Fly Safe
Revolutionizing Aircraft Technology

By Andrea Baseler-Verner

Fly Safe L.L.C. working in the laboratory on their airfoil speed sensor prototype.

With over 93,000 commercial flights scheduled per day, carrying an average of four million passengers, it is critical to have reliable in-flight instruments. Aircraft use a myriad of sensors in order to safely and efficiently bring people and cargo to their destinations. And while air travel is one of the safest modes of transportation in the world, one of the leading causes of inflight complications is an incorrect airspeed indication by faulty equipment.

As part of an interdisciplinary senior design project within the Boeing Scholars program, recent graduates Lindsey Elhart (business), David Finkel (chemical engineering), and Patrick Gavin (electrical engineering) collaboratively developed a business plan and prototype for a more dependable airspeed detection system. They formed their own business named Fly Safe L.L.C. and placed third in the 2014 WSU Carson College of Business annual Business Plan Competition.

Boeing Scholars (see next page) are presented with several potential projects in the spring of their junior year. After picking their top two choices, students meet with professors and are assigned to teams. The teams then meet with business and engineering mentors over the summer to prepare for the Business Plan Competition.

The Fly Safe team's research showed that pitot tubes, the current technology used to provide airspeed measurements to pilots, are inherently vulnerable to non-ideal weather and debris due to their current design, resulting in significant costs to airlines. Their new design of an airfoil airspeed sensor aims to reduce those costs while improving the safety of air travel on a global scale.

Fly Safe L.L.C. testing the airfoil speed sensor.

"We chose this project as it has the potential to save lives and money, and we wanted our end-product to have a real impact on the world," said Elhart. "The opportunity to be a Boeing Scholar was tremendous. For the first time, I was able to take part in a project from the ground-up, much like what I expect to face post-graduation."

According to their business plan, Fly Safe L.L.C. will require substantial capital investment of Boeing's technical resources and rapid innovation for the airfoil sensor's FAA certification process in order to successfully enter into the market.

With the experience of cross-collaboration between business and engineering students, the team was able to see how the different fields make decisions during the design and review process, much like a real-world work setting. As a next step, Fly Safe L.L.C. presented their innovation to a Boeing management team in Everett. At that point, Boeing decided they wanted to assist the student team in further developing the product.

"This was the first time a class had involved such an open-ended assignment without guidance from professors," said Gavin. "Our mentors were helpful in making sure our design considerations were appropriate, but the solution was entirely up to us. It gave me a new perspective on thinking about the interaction between businesses and customers, and most importantly, insight on what customers are looking for and how much value it brings them."

Before finalizing the project, the team completed their financial assumption, and validated the project by talking to industry leaders and WSU alumni including Garry Ray, a senior design engineer at Boeing; Paul Allen, vice president of business development at Insitu; Jeffrey Lytle, finance director at Boeing; Paul Wiggum, vice president of sales and marketing at AVCORP Industries; Joel Lohrmeyer, a patent attorney at Lee & Hayes; and Larry Gross, president and owner of Relay Applications Incorporated.

If successful, Fly Safe L.L.C. plans to enter the navigational instrument manufacturing industry via Boeing, which will receive exclusive rights to the innovation for three years before releasing this product to other aircraft manufacturers.

If you are interested in learning more about Fly Safe L.L.C. or investing in their company, please contact Lindsey Elhart at lindsey.elhart@email.wsu.edu.