

# SOUND SOUND ENGINEERING

SBIR HELPS PROVIDE INTERCOM SOLUTION FOR THE E-2 HAWKEYE



Among the U.S. Navy's expansive squadron of aircraft, the E-2 Hawkeye, a twin-turboprop aircraft, was designed to provide early warning for other craft as well as wide-ranging sea and land surveillance capabilities. A staple in Navy carriers' air wing, the Hawkeye has been deployed in foreign wars from Vietnam to Iraq, as well as in domestic civilian relief efforts such as those in the aftermath of Hurricane Katrina.

But in the early 1990s, the Navy felt the aircraft was in need of an upgrade. After coordinating with a defense contractor, the military identified the craft's main issues. Primarily, it found that the Hawkeye's ICS—the Intercommunications

System that allows for crew members to connect to radios and talk to one another—was out-of-date and prone to failure.

With the problem identified, the government reached out to industry, through the Small Business Innovation Research (SBIR) program and asked them to develop a solution. The competition for the SBIR award was stiff, but Mathtech, Inc., a Virginia-based small business, won the contract.

The solution Mathtech offered was unique. The issue with the Navy's ICS was two-fold: not only was the system wired with heavy, clunky cable, replicated at each position and a conduit for audio noise, but it was irreparable due to obsolete parts. Using





Photos courtesy of Mathtech

This ICS System was created with support from the Department of Defense’s SBIR program.

its SBIR funding (the company was awarded a Phase II contract for the project in 1995, with a follow-on award for the project in 2001), Mathtech completely revamped the ICS, replacing copper wire with lightweight and lightning-quick fiber optic cable, and, perhaps more importantly, decentralizing the system itself.

“In our system, pretty much every intercom position on a craft is standalone system, so if all the other positions were to go down, that one position would be able to survive on its own,” Mathtech’s senior vice president David McCoy said.

In addition, the company provided several other modernizations, including allowing users to replay audio, splitting separate communications into multiple

outputs, increasing the number of radios and channels in a system, providing remote control capabilities, voice warnings, as well as the ability to relay communications using an unmanned aerial vehicle over line-of-sight obstacles that would have previously caused the system to cut out. In 2013, Mathtech was awarded a production contract with the Navy and has since built and delivered the systems for nearly 50 of the newest iteration of the Hawkeye aircraft.

The company stressed the importance of the SBIR program. “This office [Mathtech’s Communications Division] is solely dependent on our ICS program that was seeded by the SBIR contract system. In essence it helped us get the idea off the ground,” McCoy said. 🌟

**Mathtech, Inc.**

Modernization Priority: Networked Command, Control, and Communications (C3)

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