

The New York Times
Thursday, May 3, 2007

MIT honors humanitarian tech invention
By Candace Lombardi, for News.com

CAMBRIDGE, Mass.--The winners of the latest Ideas Competition took on big health issues facing poor countries by doing what most technology innovators do: apply the right mix of intellect, imagination and persistence to the problem.

The Massachusetts Institute of Technology handed out its Ideas Competition awards Wednesday evening to kick off EurekaFest, a four-day public celebration of inventors and inventions. The competition ("Ideas" is an acronym for Innovation Development Enterprise Action Service) is an annual event recognizing achievements in technology that make the world a better place.

For the first time, the competition featured an award for technological solutions designed to alleviate problems exacerbated by poverty. The Yunus Challenge Ideas Award for 2006/2007 asked for a low-cost solution to tuberculosis sufferers' nonadherence to drug regimens designed to treat the disease. The focus was patients in rural communities of poor countries.

The current system for getting these patients to take their medication is called direct-observation therapy, or DOT, which requires health workers to monitor the administration of every dose of medicine for a period of six to eight months. DOT not only is costly, it has been found logistically difficult to implement.

There were two winning teams, one offering a solution called CellCentives, the other offering an invention called uBox.

CellCentives proposed a disposable pill packet that reveals a numeric code each time a pill is

removed within a prescribed time frame. The code, which can be punched into the keypad of the TB patient's cell phone, rewards the patient's compliance with free cell phone minutes.

The other Yunus Challenge winner, Team Cabangal, proposed the uBox, a round, plastic pill dispenser that lights up to prompt patients to take their next pill. Twisting the uBox dispenses a dosage and records the time. The information can then be retrieved with a USB-like device when DOT workers make their scheduled visits. The uBox, which records when patient data is retrieved, can also be used to monitor DOT workers and offer them incentives for success. Beyond TB sufferers, the uBox system also could be applied to patients suffering from other diseases that require extensive treatment, including HIV/AIDS.

"It adds accountability to DOTs and so increases the effectiveness of DOTs. It can also be privatized for commercial use," said Bill Thies, an MIT Ph.D. candidate who was part of Team Cabangal.

The \$7,500 award (given to each team) is named for the 2006 Nobel Prize winner Muhammad Yunus, who pioneered the idea of microcredit--issuing small-business loans to the poor.

Lee Lynd, who won this year's \$100,000 Lemelson-MIT Award for Sustainability for his development of cellulose-derived ethanol, was the keynote speaker at the Ideas Competition ceremony. He said personal relationships and focus on long-term goals are key to a successful life of service through tech innovation.

"Be clear about who you wish to serve...be persistent, be persistent, be persistent. I started this service path in the 1970s. I had years of 20 percent success rates per year. You know I tried to start a biofuel company in the '90s and failed. I tried to start (an engineering think tank) and failed," said Lynd, whose biofuel company Mascoma recently received a \$4.9 million grant from the Department of Energy.

One-third of an Ideas team must be made up of full-time MIT students in order to qualify for the competition. Submissions are judged for "innovation, feasibility and community impact." In addition to the Yunus Challenge, several other awards were given.

Team Malaria Solutions won an Ideas award for its use of Neem, a readily available tree in the mosquito-infested Sahel zone of Africa. Its seeds can be crushed into a powder and sprinkled in ponds to kill mosquito larvae, thereby reducing the spread of malaria.

BlueSteel, a team of MIT undergraduates, won an Ideas award for its invention of a training bike for developmentally challenged children.

EurekaFest, dubbed the "Woodstock of invention," was coordinated by the Lemelson-MIT Program and the Museum of Science, Boston. The EurekaFest events, which run through May 5, include panel discussions, museum exhibits, competitions and talks.

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