A FRAMEWORK OF ENHANCED AUTHENTICATION FOR PDF TEXTUAL DOCUMENTS USING ZIGZAG-LSB EMBEDDING ALGORITHM

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ABSTRAK

Tahap keselamatan untuk dokumen adalah penting kerana banyak prosedur dan proses formal pada masa kini memerlukan dokumen digital sebagai bukti atau pengesahan proses, seperti resit perbankan internet, surat perlantikan rasmi, transkrip akademik dan sijil, dokumen yang dipindai, dan dokumen komersial untuk pemasaran dalam talian. Fenomena penggunaan meluas dokumen digital dalam e-mel, laman sosial, laman web e-dagang, dan banyak laman web yang berkaitan dengan kerajaan adalah satu trend untuk mencapai audiens, menjimatkan masa pemprosesan dan sumber kertas, serta mengurangkan kos pos. Kemajuan pesat teknologi maklumat dalam multimedia digital bermakna kandungan asal dokumen boleh dengan mudah dimanipulasi, diedit, atau ditamper oleh pihak lain. Oleh itu, satu prosedur watermark digital diperlukan untuk mengesan sebarang perubahan dalam maklumat asal dalam dokumen. Suatu kerangka kerja penambahbaikan pengesahan untuk dokumen teks PDF menggunakan algoritma sembunyi Zigzag-lsb dicadangkan untuk melaksanakan teknik skema watermarking baru yang boleh digunakan dalam saiz dokumen secara umum, untuk mengkaji sistem penomboran semasa untuk mengamankan pengesahan dokumen digital, dan menilai skema watermarking untuk dokumen digital dari segi kadar ketepatan, serta menganalisis prestasinya. Bit paling tidak signifikan (LSB) digunakan oleh teknik-teknik tersebut untuk menyulitkan data pengesahan. Dengan menyebarkan data asal yang bernombor sejauh mungkin dari lokasi asal, strategi-strategi itu menggunakan sistem penomboran khusus. Proses yang serupa digunakan dalam fasa penciptaan dan penanaman watermark. Keberkesanan algoritma itu telah dibuktikan kerana ia menggunakan pendekatan berdasarkan imej selepas penukaran antara dokumen dan imej dengan corak penomboran yang rapuh terhadap serangan padam, gantian, sisipan, gabungan, dan salinan. Sebagai kesimpulan, corak penomboran baru telah terbukti lebih cekap berbanding corak penomboran sedia ada dalam watermarking kerana hasilnya menunjukkan prestasi terbaik dari segi kadar ketepatan.

ABSTRACT

The security level for documents is necessary since a lot of formal procedures and processes nowadays need digital documents as proof or process verification, such as internet banking receipts, official letters of appointment, academic transcripts and certificates, scanned documents, and commercial documents for online marketing. The phenomenon of widespread usage of digital documents in emails, social networking sites, e-commerce websites, and many government-linked websites is a trend for reaching the audience, saving processing time and paper resources, as well as cutting the cost of postage. The rapid advancement of information technology in digital multimedia means that the original content of documents can be easily manipulated, edited, or tampered with by others. Hence, a digital watermarking procedure is needed to detect any changes in of the original information in document becomes necessary. A framework of enhanced authentication for PDF textual documents using Zigzag-lsb embedding algorithm is proposed in order to apply a new technique of watermarking scheme which can be used in general size of document, to study the current numbering of watermarking system to secure the authentication of digital documents, and evaluate the watermarking scheme for digital documents in terms of accuracy rate, and analyse the performance. Least significant bits (LSB) were used by the techniques to encrypt authentication data. By dispersing the numbered original data as far away from the original locations as feasible, the strategies made use of specific numbering systems. Similar processes are used in the generation and embedding phases of a watermark. The effectiveness of the algorithm has been established since it uses an image-based approach after conversion between document and images with a numbering pattern that is fragile to deletion, replacement, insertion, combine, and copy attack. As a conclusion, the new numbering pattern have demonstrated to be more competent compared to the existing numbering pattern in watermarking since the results have shown the best performance in terms of accuracy rate.

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