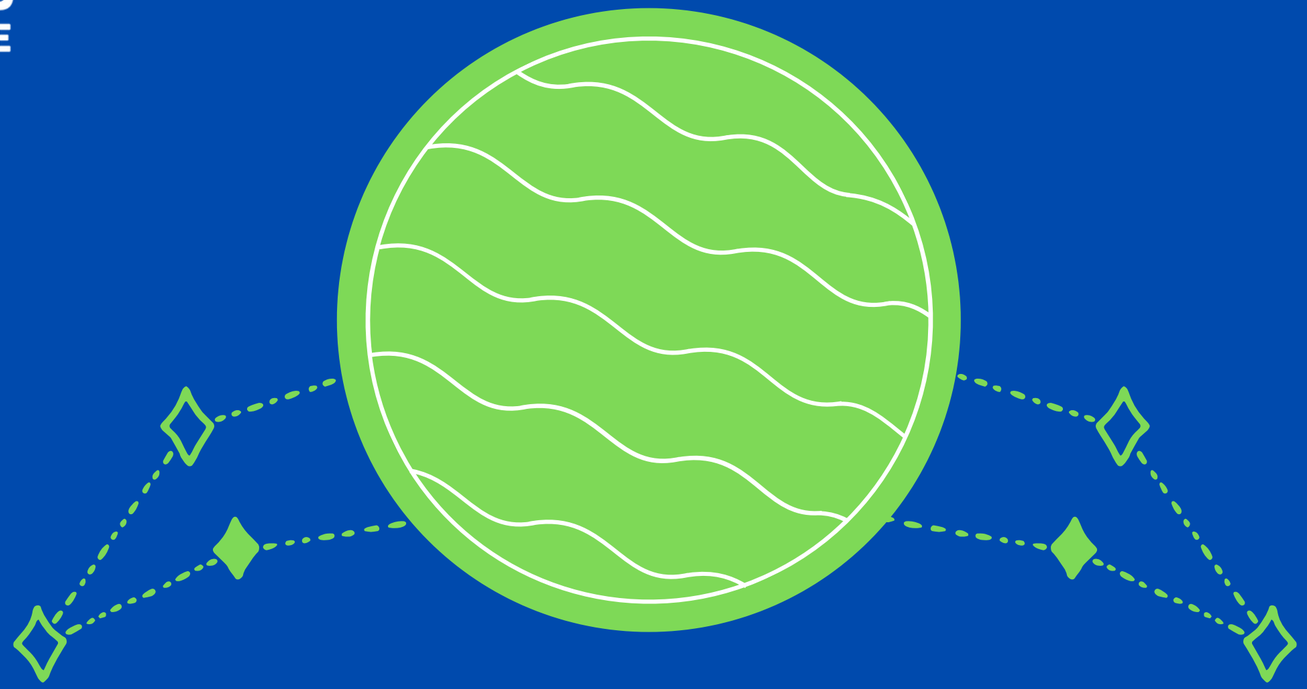
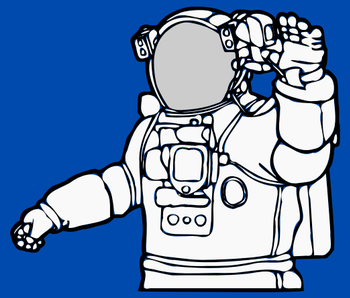
NASA INTERNATIONAL SPACE APPS CHALLENGE



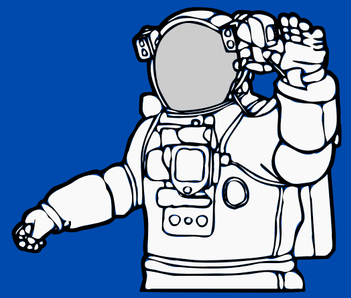
COSMIC SOIL

Our Team



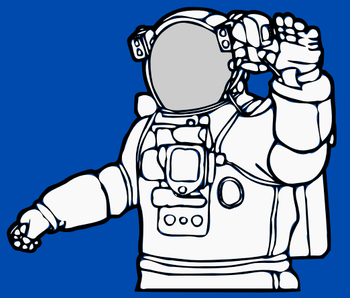
Evgeniy Ginzburg

DevOps engineer



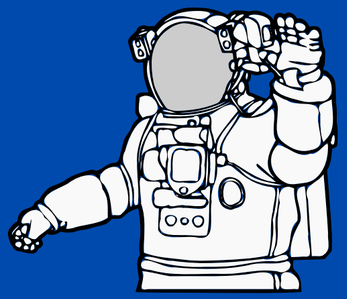
Marc Nürnberg

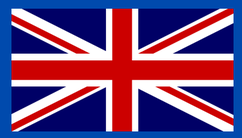
Student



Mohamed Ali Khiari

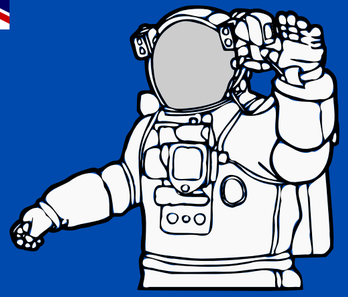
Law student





Tayyib Masood

Medical Student



Adarsh Saurabh

Computer Science Student

Our challenge

Challenge

HAVE SEEDS WILL TRAVEL!

HTTPS://2021.SPACEAPPSCHALLENGE.ORG/CHALLENGES/STATEMENTS/HAVE-SEEDS-WILL-TRAVEL

Anlaysing the problem

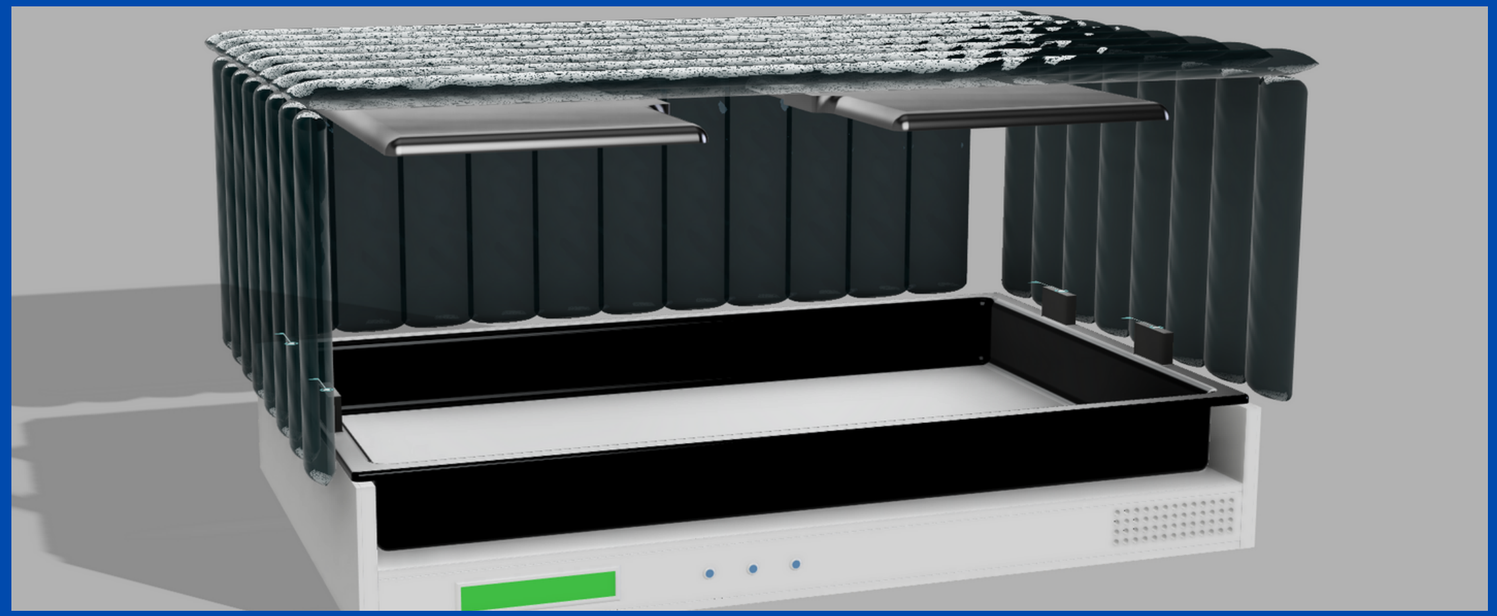
On a journey to the red planet the strongly limited volume inside a spacecraft will be one of the hardest challenges for the engineers as well as the crew on board to deal with.
In addition working in Zero-G is not easy. Stuff floats away, dirt doesn't settle on the floor and water is most definitely not an abundance.
Further, all modules should be highly efficient in ressource utilization and highly automated to reduce the amount of work by the crew.

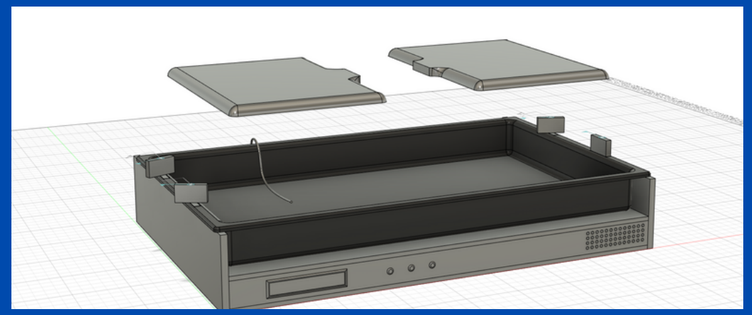
The solution?

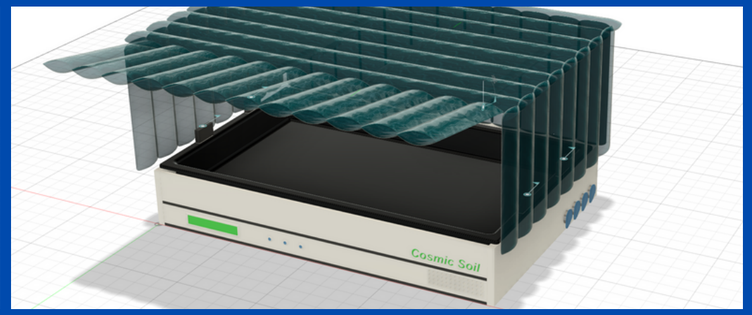
A highly modular and customizable approach to growing food in space. This is achieved by the use of a semi rigid unit consisting out of base part as well as an inflatable enclosure. This results in great accessibilty, high production rates and all of that with outstanding storage capabilitys.

- Growing volume per unit: 250 metric Liters
- when in storage the module takes up less than half of its usual size
- features like high automation and a closable growing environment

Our prototype







Whats next?

The use of substrate to grow plants has numerous problems. One main problem is reusabilty. Substrate must be sterialized after a few growing runs and evantually replaced. As a result we incooperated a easy removable tray so that astronauts could do former processes. Of course this is not ideal but new technologies are on there way which make use of capillary forces. So if this turns out working the tray could easily be addapted, making the CSGM even better.

SPECIAL THANKS TO THE TEAM THAT MADE
THIS PROJECT POSSIBLE TO CREATE.

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