CROSMO

Crop Space Module

Team: Filo-Space

Project: CROSMO Crop Space Module

Challenge: Have seeds will travel

Team members:

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ABOUT CROSMO

CROSMO (CRop Space MOdule) is a deployable module capable of providing fresh food to the crew, optimizing as much resources and time as possible. In addition, CROSMO will have the ability to indicate the astronauts' dietary regimen, considering the food nutrients and resources.

- Practical
- Optimized
- Novel
- High-level autonomy
- Mass-volume efficiency
- Deployable

NASA INTERNATIONAL SPACE APPS CHALLENGE

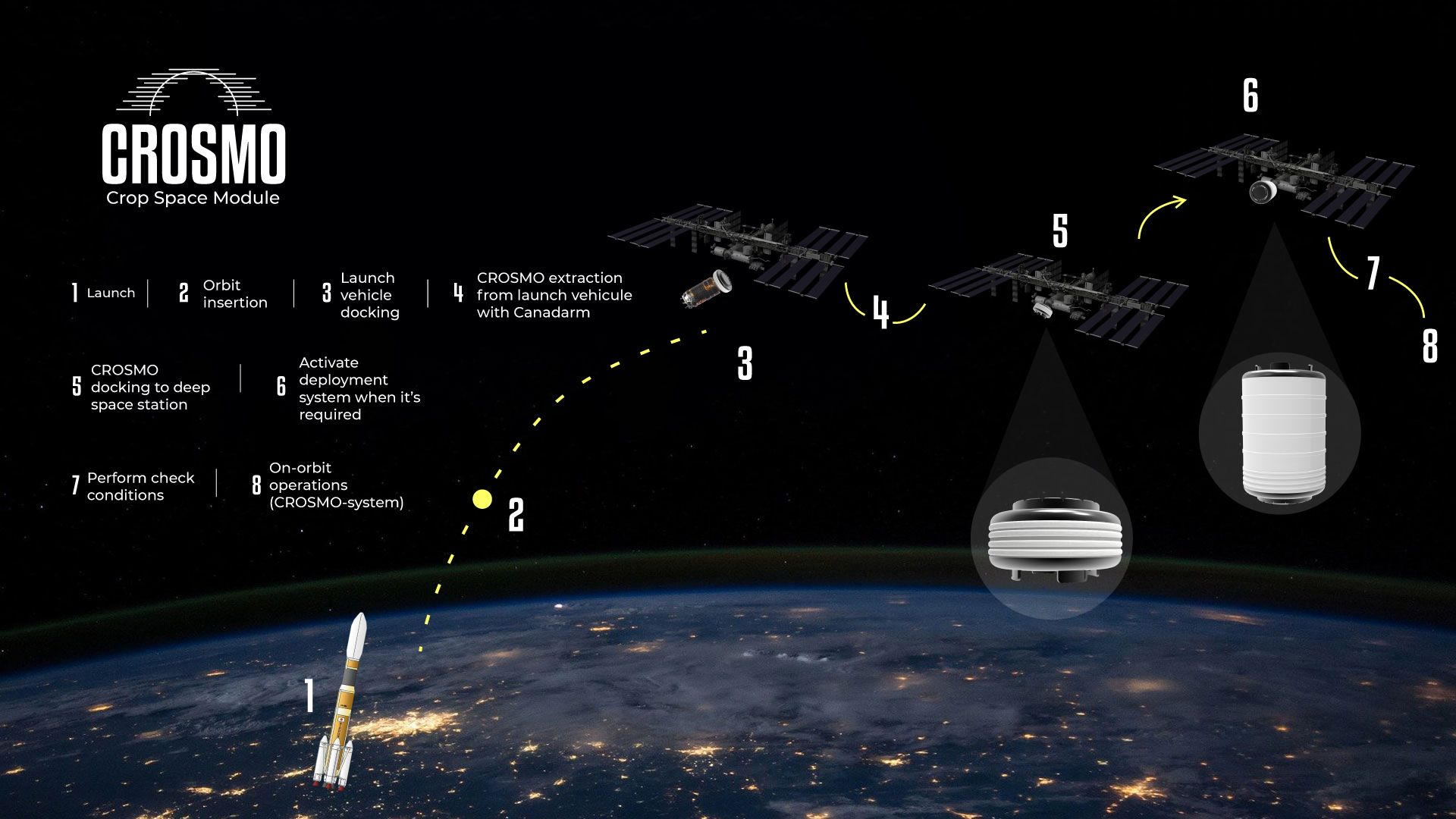
CROSMO

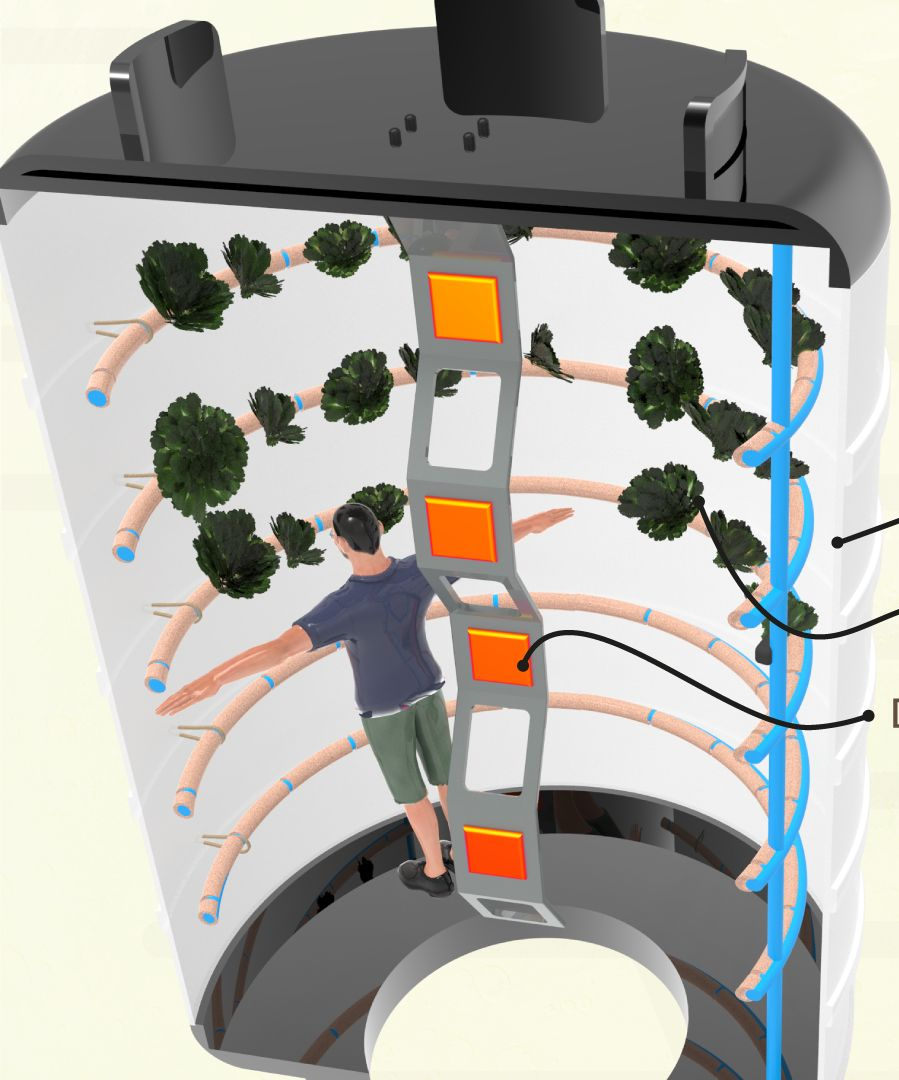
Crop Space Module

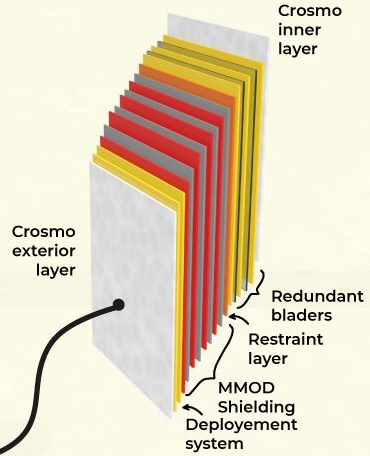
1 Launch | 2 Orbit insertion | 3 Launch vehicle docking | 4 CROSMO extraction from launch vehicule with Canadarm

5 CROSMO docking to deep space station | 6 Activate deployment system when it's required

7 Perform check conditions | 8 On-orbit operations (CROSMO-system)







CROP SYSTEM

DEPLOYABLE COLUMN Light | Flanks

• PRACTICITY

Deployable-retracted Module

• MATERIALS

Resistant
Lightweight
Flexible
Durable
UV protetion

• SUB-SYSTEMS

1. Air bleeding System
2. Skeleton pantograph deployable structure

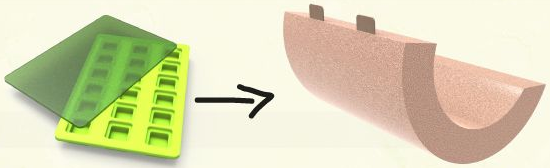
NASA INTERNATIONAL SPACE APPS CHALLENGE

CROP SYSTEM

1

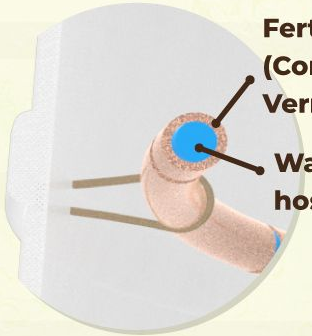
Create the fertilizer using **Bio-Convertor**.

2

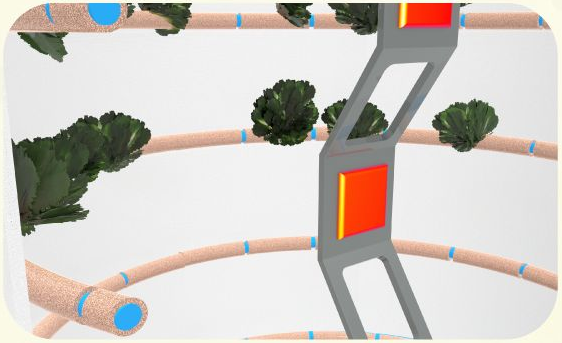


Packing the fertilizer and seed in the pad

3



Put the pad around the hole of hose



5 Drip irrigation

6 Monitoring

7 Crop

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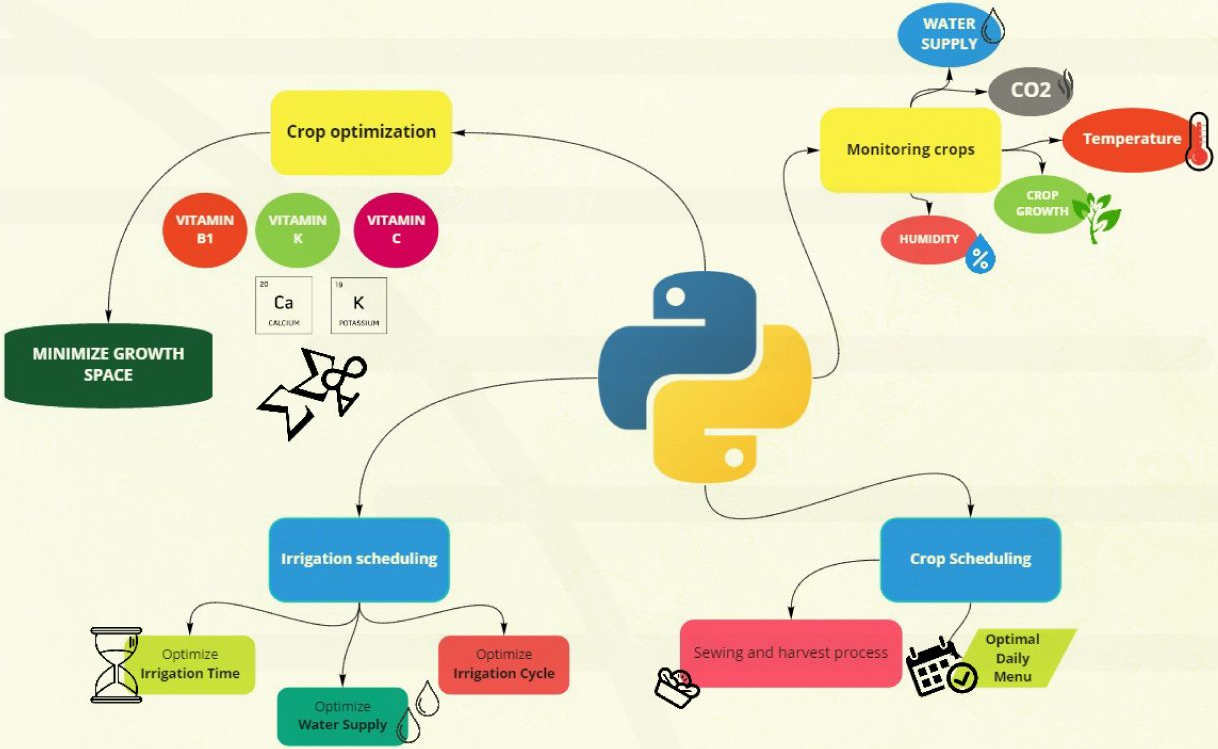
CROP OPTIMIZATION SYSTEM

A Mathematical model for taking advantage of nutrients under microgravity stress conditions



Optimize harvesting growth time

Optimize parameters for nutrient and vitamins utilization

NASA INTERNATIONAL SPACE APPS CHALLENGE

FUTURE OF CROSMO



SPACE EXPLORATION: Testing in Martian Analog Environments
GLOBAL PROBLEMATICS: Famine Reduction around the word

OPEN DATA USED

Veggie
Artemis

HTV-X

Our experience in this Hackathon was fun and enriching. We are a multicultural and diverse team, we all enjoyed this time creating CROSMO. We hope this system helps humanity!

NASA INTERNATIONAL SPACE APPS CHALLENGE