PRESS RELEASE

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Wireless Sensors Announces Technology Innovation

Research Collaboration with National Science Foundation Center Promises Major Efficiency Gains for Data Center Operators

Wireless Sensors today announced the completion of an interdisciplinary research project conducted at Florida Atlantic University's (FAU) National Science Foundation Industry/University Cooperative Research (NSF I/UCRC), Center for Advanced Knowledge Enablement (CAKE). The FAU CAKE operates as a site of the Florida International University center to conduct industry sponsored research into advanced analytical solutions for real world industrial problems. Wireless Sensors is a sponsoring member of the FAU NSF I/UCRC, CAKE.

The goal of this year long project was to apply advanced analytical algorithms to data provided by wireless environmental sensors to optimize data center cooling systems and validate the efficacy of this combination. Wireless Sensors collaborated with Aware Technology and Applied Math Modeling during the course of the project leveraging Aware's patented machine learning technology and Applied Math Modeling's expertise in computational fluid dynamics. The principal investigator on the project from the CAKE center was Ionut Cardei, Ph.D., associate professor of FAU's department of computer and electrical engineering and computer science.

The FAU College of Engineering and Computer Science data center located in Engineering East, the college's LEED© (Leadership in Energy and Environmental Design) Platinum level standard green building became the test bed and was heavily instrumented with Wireless Sensors Rack Sentry wireless environmental sensors.

"Data Center managers understand the value derived from very granular measurements of environmental conditions and wireless provides this at the lowest TCO" states Paul Richards, Wireless Sensors' CEO, "but they struggle with how to manage all this new data and extract actionable information from the noise. Our SensiNet system utilize self learning algorithm's to operate and we were convinced this approach could be applied to the data we deliver to create a cutting edge solution

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to data center cooling efficiency. We sought collaborations with the brightest minds in the area of Big Data and Predictive Analytics and hit a home run with our affiliations with Aware Technology, Applied Math Modeling and the FAU NSF I/UCRC, CAKE . I like to think of it as the perfect storm of innovation and am really jazzed by the results. You can expect to see market ready solutions released over the coming months based on this work".

Cardei's team of investigators studied how best to apply advanced analytics to sensor data in novel ways with the specific goal of optimizing data center cooling systems. "Optimizing a data centers cooling system is a remarkably complex problem" according to Cardei. "The fundamental requirement of the cooling system is to keep IT equipment operating within acceptable environmental limits and is accomplished quite easily with conventional controls, but this simplicity is often at the expense of efficiency. A modern data center is a dynamic operation with massive variations in thermal loads and multiple control elements operating simultaneously and requires a lot of sensor data in order to make reasonable control decisions. This volume of sensor data tends to overwhelm conventional techniques and we felt application of machine learning strategies such as clustering algorithm's and computational fluid dynamics could extract meaningful information from data in real time and the project validated this".

The FAU NSF I/UCRC, CAKE was established to conduct industry relevant research requiring data mining and machine learning technologies according to Borko Furht, Ph.D., director of the FAU NSF I/UCRC, CAKE and professor of FAU's department of computer and electrical engineering and computer science. "We were excited to work with Wireless Sensors on this project" says Furht. "It fits perfectly with our mission, leverages our core competencies and more importantly addresses a major industry problem with a cutting edge approach".

Richards, Wireless Sensors' CEO further stated. "The positive results of this project could not have been possible without a strong team approach. We were fortunate to have a research staff and collaborators whose expertise rivals that found anywhere in the world. Aware's PDM experienced based learning technology is absolutely cutting edge and Applied Math Modeling's data center experience was critical. Combining these with our state of the art wireless technology and a dedicated research staff could only result in success".

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"This was an exciting project" comments Peter Millett, Ph.D., Aware Technology's CEO. "Our Process Data Mining technology has been adopted in industries ranging from aerospace to nuclear power but it's always gratifying to see it shine in a new area. We all hear about the benefits of "big data" but seeing it work in specific use cases and bring meaningful results is still a thrill. 5 years ago this would not have even been possible and 5 years from now we'll wonder how we got along without it".

Paul Bemis, Applied Math Modeling' CEO agrees. "This project benefited from a confluence of technologies and could really bend the curve on efficiency in data centers. Sensors tell you where you are, CFD tells you where you need to go and pattern recognition tells you when you get there. Combining these three together drives the concept of continuous commissioning to a practical level".

About: Wireless Sensors

Wireless Sensors is a leading supplier of sensor networking products for commercial and industrial markets leveraging standards compliant networking technology. The company integrates physical measurement sensors with advanced low power mesh radios for energy conservation, regulatory compliance, process optimization and other high value application requiring high performance at a low total cost of ownership. www.WirelessSensors.com

About: FAU's CAKE Center

In 2009, Florida Atlantic University received a five-year grant from National Science Foundation (NSF) to create the site of the Center for Advanced Knowledge Enablement (CAKE) as an Industry/University Cooperative Research Center (I/UCRC) that provides a framework for interaction between university faculty and industry in the critically important areas of information technology, communication, and computing. There are only 15 NSF-supported centers in these areas in the United States. The FAU center directed by Borko Furht, Ph.D. operates as a site of the Florida International University center, whose director is Naphtali Rishe, Ph.D.

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About: Aware Technology

Aware Technology delivers "Automation Confidence through System Awareness," by offering automated learning technology based on a combination of NASA Pattern Recognition and Data Clustering algorithms and automation industry specific Intellectual Property. Founded in 2011, Aware Technology delivers PDM (Process Data Monitor), with an assortment of supporting products and technology, delivered as an Enterprise Appliance, or as a SaaS (Software as a Service) Private Cloud hosted application. PDM learns from the day to day operation of your systems and automatically generates an experience database. It then generates confidence metrics for usual behavior and delivers notification on unusual behavior.

About: Applied Math Modeling

Applied Math Modeling develops application-specific simulation tools, driven by the rich set of industry proven ANSYS simulation engines. These applications are then delivered to the market using a hosted "Software as a Service" (SaaS) model that is particularly well suited for periodic or occasional users. This unique approach reduces end user IT complexity and overall cost of ownership. Visit **www.CoolSimSoftware.com** for more information or e-mail us at **info@CoolSimSoftware.com**

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