

## ABSTRACT

Gabriella (01112170012)

### **FACIAL RECOGNITION FOR ATTENDANCE SYSTEM WITH DISCRETE WAVELET TRANSFORM AND DISCRETE COSINE TRANSFORM USING SUPPORT VECTOR MACHINE**

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(xii + 48 pages, 11 tables, 22 figures, 7 appendix)

One of the most important aspects in an academic organization is attendance system. Not only that it records attendance, it can also be used for various purposes. However, manual and automated systems such as attendance register and ID card or fingerprint identification are not too efficient. This research utilizes Discrete Wavelet Transform (DWT) and Discrete Cosine Transform (DCT) to create a facial recognition Support Vector Machine (SVM) classifier for an automated attendance system using facial recognition. In this research, DCT was implemented to represent image features, while DWT was implemented to both represent features and compress images. Two models were created using SVM: one model implementing only DWT, and the other one implementing both DWT and DCT. The results showed that both DWT can well compress an image, and both DWT and DCT can be implemented to extract features from an image. However, the first model has a significantly lower accuracy rate compared to the second model. This suggests that implementing both DWT and DCT for feature extraction in a facial recognition process is more likely to produce a model with a higher accuracy rate. Furthermore, it is suggested that adding more data gives an opportunity to increase the facial recognition model's accuracy rate.

**Keywords** : facial recognition, facial detection, attendance system, Discrete Wavelet Transform, Discrete Cosine Transform, Support Vector Machine

**Reference** : 39 (1992-2020)