



OVERVIEW

In the past, the output and scalability of game-changing hardware innovations has been restricted by the high level of capital and resources required to develop physical goods. With the recent rise of developments such as 3D printing, computer aided design (CAD) software, and makerspaces, the cost of prototyping and manufacturing hardware products at low volume has plummeted, allowing at-home innovators to develop solutions faster, cheaper, and more conveniently than ever. As barriers to entry continue to drop, there is significant opportunity to leverage the “Hardware Revolution” for large-scale social benefit.

Hardware for Good encompasses everything from wearable technologies (think Fitbit and Google Glass) and assistive technologies to devices to improve agricultural productivity and smart home systems which improve energy efficiency and safety. As these hardware solutions continue to grow and develop, so too are the opportunities to harness them for social good.

THE CHALLENGE

The challenge for this category is to either: a) describe plans to develop an innovative hardware technology, or b) design a technology-led solution that uses an existing hardware/product in a novel way. These solutions should solve a major societal need, have high potential for impact, and/or improve the lives of individuals, ideally at low-cost. Applications may focus on a wide range of areas, including: health, clean energy, assistive mobility, agriculture, education, responses to natural and manmade disasters, household and commercial robotics, and economic opportunities for low-income communities.

Note: Big Ideas does not require teams to produce a physical object by the Final Round deadline. It does, however, require students to submit a blueprint, sketch, or model of the product in their Full Proposal submission. Examples of proposals include (but are not limited to) the following:

- A physical medical innovation that promotes effective diagnosis or treatment.
- Light installations that increase pedestrian interactions and foot traffic into urban spaces for safety purposes.
- A smart home technology that measures water and/or energy levels to encourage more efficient usage.

BIG IDEAS PAST WINNERS

CELLSCOPE

1st Place, Scaling Up (2010)

1st Place, IT for Society (2007)

CellScope developed a mobile digital microscopy as a platform for disease diagnosis that can be used by non-expert health workers in remote settings. The mobile phone-based, easy-to-use digital tool-kit can rapidly capture images blood, sputum, or other patient samples and wirelessly transmit the data to clinical centers, for remote evaluation and treatment. By using existing infrastructure, CellScope is helping take clinical microscopy out of specialized laboratories and into field settings.

Status: Today, the product is being tested with partners in places like Cameroon, Vietnam, and Thailand as pilot projects. They have spun out into a startup called CellScope, Inc., raised \$5.6M in funding, and have 17 full time employees. In 2013, they tested one of their projects, the "Oto" on the Colbert Report.

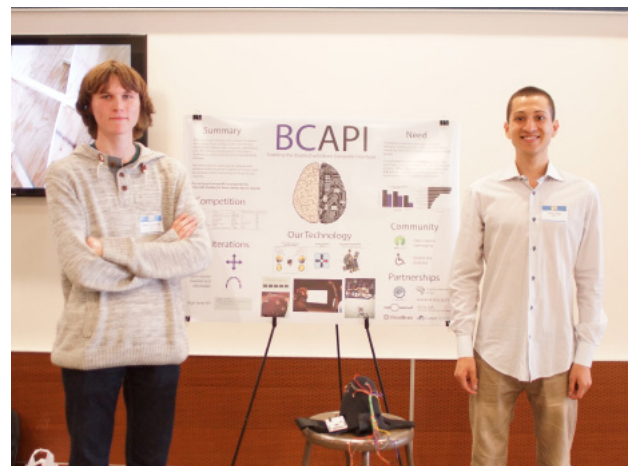


BCAPI

1st Place Winner, IT for Society (2015)

Millions of people with physical disabilities lack control of their bodies but still can control their minds. Recent advancements in Brain Computer Interfacing (BCI) have enabled people with physical disabilities to drive wheelchairs, write and communicate. However, the technology is not widely accessible beyond academia and commercial use. The BCAPI team is developing a powerful software and hardware package based on open-source APIs that will enable technology developers and researchers to create a range of BCI-enabled assistive technologies.

Status: The BCAPI team is busy developing their API package, using the \$15,000 they won from Big Ideas. Their early prototypes were recently featured in an exhibit at the Exploratorium in San Francisco.



WE CARE SOLAR

Honorable Mention Winner, IT for Society (2008)

In 2008, Laura Stachel, a gynecologist and public health student, won an award from Big Ideas that catapulted her nonprofit work that provides portable, solar-powered "suitcases" for use in maternity hospitals, health clinics, and emergency situations. The Solar Suitcases power critical lighting, mobile communication devices and medical devices in low resource areas without reliable electricity. By equipping off-grid medical clinics with solar power for medical and surgical lighting, cell phones and essential medical devices, We Care Solar facilitates timely and appropriate emergency care, reducing maternal and infant morbidity and mortality, and improving the quality of care in Africa, Haiti and other regions.

Status: Stachel has been named a CNN Top 10 Hero and a UN Global Citizen, and her organization's Solar Suitcases have been distributed to more than 30 developing countries.



<http://wecaresolar.org>