

# Cognitive Systems unveils platform that monitors wireless signals

December 3 2015, by Nancy Owano

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See what you've been missing is a phrase that takes on an added layer of

meaning in a new company announcement. Waterloo, Ontario-based Cognitive Systems wants you to meet Amera, a technology platform that can see wireless signals, learn each one, process the information, and deliver it through a set of apps.

Amera, said a promotional video, uses the invisible wireless spectrum around us to keep your wireless network secure. The technology was unveiled on Tuesday.

Hackers can easily set up fake base stations that mimic your network but Amera knows your network and it notifies you if an unknown cellular or wifi network suddenly shows up pretending to be yours.

"Wireless devices are everywhere, in our homes, businesses and cities. They invisibly fill the air with a spectrum of [wireless signals](#). Group chats. Gaming. Wireless conversations. Online banking. Emails and texting. Not to mention the microwave and TV...the house is lit up with wireless signals, said the video presenter. Imagine we could see these signals, and use them in new ways.

They envision a number of applications that include crowd flow/traffic monitoring and wireless cybersecurity. The company said its technology for tracking wireless signals can be used for detecting intruders, managing crowds or finding victims of natural disasters, according to Reuters.

Amera can protect the home by using wireless signals to detect motion even through walls.

Applications built on the platform notify users when a device, authorized or not, connects to their network or when an untrusted network is broadcasting in their vicinity.

"The spectrum of invisible wireless signals is a resource that until now has only served the purpose of providing wireless communication for devices," they said, but, with Amara, homes and businesses will discover new ways to benefit from the spectrum of wireless signals. (Public spaces such as coffee shops, restaurants and airports can protect their customers from unknowingly using unsecure networks.)

"What we're building is essentially a camera for RF (radio frequency) signals and trying to [understand](#) what those signals mean," said Cognitive co-founder Taj Manku in the Reuters report.

Amara detects the presence of wireless signals from cell towers, Wi-Fi base stations, and rogue signals. Key components for this platform: the Amara sensor and its R10 chip.

Engineers designed the chip for the product to feature four wireless receivers and flexible processors. These can switch quickly, said Reuters, between different functions.

"Cognitive designed the chip to replace hardware that would normally cost tens of thousands of dollars," said the team.

"The R10 chip functions like the human eye, only it can see invisible wireless signals that people cannot," said Taj Manku, Cognitive's co-founder. Manku. "And the chip is much faster. It can respond to and report on signals in one-millionth of a second."

Oleksiy Kravets, cofounder of Cognitive, said the R10 chip was engineered with three design layers.

The first layer has a matrix of radios for sensing wireless signals. The second layer has a grid of digital signal processing modules. The third layer is software to configure silicon subsystems and process the data.

Intrusive? "Unlike cameras," said the company, "Amera does not record or decode video, so there is no sense of intrusion or threat of someone hacking into private footage."

Alastair Sharp, Toronto correspondent, Reuters, addressed the actual dates for when this technology will appear. Cognitive, said the report, has teamed up with a partner to develop a home security and monitoring product for mid-2016 launch.

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