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Boston Business Journal

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Business mixes with conscience in \$100K

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Massachusetts Institute of Technology's annual \$100K Entrepreneurship Competition -- a larger successor to the former \$50K contest -- expanded its prize pool to enhance the visibility of the socially oriented projects that invariably enter the fray. The additional category was introduced amid concern that business-oriented innovations were dominating the contest and pushing to the sidelines ideas that tackled social ills but might be less sustainable as businesses than their more commercial peers.

This week, in the final of a three-part catalog of this year's entrants in advance of the May 18 awards, we look at ventures that range from creating fuel out of agricultural waste, to taking cars off the road -- and into the stratosphere. They and their counterparts will be vying in separate categories for first prizes of \$30,000 and \$10,000 awards to two runners-up in each category.

Bagazo Energy:

In some parts of the world, to say that dinner smells like garbage is not much of an overstatement.

Bagazo Energy, a planned nonprofit organization, is competing in the social impact component of this year's MIT \$100K contest with a process to create charcoal briquettes from agricultural waste, including dung.

The team's technology was developed in MIT's Development Laboratory, funded in part by a MacArthur Fellowship "genius" grant awarded to D-Lab researcher Amy Smith.

Bagazo derives its name from the French word bagasse, the fibrous remains from sugar cane processing with which Smith first experimented.

Her research team found that the process eliminates the thick yellow smoke that bagasse produces when kindled in its raw state. They designed a simple kiln by drilling holes in the bottom of an elevated metal drum, which reduces bagasse to charcoal in about eight hours.

The team envisions that the process would enable entrepreneurs in Haiti and similar countries to sell locally produced charcoal, but Bagazo has a greater goal in mind.

Some 2.4 billion people in developing countries rely on dung, wood and other smoky fuels as their primary cooking fuel, the Bagazo team indicates, and the resulting indoor pollution leads to respiratory ailments that kill 2 million people annually.

Callie:

It is not unusual for people to idle away meetings by surreptitiously sending text messages from their mobile telephones. That little cell phone may be capable of much bigger things in the boardroom.

Anthony Johnson made the \$100K semifinals with Callie, software that lets the user record meetings on a cell phone. Johnson originally developed Callie as a student in the MIT Media Lab under professor Ted Selker.

The platform can record an entire meeting and generate a transcript for later distribution. It also can be used to record only key moments of a meeting: at the push of a button, one can capture the relevant conversational snippet, including the portion that was already spoken via a loop recording.

Callie team-member Tom Green, a student at Harvard Business School, anticipates dual revenue streams of selling the stand-alone software to customers, and charging subscribers ongoing revenue from a Web site that delivers various conferencing services made possible by Callie. The system could also be used for casual use by consumers.

Johnson has a working prototype of Callie, but he and Green are considering entering a Harvard competition during the next academic year as they further hone their business plan.

Interactive Edutainment:

In 2004, Hyperscore became the first team in 15 years to reach the finals of MIT's business plan competition with a product designed for children: music software.

Two years later, Joanne Metzger wants to duplicate the feat with her Interactive Edutainment, which is designing Web-based instructional video games for kids ages 9 to 14.

Metzger, who is enrolled in the Sloan Fellows program for experienced managers, has already co-founded one company called Reality by Design. The Massachusetts firm designed virtual-reality simulation games for the military. Reality by Design was acquired in 1999 by Advanced Interactive Systems Inc. of Seattle.

The Interactive Edutainment team has other seasoned managers, including fellow Sloan fellows Guanshan Tong of IBM Corp. and Matthew Jennison, a pilot with Southwest Airlines Co.; and Kathleen Fliss, a former officer in the U.S. Army.

Metzger says the founders are seeking investor funding.



W. Marc Bernsau
 Terrafugia vice president
 Alex Min believes traffic
 snarls and eased FAA
 regulations governing light-
 sport aircraft will help drive
 interest in his flying
 automobile.
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Focus Therapeutics:

Someday, this could be how doctors fight liver cancer: Inject a chemotherapy drug into a time-release microbubble that doesn't dispense the compound until it reaches the tumor itself.

The result: Fewer side effects and more targeted treatment.

Focus Therapeutics is hoping to do just that with its new THERiMAGE technology. As designed, the chemo drug would be loaded into a tiny polymer microbubble as it's made, and then freeze-dried into powder. The drug-filled globules would be mixed with saline and then injected into a body. Medical technicians would then wait until the injection reached a target tumor -- aided by THERiMAGE's dual use as a blood-contrasting agent. Once there, an ultrasound wave would cause the microscopic bubbles to shatter, releasing the drug.

The end toxicity is expected to be lower than when chemotherapy drugs are released into the bloodstream to travel through the body unbound, said Chris Donohue, Focus' chief financial officer and a graduate student with the Wharton School of business at the University of Pennsylvania in Philadelphia.

Donohue is among six principals behind the company, including Chief Medical Officer Jairam Eswara. He's a doctor-in-training in an MD/Ph.D. program run jointly by MIT and Harvard Medical School.

ProteoStream:

ProteoStream has come up with a way to help make the drug-discovery process quicker and cheaper.

Specifically, the company has developed something dubbed PURITY, a tiny semiconductor chip that will profile proteins within biological samples.

The chip will work within a machine, yet to be manufactured, to help identify certain biological markers that can signify the onset of various diseases, including cancer.

Identifying biomarkers that can signify a certain disease can be an important step toward earlier treatments, the founders say. The technology is also considered helpful toward isolating new proteins necessary for drug discovery.

ProteoStream's technology also has the capability to process samples within hours, said Jianping Fu, 26, a doctoral student in electrical engineering at MIT and one of at least three founders behind the company.

That's a big improvement over current technology -- the use of something called two-dimensional gel, a labor-intensive substance that can take days to process just one sample.

Fu helped develop the technology in his studies along with his adviser. Two other company principals are with the MIT Sloan School of Management.

SteriCoat:

Every year, 2 million people suffer from infections contracted while in the hospital, according to the U.S. Centers for Disease Control, with the most severe cases requiring treatments that can cost those hospitals up to \$40,000. Infections keep patients in hospitals longer -- up to 20 days or more -- and in the United States alone, some 90,000 deaths a year are caused by such infections.

Many of those infections are traced to catheters and other medical devices used during surgeries, say David Lucchino and Chris Loose, the leaders of team SteriCoat.

Loose says the team's approach is technologically superior to others already on the market because the application approach the team has developed for its coating can prevent a broad spectrum of bacteria from building up on devices.

The team plans to tackle the market for central venous catheters initially, but they also say their chemistry-based coating technology has a range of other applications as well, including other medical devices and even implanted human organs, according to Lucchino, a student at the Sloan School of Management.

Terrafugia:

Terrafugia Inc. aims to make the airways buzz with flying automobiles.

Although the company's goal conjures occasional snickers and George Jetson jokes, its core team of six -- all of whom are pilots -- are serious about the business plan. Vice President of Sales and Marketing Alex Min thinks that a confluence of events will make Terrafugia a viable company in the near term.

Min cites the traffic congestion that clogs most city streets -- the Federal Aviation Administration's recent, more lenient certification requirements for light-sport aircraft and Terrafugia's use of composite material for its Transition Personal Air Vehicle (PAV) as opposed to heavy metal -- as the factors which conspire in favor of the startup.

"I have no doubt that the technical side of our team could build this thing -- that's not the question," said Min. "We have enough confidence to forge ahead."

That team includes founder and CEO Carl Dietrich, Vice President of Engineering Samuel Schweighart, and Chief Operating Officer Anna Mracek.

Terrafugia has just completed a one-fifth scale model (with a wing span of five feet) of its flying car and has tested it in a wind tunnel. To build a prototype, the company will need around \$10 million in venture capital funding, but it is not seeking VC funds immediately. The company estimates it will need around \$50 million to go into production.

TurnPure:

When natural disaster strikes, bottled water is often one of the first supplies to arrive in the affected area.

To Gary Long, the cases of plastic bottles represent an environmental disaster in their own right: Water is drawn from clean aquifers, packaged in bottles made with petroleum products and

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shipped in trucks that run on diesel fuel. Then, more often than not, empty bottles are tossed into landfills, where they take sit for years upon years.

TurnPure hopes to offer a greener answer to the question of how to supply clean water where and when it's needed most. First conceived for a separate contest -- a military nanotechnology contest to design water-purification systems requiring no power or chemicals -- TurnPure uses a bottle with a hand crank that powers an ultraviolet bulb that can purify a liter of water in one minute.

Long's vision is for TurnPure to sell the devices to the military and to the camping and recreational markets for around \$100 each. Part of that price would represent a subsidy enabling more purifiers to be put into the hands of those who need them in developing countries, where 41,000 children die each day from illnesses associated with unclean water.

VillageSat:

David Spector's route to the MIT \$100K semifinals is one of the most circuitous of any team entered in the contest -- given that last fall he was enrolled in Tulane University's MBA program.

Spector reached the finals of a 2004 business plan contest at the Louisiana school with his VillageSat, which would pioneer the concept of the satellite virtual network operator (SVNO). Noting the proliferation of mobile virtual network operators such as Virgin Mobile, VillageSat plans to seek out entrepreneurs in developing countries to resell satellite-based telephone service in remote areas, relying on satellite communications companies to run the network.

The idea occurred to Spector while researching a Bangladesh cellular telephone provider, which educated him on shared-use models for telephone service, and micro-finance concepts.

"There are no technological hurdles, as satellite telephones are a proven technology and VillageSat has joint venture partners to provide this service," Spector said. "The primary business hurdle is retaining a low enough price-per-minute for satellite service in order to make our business model cost effective for villagers at the bottom of the pyramid."

WiPot:

WiPot is one of several teams in this year's \$100K to have already gotten a Web site off the ground. Whereas others are using their Web sites to post updates on their plans and progress, however, WiPot's includes only an optical illusion that depicts white fish morphing into black doves.

In keeping with the enigmatic illustration, the WiPot team remains largely mysterious regarding to its technology and has not responded to calls for comment. In a one-paragraph description, the team indicated it is developing software to link storage computer management systems from such companies as Symantec Corp. with network-management systems such as Hewlett-Packard Co.'s OpenView software. The team criticizes existing software from storage and networking vendors as primitive and ad-hoc in nature.

ZoneBidder:

For companies large and small, advertising on the Internet is an obvious way of reaching thousands, and in many cases millions, of people each day. And search engine marketing -- placing ads alongside search results on Web sites such as Google and Yahoo -- is especially huge.

ZoneBidder is looking to capitalize on that growing market with its Web-based software that will enable subscribers to manage and optimize their paid search advertising campaigns themselves. ZoneBidder initially plans to target small businesses that can't afford the high fees that advertising agencies charge.

"What's exciting about the area is that the number of users of paid search is expected to double over the next two years and grow after that," said Joe Gerber, 27, CEO of ZoneBidder and a MBA candidate at MIT's Sloan School of Management. Ryan Hudson, also a MBA candidate at Sloan, and Brent LaSala, a search marketing professional at Citrix Systems Inc. in Santa Barbara, Calif., round out the management team. ZoneBidder is currently looking for seed money in order to build a working prototype.

BBJ reporters Mark Hollmer, Alexander Soule, Lisa van der Pool and correspondent Keith Regan contributed to this report.

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