

Wearable sensor helps people keep tabs on drinking

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Engineers Yogeswaran Umasankar and Ahmed Jalal examine a sensor.

Electrical engineers are creating a wearable sensor to help people manage their alcohol intake.

Activity trackers monitor your steps; this innovative sensor measures your [blood alcohol level](#). Worn like a watch, this sensor picks up vapors from the skin and sends the data to a server. If the alcohol reading is high, via an app, a designated loved one gets an alert to check in on the user. This easy-to-wear gadget will help address issues with [social drinking](#) and addiction.

"We wanted to create an unobtrusive sensor that would be easy to wear, and help people struggling with alcohol," said the inventor, Shekhar Bhansali, an Alcatel Lucent professor and chair of the Department of Electrical and Computer Engineering. "This is one step toward active intervention that only requires the user wear the sensor."

According to the Centers for Disease Control (CDC), excessive drinking cost the American economy \$249 billion in 2010. Alcohol abuse is also known to kill about 88,000 people in the United States every year.

Bhansali explains that people struggling with alcoholism typically will lapse when it comes to self-reporting their [alcohol intake](#). Also, alcohol clears the body within eight hours so someone who has to take a urine test in the morning can technically sleep off any binge drinking they may have undergone the night before.

The wearable sensor detects alcohol off the skin within 15 to 20 minutes of consumption. The device is made from start to finish by engineers. First, they create the alcohol [sensors](#) in a hot press. Then they test and calibrate the sensor with a gas sensing setup. Once the sensor reads the expected alcohol levels, engineers wire the sensor to the board, print the interface for the device on a 3-D printer, and then assemble it all together.

"The calibrated sensor acts like an 'electronic nose;' it can sense alcohol odor from the skin in a fraction of second," said Yogeswaran Umasankar, a research assistant professor working with Bhansali.

In addition to managing alcoholism, this [wearable sensor](#) may help monitor social drinking on college campuses. It can also help keep an eye on liver transplant patients who are unable to drink or risk additional liver damage.

Provided by Florida International University

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