

PRESS RELEASE

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Smart connector advances electronics fault isolation

Lakehurst team wins national innovation award

February 1, 2011, Lakehurst, NJ: On Dec. 2, a four-person team dubbed “The Smart Connector Team” won the Naval Air Warfare Center Aircraft Division (NAWC-AD) Innovation Awards Program award in technical support. The award is designed to provide motivation and incentives for individuals or teams to achieve corporate goals, create a culture of innovation, produce dramatically improved capabilities, and emphasize the value the command places upon innovation.

This smart connector, itself, is the result of five years of team study by the four engineers and inventors at Lakehurst. They are Dr. Russell Shannon, Anthony D’Annunzio, John Quiter and Megan Casey who traveled to NAWC-AD at Patuxent River, Md., to receive the national award.

“The technology they developed will enable maintenance crews to break diagnostic ambiguities at the aircraft by inserting test access points between avionics boxes.” said Ruben A. Lebron, Jr., their competency manager. “This accelerates on-aircraft testing and reduces false alarms, aircraft downtime, logistics costs, and costs associated with testing removed-but-working assets later at a higher maintenance level and at other locations.”

The technology and prototype includes a customized cylindrical Military Specification (MIL-SPEC) connector which routes signals of interest to a handheld tester. The handheld tester analyzes data flow, power signals and other signals of interest between two functioning avionics boxes. This provides the maintenance crew an easily-understood indication of the health of the connected boxes. The tester even monitors signals without changing them.

The device can be reprogrammed to detect a wide range of fault indicators as they are discovered through the analysis of fielded avionics wiring. The device is small enough to be integrated into aircraft wiring

bundles, or work as stand-alone equipment.

The United States Patent Office recently awarded the Naval Air Warfare Center Aircraft Division, Lakehurst (NAWCAD) a patent for its smart connector technology which can isolate faults in aircraft electrical equipment and identify breaks or problems without removing and replacing all potentially failed items.

With 50 or more electronic avionics boxes installed on over 3,000 naval aircraft significant electronic avionics boxes fail. These make aircraft, “not ready to fly” until aircraft maintenance crews remove several working electronic avionics boxes to insure removal the one needing to be replaced.

“Since three quarters of current aircraft maintenance is driven by avionics-related deficiencies, using the smart connector for fault isolation has the potential to save hundreds of millions of dollars in work time and unnecessarily side-lined resources once the diagnostic device is in use in the field,” said Gaetan Mangano, Office of Research and Technology Applications representative at NAWCAD Lakehurst, who helps develop such new technologies and then licenses them.

Since completing the proof-of-concept phase, demonstrating the ability to fully diagnose faulty or degraded boxes, as well as similar weapons replacement assemblies (WRAs), in the laboratory, the Smart Connector Team now has a year to show the system’s capabilities on aircraft in use.

“Civilian applications for this technology include ones in commercial aviation, automotive or other ground vehicles repair, in complex computer systems, and any electronics systems,” said Mangano.

For more information on the Smart Connector, please contact NAWCAD at (732) 323-2899.

Cutline (20101220-O-6685J-002.jpg): Additional team members (left to right) Andy Hernandez and Billy Cheng work on current version of the Smart Connector for an F/A-18 subsystem.

Cutline (20060712-O-6685J-001.jpg) Dr. Russell Shannon explains how Smart Connector works for user.

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