
# PureBreze

An Air Filtration Unit; Purifying Air; Protecting Lives.

# Challenge:
# “Purify the Air Supply”

01

We recognize that air filtration and purification is not only essential in space onboard the ISS but in our every day lives, in our everyday homes and office and now more then ever during this COVID-19 pandemic.

02

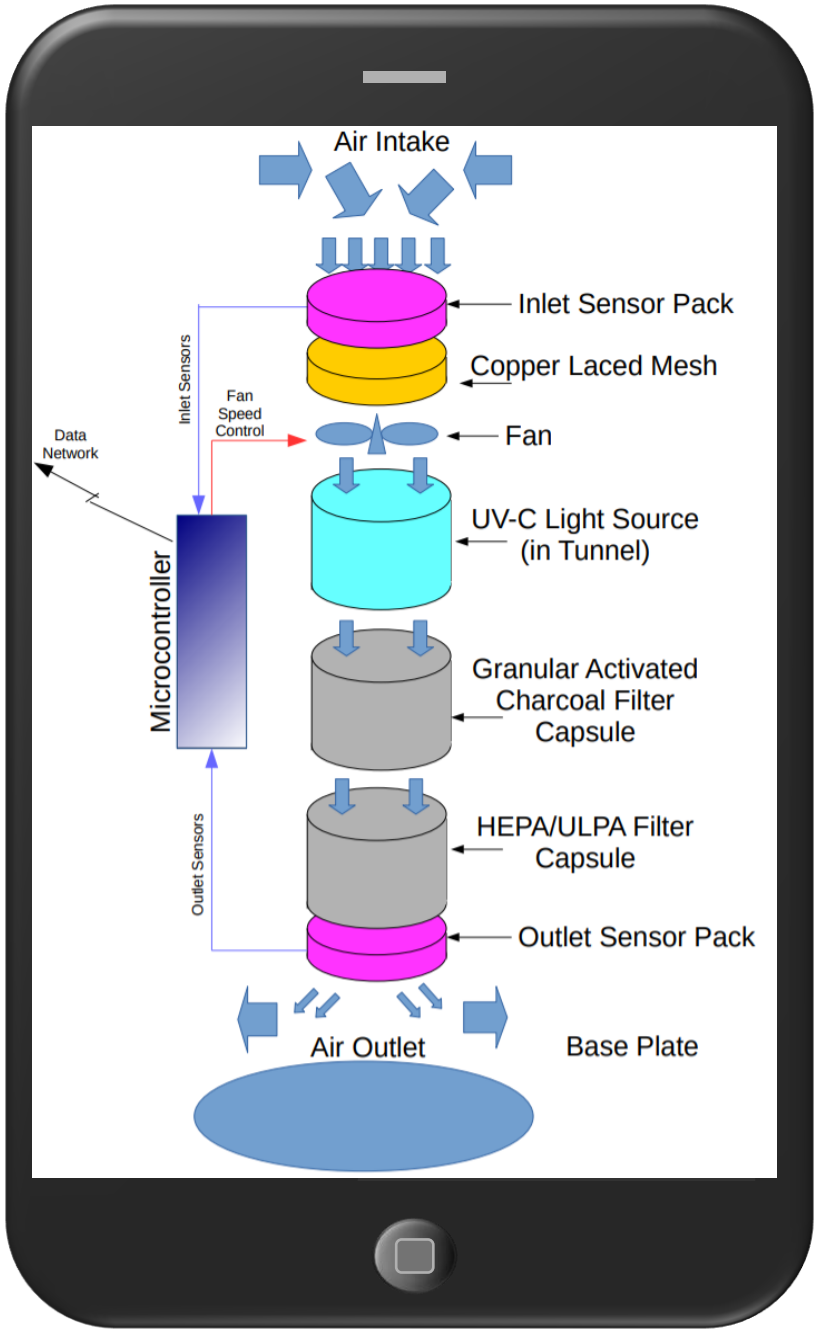
Currently air pollution is increasing at rates higher than ever. Our homes, especially in large cities and built up areas are also likely to be more affected with air pollution. The challenge to overcome this and clean the air is sometimes forgotten as we take it for granted sometimes not thinking too much about what it is, we inhale into our lungs.

03

It has taken a pandemic to re-assess this; it has taken a pandemic to realize the air we breathe is not pure.

04

NASA data would be used to inform the PureBreze devices of local poor air quality. For instance the PureBreze can start cleaning the air ahead of time.
Data collected by PureBreze devices can be sent back to create a dataset of how indoor air quality is affected by local air quality. This data set can also show how well the devices are functioning.




# OUR SOLUTION

- Our system design, inspired by the ISS, is adapted for cheap and easy use in homes, vehicles, workplaces and personal use.
- PureBreze Purifier will monitor and purify the air supply.
- The physical device is built to enable the public to make it from home using easily obtained items.
- The sensors and feedback parts are going to be developed separately to run on the Raspberry Pi programmed in the language Forth.

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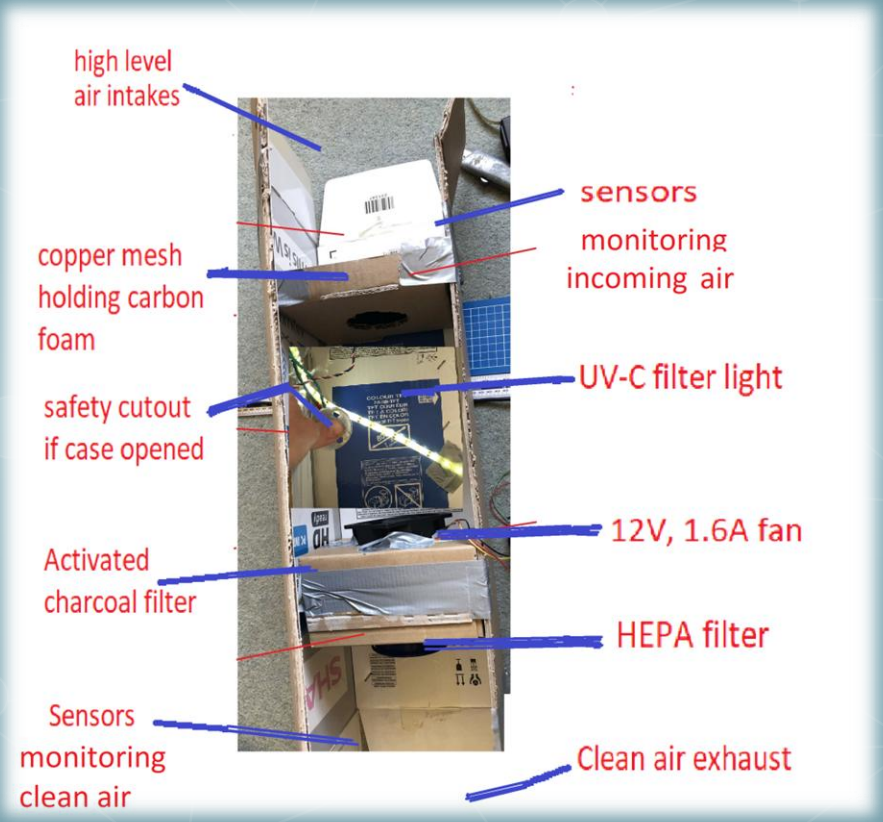
*Like the Apollo 13 astronauts we used what we had to hand.*

# HOW IT WORKS




Inlet air into the PureBreze filtration and sanitation system is first passed through a coarse filter that is threaded through with copper mesh.

Then it is exposed to UV-C germicidal light.

Any viral spores are then captured by the activated carbon filter.

Finally it is pressed through the HEPA (hospital grade) filter pack. A variable speed fan controls airflow through the system.

Sensor arrays at the inlet and outlet are compared to evaluate the effectiveness of the sanitization and filtering.

The collected data would be made available to the internet for global anonymised data gathering regarding environmental conditions within homes around the planet.

# RELATED DATASET:

- NASA - https://spinoff.nasa.gov/Spinoff2013/cg_4.html
  Home Air Purifiers Eradicate Harmful Pathogens

- NASA- https://settlement.arc.nasa.gov/75SummerStudy/Chapt3.html
  3. Human Needs in Space

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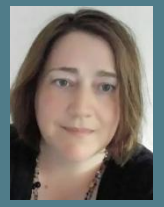

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