Woxsen Stock Exchange (WSE) Whitepaper

Title:- System and Method for Intra-Organizational Stock Exchange by Tokenizing Department Performance to Foster Innovation, Collaboration & Organisational Growth.

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Executive Summary

The Woxsen Stock Exchange (WSE) is an innovative, decentralised trading platform designed to foster learning, collaboration, and healthy competition among departments at Woxsen University. Primarily targeted at students, WSE provides a hands-on, immersive experience in financial markets and decentralised trading. The platform enables students to trade ERC-20 tokens that represent the university's various departments, creating a real-time marketplace that simulates the dynamics of a traditional stock exchange.

Each department within Woxsen University is assigned its unique token, whose value fluctuates based on the department's performance metrics, such as academic achievements, research contributions, event participation, and other defined KPIs. This mechanism transforms department performance into tangible assets, allowing students to gain a practical understanding of how value is generated and perceived in decentralised financial ecosystems. Additionally, transaction fees on the platform are paid in the WOX token, WSE’s utility token, which reinforces the platform's self-contained economy.

While the WSE platform serves as an educational tool for students to learn about trading and finance, it is equally designed to promote inter-departmental competition and collaboration. By tracking and tokenizing departmental performance, WSE encourages teams within the university to work together more efficiently, meet their goals, and strive for excellence. This competitive element not only fosters a sense of pride and accomplishment but also incentivizes departments to improve their standing in a friendly yet motivating environment.

Beyond Woxsen University, the WSE platform can be adapted for broader organisational use. By tokenizing and tracking departmental performance, the platform offers a versatile

solution that any organisation can adopt to monitor team progress, incentivize performance, and promote collaboration. Organisations can implement WSE as a tool for enhancing productivity, transparency, and engagement across various teams and departments.

In essence, the Woxsen Stock Exchange is more than an educational tool; it is a powerful, decentralised performance-tracking and collaboration platform. It aims to cultivate a culture of excellence, teamwork, and innovation, empowering students and departments to achieve more through friendly competition and mutual support.

Introduction

- **Background:** The Woxsen Stock Exchange was conceptualised to provide Woxsen University students with a practical trading experience through blockchain technology.
- **Problem Statement:** Traditional learning lacks real-world trading experiences, making it difficult for students to gain practical skills in finance and market analysis.
- **Objective:** The WSE platform serves as an educational tool that simulates real-life stock exchanges, offering insights into trading, portfolio management, and tokenomics.
- **Potential Impact:** By tokenizing department performance, WSE also serves as a performance-tracking mechanism for Woxsen University, reflecting the effectiveness of each department.

Technology and Concept Overview

- **Project Background:** WSE is built on the Ethereum blockchain using ERC-20 tokens for each department and the native WOX token for transaction fees.
- **Technical Terminology:**
    - **ERC-20 Tokens:** Standardised tokens on the Ethereum blockchain.
    - **Tokenomics:** Economic model underlying token allocation, distribution, and value.
    - **Decentralised Exchange (DEX):** A blockchain-based exchange without intermediaries.
- **Project Scope:** The platform supports the issuance and trading of departmental tokens, real-time performance evaluation, and fee payments via WOX tokens.

Technical Approach

- **System Architecture:**
  - WSE leverages a factory contract to create departmental tokens and a router contract to handle trading functions, similar to the Uniswap model.
  - Metamask wallet is integrated for user management and secure transactions.
- **Methodology:**
  - Department tokens are initialised and listed based on performance metrics.
  - Performance scores are calculated using factors like student count, faculty count, and research output (details in tokenomics).
- **Technical Challenges:**
  - Ensuring secure, gas-efficient trading operations.
  - Accurate performance tracking for department valuation.

Implementation Steps

- **Phases of Development:**
    - Phase 1: Token Development & Deployment (ERC-20 tokens for departments, WOX utility token)
    - Phase 2: Exchange Platform Setup (trading interface, portfolio management)
    - Phase 3: Performance Tracking and Reporting Dashboard
- **Resource Requirements:**
    - Development expertise in Solidity and smart contract deployment.
    - Integration with Ethereum-compatible wallets.
- **Testing and Validation:**
    - Unit testing of contracts, functional tests for exchange, and load testing for scalability.

Use Cases / Applications

- **Target Audience:** Woxsen University students, faculty, and administrative departments.
- **Potential Applications:**
    - Student education in decentralised trading.
    - Departmental performance tracking.
    - Token-based reward system for exceptional department performance.
- **Example Scenarios:**
    - Students trade tokens based on market sentiment and department performance.
    - Departments with high performance metrics see a rise in token value, providing motivation.

Benefits and Impact

- **Advantages:**
    - Real-time, decentralised platform for trading and performance evaluation.
    - Hands-on learning opportunity for students in blockchain, finance, and trading.
- **Industry Implications:**
    - Pioneering in education-focused tokenized exchanges.
- **Social/Environmental Benefits:**
    - Encourages departmental improvement, which indirectly benefits students' learning outcomes.

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9. Future Directions

- **Next Steps:**
    - Integrating AI for deeper performance analysis.
    - Expanding to external entities interested in Woxsen University's departmental performance.
- **Long-Term Vision:**
    - Building partnerships with other universities to create a decentralised education exchange.
- **Research Gaps:**
    - Exploration of more advanced pricing mechanisms to handle department token volatility.

TOKENOMICS

TYPES OF TOKENS (Utility)

1. WOX Token
2. Dept Token

TOKEN INFORMATION (WOX)

Type	ERC20
Ticker	WOX
Total Supply	100 M

Every new user gets 10 K Airdropped.
Mint Rate needs to be set.

TOKEN INFORMATION (Dept)

Type :	ERC20
Ticker :	MBABA (Business Analytics)
Total Supply :	10 M
Initial Circulating Supply :	47.25 %
Private Sale :	17.25 %
Public Sale	20%

TOKEN DISTRIBUTION

Entity	Supply(100%)	Unlocked (%)	Vested(%)	Vested Pace (%)	Vesting Duration(W)	No. Of Tokens
WOU	15 %	3.75 %	11.25 %	25 / Q	52 W	1.5 M
School	20 %	5 %	15 %	25 / Q	52 W	2 M
Dept	30 %	7.25 %	22.75 %	25 / Q	52 W	3 M
AIRC	5 %	1.25 %	3.75 %	25 / Q	52 W	0.5 M
Liquidity Pool	10 %	10 %	–	–	–	1 M
Token Sale	20 %	–	–	–	–	2 M

IPO Calculation :

Total Supply	10 M
Lot Size	200 tokens / Lot

Price Band Calculation

Input parameters with weights

1. Student count	w : 0.05
2. Faculty count	w : 0.05
3. Student performance	w : 0.1
4. Student placements	w : 0.1
5. Dept Research	w : 0.2
6. Patents	w : 0.2 [0.075 - published, 0.125 - granted]
7. Projects	w : 0.1
8. MOUs	w : 0.1
9. Events	w : 0.1

Calculating Strength
Strength Of P Pi = (Input - min_input) / (max_input - min_input) * 100
Note : min and max input value for each parameter should be specified based on school.

Calculating Performance Score

First we need to normalise the parameter values to their percentages. Any value given input should be normalised to be within 0 to 100.

Then we have the formula,

Performance Score (s) = w1p1 + w2p2 + w3p3 + … + w9p9.

Next thing we need to calculate is the Department Valuation.

Valuation = St_count_under_program * avg_fee + faculty_count * avg_sal

Now finally,

Pbase = Valuation / total_dept_supply
Price P = (s/100) * Pbase
Price_band = [P * 0.9, P * 1.1]

Example:

Input parameters

Students	70
Faculty	30
S_per	65
Placements	90
Research	80
Patent	70
Project	80
MOU	90
Events	40

[Note : All above values are strengths]

Performance Score = 0.05 * (70) + 0.05 * (30) + 0.1 * (65) + 0.1 * (90) + 0.2 * (80) + 0.2 * (70) + 0.1 * (80) + 0.1 * (90) + 0.1 * (40)

Performance Score (s) = 71.5

Valuation = 300 * 2000000 + 30 * 150000 [300 - total students in MBA program]
= 604500000

Pbase = valuation / total_dept_supply
= 604500000 / 10000000
= 60.45

Price P = (s/100) * Pbase
= (71.5 / 100) * 60.45
= 43.22

Price band = [P * 0.9, P * 1.1]
= 38.8 , 47.5
= [38 , 47]

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10. Conclusion

Woxsen Stock Exchange is a transformative initiative that merges decentralised finance with educational needs. It empowers students with practical skills, supports transparent departmental performance tracking, and positions Woxsen University as an innovator in blockchain-based education technology.

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11. References

- https://github.com/Uniswap/v3-core
- https://github.com/Uniswap/v3-sdk

- https://docs.uniswap.org/
- https://www.sportsverse.trade/roadmapPage

Data Flow Diagram:-