Researchers at the MIT Computer Science and Artificial Intelligence Laboratory use the power of wifi to gain one of Superman's many powers-- using the wifi-based "Wi-Vi" to detect movement through walls.



In concept Wi-Vi is similar to radar and sonar imaging, only using low-power wifi signals to track movement in closed rooms or behind a wall. The system requires 2 transmit antennas and 1 receiver, with one transmitter sending out a signal that is the inverse of the signal from the other.

Due to nulling effect, the signals from the two antennas cancel each other out when "bouncing" back after hitting static objects-- but not when reflecting off moving objects. The receiver tracks the time it takes for signals to reflect back from a moving object (such as a person in a room) and calculates where it is at any time, producing a "sort of" X-ray effect.

"We wanted to create a device that is low-power, portable and simple enough for anyone to use, to give people the ability to see through walls and closed doors," MIT professor Dina Katabi says.

The researchers propose such technology can find in use in search-and-rescue operations, personal safety devices and, closer to home, gesture-based interfaces of the Microsoft Kinect variety.

Of course this is not the first novel application of humble wifi signals-- recently University of Washington researchers proposed WiSee
, a means of gesture detection without need for line-of-sight, while Duke University researchers use wifi for indoor navigation in UnLoc (unsupervised indoor localisation).

Go New System Uses Low-Power Wifi Signal to Track Moving Humans