5-1-2017

Broadband Center of Excellence Newsletter, May 2017

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From the desk of Rouzbeh

Dr. Rouzbeh Yassini

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Hello,

Spring is upon us and we at BCoE are announcing a second set of awards to UNH researchers who are putting broadband to use in what we consider very productive efforts. This has become an annual event; information about the two sets of awards is provided below.

Water Quality Monitoring

This year we awarded a $100K grant to devise, test and implement a smart-senor -based wireless broadband network to conduct water quality monitoring of lakes, streams, rivers and other surface water bodies.

The one-year effort will begin with testing in Durham, and then implementation of a fully functional network at the Mine Falls dam and canal system in Nashua. If successful, UNH intends to pursue commercial applications. In addition to UNH personnel Dr. Gopal Mulukutla, Michael Routhier and Dr. Wilfred Wollheim, the project is supported by Nashua's waterways manager Dr. Madeleine Mineau.

My colleague Dr. Jan Nisbet, the senior vice provost for research at UNH, said that she hopes this project leads to easily deployed and low-cost methods for detecting water quality problems around the world. I think that would be a tremendous contribution from our university and from BCoE.

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The research team said they are able to pursue this effort by using relatively inexpensive hardware assembled from off-the-shelf components to isolate the timing and location of pollution sources. Test sites will be in Durham are College Brook and Chesley Brook, both of which are in the Oyster River watershed.

The Nashua work will focus on finding the root cause of stagnant conditions being observed in the pond and canal system that are near Mine Falls, a city owned hydropower station. And, the Nashua River above the Mine Falls station also will be tested because the river has been deemed impaired by the state for chloride pollution. The test results will be shared widely and are anticipated to be part of an upcoming state regulatory process regarding license renewal for Mine Falls to continue operating.

Also, BCoE is providing a grant to a UNH project which seeks to create massive long-range sensor networks to sample magnetic fields in the Arctic that may be affected by solar wind driven charged particles. The effort is anticipated to result in a proposal to the National Science Foundation in November to build the sensor network.

Smart Transportation

We have recently received an update from Professor Nicholas Kirsch on the BCoE funded project "Smart Transportation Systems at the University of New Hampshire and Durham, NH". The goal of this interesting project is to create positive impact on a community by improving real-time awareness of parking and decreasing traffic congestion caused by pedestrians all while researching novel methods to encourage the use of alternative forms of transportation.

Nick and his team envision a future where transportation is considered holistically in terms of modes and resources rather than just a need to find a parking spot. However to realize this vision a wealth of real-time information from multiple sources must be obtained, necessitating the development of broadband connected sensing platforms that measure parking availability and pedestrian flux. The data collected is analyzed in real-time to create resource usage models and predictive tools. To be useful, novel ways of presenting the information to end users is being researched as part of the effort.

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