# *ABSTRACT*

*The twofish algorithm uses a complex and random structure, making it very difficult to solve & suitable for encryption and decryption of text messages and image files. Research methods include literature study, software design, system testing, data collection, data analysis, conclusions and suggestions. Experiments were carried out with various character lengths starting from 20 to 200 characters and image file sizes starting from 8811 bytes to 6,268,405 bytes to observe the time required, ciphertext size, and speed of the encryption and decryption process. Some examples of cryptographic algorithms with symmetric keys are twofish, blowfish, and serpent. Of these three algorithms, twofish is proven to be faster in carrying out encryption by 35% and decryption by 43%, but has shortcomings in difficult key management, such as long twofish keys. between 128, 192, or 256 bits & the complexity of the twofish algorithm requires a deep understanding of this algorithm. In twofish there are also several building blocks that will be discussed in this research, namely S-Boxes, MDS Matrices, Pseudo-Hadamard Transformation (PHT), whitening and key scheduling. The results of this research show that the encryption and decryption process takes around 2 to 13 seconds for text and around 0.06 to 630 seconds for image files. We also found faster results for image encryption-decryption compared to text of the same size, for example image encryption-decryption with a size of 2230 bytes and text with a size of 2230 bytes, for images it took 0.038 seconds, while for text it took 141 seconds, which This means that image encryption and decryption are faster than text.*



***Keyword:*** *cryptography twofish, decryption, encryption.*