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Automation

Iowa Flood Sensors Wade into Artificial Intelligence

Information from 250 sensors deployed across the state offers local leaders real-time flood forecasts via AI chat bots.

BY SKIP DESCANT / JANUARY 10, 2018



The Centennial Bridge crosses the Mississippi River from Davenport, Iowa, to Moline, Ill. The Iowa Flood Center has some 250 water level sensors deployed across the state, offering real-time flood prediction information.

f Worried about the possibility of flooding near your home in Iowa? Soon, you can just ask Alexa.

in The move to merge flood sensor data with artificially intelligent chatbots marks the next generation of flood data analysis available all across Iowa. The project is being led by the **Iowa Flood Center**, based at the University of Iowa, which has a long history of studying the effects of rainfall and flooding in the state.

tw “Next-generation **IFIS**, [Iowa Flood Information System] Flood AI — an artificial intelligence system — will be launched in March with Siri-like capabilities on many communication platforms,” said Ibrahim Demir, a professor of civil and environmental engineering at the University of Iowa and the architect behind the Web-based flood alert and analysis system.

envelope The Iowa Flood Center was formed by the state following “a major flood event” in 2008, primarily in eastern Iowa. The center deployed some 250 water level sensors, attached mostly to bridges, said Nathan Young, associate director of the Iowa Flood Center.

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“There are a few kind of concentrated areas where we have some scientific questions we’re trying to answer. But generally, we try to deploy them in areas that are going to benefit communities, to help them better anticipate the severity of the flood, as it’s happening,” Young added.

The flood center receives about \$1.2 million in annual funding from the state. The data collected by the sensors complements existing water data collection information by the U.S. Geological Survey.

“We’re providing a little bit less information, but we’re able to provide more sensors, and distribute them more broadly, to provide information to small communities as well as large communities in the state,” said Young.

Getting flood and rainfall data into the hands of local elected officials, emergency planners and average citizens is the flood center’s primary goal, which is why officials stress that it should be as user-friendly as possible.

“Really, the general public is our target audience, so we try to minimize the technical detail, and the technical jargon and try to make it usable for everyone,” said Young.

That thinking is what’s driving the Iowa Flood Information System’s next evolution where it can be engaged via platforms like Skype, Facebook Messenger, Siri, Google Assistant, Google Home, Amazon Echo and many others, according to Demir.

For now, the primary dashboard for receiving flood and water level data is on the site’s Web portal, which is fed information every 15 minutes from the network of connected sensors. The data, which can forecast floods, is also shared with the National Weather Service, the U.S. Geological Survey, county emergency managers, Iowa Homeland Security, U.S. Army Corps of Engineers and other partners.

“Every 15 minutes [sensors] are sending the data back to our server, and it’s getting displayed,” said Young. “So, every 15 minutes, we’re getting the observation data, we’re getting the rainfall data, and we’re getting our forecast that we’re running through our super-computer.”

“Our goal is to provide that information to communities and community managers in order to make informed decisions about how to respond and plan for floods,” he added.

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Skip Descant writes about smart cities, the Internet of Things, transportation and other areas. He spent more than 12 years reporting for daily newspapers in Mississippi, Arkansas, Louisiana and California. He lives in downtown Sacramento.

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