

(54) Title of the invention : Low power low area near lossless image compressor for wireless capsule endoscopy

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(57) Abstract :

This article presents a novel hardware-oriented image compression algorithm and its very large-scale integration (VLSI) implementation for wireless sensor networks. The proposed novel image compression algorithm consists of a fuzzy decision, block partition, digital halftoning, and block truncation coding (BTC) techniques. This article presents a hardware-oriented lossless Color Filter Array (CFA) image compression algorithm for Very Large-Scale Integration (VLSI) circuit design. In order to achieve high performance, low complexity and low memory requirement, a novel lossless CFA image compression algorithm based on JPEG-LS is proposed for VLSI implementation. A previous study showed the usage of a context table with its memory consuming more than 81% of the chip area for a JPEG-LS encoder design. The proposed algorithm implements a JPEG-LS based lossless image compression algorithm that eliminates the use of the context technique and its memory in order to reduce the chip area while still maintaining its high performance. The proposed algorithm includes a pixel restoration, an adaptive Golomb-Rice parameter prediction and an improved Golomb-Rice coding technique.

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