Applied Science Salutes Grad Fred B. Stevens

His Passion is Intelligent Products

"Not only is everything getting smaller, less expensive, and faster but intelligent. Embedded systems are key to almost every product of the future and increasingly electrical engineering and computer software are becoming integrated disciplines," states Fred Stevens, lead electrical engineer at GE Aviation and a 2004 graduate of the College of Applied Science.

Embedded systems are Fred's passion and he foresees the day when these systems will be monitoring every component of an aircraft, train, truck or car – and not just at the subassembly level like today but monitoring the performance of each individual part. Wear, vibration and noise patterns will predict failure before it happens. Extending vehicle life and increasing safety.

Fred's career in electronics began shortly after graduating from high school. He was employed field-testing circuit boards and telephone equipment before entering Cincinnati State where he earned associate degrees in electrical engineering technology and bio-medical engineering technology while working with a medical laser company.

His work with lasers spanned several of the current technologies and drew the attention of Ethicon Endo-Surgery. Fred joined their R&D division and took advantage of the company's education reimbursement program to enter Applied Science as an evening student and earned his bachelor's degree in electrical engineering technology.

During this period Fred participated in two major projects – one as a member of a highly confidential project at Ethicon Endo-Surgery and his senior project to complete his Applied Science degree requirements. To say that both were successful is an understatement…

Fred's senior project was the creation of a pedal cabled to an electric guitar that produced live, natural music. Using MIDI protocols from a keyboard fed into an 8051 micro controller, the unit reproduced any note, chord or any octave desired. The project captured the IEEE Award and 1st Place at Tech Expo 2004 and Fred earned the Evening Student of the Year Award.

Recognition also came through Ethicon Endo-Surgery as Fred's project team completed their efforts and the revolutionary patient monitoring and medicine dispensing unit was patented in 2005. This unique device monitors several vital indexes (blood pressure, EKG, oxygen flow, exhaled carbon dioxide,) and determines safe levels of medication to automatically administer to the patient. The patent carries the names of the development team.

General Electric Aviation proved to be a very different environment, as systems here need to be effective at temperatures above 2000 degrees. Jet engines are complex systems of thousands of parts and as monitoring their individual performance is Fred's challenge.

The Instrumentation Department constantly works to improve data acquisition so that accurate information is available during all phases of engine development and testing and for the FAA and internal groups within GE. Freedom to explore new directions for data acquisition – particularly in field programmable gate arrays has been a major plus in his work at GE. Fred claims, "I can see my ideas come to life."

Naturally, Fred points to Professor Elvin Stepp's *Embedded Systems* class as not only his favorite but leading to his career in instrumentation and embedded systems.

Fred and Lisa Stevens have been married for 17 years and have two children, Elizabeth, age 8, and Freddie, 5 (pictured above).

Fred B. Stevens – enthusiastic, committed and visionary - his systems are leading technology development into the 21st century.

For more on Fred and Electrical Engineering Technology Career Opportunities

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