Patent Issued for Ad Hoc RF Network Technology

Patented technology addresses challenges of future wide-band RF networks, including 6G deployment. In-memory computing supports mobile ad hoc networks (MANETs).

ST. LOUIS, MO, UNITED STATES, August 7, 2025 /EINPresswire.com/ -- Ricetronics announces the issuance of US Patent No. 12363640 B1 by the United States Patent and Trademark Office. The Patent, entitled "Ad Hoc RF Network Structures and Methods" issued to Gregory M. Rice, describes a novel RF Network foundation. The

Airborne Platforms Ad-Hoc Network

patented Network Technology merges in-memory computing with a diversity of pulse waveform methods to achieve critical network capabilities. These include low-latency access, extremely agile RF beamforming, and high levels of electronic integration. Methods of ad hoc access alleviate conventional requirements for centralized controllers or schedulers. The Network Technology might be used as a foundation for future systems including sixth generation (6G) wireless networks.

Although in-memory computing has been researched for use in neural networks, its application in the patented Network Technology is novel, targeting precision processing and beamforming of wide-bandwidth 6G type signals. The scope of the patent spans multiple integrated subsystems and structures, with some incorporating "memristor circuitry". Despite intense research for neuromorphic computing, general use of memristors has been limited by issues of lifetime and accuracy. However many of these issues are addressed in the Network patent by specialized support structures and methods of operation.

The Network's pulse waveforms facilitate separation of RF signals among numerous ad hoc, mobile Users. The capability might be analogous to that achieved by swarms of bats in the natural world, where acoustic signals may be separated by time, space and code features. The Network Technology may similarly serve to enable mobile ad hoc networks (MANETs), where

Users of such networks might be either human or machine.

Certain aspects of the patented Network Technology may relate to the conventional definition of a "physical network layer". In this context the Technology might interface to the electronic architecture of a variety of User platforms. Applications of the new Network Technology may include airborne drones, driverless vehicles, robotics and fixed platforms. An example of the latter might be "data centers" where ad hoc wide-bandwidth wireless links might replace cumbersome and expensive cabling equipment.

The Network's use of in-memory computing may enable 6G communications in very small form factors for future Internet-of-Things (IoT) and machine-to-machine (M2M) devices. The Network Technology encompasses novel subsystems and structures for wide-band signal modulation, demodulation and RF beamforming. These may implement advanced signal processing functions in both digital and in-memory circuits.

Further information regarding ricetronics and other 6G developments is available at ricetronics.com.

Contact:
Greg Rice
ricetronics.com
Phone: 1-557-232-0506
email: ricetronics@gmail.com

Gregory M Rice
ricetronics
557-232-0506
ricetronics@gmail.com

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