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URJASWAP

TRACK- OPEN INNOVATION

BY- TEAM ZERO



PROBLEM STATEMENT

To make open innovations in Blockchain & Crypto to improve transparency, decentralization and security in digital transactions and governance.

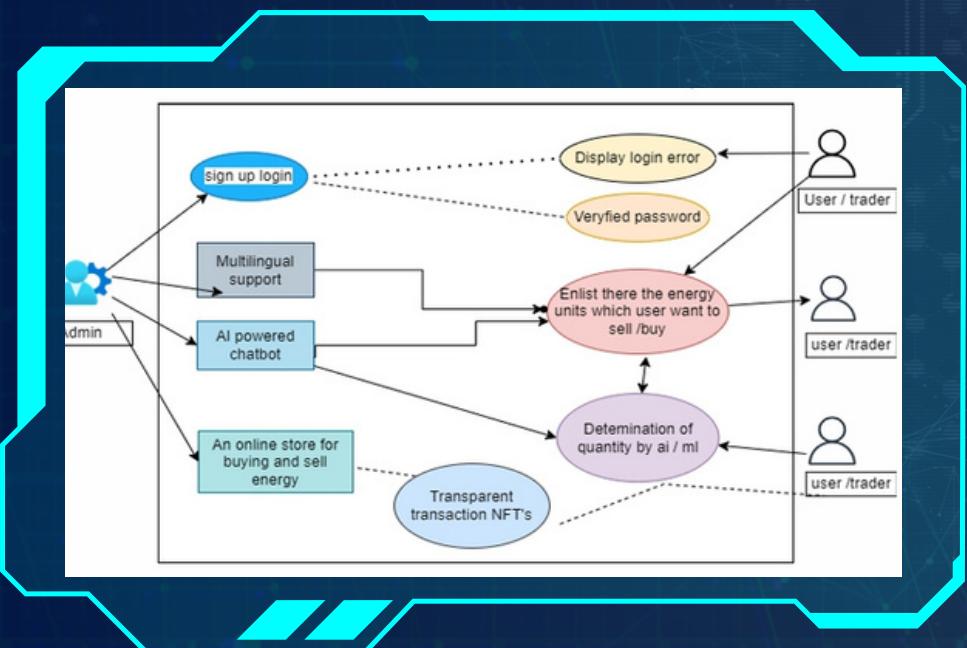


APPROACH

- ✓ Decentralization & Transparency – Blockchain ensures secure, tamper-proof, and trustless P2P energy trading.
- ✓ Real-Time Monitoring – IoT sensors track energy production and consumption, ensuring accurate data flow.
- ✓ AI/ML-Based Pricing – Algorithms adjust energy prices dynamically based on supply and demand for fairness.
- ✓ Smart Contracts & NFTs – Automate transactions, triggering trades when predefined energy thresholds are met.
- ✓ Scalability & Security – Robust cybersecurity and blockchain scalability ensure system efficiency and resilience
- ✓ Tokenized Energy Units – kWh-based tokens enable seamless transactions within the ecosystem. .



TECHNICAL APPROACH



1. IoT Integration: Smart meters use LoRaWAN/MQTT with AWS/Azure IoT Hub to track real-time energy production & consumption for accurate trading.
2. Decentralized Storage: IPFS/BigchainDB ensures secure, tamper-proof, and immutable energy transaction records.
3. AI/ML Analysis: Apache Spark, TensorFlow, H2O.ai predict energy demand & supply, optimizing grid efficiency for smarter trading.
4. Smart Contracts & Oracles: Solidity/IOTA/Chainlink enable automated energy trading using real-time data & AI insights.
5. Tokenization: Converts energy into ERC-20 tokens (kWh) and ERC-721/1155 NFTs for smart contracts and carbon credits.
6. Security & Privacy: zk-SNARKs, OpenZeppelin, Metamask ensure secure transactions, smart contracts, and user authentication.

BUSINESS MODEL



1. Revenue Streams:

Transaction Fees: Small fees on every energy trade.

Subscription Model: Premium features for businesses (data analytics, automation).

Government Partnerships: Selling surplus energy to the grid.

Carbon Credit Marketplace: Users earn and trade carbon credits for sustainability.

2. Market Target:

Residential solar panel owners & renewable energy producers.

Smart city projects and decentralized communities.

Businesses and industries adopting green energy.

3. Adoption Strategy:

Pilot Deployment: Start in a small community.

Educational Campaigns: Webinars & community awareness programs.

Incentives: Users get bonus tokens for onboarding & trading in the early stages.

IMPACTS AND BENEFITS

- **Energy Cost Savings:** The platform helps consumers lower their energy expenses by optimizing energy usage and providing access to affordable local energy options.
- **Community-Driven Energy Solutions:** By promoting local energy generation and trading, the platform empowers communities to have a say in their energy choices.
- **Promotion of Renewable Energy:** The platform encourages the use of renewable energy, reducing reliance on fossil fuels and fostering sustainability.
- **Revenue Growth for Small Producers:** It offers small-scale energy producers better market access, increasing their revenue potential.
- **Cost-Effective and Scalable:** It lowers transaction fees, supports market-driven pricing, and can easily expand across regions with minimal adjustments.



UNIQUE SELLING PROPOSITION (USP)

1.

Decentralized Peer-to-Peer (P2P) Energy Trading

No middlemen, full transparency.

2.

Zero Transaction Fees (IOTA Blockchain)

Unlike Ethereum, UrjaSwap is feeless & scalable.

3.

AI-Powered Smart Pricing

Real-time energy pricing based on demand & supply.

4.

IoT Smart Meters Integration

Enables automated, secure, real-time transactions.

5.

Green Energy Incentives (Carbon Credit NFTs)

Users earn rewards for sustainable energy usage.

6.

Cross-Border & Multi-Region Trading

Expands beyond local grids to global markets.



THANK YOU!

