UNIVERSITY OF BAHRAIN

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The Development of Security System for Multimedia Information Systems Using Information Hiding

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Abstract

As multimedia applications are becoming an integral part of our daily life, the need to protect multimedia systems has become a major concern. The aim of this study is to investigate the use of information hiding for the development of secure multimedia information systems.

The study first examines the current security techniques employed to protect multimedia information systems. Subsequently, the study establishes a security engineering framework to support full security integration with multimedia information systems. The study then utilizes the proposed framework to design and implement a security system for multimedia information systems using information hiding. A case study is conducted to assess the security of a healthcare information system and accordingly demonstrate the use of the proposed framework to reduce risks. Moreover, the proposed security system is evaluated against the quality characteristics of the healthcare information system.

In conclusion, given that the proposed security system yields a lower risk level as compared with the current implemented system, the study findings support the contention that information hiding can considerably improve the security of multimedia information systems. Further, evaluation results demonstrate the superior performance of the proposed security system in terms of accuracy, time behavior, storage utilization, and usability. Nonetheless, the study emphasizes that a systematic approach must be followed through each phase of system development life cycle to ensure optimal utilization of information hiding.