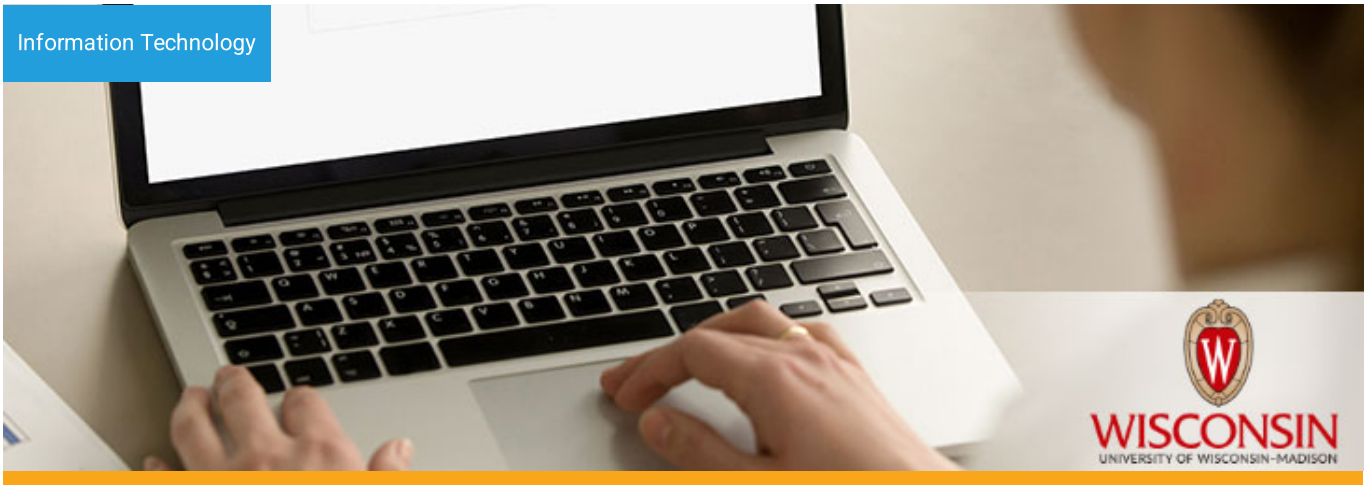
Information Technology



Multi-Rate Data Transmission Using Standard Hardware for Continuous Mobility in Wireless Devices

View U.S. Patent No. 8,005,114 in PDF format.

WARF: P08323US

Inventors: Suman Banerjee, Arunesh Mishra

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a method to vary transmission bit rate within individual wireless data packets to allow continuous mobility when accessing wireless connections.

Overview

The wireless connection of devices such as portable computers to the Internet allows a user to work at a variety of locations, but the connection typically is suspended when moving between locations. To achieve continuous mobility, as expected by users of wireless devices like phones and music players, a real-time Internet connection with minimal delay between locations is required. Currently, the adaptation mechanisms used in 802.11-based WiFi links are relatively slow for the fast changing demands of these devices and result in wasted bandwidth, battery power and overall performance. More aggressive adaptation of the 802.11 and 802.15 wireless protocols and a more rapidly changing wireless channel are needed to keep up with the increasing demand for continuous mobility while using wireless connections.

The Invention

UW-Madison researchers have developed a transmission protocol to obtain intra-packet rate variations and vary the effective rate of transmission within individual data packets. A transceiver then provides for the variable intra-packet bit rates for high-speed adaptation to variations in the quality of wireless connection. This allows for a faster, proactive approach to adapt to varying link qualities, which is necessary for continuous mobility applications.

Applications

- Fast link adaptation in continuous mobility wireless network scenarios
- Packet decoding through variable transmission rates
- Transmission performance monitoring within individual data packets

Key Benefits

- Provides a building block for further development of continuous mobility applications
- Leverages existing 802.11 adaptations with multi-rate data packet flow
- Allows implementation over any communication standard or as a software-only design

Additional Information

For More Information About This Technology

- Suman Banerjee

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Publications

- Mishra A., Rayanchu S., Agrawal D. and Banerjee S. 2008. Supporting Continuous Mobility through Multi-Rate Wireless Packetization. Paper contributed to ACM HotMobile Conference, Napa Valley, CA.

Tech Fields

- Information Technology : Networking & telecommunications

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