UNIVERSITAS TELKOM

ABSTRACT

School of Computing

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Master of Engineering

Strengthening Fingerprint Based Online User Authentication Scheme Using Dynamic Voice Biometric

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Recently, the fingerprint is used as an authentication component to prove the legitimacy of the parties involved. The character is unique, permanent, and universal favor the use of fingerprint in various areas as a trusted biometric authentication. Meanwhile, there is a possibility to attack the system by creating a fake fingerprint or called a spoofing attack. One method of spoofing attack was proposed by Anil K. Jain dan Tsutomu Matsumoto [1], [2]. That the attack was conducted by creating a fake fingerprint using silicon. Spoofing is considered harmful because it can decrease the security level and increase the risk of false acceptance. Based on those phenomena, is proposed the study to strengthening the fingerprint-based authentication system by adding the dynamic voice. In this study, Spectrum-based feature extraction is used to conduct a more accurate analysis from the physical and behavioral factors contain in the voice signal. In addition, the syllable-based voice template is used, such that it can be combined to be a new word to produce a variety of the voice. The result of the experiment shows the proposed system can strengthen the fingerprint-based authentication, more robust against spoofing attack, dan able to increase the variety of the words.