News & Views

Designing the Future: The 2009 Conrad Awards

The Conrad Foundation, 03.06.2009

*The **Pete Conrad "Spirit of Innovation" Awards** challenge teams of high school students to envision innovative technologies and products related to lunar exploration, personal spaceflight, or renewable energy.*

Read about the 2009 finalists' projects, add your comments, and vote for your favorites. The winners will be announced April 4th.

From the Conrad Awards **blog**:

"Today we launch the public interaction phase of the Pete Conrad Spirit of Innovation Awards program with the announcement of our 21 finalist teams. These teams have spent the past five months developing ideas, researching, and designing products that are not only innovative but have a commercial application. Several of those teams could be on their way to making history. You, the public, now have the opportunity to begin supporting your favorite teams and the products you think have the greatest merit. Just click on each team's website to get involved...."

The finalist teams were announced February 2 and have two months to take the

next steps in the development of their product before the Innovation Summit™ at NASA Ames Research Center on April 2-4, 2009. There, the teams will present their ideas to an expert panel and compete for more than $120,000 in prize money.

All teams have posted project overviews on the Conrad Awards website and have been blogging on their progress. Some have posted videos, too.

The Finalist Teams/Projects

Aerospace category

- **ALGAE** (Tekna-Theos, Inc, Orange Park, FL)
  Advanced Lunar Greenhouse Air Exchange (ALGAE) is an algae bio-reactor designed to produce oxygen for lunar bases and other missions.

- **Final Frontier Apparel** (Milken Community HS, Los Angeles, CA)
  A mechanical counter-pressure space suit fitted with electro-muscle stimulation to maintain the astronaut's muscles, bones, blood vessels, and nerve cells in top condition.

- **GADGET** (Glenbrook North HS, Northbrook, IL)
  The MRVE Growing Chamber is an aeroponic plant growing system that can be used for agricultural ventures in many types of locations including space-station environments, the Moon, and on Earth. The chamber also recycles air in these locations.

- **Los Altos Academy of Engineering** (Los Altos HS, Hacienda Heights, CA)
  The Lunar Spectator is an advanced tank-like vehicle specifically engineered to take civilians to explore the lunar surface.

- **MAST** (Milken Community HS, Los Angeles, CA)
  A railgun to replace the use of rockets in Moon launches from low Earth orbit.

- **Seattle Instruments** (Aviation HS, Seattle, WA)
  A satellite operated by medical robotics technology leased to the pharmaceutical industry for the purpose of medical research.

- **We Miss Pluto** (New Horizons Governor's School for Science & Technology, Hampton, VA)

A Helium-3 Excavator (HEX) and lunar rover designed to extract Helium-3 from the lunar regolith, store it, and ready it for transport back to Earth.

Renewable Energy category

- **APEX** (North Carolina School of Science & Mathematics, Durham, NC)
  The Artificial Photosynthetic Energy CompleX (APEX) replicates photosynthetic functions found in nature via a biomimetic system, yielding hydrogen ions and electrons that create an electric field that can be exploited for electrical energy.

- **Beamers** (North Miami Beach HS, Miami Beach, FL)
  A shoe that harnesses mechanical energy from the motion of the heel and converts this kinetic energy into electrical energy.

- **BiOH** (North Carolina School of Science & Mathematics, Durham, NC)
  Bacterial Production of Hydrogen, a novel bioreactor and photosynthetic bacterial system for the production of hydrogen and electricity.

- **DCs Army** (The Haverford School, Haverford, PA)
  The (Re)Cycler is a stationary bike that harnesses human energy to use toward the energy needs of the fitness facility.

- **Energy Electrified** (Mission San Jose HS, Fremont, CA)
  A wheel that utilizes a plastic with piezoelectric properties to generate the power to run a car.

- **Energy Solutions Group** (McAlpine Science Club, Evergreen, CO)
  An advanced hydrogen rocket engine that will provide a clean, efficient, and fast way to propel airplanes and other vehicles, and be used as a generator.

- **Extreme Science** (Latino College Preparatory Academy, San Jose, CA)
  We want to produce low-cost solar power for homes. We aim to cut photo-voltaic installation cost from $20,000 to $5,000.

- **Global Challenge** (Tallangatta Secondary College, Victoria, Australia)
  We want to design a Stirling engine solar system to provide the electricity to a house or building.

- **Harwell Asturia Labs** (Cinco Ranch HS, Katy, TX)
  The MoTGen (Motionless Thermal Generator) is a novel device to convert thermal energy into electrical energy, with high efficiency and no moving parts.

- **NCACP Engineering** (New Castle Area Career Program, New Castle, IN)
  Generate solar-powered renewable energy from the highway system by creating a solar-paneled road that transfers electricity to electrical power plants.

- **NCSSM Unicorns** (North Carolina School of Science & Math, Durham, NC)
  A rechargeable battery that harvests the kinetic energy of human bodies' movements to power portable electronic devices.

- **Team 168** (North Miami Beach HS, Miami Beach, FL)
  Install water-powered turbines into existing drainage pipes to generate energy via water run-off from the roofs of parking garages and high-rise buildings.

- **The Renewables** (North Miami Beach HS, Miami Beach, FL)
  The CH4mberPot is a bio-gas digester that will produce renewable energy from methane gas -- and will also replace the need for septic tanks.

- **TJ Alpha** (Thomas Jefferson High School for Science, Alexandria, VA)
  The Modular Wave-powered Ocean House (MWOH) is a conceptual home based on the idea that a floating house can be built upon a buoy-like wave-energy converter, situated a few miles offshore.

Vote for Your Favorite Ideas

On the Conrad Awards website, you can add comments to help teams develop their products. You can also rate the team ideas. The team with most stars at the end of the competition will be declared the 2009 "People's Choice Award" winner.

You can also read about **the 2007 award winners**.

Adapted from material from the Conrad Foundation.

http://www.conradawards.org/