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GMR Institute of Technology
Department of Information Technology

Title of the Project : Design and Implementation of a Secure Text Embedding System Using Image, Audio and Video Carriers

Name of the Course : B.Tech. (IT) Section: B Semester: 7th

Academic Year : 2025-2026

ABSTRACT:

In modern communication systems, the need for covert data transmission has increased due to the limitations of conventional cryptographic methods, which often expose the existence of protected content. This paper presents a steganographic framework that enables secure embedding and retrieval of textual information within multiple carrier media, specifically images, audio, and video. The proposed system overcomes the rigidity of single-format steganography tools by introducing a unified, modular platform capable of handling diverse media types through a web-based interface. The framework supports bidirectional operations—encoding and decoding—while maintaining media integrity and preserving perceptual quality. By abstracting media-specific complexities and centralizing control, the system offers enhanced usability, adaptability, and scalability for practical deployment. This tri-modal approach broadens the applicability of steganographic techniques in areas such as secure communication, digital watermarking, and surveillance evasion. The proposed architecture contributes to the domain of information hiding by addressing format fragmentation and promoting accessible, multi-format data concealment.

Keywords: Steganography, Multimedia Security, Information Hiding, Tri-Modal Data Concealment, Covert Communication

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