

PIONEERING COMPANY TO SPEAK AT 2008 AMAC/FAA CONFERENCE

By Ollie W. Dowell

Just when you thought advancements in technology could not get any better, true color 3-D laser scanning technology is soaring at the speed of light. A recent breakthrough after ten years now allows an engineer or land surveying crew 100+ feet away to scan for cracks in an airport runway, detect flaws in an airport hangar and measure distance - all without shutting down air traffic.

In an airport construction project, concession business owners would be able to detect collision problems in air ducts, piping and wiring, visualize customer traffic patterns, measure proximity to other businesses and view the concession in real-time, 3-D images. What took weeks or months of surveying, engineering and architectural drawing before now takes hours. "On-the-fly" design changes, possibly caused by typical errors using conventional tape measurements, are entirely eliminated.

The technology's pioneering company, Darling Environmental & Surveying, LTD, is a full-service land survey and environmental firm based in Tucson, Arizona.

"The revolution from conventional land surveying to 3-D scanning technology is going on right now, and it is

New Technology To Revolutionize How AMAC Members Do Business

being called the ultimate measuring tool," said Mary Darling, CEO and principal owner.

Darling will discuss 3-D scanning and how it is revolutionizing airport construction at the 2008 AMAC/FAA Airport Business Diversity Conference May 31, 2007 through June 3, 2008 in Indianapolis, IN.

"The 3-D scanning technology is 10 times faster and hundreds of times more accurate and detailed than conventional surveying," she stated. "Conventional surveying produces a few thousand points of data over a few days time. With the advanced technology, we are collecting millions of data points in a few hours. We capture every crack in an airport runway with data points every half inch and that data is registered to project



coordinates within millimeters.


"We can scan airports, bridges, tunnels and buildings and show the true color 3-D real-time images in the virtual world on a lap top computer within hours. What's more, the technology allows us to determine the condition of every square inch of an airport runway. Best of all, it reduces surveying costs up to 10% and time by more than 50%."

Darling operates the business with her husband Richard, company president and 28-year-old son Ryan, division manager.

"The importance of this technology will surpass the Global Positioning System (GPS) technology as we know it," said Richard Darling. The revolutionary 3-D

laser scanning technology is all in the software. The Darlings partner with software producer InteliSum for the use of Light Detection and Ranging (LIDAR), associated with radio and sonar technology. LIDAR emits laser light at its target, moving or stationary, collecting and analyzing the data in a split second.

Take measurements in hours instead of weeks



3D Scanning is the ultimate measurement tool

Select a demo below to see how 3D scanning can make your next job easier.

The type of scanner ultimately determines the accuracy of the reading.

The Darlings use three different scanners depending on the job: Riegl, Optech and Leica. If this sounds like something from a science fiction movie or high-tech video game, it is. The scanned images, viewable flying or stationary, are digital high-resolution “intelligent” measurable photo-like pictures.

The Riegl 3-D scanner is a cylindrical device about 22 inches tall with a glass-covered eye on the front.

“It looks like R2D2 in the Star Wars movie,” said Ryan Darling.

Along with the scanner, surveying crews carry a tripod, laptop computer, and either a gas-powered generator, electrical cord or marine battery depending on location and access to a power source. The equipment weighs a total of almost 110 pounds – not your average carry-on luggage!

AMAC members will be interested to know that 3-D laser scanning equipment can measure the dimensions of an airport control tower, tarmac, runway or taxiway with survey crews never touching the objects they are scanning or interfering with air traffic.

“We are measuring things that weren’t measured before and measuring places where people have never gone,” said Richard Darling.

They can scan busy freeways, failure zones in dangerous mining operations and wetlands near airports from safe distances. He admits the advanced 3-D scanning technology cannot find a human being that is not visible such as in an underground mine collapse. However, it can detect the failure of a rock structure, the length of the structure and certain parameters regarding the safety of the structure for a rescue crew to enter.

Mary Darling founded Darling Environmental & Surveying, LTD 10 years ago with her husband Richard. A student pilot, attorney and trained scuba diver, she inherited her multitasking ability from her father, who founded a flight school and airplane dealership in the 1970s. Her background includes a position with the California Department of Fish and Game, the U.S. Forest Service and work as an expert witness and environmental consultant in the construction and mining industries.

Now in business for herself, she realizes how her life-long love for advanced technology is paying off. In the past eight years, the family reported a 30% business growth rate. Richard Darling says by the end of 2007, the company will be on schedule to be a \$3 million dollar business. He also anticipates the company will grow five times that amount in the next five years.

Most of the company profits have gone towards new technology and employee recruitment. Their staff of 23 currently includes two Ph.D. biologists, two Registered Land Surveyors and a mining engineer. The Darlings are considered pioneers in Arizona and are working with universities to introduce 3-D scanning technology into the college curriculums.

Darling Environmental & Surveying, LTD is nestled in a two-story brick building in northeast Tucson with panoramic views of the nearby mountains and the Pantano Wash. Inside the 3800-square-foot office space is a large scanning office (the “bull pen”) with five workstations resembling a production room at a network television station.

The Darlings are new to the AMAC family. You can hear more of their story and more about 3-D laser scanning technology at the 24th Annual AMAC/FAA Airport Business Diversity Conference, May 31, 2008 through June 3, 2008 in Indianapolis, IN. For more information go to: www.amac-org.com.



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