

# Crypto Portfolio Tracker with Web3 Integration

# Abstract

- This project presents a Web3-integrated crypto portfolio tracker designed to provide real-time insights into digital assets across multiple blockchains. It supports secure wallet connections (MetaMask, WalletConnect) and retrieves balances via Web3 APIs. The system integrates AI for diversification, forecasting, and risk analysis, making decentralized portfolio management efficient and transparent.

# Introduction

- Cryptocurrencies are reshaping the financial ecosystem.
- Managing assets across multiple wallets is complex.
- Existing tools are centralized or lack transparency.
- The proposed solution uses Web3 + AI to provide secure, real-time tracking.

# Existing System

- Centralized platforms depend on exchange APIs.
- Risk of privacy loss and data breaches.
- Limited blockchain support and no AI insights.
- Manual or delayed updates in portfolio data.

# Proposed System

- Decentralized Web3-based portfolio tracker.
- Connects via MetaMask/WalletConnect securely.
- Multi-chain support (Ethereum, BSC, Polygon).
- AI module for diversification, forecasting, and portfolio health scoring.

# System Architecture

- Layers:
  - 1. UI Layer – React + Tailwind (PWA)
  - 2. Backend – Node.js/Express
  - 3. Web3 Layer – Ethereum, Polygon, BSC
  - 4. AI Layer – Python (LSTM, MPT)
  - 5. Database – MongoDB

# Data Flow

- 1. User connects wallet (MetaMask/WalletConnect)
- 2. Web3 layer retrieves on-chain balances
- 3. Backend processes & syncs data via APIs
- 4. AI engine performs risk & trend analysis
- 5. UI visualizes portfolio insights in real time

# Comparison: Existing vs Proposed

- Existing Systems:
  - Centralized storage
  - Limited analytics
  - Security risks
- Proposed System:
  - Decentralized Web3 login
  - AI-driven analytics
  - Real-time, multi-chain support

# Key Features

- Real-time wallet & token tracking
- Cross-chain portfolio management
- Interactive charts & performance insights
- AI-based diversification and forecasting
- Tax & profit/loss calculator

# Future Scope

- NFT and DeFi analytics integration
- Mobile-native version for Android/iOS
- Predictive portfolio rebalancing
- Integration with decentralized exchanges

# Conclusion

- The project demonstrates how blockchain and AI can merge to create a secure and intelligent portfolio management system. It enhances transparency, autonomy, and decision-making for decentralized investors.

# References

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- [2] Rane, N. et al., 2023 – Blockchain and AI integration.
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- [4] PyPortfolioOpt Library, 2025.