



FRESH IDEAS

Innovation Activity
Report 2014

EMBRY-RIDDLE
Aeronautical University
FLORIDA | ARIZONA | WORLDWIDE

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ON THE COVER: A fresh idea for water purification. AquaSolve Ventures, LLC director of sales and marketing, Kyle Fennesy, collects purified water from their backpack water purification system. (See story on page 5.) *Photo courtesy of AquaSolve Ventures, LLC*

LETTER FROM THE DIRECTOR



I'm pleased to release this first annual innovation activity report to showcase the record-breaking and history-making year we've had here at Embry-Riddle Aeronautical University.

In FY14, a total of 23 invention disclosures, more than triple that of last year, were submitted by the university's talented faculty, staff, and students across departments at both the Daytona Beach and Prescott campuses. Starting on page 7 you can see all the details from this past year and a look back at Embry-Riddle's innovation activity over the last decade.

For the first time in Embry-Riddle history, we've signed a license agreement giving a company exclusive rights to a piece of university-owned intellectual property. AquaSolve Ventures, LLC was formed to commercialize technology initially invented in our Clean Energy lab. I worked extensively with the AquaSolve CEO to negotiate a mutually beneficial agreement, which allows them to prosper as a for-profit company and also returns value to Embry-Riddle in recognition of its support of the initial product development. You can read more about their story starting on page 5. We hope to follow this pathway to commercialization with many other start-ups in the future.

It's been a busy and successful year in innovative research. I look forward to seeing the new technologies and inventions created this upcoming year.

Stephanie A. Miller, Ph.D.
Director, Technology Transfer & Commercialization
Legal Department



TECHNOLOGY TRANSFER

Most research universities have specialized offices or departments, often called ‘tech transfer,’ that exist to secure intellectual property protection for the inventions produced as part of the university’s research enterprise. These inventions could be improvements to existing products, completely new technologies, pieces of software or mobile apps, methods of production or manufacture, and even novel plant varieties. Tech transfer helps faculty, students and staff move those inventions from the university to a company, either an existing company or through creation of a new start-up, so that real-world products can be produced and sold.

If you are a member of the Embry-Riddle research community, you have access to technology transfer and commercialization services – for free. To learn more, click [here](#) or on the screenshot below to visit the new Technology Transfer & Commercialization webpage. From this webpage you can learn more about tech transfer at Embry-Riddle, contact the director of tech transfer and commercialization with any questions about patents or copyrights, and download the Invention/Work Disclosure Form, the first step in protecting the intellectual property arising from your university research.

The screenshot displays the website header with the logo "Research @ EMBRY-RIDDLE" and a navigation menu with categories: Research Initiatives, Industry & Partner Solutions, Student Opportunities, Faculty Resources, and a search bar. The breadcrumb trail reads: Home > Faculty Resources > Technology & Commercialization. A left sidebar lists: Research & Graduate Studies, Technology & Commercialization (highlighted), Institutional Review Board, Office of Sponsored Research, Finding Funding, and Contact Faculty Resources. The main content area is titled "Technology & Commercialization" and contains two paragraphs of text. The first paragraph discusses the potential of university research to generate groundbreaking inventions. The second paragraph explains how technology transfer at Embry-Riddle helps secure intellectual property and evaluate commercial potential. A "Contact" section lists Stephanie Miller, Director of Technology Transfer and Commercialization, with her email (milles50@erau.edu) and phone number (386-226-6388). A "Related Content" section lists links to Human Subjects Research Policy/Procedure, Research Misconduct Policy/Procedure, and Intellectual Property Policy/Procedure. A footer note provides contact information for Stephanie A. Miller, Ph.D.

COMMERCIALIZATION

Securing intellectual property protection is only the first step in translating research results into real-world products. To showcase Embry-Riddle technologies to potential industry partners, a marketing website has been created. Anyone can search and view details about Embry-Riddle inventions available for licensing. Over the next few months it will be populated with all of the patent applications and patents listed on page 9 of this report. You can check it out by clicking [here](#) or through the link on the Technology Transfer & commercialization webpage.

Beyond the inventions disclosed, patent applications filed, and copyrights registered, there are many other innovation activities happening at Embry-Riddle campuses every day. These are highlighted on the #ERAUResearch Facebook page where you'll find news stories about the university's research accomplishments, high impact publications in peer reviewed journals, and patent publications at the USPTO register, among others. Also featured are posts emphasizing the importance and impact of academic research on the U.S. economy, innovation-based funding opportunities, and an upcoming series of posts presenting famous product patents. Click [here](#) or on the screenshot below to see more and don't forget to like, comment, and share.



A FRESH IDEA

By James Roddey, Communications and Media Relations Manager

After designing and installing large-scale water systems on summer visits to earthquake-ravaged Haiti, three Embry-Riddle students came back to the university with the idea of creating an ultra-portable, ruggedized solar powered water purification system, and their idea has seen almost immediate success.

“Our mission is to take clean water to the people,” said Yung Wong, CEO of the newly created Aquasolve Ventures. Wong co-founded the company along with vice president of product development Shavin Pinto, director of sales and marketing Kyle Fennessy, and technical advisors Marc Compere and Yan Tang.

In 2012, they received a \$90,000 grant in a nationwide competition sponsored by the Environmental Protection Agency to refine their backpack-sized water purification system. This past year Embry-Riddle filed a provisional patent application on the system and licensed the intellectual property rights exclusively to AquaSolve Ventures. In addition, the start-up received a one-year enrollment to the University of Central Florida’s business incubator program, and a \$10,000 grant from the Cairns Foundation to help advance their system’s commercial potential.



“Our mission is to take clean water to the people.”

-Yung Wong, co-founder & CEO

LEFT: The system can replace over 200,000 water bottles and can be transported as checked luggage.

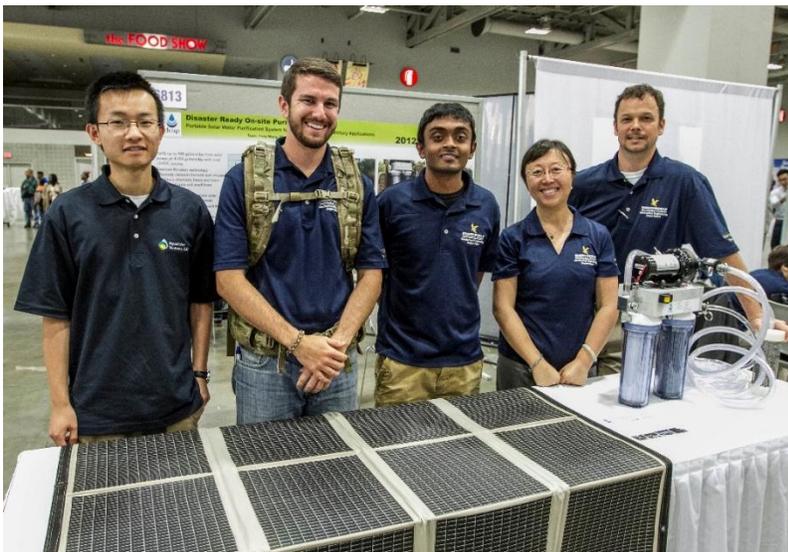
Photo courtesy of AquaSolve Ventures

AQUASOLVE VENTURES, LLC

“This water purification system is an example of the growing culture of innovation and entrepreneurship at Embry-Riddle and of the ‘service to humanity’ focus of our engineering programs,” said Dr. Richard Heist, Chief Academic Officer of the Embry-Riddle Daytona Beach Campus. “We are particularly pleased that this same effort has led to the creation of the first Embry-Riddle start-up company, AquaSolve Ventures, LLC.”

Ideal for disaster relief, AquaSolve Ventures is also pitching the lightweight unit for emergency preparedness, military, and off-grid applications. “Our Disaster Ready On-site Purifier system, or DROP, is light, ergonomic and surprisingly robust. It can produce up to 4,300 gallons over a 24 hour period using a 12 volt car battery,” says Pinto. It filters bacteria, viruses, heavy metals, and chemicals from freshwater sources; options include a lightweight 120-Watt foldable solar panel for safe, sustainable power.

The AquaSolve team could see their product put to use close to home. After viewing a recent demonstration, Jim Judge, Volusia County’s emergency management director, was impressed by the DROP system and is now helping to arrange demonstrations for state and federal officials. The emergency management agency is also AquaSolve Venture’s first customer. “I’m a real believer in what these young men have put together,” Judge said.



LEFT: The AquaSolve team won first place at the 2014 EPA People, Prosperity and the Planet Competition for their “Portable solar water purification system for public use during disaster recovery” elevator pitch.

INNOVATION ACTIVITY

FY14: BY THE NUMBERS

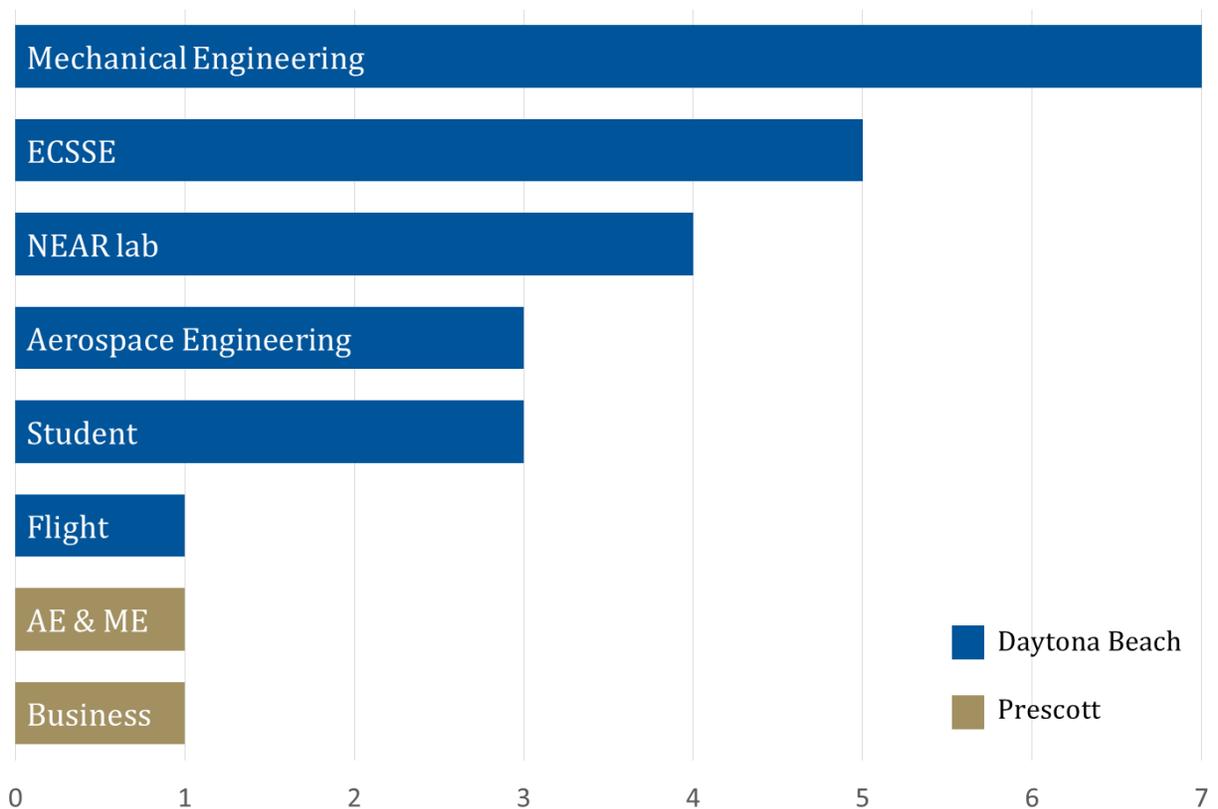
INVENTIONS

- 23 Invention disclosures received
- 12 Disclosures under evaluation
- 7 Departments disclosed inventions
- 33 Inventors submitted invention disclosures

PATENTS

- 3 Provisional patent applications filed
- 3 U.S. utility patent applications published

FY14 Invention Disclosure Activity by Department



HISTORICAL PERSPECTIVE

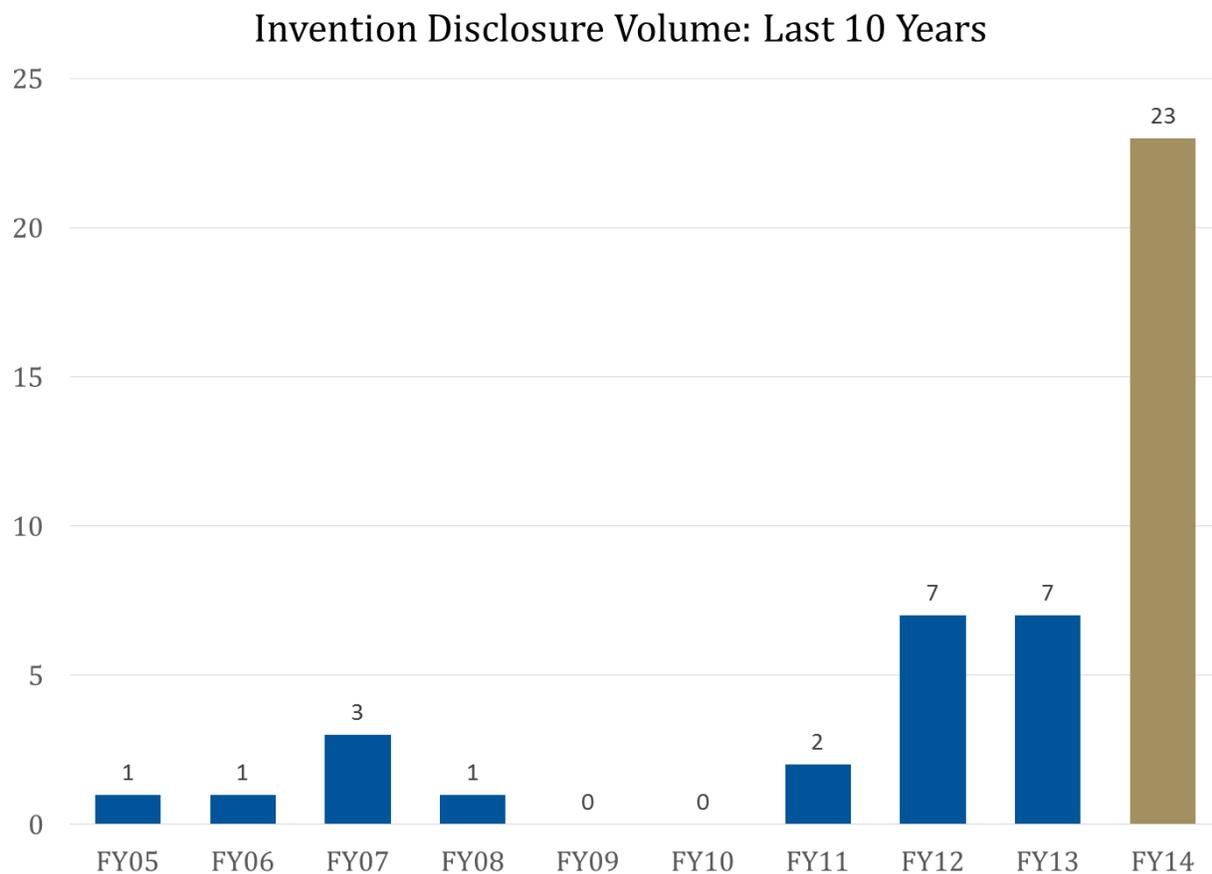
FY05-FY14

INVENTIONS

- 45 Invention disclosures received
- 12 Disclosures under evaluation
- 10 Departments disclosed inventions
- 60 Inventors submitted invention disclosures

PATENTS

- 23 Provisional patent applications filed
- 8 Patent applications in prosecution
- 2 U.S. patents issued



PATENT PORTFOLIO

ISSUED PATENTS AND PUBLISHED PATENT APPLICATIONS*

[U.S. 7,184,883](#) “GPS-based steering needle instrument” Carl Edward Wischmeyer.

[U.S. 8,095,314](#) “Generation of four dimensional grid of probabilistic hazards for use by decision support tools” Ian A. Wilson

[U.S. 2008/0151876](#) “Serverless peer to peer voice and data over internet protocol communications system” Ian A. Wilson, Mohammed Mahmoud.

[U.S. 2012/0299752](#) “Air & Ground Surveillance Application for Portable Devices” Mohamed R. Mahmoud, Johnathan J. Pesce.

[U.S. 2013/0000247](#) “Highly Vented Truss Wall Honeycomb Structures and Methods of Fabrication” David J. Sypeck.

[U.S. 2013/0050024](#) “Bistatic radar system using satellite-based transmitters with ionospheric compensation” William C. Barott, Brian K. Butka, Justin D. Engle, Albert Helfrick.

[U.S. 2013/0062454](#) “Lift Generating Device” Juan A. Alvarado Valverde.

[U.S. 2013/0223984](#) “Multi-Stage Axial Compressor with Counter-Rotation” Vinod Gehlot, Magdy S. Attia, Divyam Garg.

[U.S. 2013/0227950](#) “Hybrid assembly for an aircraft” Richard Anderson, Lori Costello, Charles Eastlake, Glenn P. Greiner.

[U.S. 2014/0060995](#) “Hybrid clutch assembly for an aircraft” Richard Anderson, Charles N. Eastlake, Matt Gonitzke, Glen P. Greiner.

*Patent applications that have not yet published for public inspection are not listed here

