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Blockify

A Blockchain-Based Certificate Storing and Validation System

A dissertation by

Mr. Udul Sri Vibhavith Helambage

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Supervised by

Mr. Dinesh Asanka

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ABSTRACT

The advancement of technology has significantly increased the number of illicit acts committed on paper. Especially, when it comes to certificates which are a form of acknowledgement that shows a person's accomplishment or subject matter expertise. Forgery of certificates, posing a threat to the credibility of academic and professional achievements, organizations and society as a whole.

Even though the current validation systems are far beyond the traditional way of manually validating paper-based certificates, most of the existing systems rely on centralized authorities making them vulnerable to fraud acts and attacks. Some systems may contain users' personal information or data, rising concerns about data protection and privacy. Another drawback is these systems are not publicly available and may require specific software or permission to access the data.

To address this problem, this thesis proposes Blockify, a web portal (dApp) that can issue, store and validates certificates in the blockchain. By leveraging the inherent properties of blockchain technology including immutability, transparency, and security, the Blockify will provide a robust, tamper proof solution to certificate authentication and management. The solution is built on smart contracts, which enables the storage of certificate data and verification of the certificate's authenticity. The front-end is designed to be user-friendly, allowing easy uploading and verification of certificates. The proposed system is tested and evaluated, demonstrating its effectiveness in preventing certificate forgery and providing a trustworthy system for certificate storage and validation. The results of this study will contribute to the development of a decentralized infrastructure for secure and reliable certification processes.

KEYWORDS:

Blockchain, DApp, Decentralized, Certificate Validation, Non-Fungible-Tokens, Soul-Bound-Tokens.