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Two way model to secure data during transmission

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This paper proposes two way model to secure data during transmission and sharing over the Internet, wherein cryptographic and steganographic techniques are combined. It also proposes compressing the cipher-text file using the Lempel-Ziv algorithm to reduce its size so that it uses less space in the cover image after data embedding and also to increase the speed (rate) at which the message is delivered to the destination. The use of Discrete Cosine Transform and Inverse Discrete Cosine Transform for image processing is explained, since they will be used in the process of image compression and decompression respectively.

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Computational verification of hybrid laminar flow design by suction method

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Rise in the performance and therefore profit of airliners is a major challenge for aircraft designers. Here, the design of a Hybrid Laminar Flow Control system is considered and a computational verification has been done to show the performance of the system and by employing the fundamental equations required, it has shown that required levels of suction across a wing to efficiently suppress flow is achievable. A novel system was designed that could be incorporated into the leading edge of large civil aircraft or adapted to suit alternative aircraft using a combination of active and passive suction methods. The active system uses electric or bleeds air powered turbo compressors to provide the required levels of suction, whereas the passive system automatically produces suction by introducing ducting from the high pressure region at the leading edge to the low pressure region at the underside of the wing. By this method, the fuel saving of 5.5% is achievable. The outcome of the investigation shows a good meeting with computational analysis and the available source of validation. This method is recommended to be experimentally investigated.

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