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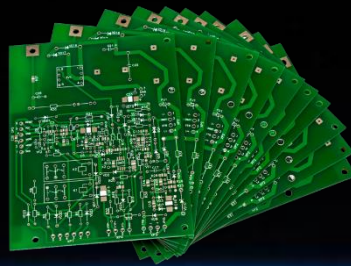
MakerSat: A CubeSat Designed for In-Space Assembly

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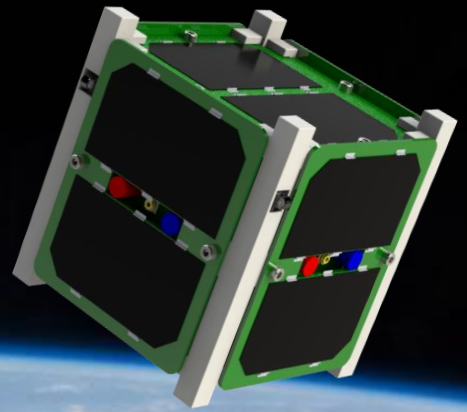
Dr. Joshua Griffin
Dr. Stephen Parke

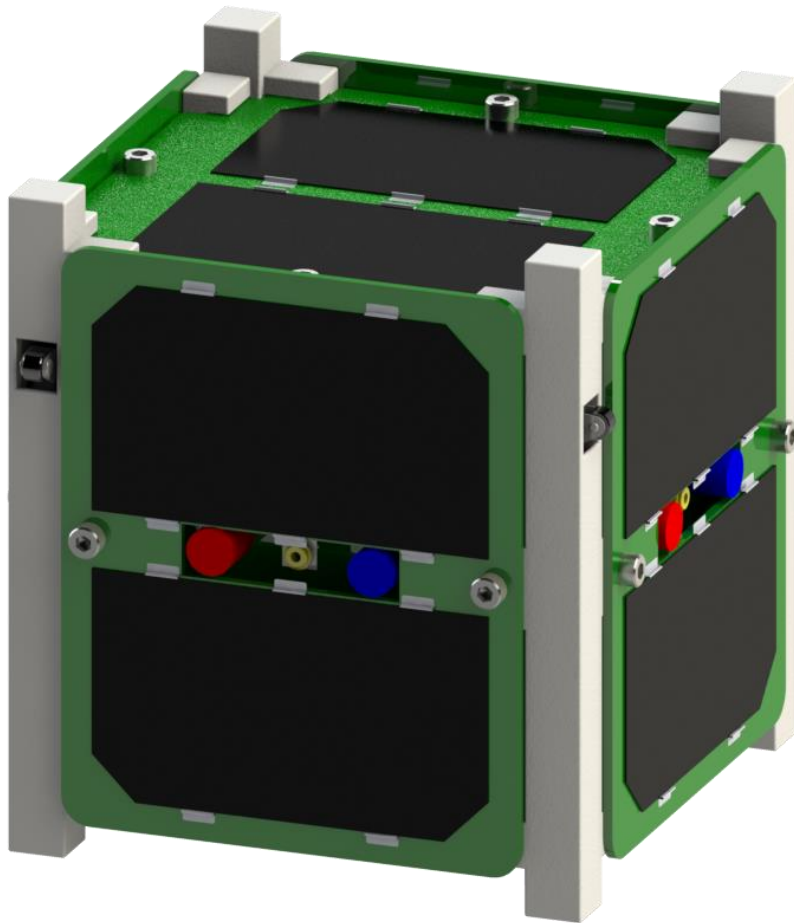


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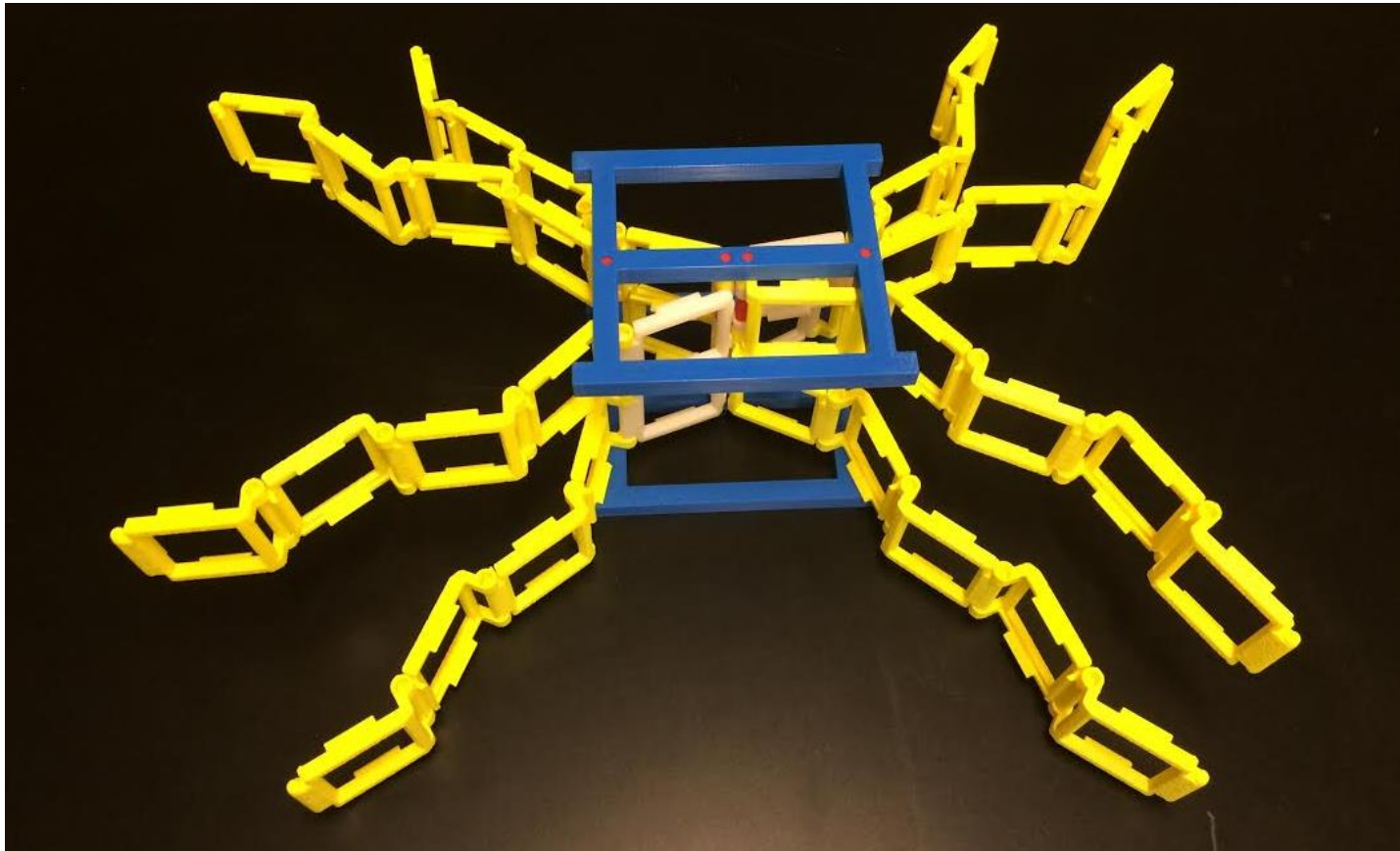
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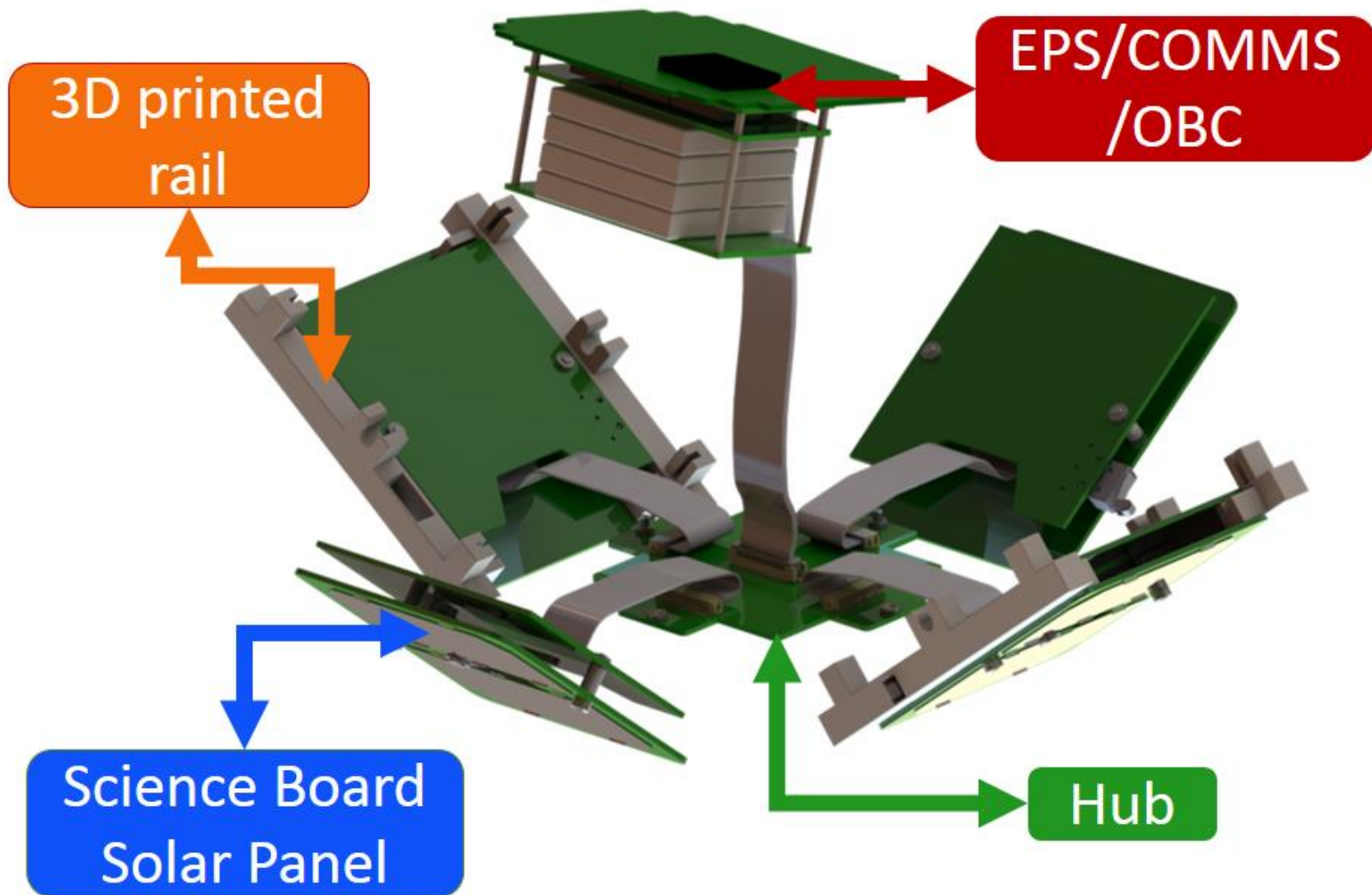
MakerSat will demonstrate in-space additive manufacturing and assembly of small spacecraft.

Manufacturing in space has many advantages.

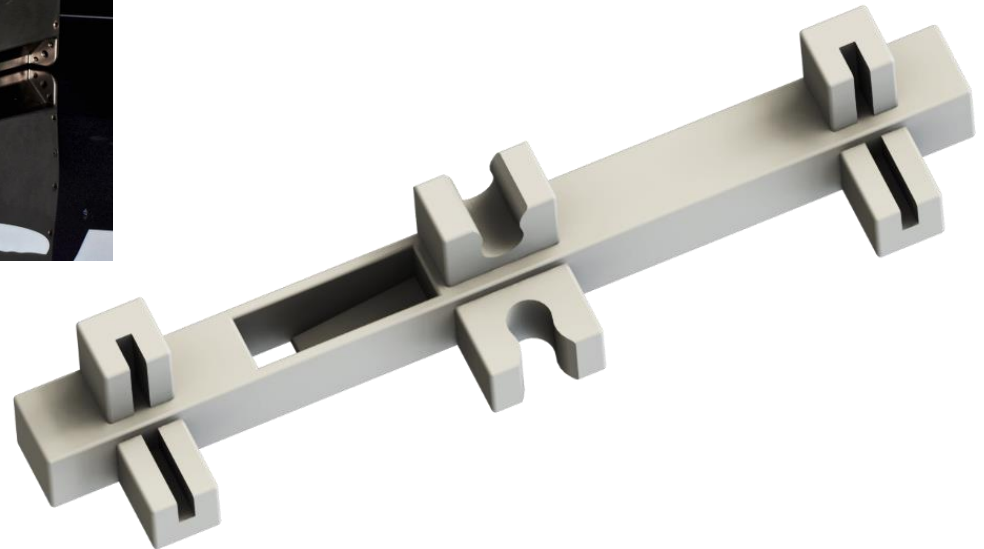


MakerSat addresses on-orbit assembly issues.

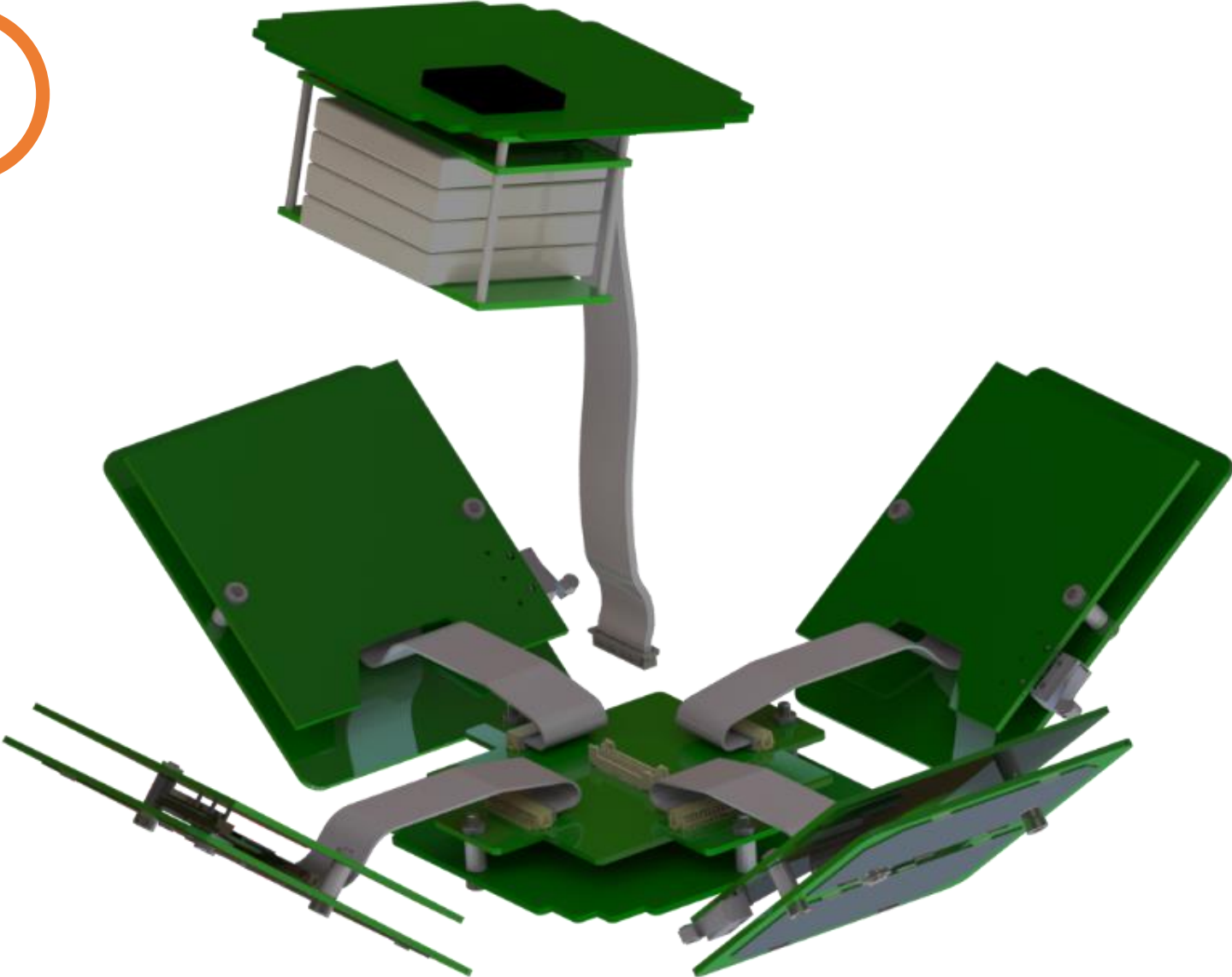
Issue	Solution
Crew safety	No small free floating tools/fasteners
Crew time	Assembly of ~5min
Polymer degradation	ULTEM



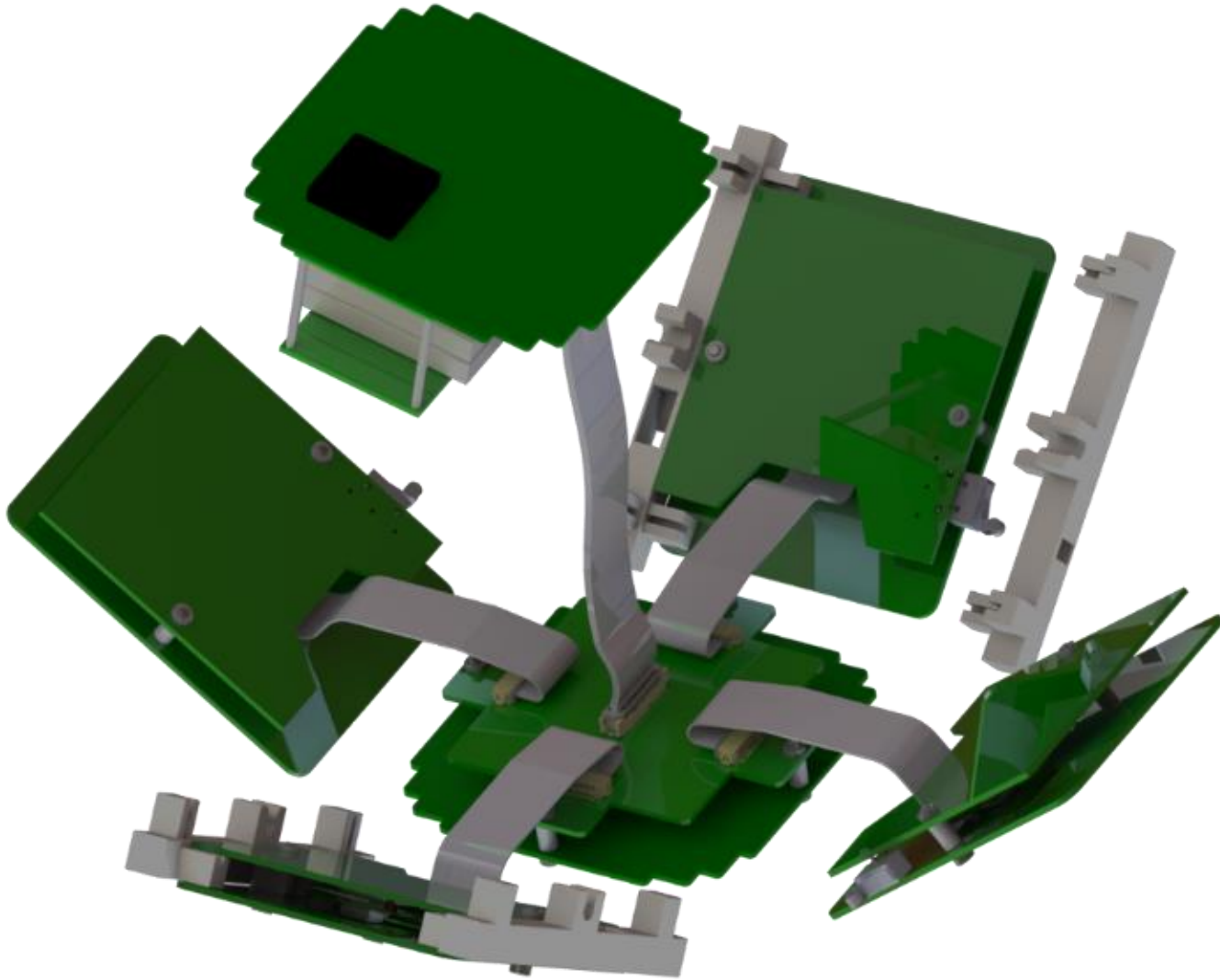
Four rails will be 3D printed on the Made In Space Additive Manufacturing Facility.



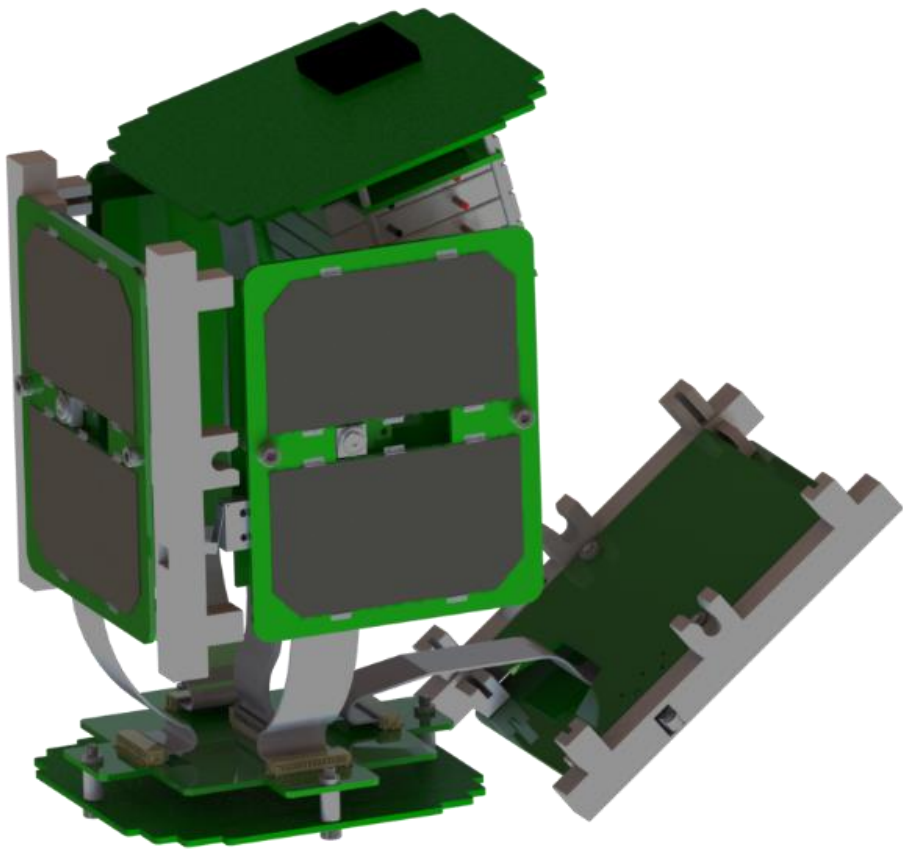
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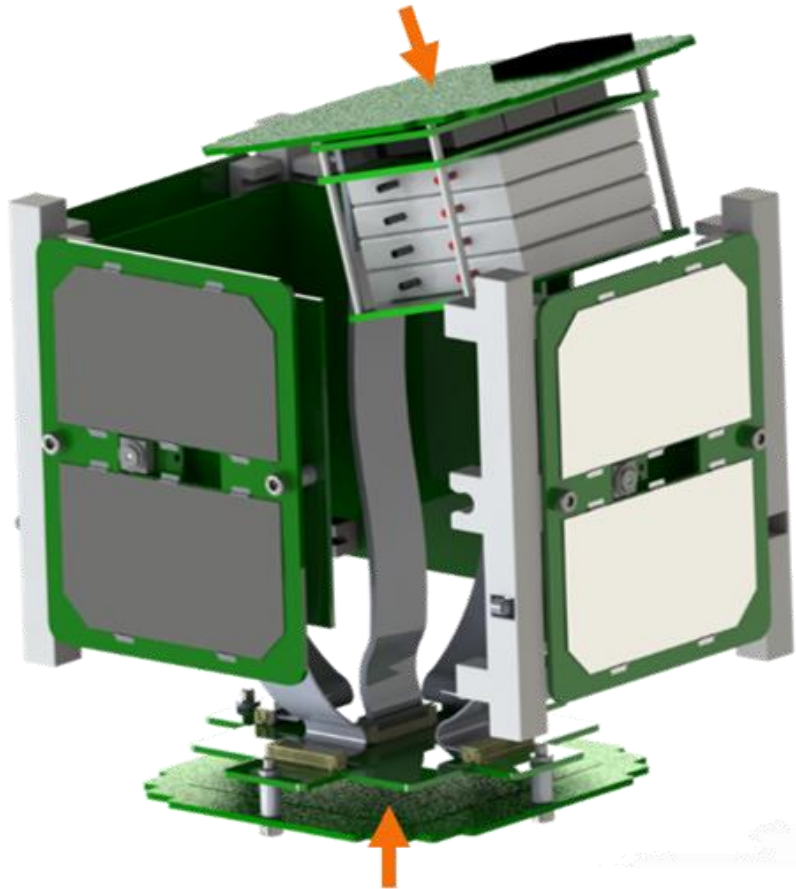
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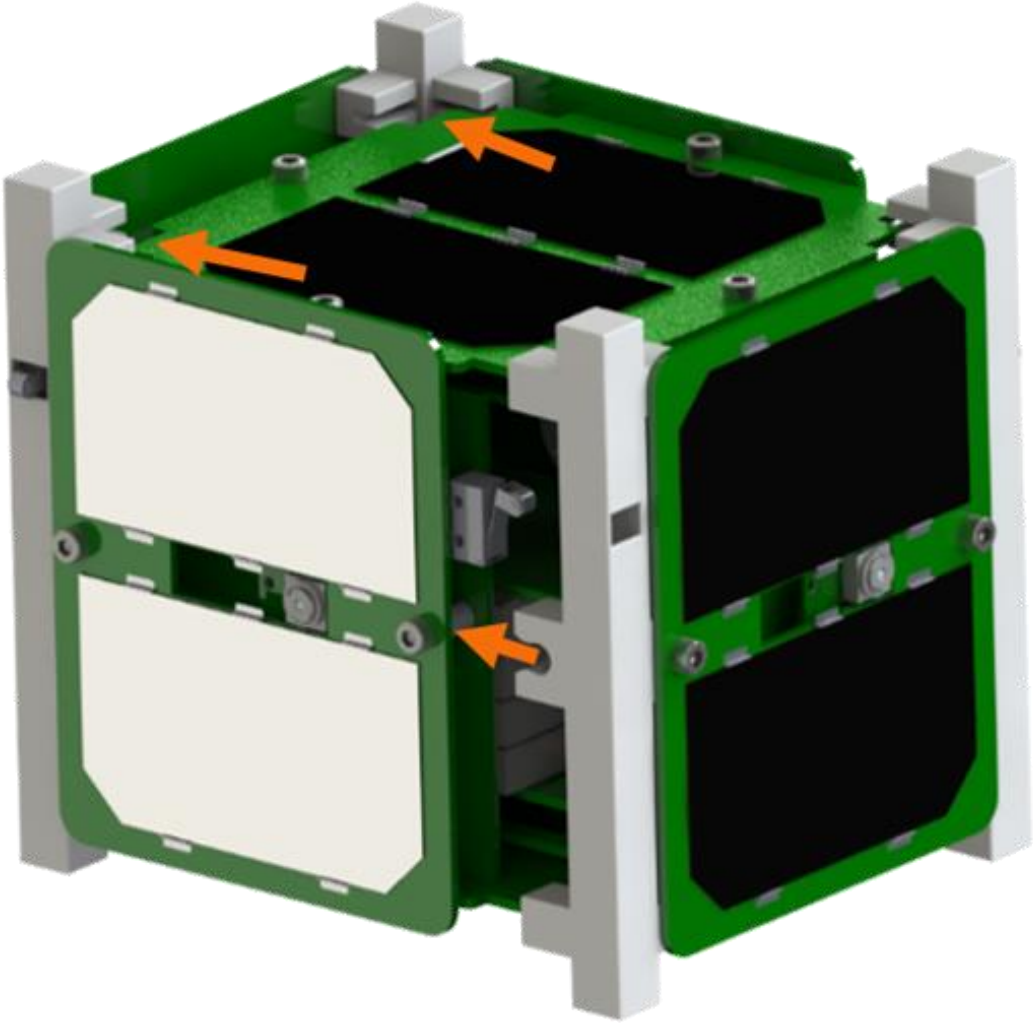
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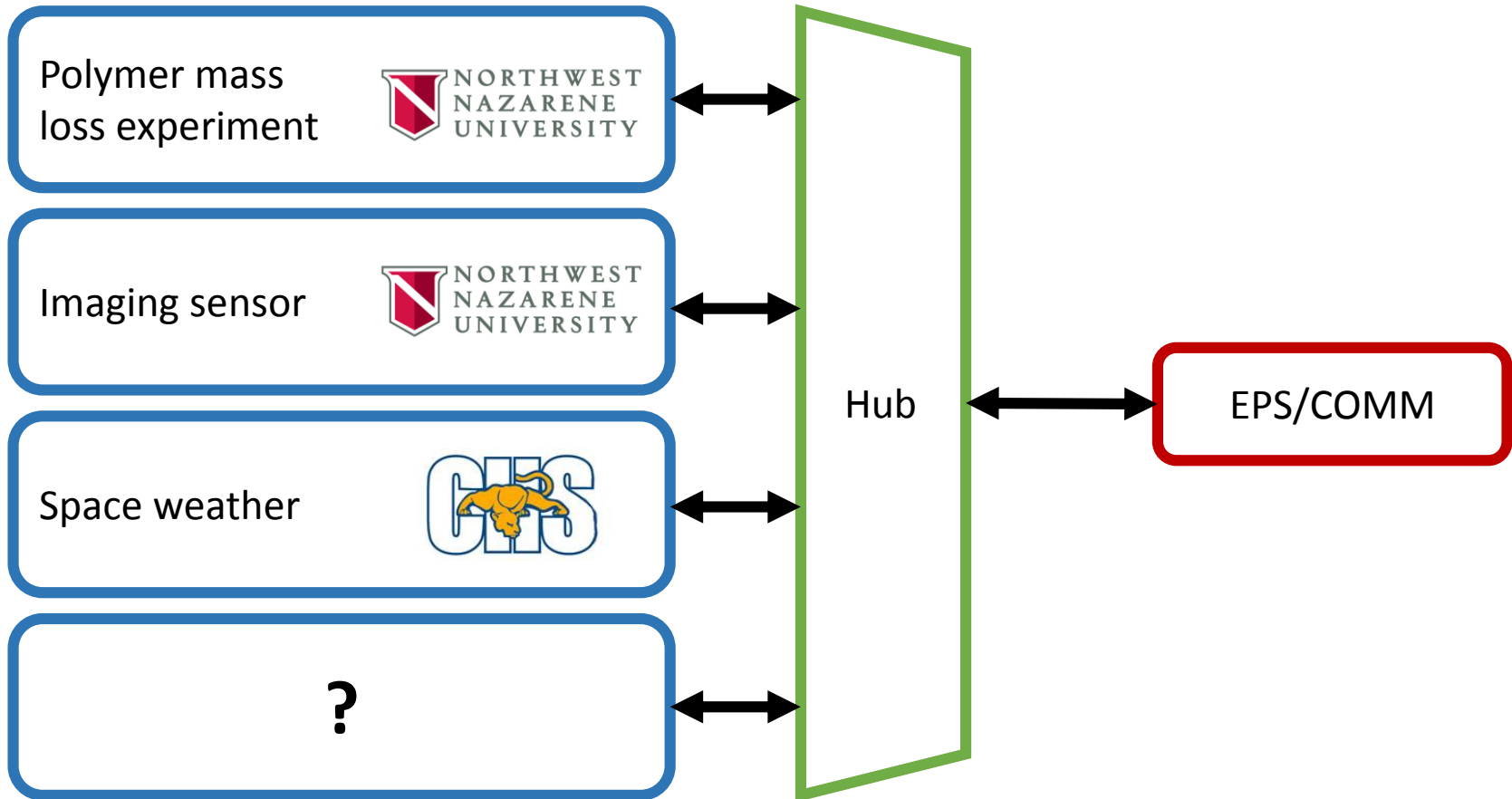
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The Hub multiplexes power and radio communication to each user's payload.



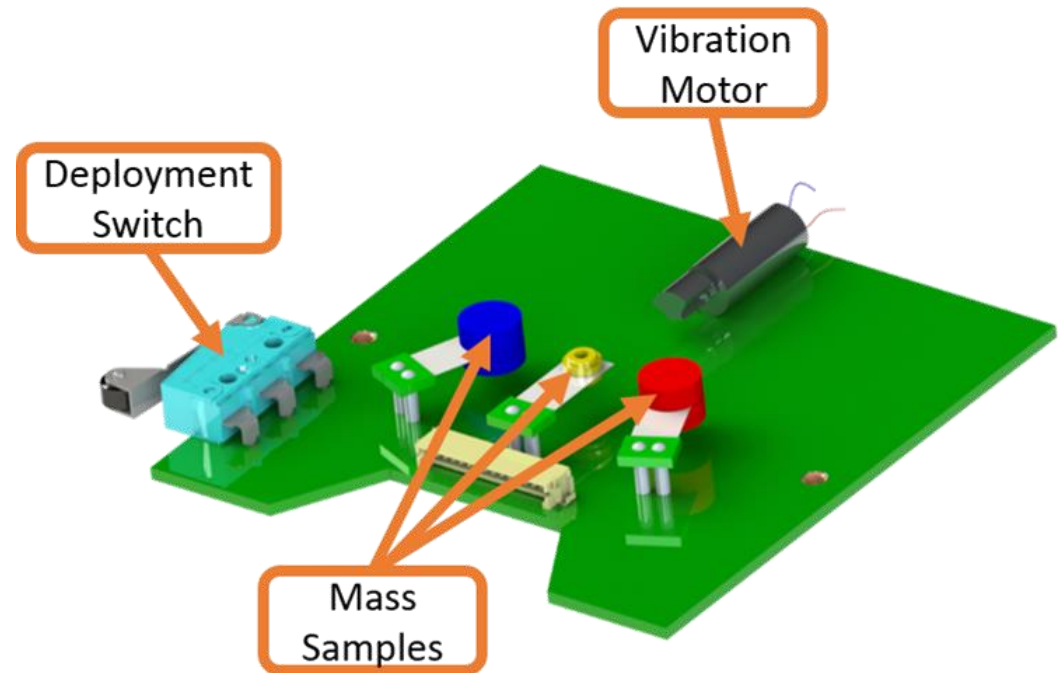
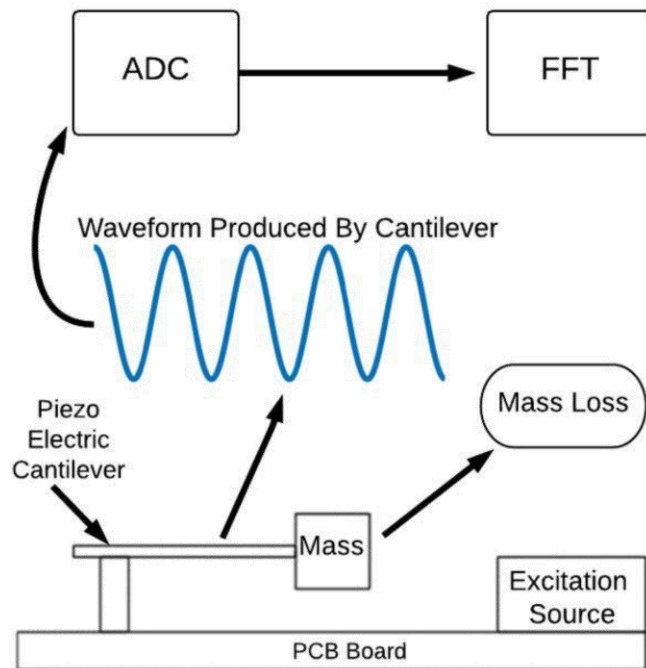
Polymer degradation is a concern.

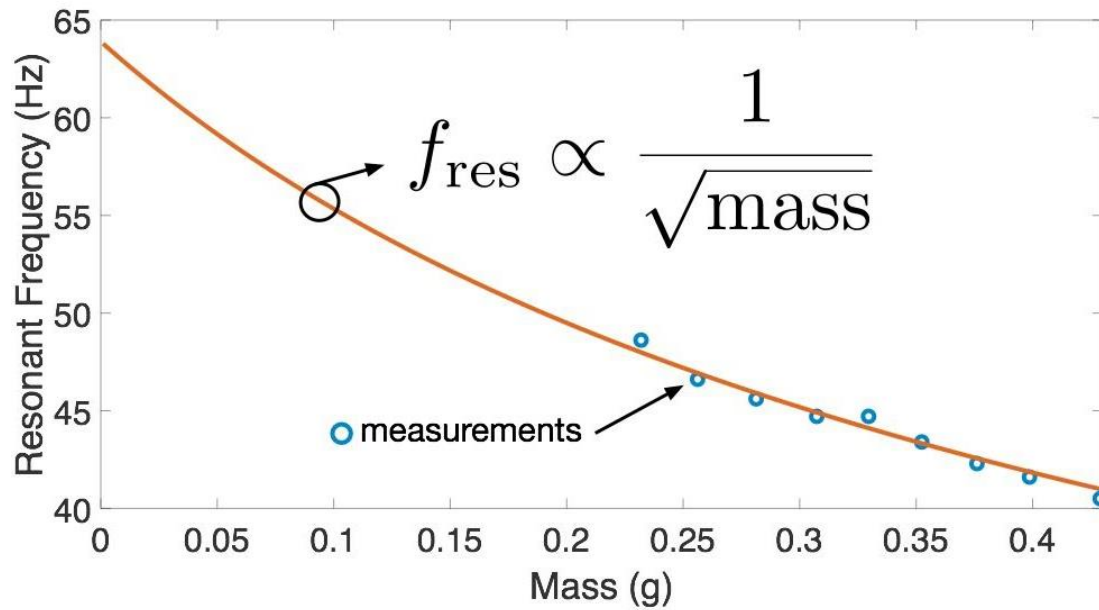


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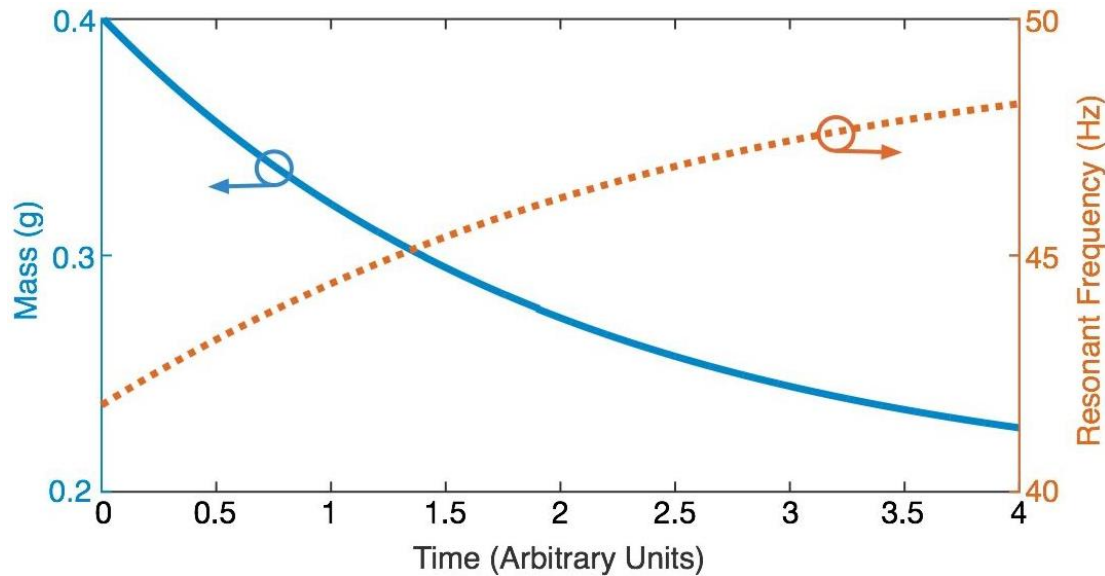
The MISSE 2 PEACE Polymers experiment post flight.

The resonant frequency is used to determine the polymer mass loss.





As mass is lost the resonant frequency will increase.



MakerSat is about to become a reality.

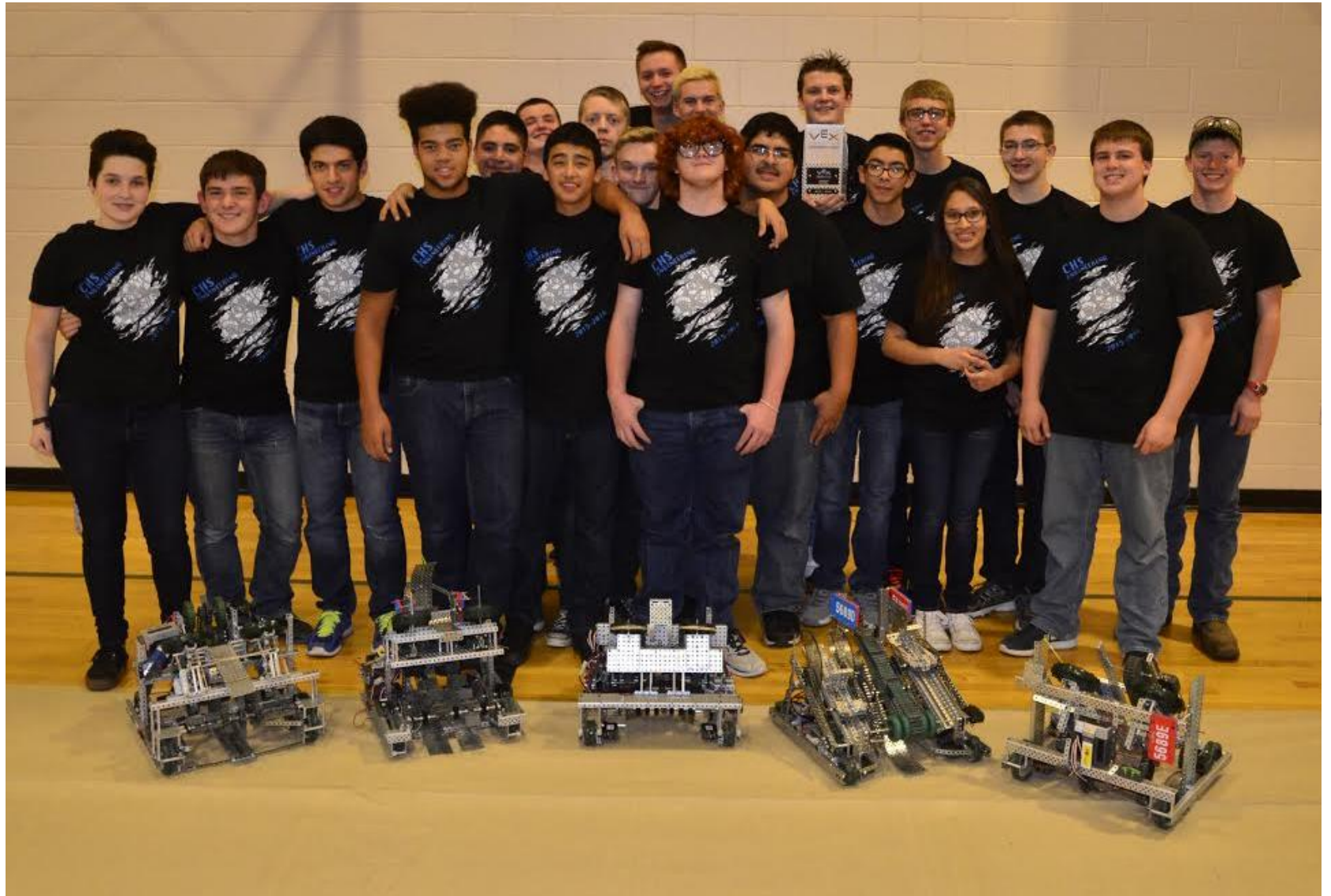


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Future ISS mission

Conclusion

- Advantages of in-space manufacturing
- How to assemble a CubeSat on the ISS
- Open questions about polymers in space



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