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Indiana firm developing technology to keep high-tech tools cool

WEST LAFAYETTE, Ind. - A small development firm here focused on creating cooling technologies for applications ranging from the space shuttle to nuclear reactors could hold the key to unlocking the power of new consumer technologies.

Mudawar Thermal Systems announced today the Navy awarded the company a grant for up to \$1.5 million to create a new software system to accelerate the development of the firm's electronics cooling systems that nearly instantly remove performance-robbing heat from electronics in devices such as avionics, X-ray machines and hybrid vehicle propulsion systems.

"Mudawar Thermal Systems is developing innovations on the front edge of technology that hold great promise for multiple applications and the Hoosier economy," said Gov. Mitch Daniels.

Since Purdue University Professor Issam Mudawar founded the firm in 1992 in the Purdue Research Park, the three-person company has developed applications to quickly remove heat from high performance lasers, avionics in military aircraft and components in hydrogen fuel cells. Each project required Mudawar and his associates to spend years modifying existing design tools and software to develop the complex systems of pumps, fans and heat eradicating coatings.

"There is no efficient tool today to develop thermal design solutions needed to bring technologies such as hydrogen fuel cells and others to the mass market," Mudawar said. "This grant will enable us to create a software platform that will allow us to make design decisions in minutes instead of years."

Accelerating the development timeline of thermal engineering solutions holds promise for both military and consumer applications that continue to pack more computing power into smaller and smaller packages.

"The overheating of electronic equipment can cause critical malfunctions with computers and other devices," said Joseph Hornett, senior vice president, treasurer and chief operating officer of the Purdue Research Foundation, which manages the Purdue Research Park. "Issam's technology promises to help cool advanced radar, propulsion systems and lasers for military use and may help cool future electronic devices such as personal computers, air conditioners and household refrigeration systems."

The company has already begun initial development work on the new software platform and expects to complete the project in the next three years.

The Indiana Economic Development Corporation's Small Business Innovation Research and Small Business Technology Transfer program assisted Mudawar Thermal Systems secure the federal funding and provided the company a grant of \$100,000 from the state's 21st Century Fund to help develop the new software.

"Our business relies entirely on the high-value expertise of Purdue engineers, and this funding allows us to cover the increased labor costs required to bring this new software to market," Mudawar said.

A professor of mechanical engineering at Purdue, Mudawar is considered a pioneer in thermal management. The MIT graduate, who founded the International Electronic Cooling Alliance at Purdue, is internationally recognized for his development of high-heat density systems for advanced electronic modules

Mudawar Thermal Systems is one of more than 120 companies that the Indiana Economic Development Corporation has assisted in securing funding from the federal government's Small Business Innovation Research and Small Business Technology Transfer program. The SBIR/STTR is an effort by 11 federal agencies to accelerate the development of high-tech products for use by the government and consumers around the globe.

The agency's efforts to boost federal funding for Indiana business have resulted in a more than 30 percent increase in federal dollars to Indiana entrepreneurial businesses.

About Mudawar Thermal Systems

Mudawar Thermal Systems provides solutions for the temperature control and thermal management needs of high-performance military and commercial electronic devices and systems. The company's core products and services include: liquid cooling of defense electronics; phase-change (boiling and condensation) devices and systems; thermal testing and obtaining heat-transfer data for customers; and design, fabrication and instrumentation of high-heat-flux heaters, devices and thermal test facilities. Founded in 1992, the company is located at the Purdue Research Park in West Lafayette, Ind. For more information about Mudawar Thermal Systems, visit <http://www.purdueresearchpark.com/pdf/MudawarThermal.web.pdf>.

About Purdue Research Park

The 725-acre Purdue Research Park (<http://www.purdueresearchpark.com>) has the largest university-affiliated business incubation complex in the country. The park is home to more than 157 companies. About 100 of these firms are technology-related and another 39 are incubator businesses. The park is owned and managed by the Purdue Research Foundation, In addition to the Purdue Research Park in West Lafayette, the foundation has established or is currently constructing technology parks in other locations around Indiana including Merrillville, New Albany and Indianapolis.

About IEDC

Created by Gov. Mitch Daniels in 2005 to replace the former

Department of Commerce, the Indiana Economic Development Corporation is governed by a 12-member board chaired by Gov. Daniels. Indiana Secretary of Commerce Nathan Feltman serves as the chief executive officer of the IEDC. Since Daniels created the IEDC, the state has posted three consecutive years of record-breaking commitments for new jobs. For more information about IEDC, visit <http://www.iedc.in.gov>.

To the Purdue Research Park,
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