

ABSTRACT

Inserting a secret information that can only be done by the creators of digital works by using a key to secure it. The mechanism can also be used to insert confidential information on a digital file without being noticed. Watermarking is a term for the concept. The addition of a watermark to a digital work of media without affecting the quality of the work that will be used in the watermark as authentic proof of ownership of the data. Watermarking on three-dimensional objects appear to cover the lack of watermarking on a two-dimensional object that has been there before. Because watermarking on a two-dimensional object still has shortcomings weak against attacks that could result in the loss of the watermark information. Watermarking on three-dimensional objects have stronger resilience against digital attacks.

In this final project, has conducted an analysis of the watermarking system on 3D object using Minimum Spanning Tree and implement them in a form of software that can insert and extract the data that has been foisted on the 3D object. At the end of the task is performed an analysis of the methods applied.

The results of the simulation of the system is the use of this method are imperceptibility with SNR value of $> 25\text{dB}$ and robust against attacks such as the geometry of a given rotation, translation, scaling, noise Gaussian, and a combination of rotation and Gaussian noise to generate BER value equal to zero . However, this method can change the position of the vertex which causes changes in the topology of the initial mesh.

Key Word : *Watermarking , 3D , Triangular Mesh, Minimum Spanning Tree, Principal Component Analysis*