A REPORT
ON

Blockchain-Based Certificate Generation & Validation System

Submitted by,

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Under the guidance of,

Dr. Nihar Ranjan Nayak

in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING [CYBERSECURITY]

At

GAIN MORE KNOWLEDGE
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PRESIDENCY UNIVERSITY

BENGALURU

MAY 2025

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PRESIDENCY SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Project report **"Blockchain-based Certificate Generation & Validation System"** being submitted by Mohammed Faiz, Sathvik U, Venkat Teja bearing roll number 20211CCS0063, 20211CCS0072, 20211CCS0079 in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering [Cybersecurity] is a bonafide work carried out under my supervision.
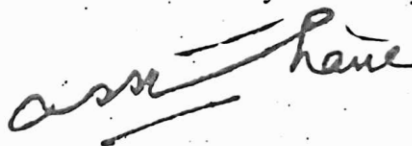
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DECLARATION

I hereby declare that the work, which is being presented in the report entitled "Blockchain-based Certificate Generation & Validation System" in partial fulfillment for the award of Degree of **Bachelor of Technology** in **Computer Science and Engineering [Cybersecurity]**, is a record of my own investigations carried under the guidance of **Dr. Nihar Ranjan Nayak**, Assistant Professor - Senior Scale, **Presidency School of Computer Science and Engineering, Presidency University, Bengaluru.**

I have not submitted the matter presented in this report anywhere for the award of any other Degree.

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ABSTRACT

The common methods of issuance and authentication of certificates are frequently subjected to forgery, ignore oversight, and untampered with enabling forgery of credentials in academic, professional and government regions. Jiminy due to the acceleration in digitalization, the demand for reliable and immutable and transparent verification systems to safeguards the accuracy and traceability of certificates increases.

Decentralized and immutability of blockchain is used to cryptographically sign and store digital certificates in a distributed ledger hence protecting them against tampering or unauthorized duplication. The proposed system allows the authorized institutions to do certificate issuance with efficiency and enables third parties such as an employer or academic institutions to authenticate these certificates in real-time via a third party-free environment.

By using smart contracts, the process of issuance is simplified as compliance is automatically enforced through minimising inaccuracies due to manual handling. It includes user-centric tools for verifying user identities, logging, and managed certificate revocation, artistically merged in an intuitive dashboard. With better certificate management and introduction of a transparent, verifiable, and scalable digital credential infrastructure, the proposed solution contributes to building confidence in the system. Adoption of this strategy comes with significant progress in the security of digital credentials and a realistic option for businesses to strengthen verification mechanisms with minimal fraud and administrative interference.