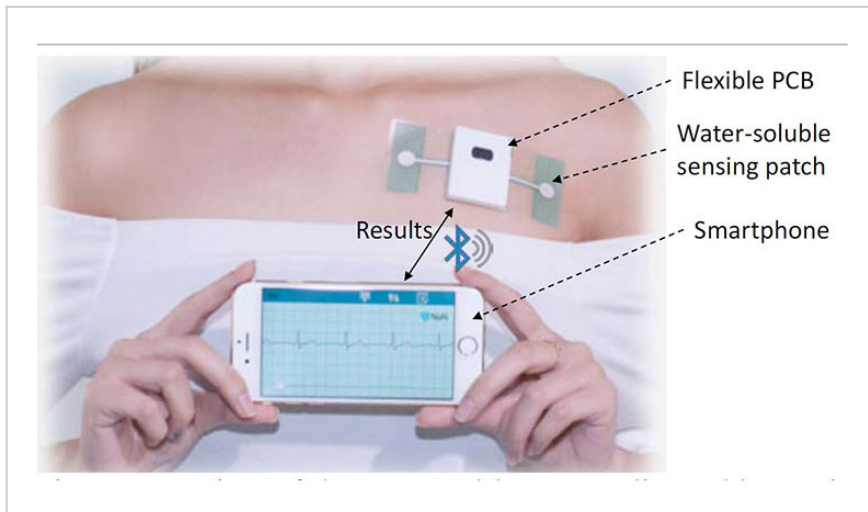


Integrated Filtering Antennas for Wearable Communication Systems

ID# 2014-4223



Example communication device

Technology Summary

The present invention is a low-profile wearable antenna device that allows users to communicate between electronic and communication devices through radio frequency links. The antenna device is comprised of miniature square sized layers, one of which contains a signal receiving and an antenna. The antenna is connected to a resonator, so that only a signal within a pre-selected band is passable through the transmission band. Any signal in a band outside of the pre-selected band cannot pass through the transmission medium. This technology also blocks backward radiation emittable from the antenna to help prevent a body of a person near the device from absorbing radiation.

Compared to previous methods such as metasurface backed slot antennas, patch antennas and monopole antennas, the antenna described in this invention provides a sharp roll-off in the impedance and gain, a low-profile, circular polarization, and a clean spectrum. This invention will ensure robust and secure data transfer for future wearable medical sensor systems.

Application & Market Utility

This technology provides a novel design methodology for various low-profile wearable antennas integrated with planar filtering circuits for narrowband and wideband body area network applications. Data can be securely transmitted between an electronic device (e.g. wearable sensor or detector) and a communication device (e.g. desktop computer, electronic tablet, remote serve computer device, or router). By allowing for wearable computing, information from a sensor can be tracked by a user and analyzed in another location. Specific applications for this technology may include military textile clothing used for communication purposes or a communication device worn on the body for fitness, sport, and/or healthy lifestyle.

Next Steps

The invention is protected by U.S. patents 9,531,075 & 10,181,647. Prototypes have been fabricated and are available. Seeking research collaboration and licensing opportunities.

TECHNOLOGY READINESS LEVEL

4-7

Seeking

Investment | Licensing | Research

Keywords

- wearable antenna
- body area network
- microwave circuits
- data transfer
- portable medical sensor

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