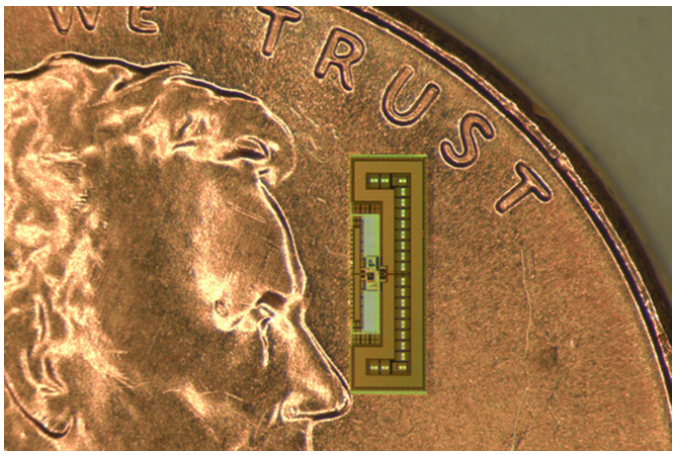
UC Berkeley and Stanford University engineers develop a possible solution for the wireless demands of the Internet of Things-- a cheap tiny (3.7mm x 1.2mm) dual-band radio powered by the signals it receives.



Similar tiny radios already exist, but unlike similar solutions (which operate on low frequencies), the Berkeley/Stanford radio receives data on the 24GHz band and transmits on 60GHz. This reduces the power requirements by so much the radio charges itself with energy from received signals.

Higher frequencies also allow very fast data transmission rates, even if in the data transmitted is of low volume.

“One of the benefits of going to high frequencies is that the wavelengths get smaller and you can put the antennas on the chip itself,” UC Berkeley Wireless Research Center director Ali Niknejad tells *Wired.*

Another issue with high frequency radios is a short signal range of around 120cm-- meaning one needs to build a mesh network of tiny radios forwarding data to each other until it reaches an access point. Then again building the radios in bulk is no problem, as they are printed on silicon and very cheap to produce.

The researchers are currently working on a DARPA proposal to integrate the chip radios in to larger chipsets to create tamper-proof equipment. Such radios would also find applications in

retail, with radios embedded in products allowing for cashier-free checkouts.

Go A Power-Harvesting Pad-Less mm-Sized 26/60GHz Passive Radio with On-Chip Antennas

Go This Ant-Sized Radio is Powered By the Messages it Receives (Wired)