Abstract

Over the last two decades, the Wireless Multimedia Sensors Networks (WMSN) technology have become increasingly popular by both actual industrial users and research community, they are used for recording speech and then sending it to a base station. However, their limited amount of resources (power, low capacity of radio waves, bandwidth, memory, processing, storage, etc.) makes it important to save resources in order to extend the life of the sensor as long as possible. This paper aims to propose and evaluate an adaptive lifting wavelet encoding hardware solution for audio data compression in WMSN, with require low memory, low computation and low energy consumption. The simulation results show that the proposed approach is efficient and satisfactory compared to the Discrete Cosine Transform (DCT) approach, since it allows 32.6% storage savings and 47.84% energy savings were achieved.
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Index Terms

Computer Science Wireless

Keywords

Audio signal, Compression, Energy-efficiency, Wavelet, Wireless sensors networks