### Tags: Citizen Science, Hardware

*Ideasphere is the concept of utilizing crowd sourcing & 3D Printing to improve the experience of space travel. This concept provides a solution for the unknown and unpredictable issues that may arise during space exploration. Our response presents an example of a technical design and is on the potential for a more human-centred experience. Connecting people on earth and in space through Ideasphere.*

This project is solving the [**3D Printing Contest**](https://2013.spaceappschallenge.org/challenge/esa-3d-printing-contest) challenge.

**Description**

After immediately recognizing that 3D printing could be applied to making custom parts for space missions and solving technical issues, we began trying to design a solution to one of these problems. We then recognised the nature of 3D printing makes it an ideal means of solving the unforeseeable. This and our design background caused us to approach this challenge from a new angle. Imagine if 3D printers were available during the Apollo 13 mission. Unforeseen problems could be solved on Earth and resolved in space without delay. This application of 3D printing is just the beginning as 3D printing could also serve as a means of connecting all of humanity with those in space. Our solution is Ideasphere, a website that allows people from around the globe to contribute their ideas to assist in solving problems on space missions. These problems could be technical (a Mars rover gets stuck and requiring a new wheel) or human centred (Astronauts requiring a new way of catching fingernail clippings). Briefs would be uploaded to Ideasphere by mission control, and then 3D printable solutions would be crowd sourced from around the globe.

The example we demonstrated is a Mars rover getting stuck and requiring a different wheel more suited to its unexpected terrain. We designed and modelled a wheel in CAD and 3D printed it to demonstrate how global crowd sourcing could assist in solving a problem. Imagine how space agencies could benefit from the unexpected knowledge and different ways of thinking available worldwide.

This project need not only be applied to technical problems, rather the Ideasphere website could be used in schools to inspire children and reignite the passion humanity once had for space travel. Classes could design something for an astronaut; the design would then be printed in space by the astronaut, connecting these children to space. Ideasphere could also connect astronauts to their families. Children could send 3D scans/models of things they had made and send them to space to be printed. These examples demonstrate how 3D printing can remove the distance barrier of space exploration.

**Project Information**

* License: [Creative Commons BY 3.0](http://creativecommons.org/licenses/by/3.0/)
* Source Code/Project URL: <https://mega.co.nz/#F!zJATARIJ!ZC88eFnxRaojsf5Gceyy-g>

**Resources**

* Ustream: <http://www.ustream.tv/channel/http-www-ustream-tv-manage-show-13860841>
* Our presentation: <http://www.kiwispace.org.nz/plugins/servlet/mobile#content/view/33980600>
* Process Photo's: <http://imgur.com/a/8E3vU#0>
* Cad Renders of Example solution: <http://imgur.com/a/eJtzu#2>