

A self-healing satellite? Students seek your funds to launch prototype

November 29 2013, by Elizabeth Howell



Self-healing materials could be useful for applications ranging from spacecraft to GPS satellites, pictured here. Source: NASA

Imagine if your spacecraft was punctured and it could do the repair itself, without the need of you going outside on a dangerous spacewalk. Well, a Canadian team has a prototype idea that could lead to self-

healing structures in space. The concept is all set, and they're asking for financial help to launch it on crowdsourcing platform Kickstarter.

Here's how the Concordia University material would work:

- It's constructed out of carbon fiber (to reinforce it) and an epoxy resin (for its matrix).
- After the structure is damaged, it would "transport ... a healing agent" to that area using microcapsules that are inside various spots on the resin.
- The structure then chemically repairs itself (more technical details [here](#).)

"This self-healing material is of high interest within the aerospace community such as the Canadian Space Agency and the European Space Agency. If viable, it would be capable of increasing the lifetime of space structures," the team stated on the fundraising page.

"Prolonging the life of a spacecraft will decrease the required maintenance over its lifetime, which is impossible in many cases. For example, the ammonia leak that happened on the International Space Station (ISS) in May was probably caused by a micrometeoroid and orbital debris (MMOD) impact. If a self-healing shield is implemented in the ISS, the advantage would be to reduce the amount of manual repairs needed on the exterior of the craft and generally improve its lifespan in orbit. This would allow for an overall cost reduction for the spacecraft."

The engineering team (which calls itself Space Concordia) won the first Canadian Satellite Design Challenge and plans to launch the satellite from that challenge, ConSat-1, as part of a European Space Agency program. (The team did not disclose a launch date on Kickstarter, but

said the project is "currently in the final stages of completion.") This [self-healing](#) satellite would be called ConSat-2.

kickstarter.com/projects/981958479/help-us-build-a-satellite/widget/video.html" frameborder="0" scrolling="no">

You can [read more](#) details about the campaign on their Kickstarter; the campaign concludes Saturday (Nov. 30). The material was developed by Concordia researcher [Suong Van Hoa](#) with help from MPB Technologies and the Canadian Space Agency, among others.

Source: [Universe Today](#)

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