

Analisis dan Implementasi Sistem Pendeteksi Ijazah dan Transkrip Palsu dengan Menggunakan IPFS dan *Smart Contract Blockchain*

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Abstract

Falsification of diplomas/transcripts is one of the problems in education. In response to this, Lembaga Layanan Pendidikan Tinggi created a Sistem Verifikasi Ijazah Secara Online (SIVIL) and a Penomoran Ijazah Nasional Numbering (PIN) policy. The system still uses centralized storage, so it is vulnerable to attacks such as SQL injection, which endanger data. Therefore, the system developed in this research uses distributed storage to prevent these attacks. This system uses InterPlanetary File System (IPFS) to store data in a distributed manner and Smart Contracts Blockchain to store the diploma/transcript hashes. In knowing the system performance, a Quality of Service (QoS) test was carried out using throughput, packet loss, and delay parameters as well as analysis of the usage of Central Processing Unit (CPU) and Random Access Memory (RAM). Based on the research that has been done, the fake diploma/transcript detection system can be run properly by using 1 node to 5 nodes. The best throughput value during the process of making and validating the diploma/transcript is to use 1 node. The value of packet loss in the process of making and validating the certificate/transcript has a very good category. The value of delay in the process of making and validating the diploma/transcript has a very good category.

Keywords: IPFS, Blockchain, Diploma

