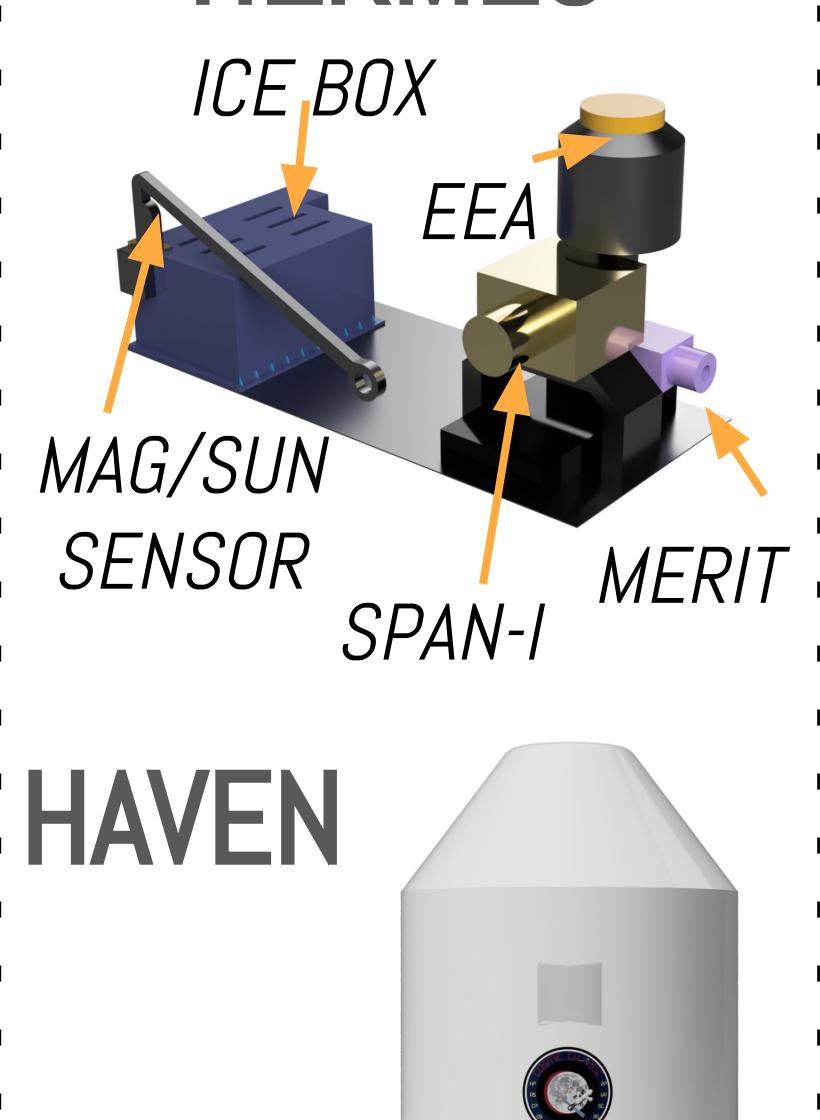
Models



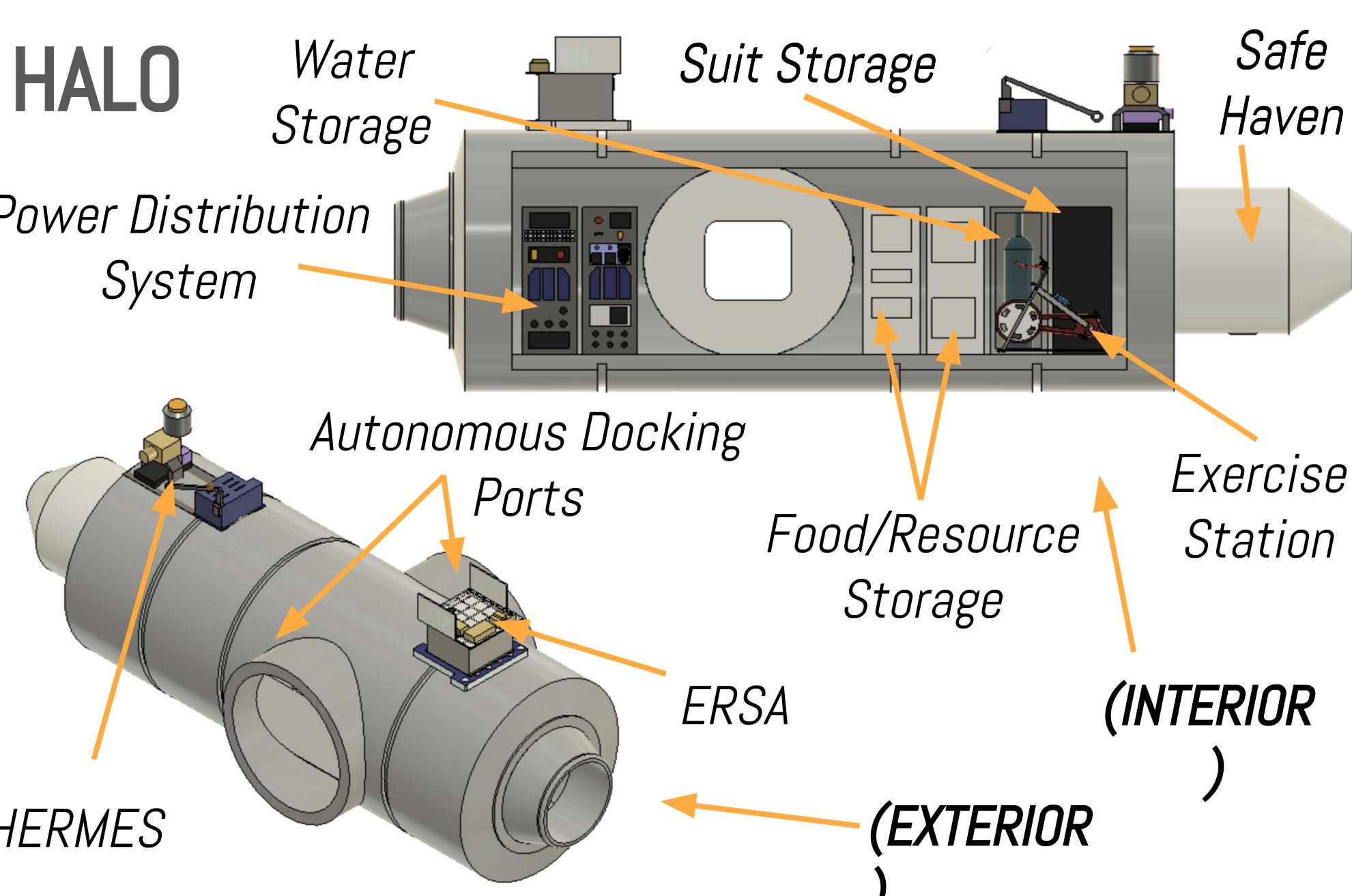
Stationary Bike



HERMES



HALO



Subtopics

Transportation & Research

Transportation

Problem

Astronauts traveling safely from place to place

Solution

The HALO system will allow for safe travel for 30 days in space. This is combined with the Lunar I-Hab component.

Nutrition, Exercise, and Interpersonal Relationships

Nutrition

Problems

Weakened Immune System; Changes in Bone Density; Muscle Makeup; Limited Exposure to Vitamins

Treatment

Meals prepared for personalized nutrition deficits; Special Containers

Exercise

Problems

Bone Density Loss, Muscular Atrophy

Treatment

High-intensity, low-volume training (T2, CEVIS, ARED); nutrition supplements

Research

Topics

Geological History
Habitable Zones



Space Weather & Radiation Hazards

Radiation Hazards

Risk of cancer and disease

Shielding (Hull)

Acute radiation sickness

Safe haven for emergencies

Equipment malfunctions

Radiation monitoring

Space Weather Protection

Hull Materials

Safe Haven Room

Aluminum

Attached to Module

BNNT Nanotubes

Shielding Materials

Polyethylene

Solar Storm Protection

Radiation Monitoring

Heliophysics Environmental & Radiation Measurement Experiment Suite (HERMES)



European Radiation Sensors Array (ERSA)