

Essential ASET



ASET UPDATE

STRAWJET
FEATURED
ON THE
HISTORY
CHANNEL

KSOC RADIO
INTERVIEWS
DAVID WARD

MEET ASET
MENTOR
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Mission Statement

The Ashland School of Environmental Technology is a collaborative learning community dedicated to life-enhancing, technological innovations that serve ecological and humanitarian values worldwide. ASET brings together students and mentors for hands-on education and research to create commercially viable inventions that promote a healthy and sustainable future for generations to come.

Young Inventors' Program Launched

Ashland, Ore. April 20, 2006 — Through a grant from the Meyer Memorial Trust, ASET hired Shavana Fineberg, Ph.D. as education coordinator. The collaboration resulted in the launching of the Young Inventors' Program. This new curriculum is currently developing Strawjet Technology for humanitarian and disaster relief applications.

Currently, 7 mentor teams are developing a handfed Strawjet that is low-cost, simpler and suitable for the challenging conditions of the developing world.

ASET TEAMS HIGHLIGHTS

Loom Team: Developing and constructing a Strawjet loom, a device which combines straw cables into a continuous 8-foot wide mat.

Mold/Binding Team: Investigating non-toxic and natural additives for matrix coating to suppress mold that contributes to sick building syndrome.

Pattern Team: Developing pattern molds for handfed Strawjet to be manufactured at low cost in disaster areas.

Alternative Fibers Team: Investigating plant materials



TOP: Field testing of the Strawjet Harvester in Fall '05.
BOTTOM: A treated Strawcore member.

for suitability like wheat and rice straw, palm fronds, teasel, hemp, bamboo and flax.

The Strawjet Disaster Relief Project is creating building components composed of plant materials prevalent in the tropical zone where hurricane and tsunami occur. These are assembled into shelters designed, engineered, and constructed to be

earthquake resistant, nontoxic, healthy, biodegradable, and adaptable to the local building cultures of disaster affected regions.

If you would like more information on ASET, the YIP and more, **Please contact us at greeninventor@jeffnet.org.** ASET is a 501(c) non-profit organization. Any contribution of money, time and/or material will aid in our mission.

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KSOC Radio Interviews David Ward

What inspired you to come up with the Strawjet?

A couple of things: I was a construction supervisor and got very ill from construction chemicals. I became interested in non-toxic natural building materials.

I went and participated on various construction sites where they were doing straw bale and cob construction. It wasn't convenient or versatile and didn't have as much potential as commercial construction materials. I thought I could come up with something different.

The other inspiration came from watching Afghanistan back in the early '90s, after the Russians pulled out. That country needed help.

We designed the Strawjet with Afghanistan as a template. If it could work there it could work anywhere. We wanted to design a building system that would work pretty much anywhere.

How long has the Strawjet been in the making?

It's been a team effort. We have been working on this for about five years now. From very meager and simple beginnings to the point we are now where we have received a grant from the Environmental Protection Agency.

It is the simple fact that more housing is being needed all the time.

Strawjet inventor
David Ward



Board member Gary Herring and inventor David Ward carrying a strawcore building component.

When did the idea for the Ashland School of Environmental Technology come up?

A couple years ago, Jim Hime from Ashland's wilderness Charter School asked if I would like to have some interns come and work with me at the shop.

I thought, sure, yeah. Why not?

Once I had those students I realized there was fascinating potential. The students asked all kinds of questions that I didn't think to ask myself. It deepened the process of investigating the possibilities. It seemed only natural to provide an opportunity for students to engage in discovery.

How is the progress for the Strawjet coming along?

Good. We just finished a six-month contract for the EPA. We did a lot of testing. We furthered the development of the technology and created a harvesting machine. We learned a lot about the material and what its qualities were. We did thermal tests burn tests, deflection tests, that sort of thing.

We have come up with positive results in everything that we have investigated.

How does the development of the Handfed Strawjet work

to aid in disaster relief, such as Hurricane Katrina, or the tsunami in India?

The handfed machine was designed for use on a modest scale. The advantage is that people can make building materials out of almost any kind of reedy plant or stalk. The other advantage is that we are hoping to make the machine relatively inexpensive. It's always a challenge when you are building new technology to keep the cost down.

What is the significance of this project for people that live in the Rogue Valley?

It gives locals an avenue to participate and have an opportunity to move things in a positive direction. If we wait for politicians to do something about some of these things, we will end up waiting forever.

It is the simple fact that there is more housing being needed all the time. The situation in Louisiana is just the most recent example of that, but that goes on all the time, whether it's Louisiana or the tsunami affected areas of India or the recent earthquake in Iran. There are people out there who have lost their housing or they just need housing all the time. And the source of

that housing has always been natural resources. There's a limit to that.

In a lot of the world, they have already cut all their trees down. They are scavenging for the last few bits and pieces. With Strawjet technology, every year there is always an abundance of material for this type of construction.

What are the ways that people can get involved in ASET and the Strawjet?

There are two primary ways. One is in terms of individuals and adults primarily acting as mentors.

The other is students participating in the Young Inventor's Program. The projects that we are working on this first year of operation are divided among teams. Each team has a project they work on.

Most of these projects in this first round are related to the Strawjet technology. We hope by next year to break out into other types of technology. We have technologies abound all around us. Most of those technologies are driven by a mind set of resource extraction: the idea of to get as much out of the environment as possible. We want to turn that around so that were not using resources in that fashion.

Home of Strawjet and Young Inventors' Program

Alan Gale on ASET and the Young Inventors' Program

What is your role with the Ashland School of Environmental Technology's Young Inventor's Program?

I have two roles for YIP. First I am a co-mentor of the Loom Development Project, and second, I am the YIP representative for the ASET Board of Directors.

What is your professional background?

My career was in Inertial Navigation Systems for aircraft carriers, nuclear submarines, ICBM's and aircraft such as the SR-71 Blackbird and the B-2 Stealth Bomber. I started out as a hands-on test engineer and progressed through project engineering, systems engineering management and project management. I worked for major aerospace companies like Sperry Gyroscope (now Unisys), Litton Industries and Northrop Grumman.

How did you get involved with the Ashland School of Environmental Technology?

I retired several years ago and moved to Ashland at the end of 2004. Last fall there was an article in the Ashland

Daily Tidings about the new Young Inventors Program and the Ashland School of Environmental Technology.

In the article, they expressed a need for mentors. The chance to work with young people in a technical environment seemed like a wonderful way to contribute, and it's turned out to be very rewarding. Since joining as a mentor, I have also joined the ASET board and presently serve as chair of the finance and YIP committees.

As a mentor what is your responsibility in the Young Inventors' Program?

My primary responsibility as a mentor is to ensure that the participants learn from hands-on experience what the inventive process is. And how our project, the loom, fits into development of a building technology that is sustainable, low cost and low tech for use in third world countries.

What is a loom?

Other YIP projects involve development of a hand-fed harvester that will make two inch diameter cables directly



YIP team member Bruce Harshman displays a straw cable mat, created by the prototype loom.

from straw in the field. These cables are not only used to make structural building components, but can also be used to make load-bearing walls.

The loom weaves ten foot lengths of cable together to make a flexible, lightweight wall material. The woven cable mats are layered together with mud to make a highly effective wall that is low cost, has excellent insulation characteristics and can be assembled by unskilled labor.

What are the advantages to developing Strawjet loom

technology?

If we are successful, the technology we develop will produce a loom design that is utilizes low cost materials, easily produced, modular and transportable, simple to set up and operate by third world people with minimum skills.

Who are the other students and mentors on the loom team?

My co-mentor and intern is Bruce Harshman. He is an Environmental Science major at SOU and president of the SOU Environmental Club.

Bruce is visually impaired. How does this challenge affect the process of hands-on learning and collaboration in the loom team?

Bruce is legally blind and only has some peripheral vision. However, he has over twenty years of shop experience with metal and wood fabrication. He has developed several innovative techniques to perform measurements and use power tools with great precision. It turns out I have been his student in learning shop skills and have great admiration for his abilities. We work very well together and the loom design is definitely the result of a shared development process.

Strawjet on History Channel

The Strawjet invention has been chosen as one of 25 semi-finalists, out of over 4000 submissions, in the Modern Marvels Invent Now Challenge in partnership with Time and The History Channel®.

The judging will take place in Dayton, Ohio at the Inventors' Hall of Fame. The Invent Now winners' presentation ceremony will be on May 23 in New York City. Four finalists will win cash grants and be featured on The History Channel®.

The 2006 Modern Marvel of the Year winner will receive all the Challenge benefits as well as a \$25,000 grant toward making their invention idea a reality.

Strawjet has a great chance of winning the Invent Now Challenge (Voting has no outcome on determining the official winner of the Modern Marvels Invent Now Challenge). Please take a second to vote



and forward to your family and friends so they can show their support for ASET. To vote go to www.historychannel.com/invent/sweeps/vote.jsp.

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L—R: **BRUCE HARSHMAN**, LOOM TEAM, SOU - ENVIRONMENTAL SCIENCES; **SHAVANA FINEBERG, PH.D.**, EDUCATION COORDINATOR; **KELLY GUSTAFSON**, INTERIM EDUCATION COORDINATOR, ALTERNATIVE FIBERS TEAM, SOU - ENVIRONMENTAL SCIENCES; **NATHAN TURNER**, PATTERN DESIGN TEAM, SOU - BIOLOGY; **ALAN GALE**, BOARD MEMBER, LOOM TEAM MENTOR, AEROSPACE ENGINEER; **CHAZ BROWN**, MOLD/ BINDER TEAM MENTOR, CHIROPRACTIC NEUROLOGIST/INVENTOR; **LEO PALOMBO**, CO-INVENTOR, PATTERN DESIGN TEAM MENTOR; **LARRY PEARSON**, ALTERNATIVE FIBERS TEAM MENTOR, CIVIL ENGINEER/EDUCATOR; **VICKI TRIPOLI, PH.D.**, BOARD MEMBER, MOLD/ BINDER TEAM, ENVIRONMENTAL SCIENTIST; **GARY HERRING**, BOARD MEMBER, ELECTRICIAN; **GWYN MYER**, MOLD/ BINDER TEAM, SOU - ENVIRONMENTAL SCIENCES; **MARTIN LEE**, BOARD MEMBER, DISASTER RELIEF DIRECTOR, OUTREACH COORDINATOR; **DR. MEREDITH LOWRY**, BOARD MEMBER, OSTEOPATH, **DAVID WARD**, INVENTOR. **NOT PICTURED: NORTON SMITH**, BOARD MEMBER, TREASURER, COINVENTOR, GRANTWRITER; **NATALIE JABLONSKI**, MOLD/BINDER TEAM, ASHLAND HIGH STUDENT, NATIONAL MERIT SCHOLAR SEMIFINALIST; **TRAVIS MARSHALL**, PATTERN TEAM, ASHLAND INSTITUTE OF ART STUDENT; **DARLENE SOUTHWORTH, PH.D.**, MOLD/BINDER TEAM MENTOR, PROF EMERITUS SOU BIOLOGY, **FOR MORE INFORMATION ON ASET GO TO WWW.GREENINVENTOR.ORG, OR EMAIL GREENINVENTOR@JEFFNET.ORG**



ASET
5765 Colver Road
Talent, OR 97540

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