

INTERNATIONAL SPACE APPS CHALLENGE





**17 countries, 25 cities, 108 orgs, 2,083 citizens,
71 challenges, 101 solutions, 3.3 million
media impressions, in 48 hours**



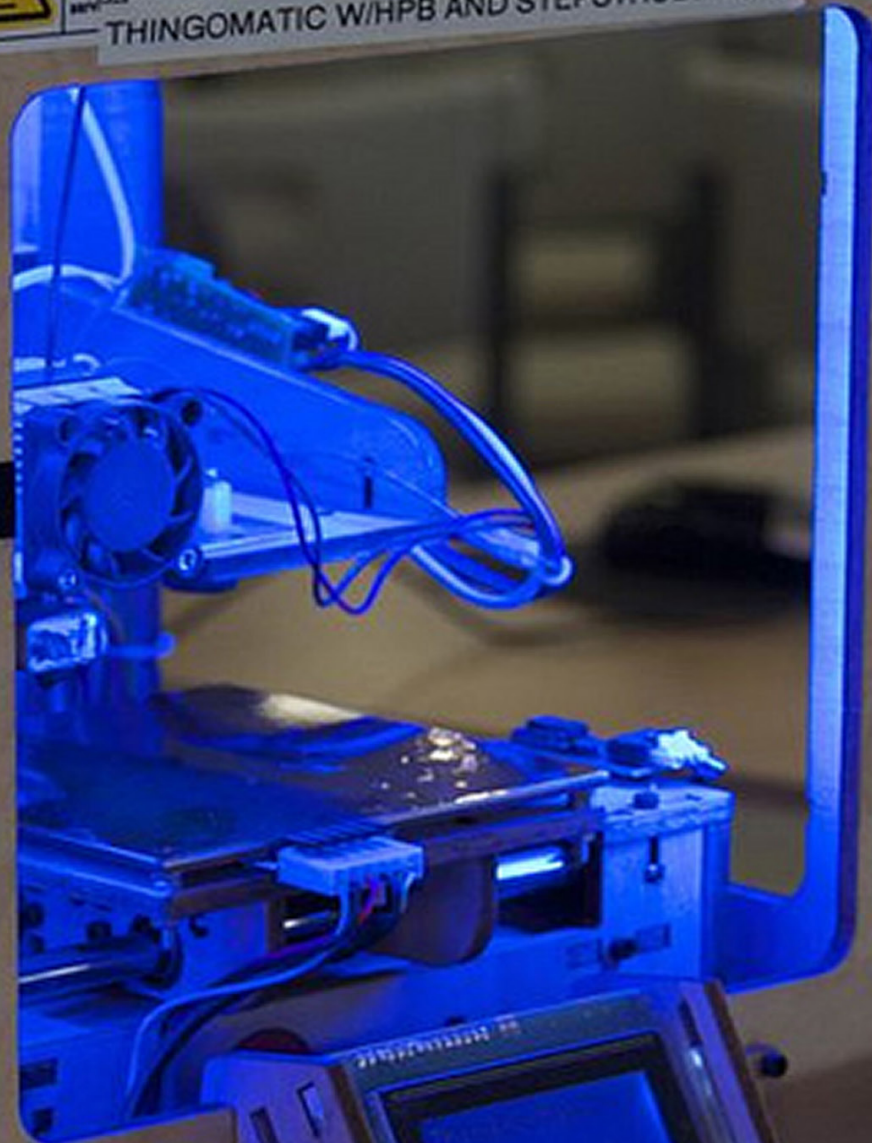
WARNING

Burn hazard.
Hot surface inside.
Allow to cool before
work.



WARNING
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can crush and
cut.
Keep hands clear when
operating machine.

THINGOMATIC W/HPB AND STEPSTRUDER MK7



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“Public agencies must find groups of people, bring them together around an issue or problem that needs to be fixed, then step out of the way and let the collective energy of the people in the room come together and really take that data and solve things in creative and imaginative ways that we would never have done ourselves.”

Chris Vein, Deputy CTO for Government Innovation

Introduction

What does it really mean to innovate?

In business and government, there currently exists a set of techniques for developing new products that has been carried over from the industrial age: a large team is pulled together, the budget is established, a business model or project plan is created, a detailed product road map is developed and rolled out to a user base in phases. This process has proven itself many times over and is especially important when building an expensive rocket – the tiniest error could yield catastrophic failure. Much technological advancement has been made through this process. However, these time-tested methods of management do not lend well to seasons of uncertainty. Innovation, on the other hand, thrives in those seasons.

Innovation is bottom-up, decentralized and unpredictable. True innovation necessitates failure. The more you experiment, the more you fail, the more you learn. Small technologies and initial development deserve innovative process and the opportunity for failure.

At the International Space Apps Challenge we opened up challenges of space exploration and social need and empowered citizens around the world to solve those challenges. This was a bold risk. NASA partnered with organizations with whom they had not previously partnered. NASA empowered local planners in 24 cities around the world, with the vision for contributing to space exploration and social good. Passionate citizens were asked to find and share their solutions to the challenges. In the process of planning, executing and concluding the event we have learned a lot; and recognized the power released when we work together with others committed to changing the way the world works. With that in mind, this report is to share our experience. We experimented with a model for accelerating technology and have captured that story here to be built upon. We hope that business and government alike can carry the story forward.





Event Overview

The International Space Apps Challenge was an international codeathon-style event that took place over a 48 hour period in cities on all seven continents on the weekend of 21 - 22 April 2012. The event was part of the United States' commitment to the Open Government Partnership.

The Open Government Partnership is a multilateral initiative between 55 nations around the world committed to promoting transparency, participation, and collaboration between governments and citizens. The United States released its National Action Plan for the Open Government Partnership in September 2011, including a commitment to hold the International Space Apps Challenge to “promote innovation through international collaboration”.

Space exploration was the ideal catalyst to foster this culture of innovation, and NASA, in collaboration with 9 government agencies and 99 other organizations, hosted the inaugural Challenge event in 25 cities and 17 countries - on all seven continents and online. The event brought together 2,083 registered participants (ages 16-70) together to address 61 challenges that were grouped into four broad categories including open source software, open hardware, citizen science platforms, and data visualization. More than 100 unique solutions were developed in less than 48 hours during the event. All solutions were developed in a completely open source environment, and each have their own unique potential to go even further to address world and space technology challenges.

Locations for the International Space Apps Challenge included: San Francisco, Miami, Boulder, and New York City, USA; Vancouver and Montreal, Canada; Nairobi, Kenya; Tel Aviv, Israel; McMurdo Station, Antarctica; Sao Paulo, Brazil; Santo Domingo, Dominican Republic; Santiago, Chile; Tokyo, Japan; Jakarta, Indonesia; Exeter and Oxford, United Kingdom; Lausanne, Switzerland; Stuttgart, Germany; Melbourne, Canberra, Adelaide, and Sydney, Australia; Bangalore, India; Dublin, Ireland; and Istanbul, Turkey.

In addition to the technology developed, the event itself generated considerable media coverage for the agency, resulting in more than 100 articles including landing on the front of the BBC website on 21 April 2012. Gov2.0Radio provided special coverage for the event that included 45 interviews with organizers, experts and participants from all locations. The entire event was streamed online to thousands of people around the world, and although hard to measure the total viewership, the Twitter stream alone generated 3.3M impressions.





International

The exploration of space is by necessity a unified international effort - and diversity of experience and perspective inevitably produces a better product. We were very intentional to make the Space Apps Challenge valuable to and accessible to the international community, and the experience taught us numerous lessons about how to make it more truly international.

Keys and best practices regarding the global - local perspective:

The organizational structure that has been developed through Random Hacks of Kindness proved highly effective. The partnership between the local leads, operational leads, and government agencies allowed for a highly effective unified effort with a reach extended far beyond any one organization.

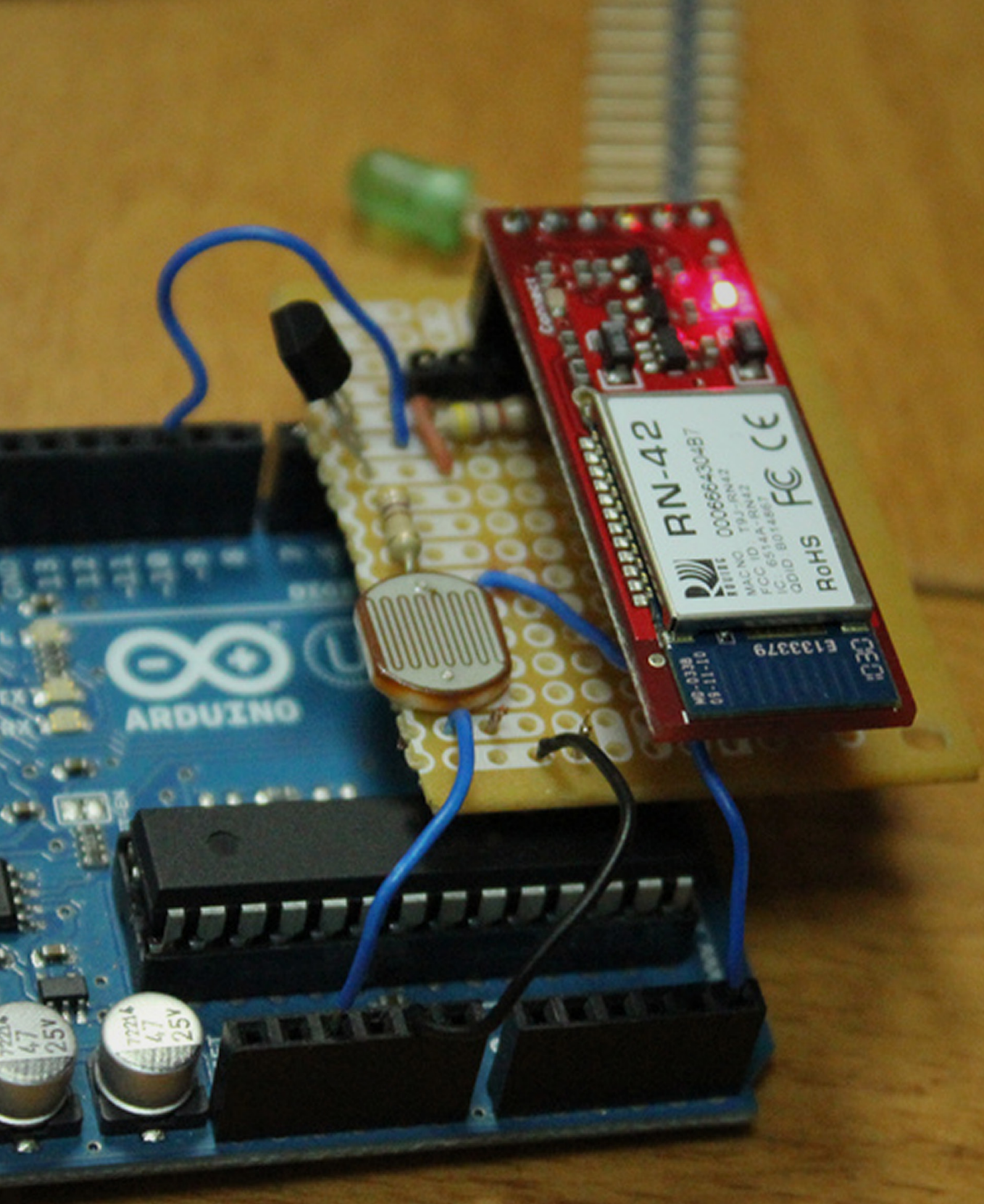
Keep the lines of communication open. As much communication as early as possible as widely as possible is always best.

Be aware of making assumptions about language or technology. While organizers will generally speak English, the accessibility of your event will be limited if it is only in English, and words carry different implications across cultures. Technology capabilities and Internet connectivity vary widely worldwide, even among developer communities.

Empower your local leads to make the right decisions for their culture and environment. One of our events needed to be Friday-Saturday instead of Saturday-Sunday.

Live video stream is invaluable to keep the events connected and the virtual participants closely engaged - to give a real-time visible connection all over the world. We also used Google+ hangout to encourage dialogue across events.





Space Apps

The Challenge strived to achieve the US commitment to the Open Government Partnership by utilizing openly available data, supplied through NASA missions and technology, and the talent and skill of passionate volunteers from around the world to advance space exploration and improve the quality of life on Earth.

Keys and best practices regarding challenges, solutions, and open data:

Be very clear about what an app is in the context of your event. Many assumed we were looking for smartphone apps, while we were interested in any type of hardware or software that enabled a specific task or made data accessible to people.

A diversity of challenges - technical and creative, hardware and software, data visualization and citizen science - is vital to engage different types of participants and get a broad spectrum of solutions. Remember to consider what types of challenges are compelling in cultures and environments other than your own.

The best challenges will have publicly accessible data and specific parameters/requirements. Chunking the challenge into smaller pieces will also facilitate its engagement, particularly across multiple sites.

We cannot overstate how vital it is to make subject matter experts available to the participants over the course of the weekend. These experts provided invaluable insight on their challenges as well as stirring up the participants' excitement about space.

Space Apps explained the value of space exploration in entirely new terms for many of the participants. Beginning to answer the question of what exploration makes possible here on Earth created a whole new realm of possibilities for how they could be involved and why it was important.



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Director: Dr. Sam Duty.

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Challenge

Ultimately, this event was a competition - offering prizes for great ideas and great solutions. The idea of a Challenge is so compelling because it acknowledges the fact that the world is facing serious challenges - and that we all have to work together to approach them.

Keys and best practices regarding facilitating collaboration in the context of competition:

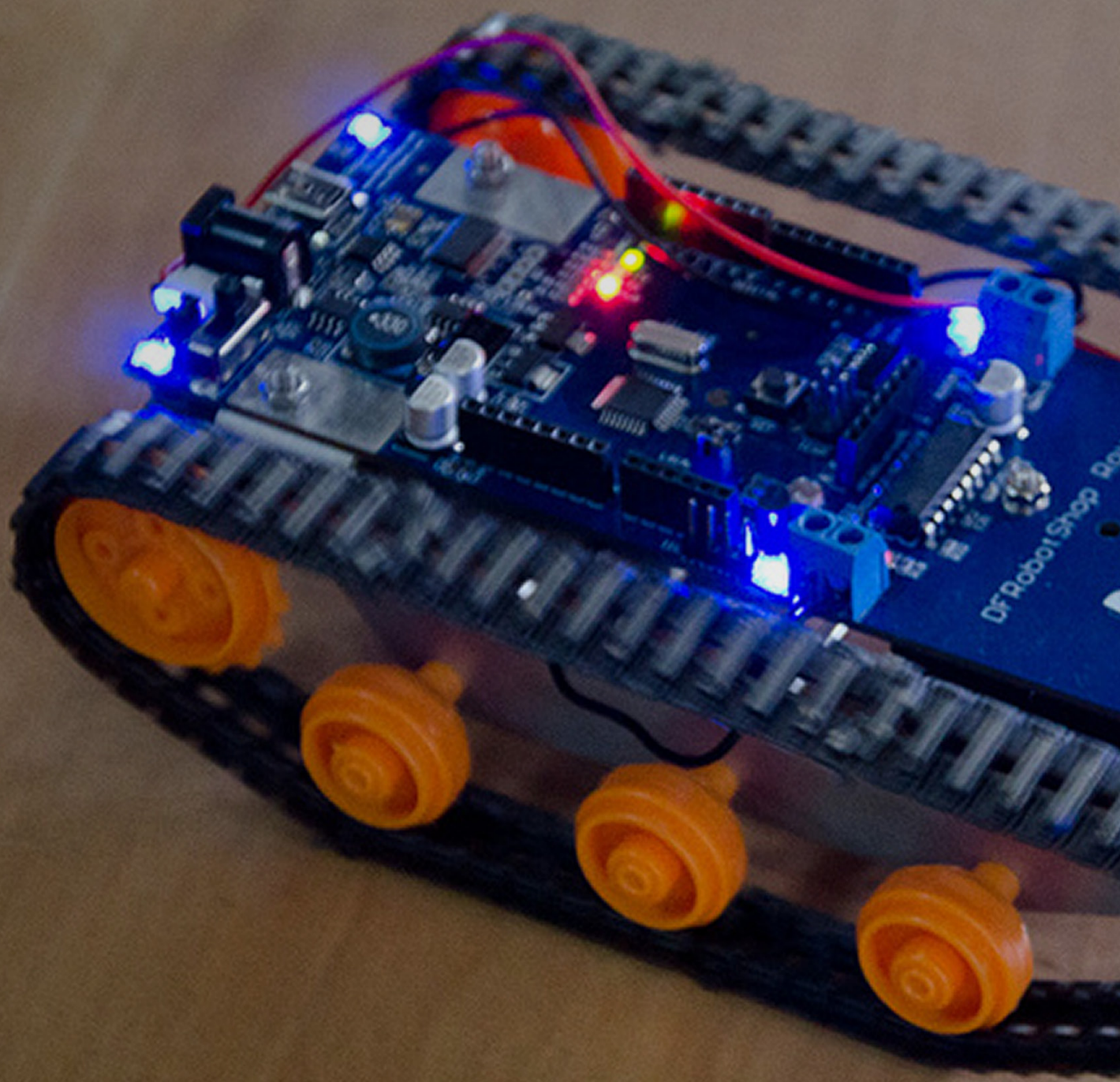
Great tools facilitate collaboration. If you have a value on bringing a diverse team together, it is essential to do everything possible beforehand to provide them with what they need to work together. Stable platforms for audio, video, wiki, and text chat will create a space for great collaboration; their absence will generally cause your team to spend more time figuring out how to work together than actually working together.

Global dispatch of virtual (and in-person) participants is vital - and be specific with the roles that you connect them to. Effort invested in building teams (locally or globally) on the front side will be time well spent.

The prospect of global judging eventually exacerbated the distinctions between the teams rather than emphasizing their commonalities. A strategy that would permit multi-site solutions the opportunity to be considered a single team for judging would help address the conflict between collaboration and competition.

NASA attendance at the local events turned out to be incredibly catalyzing for the participants (and spurred a much higher level of engagement). Remember that people come to your Challenge because they believe in what your Agency is doing, and your presence there reminds them of that.





Top 6 Solutions

In all, there were 101 solutions developed in 48 hours. All solutions were developed in a completely open source environment, and each have their own unique potential to go even further to address world and space technology challenges. The top six solutions were announced at the awards reception held in Palo Alto, CA on 17 May 2012.

“Most Inspiring” Award to Planet Hopper

Oxford, United Kingdom

An app that visualizes Kepler data to allow children and teachers to explore all the exoplanets that we know about.

“Best Use of Data” Award to Vicar2png

Virtual Participation

An app that allows anyone to view, enjoy, and remix NASA’s mission image data easily by converting VICAR files to the popular PNG image format.

“Most Disruptive” Award to Growing Fruits: Pineapple Project

Santo Domingo, Dominican Republic; San Francisco, US; Santiago, Chile; and Virtual Participation

An app that provides the optimal crop for your community by filtering a tropical crop database by location’s rainfall, latitude, elevation and pH..

“Most Innovative” Award to Strange Desk

Oxford, United Kingdom

An app that allows users to socially share and analyze the occurrence of strange events with others.

“Galactic Impact” Award to Growers Nation

Exeter UK, San Francisco USA, New York City USA, Santiago Chile, Nairobi Kenya and Santo Domingo Dominican Republic

An app that explores the potential of unused land for the growing of fruit, vegetable and other crops through the use of location, climate and growing data.

“People’s Choice” Award to Bit Harvester

Nairobi, Kenya

An SMS-based remote data acquisition and control system for remote renewable energy installations.







“The best part of the Space Apps Challenge was the community of doers.”

Virtual Participant

For a complete account of the implementation of the International Space Apps Challenge and the lessons learned, download the final report and view the summary presentation.

<http://goo.gl/s0hJS>

<http://spaceappschallenge.org>

