

UMBC prof from Ellicott City developing flood-warning system

By: Daniel Leaderman Daily Record Business Writer September 9, 2016

Just weeks after a fatal flash flood ravaged Ellicott City, a researcher at the University of Maryland, Baltimore County research — and Ellicott City resident — has nabbed a \$225,000 grant from the National Science Foundation to develop a new flash-flood alert system he hopes to deploy in Howard County.

Nirmalya Roy, assistant professor of information systems, wants to combine a network of wireless sensors monitoring the depth and speed at which water is moving during a storm with information from a less traditional source: social media.

Roy and Aryya Gangopadhyay, a professor of information systems, are developing a way to scan social media posts for information about weather and flood conditions and weed out the false positives — posts that don't actually contain useful information.

So if a resident Tweets about the rising water level in her yard, that information can augment the data from the sensor network to give a more complete picture of flood conditions in the area and update officials in real-time via their smartphones, Roy said.

The detection system could even be combined with a loudspeaker to warn residents of danger immediately, Roy said. That way, drivers might know to avoid dangerous routes even before first responders arrive to close roads, he said.

Roy said the idea came to him in 2013. While he was driving home from the UMBC campus one day, emergency personnel diverted traffic because the Patapsco River was overflowing. Roy, whose previous work has involved using sensor technology to gauge energy-efficiency in buildings, began to think about how that technology could be adapted to help with floods.

The recent, devastating flash flood in Ellicott City confirmed the need for a robust warning system, he said.

Roy plans to use sensor technology designed by a company called Libelium, which is already being used in Spain but is yet to be tested in the United States.

One of the first tasks Roy and his team face is finding the best way to connect the sensors to a data network. He said he's reached out to officials in Howard and Baltimore counties and could begin preliminary testing of the system by early 2017.



Damage along Main Street in historic Ellicott City is viewed Aug. 1 after the city was ravaged by floodwaters, killing two people and causing devastating damage to homes and businesses, officials said. (AP Photo/Juliet Linderman)

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