Engineering students aim to generate first breathable air on Mars

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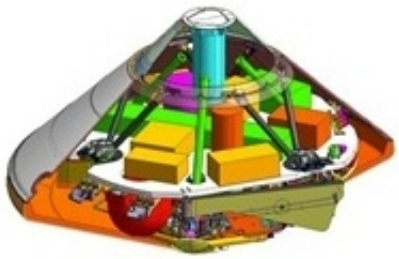

A project by students from The University of Western Australia and Mars One astronaut candidate Josh Richards has reached the finals of an international competition to land vital experiments on the Red Planet.

The Helena Payload project, which aims to generate the first breathable air on Mars, is one of 10 finalists in the Mars One University Competition and is the only successful entry from the southern hemisphere.

Mars One is a not-for-profit foundation that aims to establish permanent human life on Mars.

The winning payload will fly on Mars One's first unmanned lander mission and arrive on the surface of Mars in 2018, along with other experiments and a communication satellite.

Helena aims to demonstrate key-life support technology, using electrolysis to produce oxygen from water extracted from Martian soil. Its primary science payload is an electrolysis module housed in a custom-made chassis unit.

However, in a move inspired by the 'Golden Record' mounted on each of the Voyager 1 and 2 interstellar probes, Helena will also carry a 'time capsule' in the form of a radiation-hardened DVD filled with content submitted by the public via social media during National Science Week 2015.

UWA engineering student and Helena co-lead, Andre Van Vulpen, said the project, developed in conjunction with Perth physicist and Mars One astronaut candidate Josh Richards and named after the Shakespearean heroine who 'breathed life into stone', would be the first example of life-support technology on the surface of Mars and a precursor to the arrival of the Mars One colonists in 2025.

"Our experiment will hopefully pave the way to ensure the survival of the elected astronauts on the Red Planet, as we attempt to produce oxygen from Martian resources," Andre said.

"In addition to the scientific contribution, we are hoping to put together the largest crowd-sourced art collection ever sent to another planet, allowing any Earth citizen the opportunity to join us on our trip to Mars, and leave their legacy in truly 'out of this world' tyle."

Provided by University of Western Australia