VeriChain Project

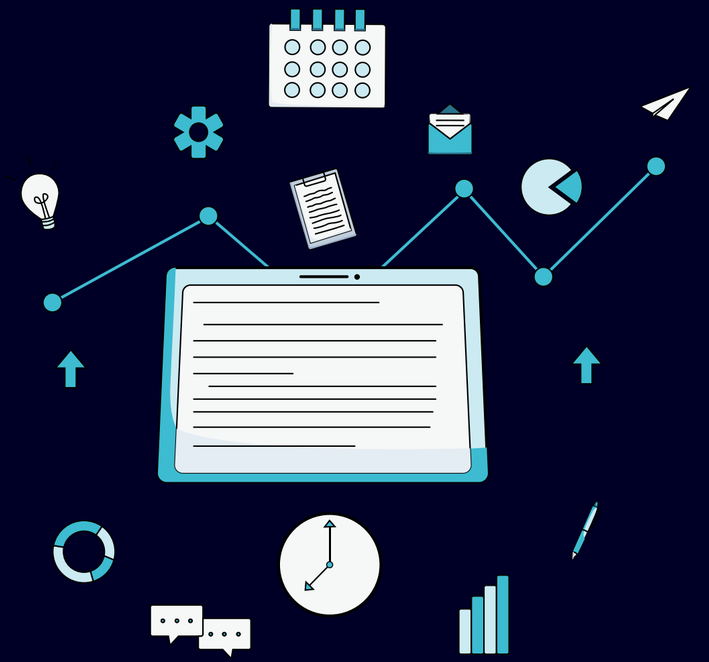
Hackathon Blockchain Solution

Introduction

This presentation covers the **VeriChain** project from HackOdisha5.0, focusing on its purpose, technology, and implementation, highlighting its capabilities in blockchain verification.

VeriChain revolutionizes academic credential verification by eliminating the $600M annual fraud problem through blockchain technology. This presentation showcases how we transform verification from weeks to seconds, ensuring tamper-proof credentials that universities can trust, students can own, and employers can verify instantly.

Project Overview



Purpose and Motivation

The project aims to provide a **trustworthy verification system** leveraging blockchain to ensure data integrity and transparency for various applications.

Core Features

🔒 Tamper-Proof

⚡ Instant

👤 Student-Owned

🛡️ Fraud-Free

Target Users

Designed for businesses and organizations seeking **secure data validation** and fraud prevention through decentralized verification.

🏛️ Universities: Instant issuing - Fraud elimination - Simple interface

🎓 Students: NFT ownership - Global sharing - Permanent records

💼 Employers: 3-second verification - Zero fraud - API integration

Technology Stack

- **Frontend :**

Modern, responsive UI with Web3 simulation.

- **Backend :**

RESTful API for credential management & analytics

- **Blockchain :**

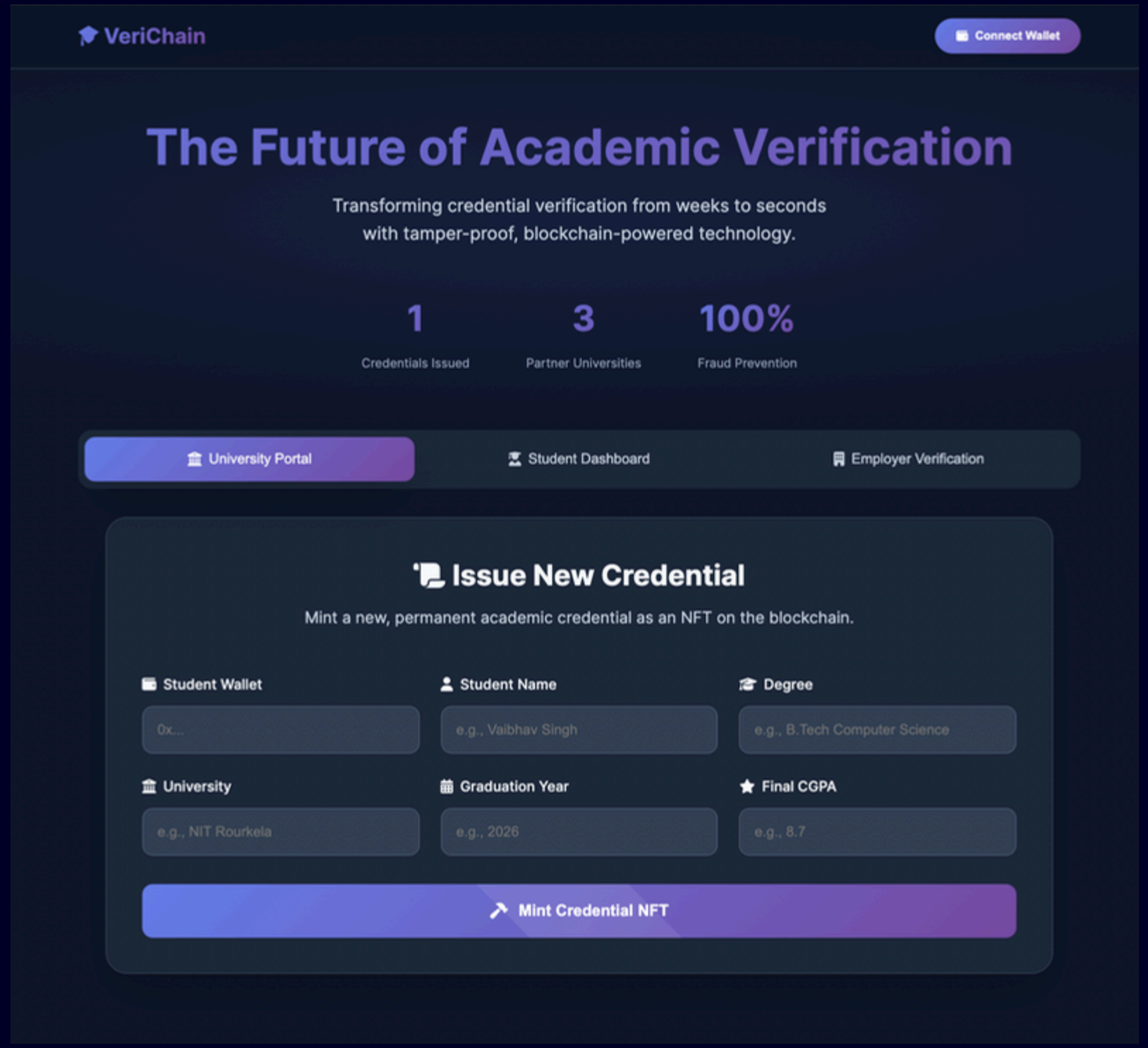
ERC-721 NFTs on Ethereum Sepolia testnet

- **Wallet :**

MetaMask integration for credential ownership

Frontend Design

The frontend uses responsive design principles and intuitive layouts to provide a seamless user experience, enhancing accessibility and ease of use.



Demo Walkthrough

Step 1: Connect Wallet ⚡

Action: Click “Connect Wallet”

Result: Generates demo address → Shows “Connected ✓”

Visual: Wallet address appears top-right

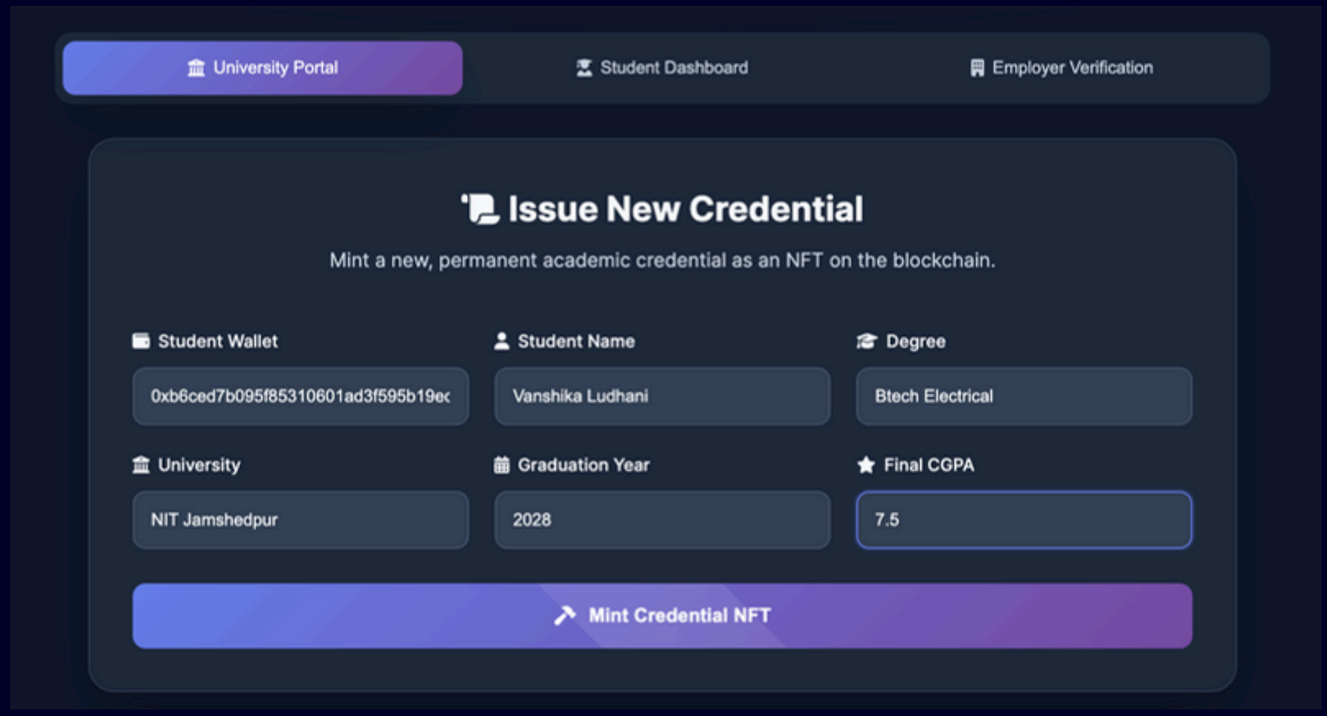
Step 2: University Issues Credential 🏛️

Navigate: University Portal tab

Fill Form: Student details (wallet, name, degree, year)

Action: Click “Mint Credential NFT”

Result: Permanent blockchain credential created

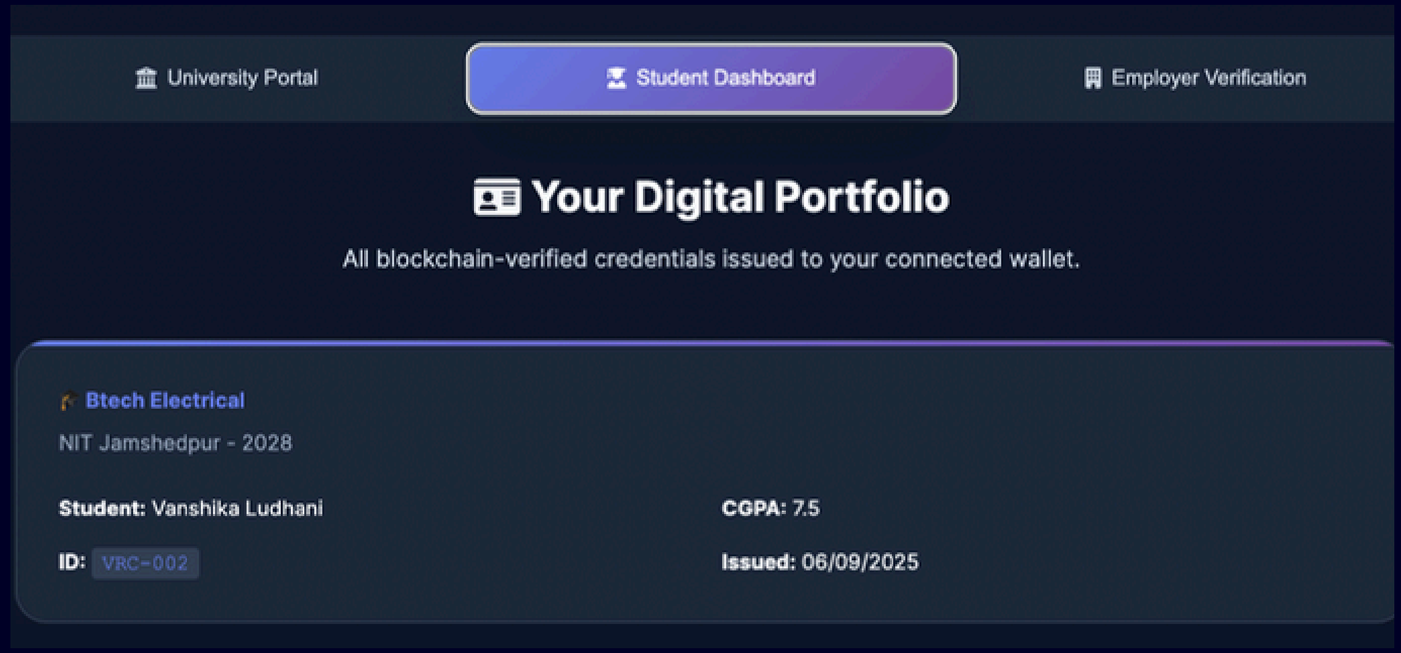


Step 3: Student Views Portfolio 🎓

Navigate: Student Dashboard tab

View: All credentials issued to connected wallet

Features: Credential cards with verification badges



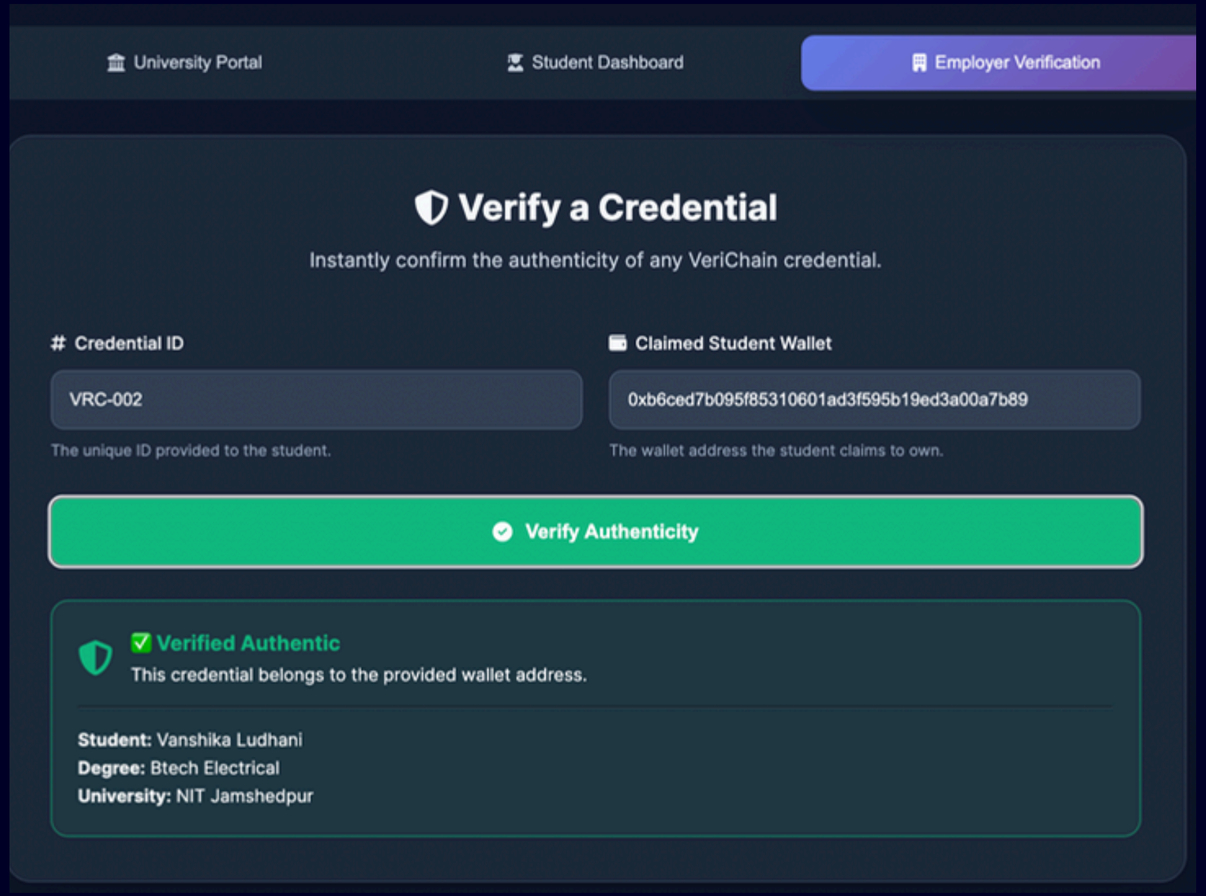
Step 4: Employer Verifies Instantly 💼

Navigate: Employer Verification tab

Input: Credential ID + Student wallet address

Action: Click “Verify Authenticity”

Result: Instant cryptographic proof in 3 seconds



Key Features

- Blockchain Issuance : Universities mint tamper-proof NFTs
- 3-Second Verification : Instant employer credential checks
- Student Ownership : Wallet-based credential control
- Clean Portfolio : Dashboard for credential management
- Fraud Prevention : Cryptographic proof + detection
- Real-Time Analytics :Usage metrics & security monitoring
- Responsive UI : Cross-device accessibility

Team

Vanshika Ludhani - Backend Development, Business Strategy

Vaibhav Singh - Frontend Development, Technical Architecture

Thankyou!